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AUTOMATIC IDENTIFICATION OF FACE USING GRAPH ALGORITHM

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ABSTRACT

Automatic identification of face in movies has drawn important concept research interests and led to interesting applications. It is a challenging problem due to the many variation in the appearance of each face. Although demonstrate promising results in best environment, the performances are restricted in complex movie scenes due to the noises produced during the face tracking and face clustering process. we present two schemes of global face-name matching based framework for face identification. The contributions of this work include the following. 1) A Babel dead sign attachment model is include. 2) We launch an edit control dependent on graph algorithm. 3) Complicated face changes are deal with coinciding graph division and graph coincide. 4) Beyond existence type identify application, we accessory execute an in-depth sensitive analysis by launching two types of simulated shouting. The aim schemes demonstrate state execute on movie face identification in many generous of movies.

KEYWORDS
Tracking, framework, coincide, shouting, generous.

1. INTRODUCTION

1.1 MOTIVATION

The proliferations of movies and TV provide large amount of digital data. This has led to the requirement of efficient and effective technique for video contents understand and collected. Automatic annotations are key technique. Focus is on annotations characters in the movie and TVs, called movies character identification. The objectives are to identify the faces of the characters in the videos and label them with the corresponded name in the casts. The textual cue, like cast, scripts, subtitles and closed captions are usually exploited. In a movie, character are the focus center of interest for the audience. Their occurrence provides lot of clue about the movie structures and contents. Automatic character identifications is essential for semantic movie index and retrieval scene segmentations, summarizations and other application. Character identification, though very intuition to humans is a shocking challenges task in computerized vision. The reasons are four: 1) Weak supervised text cue. There are ambiguity problems in establishing the related between names and faces: ambiguity can arise from a action shot where the person saying may not be shown in the frame ; ambiguity can also arises in partial label frames when there are many speakers in scene. 2) Face identifications in video is more complex than in images. Low resolution, occlusion, non rigid deformations, large motion, complex culture and other not control state make the issue of face tracking and route not reliable. In movie, the spot is even worse. This brought inevitable sounds to the character identification. 3) The same character comes quite differently during the movie. There may be large pose, expressions and illumination variations, wearing, clothing, even makeup and hair changes. Many, characters in few movies go through various age stage, e.g., from youth to old age. Sometime, there will even be different actors playing various ages of the same type. 4) The determination for the number of identical faces is not trivial .Due to the remarkable intra-class variances the same character name will correspond to faces of variation appearances. It will be not reasonable to set the number of identical faces just consider to the number of symbol in the cast. Our study is motivated by these challenging and aims to find solutions for a robust framework for movie character identification.

In this paper is going to explain the Robust Face identification for Movie type and how we did the face detection and recognition in it. The images will explain about the Movie fetching details.

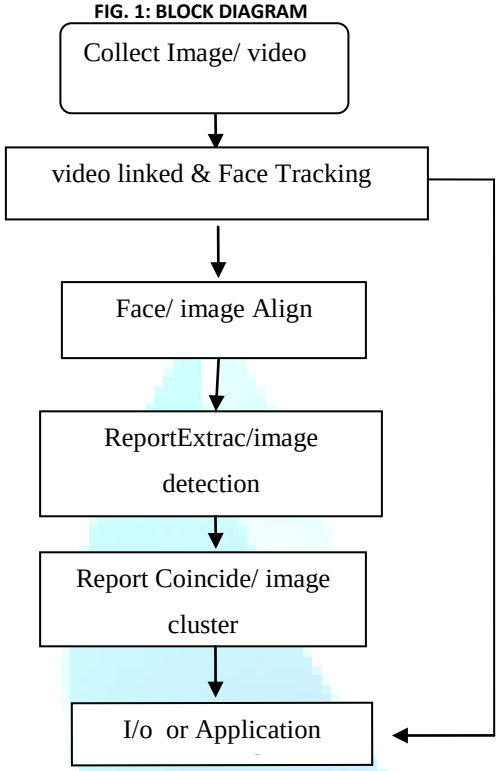
Data flows are data structures in motion, while data stores are data structures. Data flows are paths or 'pipe lines', along which data structures travel, where as the data stores are place where data structures are kept until needed.

Data flow diagrams is a very handy tool for the system analyst because it gives the analyst the overall picture of the system, it is a diagrammatic approach.

A DFD is a pictorial representation of the path which data takes from its initial interaction with the existing system until it completes any interaction. The diagram will describe the logical data flows dealing the movements of any physical items. The DFD also gives the insight into the data that is used in the system i.e., who actually uses it is temporarily stored.

BLOCK DIAGRAM

FIG. 1: BLOCK DIAGRAM



2. BLOCK DIAGRAM CONSIST OF TECHNIQUES

1. video linked
2. image included
3. image detection
4. image cluster
5. Recognition of image

2.1 VIDEO LINKED

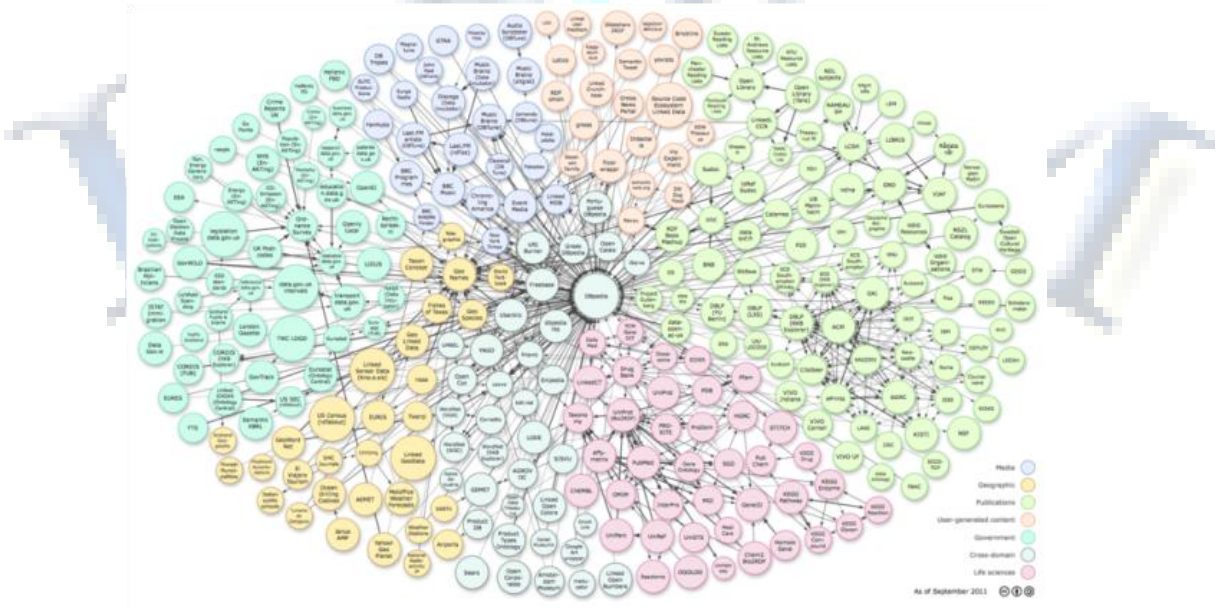
In a video attach to collect the video file what we fix the Image. The video files are selected in a local device or a network device. The image Links techniques they have supported all the video formats they are .Avi, .Mp4, .3gp etc.., Face Tracking is done.

video linked data (often capitalized as Linked Data) describes a method of publishing structured data so that it can be interlinked and become more useful through semantic queries. It builds upon standard Web technologies such as http ,rd f & url but rather than using them to serve web pages for human readers, it extends them to share information in a way that can be read automatically by computers. This enables data from different sources to be connected.

2.1.1 FOUR PRINCIPLES OF LINKED DATA & DESIGN ISSUES

1. Use URLS to denote things.
2. Use http, URIs so that these things can be referred to and looked up ("de referenced") by people and user agents.
3. Provide useful information about the thing when its URI is de referenced, leveraging standards such as RDF,SPARQL.
4. Include links to other related things (using their URIs) when publishing data on the Web
5. Linking Open Data community is to extend the Web with a data commons by publishing various open dataset as RDF on the Web and by setting RDF links between data items from different data sources.

FIG. 2: VIDEO LINK DATA



2.2 IMAGE INCLUDED

In this paper we are adding the image in a moving video. That means we just stop the video and include the image in an add any names for it. The image is selected and continues to fix another image. The images are fetched and store in a database. Data base consist of many format (eg grid) its easy to track the image structure and also algorithm, which is used to different between single and multiple image groups. The data URI scheme is a URL scheme that provides a way to include data in-line in webpage as if they were external resources. It is a form of file literal This technique allows normally separate elements such as images and style sheets to be fetched in a single HTTP request. Data URIs tends to be simpler than other inclusion methods, such as MIME with cid or mid URIs. Data URIs are sometimes called URL, although they do not actually locate anything remote.

2.2.1 ADVANTAGES

HTTP request and header traffic is not required for embedded data, so data URIs consume less bandwidth whenever the overhead of encoding the inline content as a data URI is smaller than the HTTP overhead. For example, the required base64 encoding for an image 600 bytes long would be 800 bytes, so if an HTTP request required more than 200 bytes of overhead, the data URI would be more efficient.

For transferring many small files (less than a few kilobytes each), this can be faster TCP transfers tend to start slowly. If each file requires a new TCP connection, the transfer speed is limited by the round-trip time rather than the available bandwidth. Using HTTP keep-alive improves the situation, but may not entirely alleviate the bottleneck.

While web browsers will not cache inline-loaded data as separate resource, external CSS files using data URIs are cached, so that an external CSS file with 10 background-images embedded as data URIs requires only one initial request instead of eleven and subsequent requests require only retrieving one cached CSS file, instead of one CSS file plus ten cached images.

When browsing a secure HTTP web site, web browsers commonly require that all elements of a web page be downloaded over secure connections, or the user will be notified of reduced security due to a mixture of secure and insecure elements. On badly configured servers, HTTPS requests have significant overhead over common HTTP requests, so embedding data in data URIs may improve speed in this case.

Web browsers are usually configured to make only a certain number of concurrent HTTP connections to a domain (the IETE recommendation is "to be conservative", most current browsers use 6 or more) so inline data frees up a download connection for other content.

2.2.2 DISADVANTAGES

- Data URIs are not separately cached from their containing documents (e.g. CSS or HTML files), therefore the encoded data is downloaded every time the containing documents are re-downloaded.
- Content must be re-encoded and re-embedded every time a change is made.
- Internet explorer through version7 (less than 1% of web traffic as of June 2014), lacks support. However this can be overcome by serving browser-specific content.
- Internet Explorer 8 limits data URIs to a maximum length of 32 KB. (Internet Explorer 9 does not have this limitation).

2.3 IMAGE DETECTION

we are going to detect the face of the movie characters. In this a module we are using the emgu0cv library we must install the emgu1cv library. After installing the emgu1cv lib in our concept we need to add reference with the name emgu.2cv, emgu1.cv.util, emgu.1cv.ui.

When you will complete the references will get in the emgu1 controls. Most segmentation methods are based only on color information of pixels in the image. Humans use much more knowledge than this when doing image segmentation, but implementing this knowledge would cost considerable computation time and would require a huge domain-knowledge database, which is currently not available. In addition to traditional segmentation methods, there are trainable segmentation methods which can model some of this knowledge.

Neural Network segmentation relies on processing small areas of an image using an artificial neural network or a set of neural networks. After such processing the decision-making mechanism marks the areas of an image accordingly to the category recognized by the neural network.

Pulse coupled neural networks(PCNNS) are neural models proposed by modeling a cat's visual cortex and developed for high-performance bio mimetic image processing. In 1989, Eckhorn introduced a neural model to emulate the mechanism of a cat's visual cortex. The Eckhorn model provided a simple and effective tool for studying the visual cortex of small mammals, and was soon recognized as having significant application potential in image processing. In 1994, the Eckhorn model was adapted to be an image processing algorithm by Johnson, who termed this algorithm Pulse-Coupled Neural Network. Over the past decade, PCNNs have been utilized for a variety of image processing applications, including: image segmentation, feature generation, face extraction, motion detection, region growing, noise reduction, and so on.

A PCNN is a two-dimensional neural network. Each neuron in the network corresponds to one pixel in an input image, receiving its corresponding pixel's color information (e.g. intensity) as an external stimulus. Each neuron also connects with its neighboring neurons, receiving local stimuli from them. The external and local stimuli are combined in an internal activation system, which accumulates the stimuli until it exceeds a dynamic threshold, resulting in a pulse output.

Through iterative computation, PCNN neurons produce temporal series of pulse outputs. The temporal series of pulse outputs contain information of input images and can be utilized for various image processing applications, such as image segmentation and feature generation. Compared with conventional image processing means, PCNNs have several significant merits, including robustness against noise, independence of geometric variations in input patterns, capability of bridging minor intensity variations in input patterns, etc.

2.3.1 HISTOGRAM BASED METHOD

Histogram based methods are very efficient compared to other image segmentation methods because they typically require only one pass through the pixels. In this technique, a histogram is computed from all of the pixels in the image, and the peaks and valleys in the histogram are used to locate the clusters in the image. color or intensity can be used as the measure.

A refinement of this technique is to recursively apply the histogram-seeking method to clusters in the image in order to divide them into smaller clusters. One disadvantage of the histogram-seeking method is that it may be difficult to identify significant peaks and valleys in the image.

Histogram-based approaches can also be quickly adapted to apply to multiple frames, while maintaining their single pass efficiency. The histogram can be done in multiple fashions when multiple frames are considered. The same approach that is taken with one frame can be applied to multiple, and after the results are merged, peaks and valleys that were previously difficult to identify are more likely to be distinguishable. The histogram can also be applied on a per-pixel basis where the resulting information is used to determine the most frequent color for the pixel location. This approach segments based on active objects and a static environment, resulting in a different type of segmentation useful in video tracking.

2.3.2 COMPRESSION BASED METHOD

Compression based methods postulate that the optimal segmentation is the one that minimizes, over all possible segmentations, the coding length of the data. The connection between these two concepts is that segmentation tries to find patterns in an image and any regularity in the image can be used to compress it. The method describes each segment by its texture and boundary shape. Each of these components is modeled by a probability distribution function and its coding length is computed as follows:

1. The boundary encoding leverages the fact that regions in natural images tend to have a smooth contour. This prior is used by Huffman coding to encode the difference chain code of the contours in an image. Thus, the smoother a boundary is, the shorter coding length it attains.
2. Texture is encoded by loss compression in a way similar to minimum description (MDL) principle, but here the length of the data given the model is approximated by the number of samples times the entropy of the model.

Multivariate normal distribution whose entropy has closed form expression. An interesting property of this model is that the estimated entropy bounds the true entropy of the data from above. This is because among all distributions with a given mean and covariance, normal distribution has the largest entropy. Thus, the true coding length cannot be more than what the algorithm tries to minimize.

2.4 IMAGE CLUSTER

Face cluster modules to group all the detected face in a one place. The concept of cluster is grouping the objects. The detecting faces are stored in a random name and collect all the face images in a one directory this is main use in face cluster concepts.

2.5.RECOGNITION

We are going to recognize the face of the movie type which is we previously stored on the grid database. We just found that the give the real name of it or any other to it. This is going to be done here. we are using the help of these Eigen Object Recognizer we are going to recognize the image shape. The classical problem in computer vision, image processing, and machine vision is that of determining whether or not the image data contains some specific object, feature, or activity. Different varieties of the recognition problem are described in the literature:

- Object recognition (also called object classification) – one or several pre-specified or learned objects or object classes can be recognized, usually together with their 2D positions in the image or 3D poses in the scene. Google provides a stand-alone program illustration of this function.
- Identification – an individual instance of an object is recognized. Examples include identification of a specific person's face or fingerprint, identification of hunt written digits, or identification of a specific vehicle.
- Detection – the image data are scanned for a specific condition. Examples include detection of possible abnormal cells or tissues in medical images or detection of a vehicle in an automatic road toll system

Detection based on relatively simple and fast computations is sometimes used for finding smaller regions of interesting image data which can be further analyzed by more computationally demanding techniques to produce a correct interpretation. Currently, the best algorithms for such tasks are based on convolution neural networks.

An illustration of their capabilities is given by the Image Net Large Scale Visual Recognition Challenge; this is a benchmark in object classes. Performance of convolution neural networks, on the Image Net tests, is now close to that of humans. romance of the Image Net tests, is now close to that of humans.

Several specialized tasks based on recognition exist, such as:

- Content based image retrieval – finding all images in a larger set of images which have a specific content. The content can be specified in different ways, for example in terms of similarity relative a target image (give me all images similar to image X), or in terms of high-level search criteria given as text input (give me all images which contains many houses, are taken during winter, and have no cars in them).
- Pose estimation – estimating the position or orientation of a specific object relative to the camera. An example application for this technique would be assisting a robot arm in retrieving objects from a conveyor belt in an assembly line situation or picking parts from a bin.
- Optical character recognition (OCR) – identifying characters in images of printed or handwritten text, usually with a view to encoding the text in a format more amenable to editing or indexing (e.g. ASCII).
- 2D Code reading of 2D codes such as data matrix and QR codes.
- Facial recognition Shape recognition technology (SRT) in people counter systems differentiating human beings (head and shoulder patterns) from objects.

3. SYSTEM ANALYSIS

In this paper is used to detect the face of movie type and recognize the characters and the existing system are taking the too much time to detects the face. But this one we can do it in a minute process.

In the previous process the time taken for detecting face is too long in windows processed .In this Robust Face identification using Movie is used to detect the face of movie characters and the Proposed system is taking the minimum time to detected the face. In this one we can do it in a minute process.

In the process the time taken for detecting face in minimum (min) time only in windows processed. The input design is the link between the information system and user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly to the system. The design of input focuses on controlling the amount of inputs required, controlling the errors, avoids delay, avoiding extra steps and keeping the techniques simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy.

Input Design consider the following things:

1. What data should be given as inputs?
2. How the data should be arrange or codes?
3. The speech to guide the operation personnel in provides inputs.
4. Method for preparing input validation and steps to follow when errors occur.

Input Design is the process of converting a user-oriented description of the input into a computerized-based system. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.

It is achieved by creating user-friendly screens for the data entry to handle large volumes of data. The goal of designs input is to make data entry easier and to be escape from errors. The data entry screen is designed in such a way that all the data manipulates can to be performed. Its provides record viewing facilities.

When the data is entered it will check to its validity. Data can be entered with the aid of screens. Appropriate messages are provided as when needed so that the user will not be in maize's of instant. Thus the objective of input design is to create an input layout that is easy to follow.

A quality output is one, which meets the requirements of the end user and presents the concept clearly. In any system results of processing are communicated to the users and to other system through the outputs. In output design it is determined how the information is to be displaced for immediate need and complex copy of output. It is the most important and direct source content to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

Designing computer output should proceed in an organizes, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and to effectively. When analysis design system output, they should Identify the specific output that is needed to meet the requirements.

Select methods for presenting content prepare document, report, or other formats that contain information produced to the system. The output form of an information system should accomplish one or more of the following objectives.

Convey information about later activities, current status or projections

1. Signal important events, opportunity, problems, or warnings.
2. Trigger an action.
3. Confirm an action.

4. ALGORITHM

The hop crafts carp (g=(v1 U v2,E)) alg is given as

M=0

Repeat

P=maximum set of paths(g=(v1 U v2 ,E) m)

If p! =null then

M=m + p

Until p=null

Return m

4.1 ALGORITHM

An algorithm is an effective methods list of well-defined instructions for calculating a function. Starting from an initial state and initial input , the instruction describes a computations that, when executes , proceeds through a finite number of well-defined successive states, eventually producing output and terminating at a final ending state.

4.2 PROPERITIES OF THE ALGORITHMS

1. Finiteness: An algorithm terminates after a finite numbers of steps.
2. Definiteness: Each step in algorithm is unambiguous. This means that the action specified by the step cannot be interpreted (explain the meaning of) in multiple ways & can be performed without any confusion.
3. Input: An algorithm accepts zero or more inputs.
4. Output: It can produces at least one output.
5. Effectiveness: It consists of basic instructions that are realizable. This means that the instructions can be performed by using the given inputs in a finite amount of time.

4.3 ADVANTAGE

The term algorithm is now applied to many kinds of problem solving that employ a mechanical sequence of steps, as in setting up a computer program. The sequence may be displayed in the form of a flowchart in order to make it easier to follow.

In computational devices with a built-in microcomputer logic, this logic is a form of algorithm.

As computers increase in complexity, more and more software algorithms are taking the form of what is called hard software. That is, they are increasingly becoming part of the basic circuitry of computers or are easily attached adjuncts, as well as standing alone in special devices such as payroll machines. Many different applications algorithms are now available, and highly advanced systems such as artificial intelligence algorithms may become common in the future.

5. CONCLUSION

We have shown that the proposed two schemes are useful to improve results for clustering and identification of the Image tracks extracted from not controlled image videos. From the sensitive analysis, we have also shown that few degree, have good robust to noise in constructing affinity graphs than the traditional methods. A conclusion is a principle for developing robust type identification method: intensity a like noises must be emphasized more than the coverage alike noises. In the future, we will extend to investigate the optimal function for different movie generous. Another goal is to exploit more character relations, e.g., the sequential statistics for the speaks, affinity graphs and improve the robustness.

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A SURVEY ON ONTOLOGY MEDIATION TOOLS

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ABSTRACT

Ontology mediation is enabled through interoperability of semantic data sources. It helps data sharing between heterogeneous knowledgebase and reuse by semantic applications. Ontology mediation includes operations such as, mapping, alignment, matching, merging and integration. After briefly describing these operations, this study selectively discusses set of methods, tools and data integration systems. It provides the researchers a comprehensive understanding of methods and tools intended for ontology mediation.

KEYWORDS

Ontology Mapping, Ontology Alignment, Ontology Merging, Ontology Integration and Ontology Mismatch.

I. INTRODUCTION

In any semantic solution, data is annotated using ontologies. Ontologies are shared specifications and therefore the same ontologies can be used for the annotation of multiple data sources, like web pages, XML documents, relational databases and so on. Their shared terminologies enable a certain degree of interoperability between the data sources using the same ontologies. To enable such an interoperation, mediation is required between the ontologies.

A. TERMINOLOGIES

An ontology mapping M is a declarative specification of the semantic overlap between two ontologies OS and OT. The correspondences between different entities of the two ontologies are typically expressed using some axioms formulated in a specific mapping language. Mapping can be unidirectional or bi-directional. The different phases in the generic mapping process as in[1] is shown in Fig. 1.

B. IMPORT OF ONTOLOGIES

Ontologies can be specified in different languages, which indicate a need to convert them to a common format so that the mapping can be specified. Furthermore, the ontologies need to be imported in the tool, which is used to specify the mapping.

Finding Similarities: Many systems use the match operator to automatically find similarities between ontologies. For any two-source ontology, the match operator returns the similarities between ontologies.

Specifying Mapping: After similarities between ontologies have been found, the mapping between the ontologies needs to be specified.

FIG. 1: MAPPING PROCESS

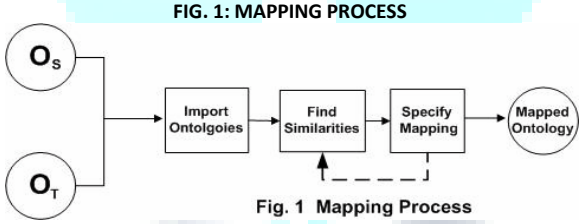


Fig. 1 Mapping Process

The automated or semi-automated discovery of correspondences between two ontologies is called ontology alignment. Ontology alignment is the task of creating links between two original ontologies. Ontology alignment is made, if the sources found to be consistent with each other, but are kept separate or when sources are from the complementary domains. Ontology matching is the process of discovering similarities between two source ontologies. The result of matching operation is a specification of similarities between two ontologies. Ontology matching is carried out through the application of match operator [2].

In ontology merging a new ontology is created which is the union of source ontologies in order to capture all the knowledge from the original ontologies. There are two different approaches in ontology merging. In the first approach, the input of the merging process is a collection of ontologies and the outcome is a one new merged ontology which captures the original ontologies, as given in Fig. 2.

In the second approach the original ontologies are not replaced, but rather a view called bridge ontology is created which imports the original ontologies and specifies the correspondence using bridge axioms as in Fig. 3.

Ontology integration is the process of generating a single ontology in one subject from two or more existing and different ontologies in different subjects. The different subjects of the different ontologies may be related. Some change is expected in a single integrated ontology [3].

FIG. 2: OUTPUT OF MERGING PROCESS (APPROACH 1)

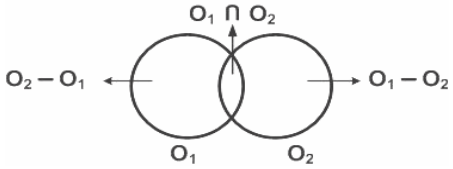
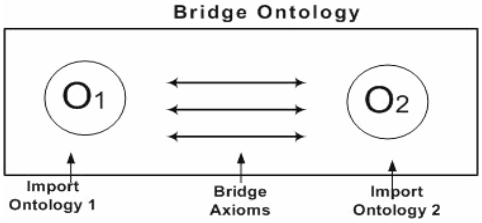


FIG. 3: OUTPUT OF MERGING PROCESS (APPROACH 2)



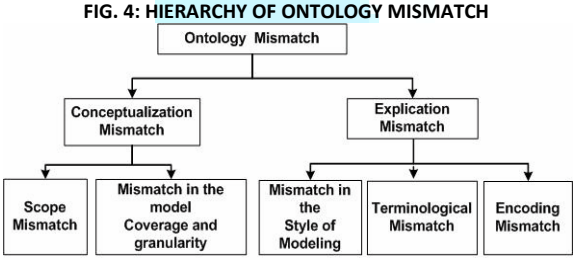
C. ONTOLOGY MISMATCHES

An important issue in the approaches of ontology mediation is the location and specification of the overlap and the mismatches between concepts, relations, and instances in different ontologies are conceptualization mismatches and explication mismatches. The hierarchy of ontology mismatch is given in Fig. 4.

Conceptualization mismatches are mismatches of different conceptualization of the same domain. Conceptualization mismatches fall in two categories; namely a scope mismatch and a mismatch in the model coverage and granularity. A scope mismatch occurs when two classes have some overlap in their extensions (the set of instances), but the extensions are not exactly the same. There is a mismatch in the model coverage and granularity, if there is a difference in (a) the part of domain that is covered by both ontologies (for example, the ontologies of university employees and the students), or (b) the level of detail with which the model is covered (for example, one ontology might have one concept 'person', whereas another ontology distinguishes between young person, middle-aged person and old person).

Explication mismatches are mismatches in the way of specifying a conceptualization. Explication mismatches fall in three categories namely mismatch in the style of modeling, terminology mismatch and encoding mismatch. A mismatch in the style of modeling occurs if either (a) the paradigm used to specify a certain concepts is different (for example, time specified in intervals is different from the time specified in points in time), or (b) the way the concept is described differs (for example, using subclasses versus attributes to distinguish groups of instances).

FIG. 4: HIERARCHY OF ONTOLOGY MISMATCH



A terminological mismatch occurs when two concepts are equivalent, but they are represented using different names (Synonyms) or when the same name is used for different concepts (Homonyms). An encoding mismatch occurs when values in different ontologies are encoded in a different way (for example, distance measure specified in kilometers and miles).

D. A COMPARISON ON ONTOLOGY MEDIATION TOOLS AND SYSTEMS

A specific framework does not exist for comparison of ontology mediation tools [5] nor direct comparison of ontology mediation tools be possible [6]. But the set of criteria to compare the ontology mediation tools is proposed as in [1,3]. The comparison of tools on ontology mediation is made on the following criteria, namely input and output requirements, level of user interaction, ontology language, mapping concepts, automation support, and the level of implementation.

II. MATERIALS AND METHODS

A. RDFT

RDFT[7] is an approach to the integration of product information over the web by exploiting the data model of RDF[8], which is based on direct labeled graphs. This approach assumed that the product catalogs from different organizations are specified in XML (eXtended Markup Language) document. Different organizations use different representations for their product catalogs and hence RDF triples are used to mediate between the different representations.

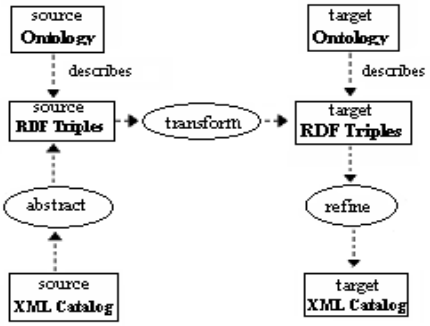
RDF triples consist of a subject, a predicate and an object. Subjects and objects form the nodes of the graph, where as predicates form the edges. An object in the triple can occur as a subject or an object of a different triple.

The approach to the integration of product catalogs is called two layered because the product information itself is represented in XML, whereas the transformation between different representations is done in RDF.

There are three transformation steps. In the first step the XML document whose structure is described by a DTD document (Document Type Definition) or XML schema is a*bstracted* to an RDF graph which is described by ontology in turn, that could be specified using RDF schema [9] ontology language. In the second step the RDF document is *transformed* into a target representation which is also described by ontology. In the third step the target RDF is *refined* to the target XML representation that can be used by the applications at the target vendor.

All the three transformation steps are performed by XML transformation language XSLT (XSL Transformation) [10]. The process of abstraction, transformation and refinement is illustrated in Fig. 5.

FIG. 5: TWO LAYERED INTEGRATION OF XML CATALOGS USING RDF



A mapping Meta-ontology is proposed in for describing the transformation between RDF documents. The mapping of Meta ontology is called RDFT (RDF Transformation) is specified using RDF schema[9] and used to describe the mapping between two RDFS ontologies. A technique for discovering semantic correspondence between different products classification schema based on a **Naïve-Bayes classifier** is described in[12]. The mapping between the different

products classifications are represented using the bridges from the RDFT meta-ontology. RDFT can be used to express mappings between the arbitrary ontologies specified in the RDF schema ontology language. And also it is used to specify the transformation between XML document and the RDF representation.

B. OMEN

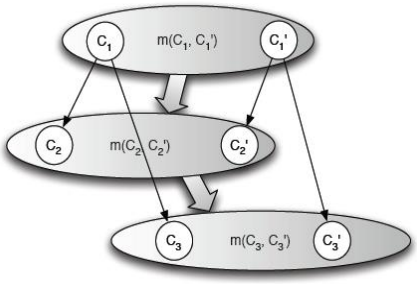
OMEN is an Ontology Mapping ENhancer which uses a set of meta-rules that captures the influence of the ontology structure and the semantics of ontology relations and matches nodes that are neighbors of already matched nodes in the two ontologies. The information sources from the same domain are heterogeneous in nature. To enable interoperation among heterogeneous information sources or to compose information from multiple sources, it is often needed to establish mappings between database schemas or between ontologies. These mappings capture the semantic correspondence between concepts in schemas or ontologies. Many tools are developed for mapping in a semi-automated fashion. There are interactive tools that enable experts to specify the mappings themselves. Once a particular set of mappings is established, the structure of ontologies is analyzed in the neighborhood of the mappings to produce additional mappings.

In OMEN if two properties and their domains match, then it can infer and its ranges can be related. Bayesian Net(BN) is built with the concept mappings. The BN uses a set of meta-rules that express the mapping affected by other related ontology mapping. The initial probability distribution for mapping can be done with existing automatic or semi automatic tools that is used to infer probabilistic distributions for other mappings.

OMEN contains Knowledge model and in this model it expresses the ontologies using the two components classes and properties. *Classes* are concepts in a domain, organized in a subclass–super class hierarchy with multiple inheritances. *Properties* describe attributes of classes and relationships between classes. Properties have one or more domains, which are classes to which the property can be applied; and one or more ranges, which restrict the classes for the values of property.

There are some important notations in the OMEN and in the first notation All concepts from O have no prime (’); all concepts from O' have a prime (’); in the second Upper-case C with or without a subscript is a class; in the third Lower-case q with or without a subscript is a property; in fourth P(C1 θ C2, *x*) indicates that the probability of the match (C1 θ C2) is *x*.

FIG. 6: SUB GRAPHS REPRESENTING CONCEPTS IN ONTOLOGIES O AND O' AND RELATIONS BETWEEN THEM



In the BN graph Nodes are individual pairs of matches between classes or property. Left hand tree are the classes in ontology O. Right hand tree are the classes in ontology O'. Thin arrows are the relationship between the classes in ontology. Solid arrows represent the influences in the BN Graph. The Conditional Probability Tables represent probability distribution in one node in BN-Graph affect the PD in another node.

The nodes in the Bayesian net can be selected as if the node is created for all parings of concepts in two ontologies the number of nodes in the BN-Graph grows with respect to the number of nodes in the source ontology quadratically. Factor that affects the size of the BN-graph is the number of parents that each node has. Thus the maximum number of parent nodes for a single node is restricted to 10. It is selected that the top 5 parents with the maximum a priori probability and the top 5 parents with the minimum a priori probability.

Two types of information’s are needed to run the Bayesians network, The first is the Evidence (obtained from the initial probabilities) describing what we already know with high confidence, and second is the Conditional Probability Tables, describing how the parent nodes influence the children in the BN-graph.

The OMEN algorithm contains the. Input that contains the source ontologies O and O', initial probability distribution for matches. There are few steps in the algorithm the first step contain the condition, if initial probability of a match is above a given threshold, create a node representing the match and mark it as evidence node. Second step Creates nodes in the BN graph representing each pair of concepts (C, C'), that C Є O and C Є O' as a node in the graph and the nodes are within a distance k of an evidence node. Third step creates the edges between the added nodes**.** The fourth step of the algorithm uses the meta-rules to generate CPT’s for the BN**.** Final step of the algorithm is to run the BN. Finally the output is produces as a new set of matches. There are some set of Meta rules in the OMEN they are

- There are two concepts C and C' that match and there is a relationship between C and another concept C_1 in the ontology O and a relationship between C' and C_1' in the ontology O'. If the two relationships match. Then, the probability of the match between C_1 and C_1' is increased and if they don’t match then the probability of the match between C_1 and C_1' is decreased.
- There are two properties that match and each of them has a single range. Then, the probability of a match between the classes that represent the ranges is increased.
- There are two properties that match and the first property has a range that is a union of the classes C_1 and C_2. The other property has a single range corresponding to C'. Then, the probability that C_1 is a specialization of C' can be increased. Analogously, the probability that C_2 is a specialization of C' can be increased.
- There are mappings between super concepts of two certain concepts, each belonging to a different ontology, and all the siblings. Then, the probability of a match between the remaining concepts is increased.

In OMEN the system probabilistic influences are combined with some conditions that is if a node in a Bayesian Network has two parents, the conditional probability tables are combined for the child using the assumption that the two parents are independent. i.e. $P(N \mid P_1,P_2)=P(N \mid P_1)\, P(N \mid P_2)$. When the match of two pairs of parents influences each other, this assumption is not true. The new mappings can be inferred by OMEN using RDF and RDF schema for expressing two ontologies.

***C.* S-MATCH**

Semantic Matching is also known as S-Match[13] and it is an approach for matching classification hierarchies. Each term in the classification hierarchy describes a set of documents. Semantic Matching is also seen as an implementation of the Match operator for purely tree-structures ontologies. The Match is defined as an operator that takes two graph-like structures (e.g. database schemas or ontologies) and produces a mapping between elements of the two graphs that correspond semantically to each other. Semantic Matching approach performs matching based on the nodes and the edges between the nodes in a graph. Semantic Matching has been mostly developed and tested for the task of matching hierarchies. Hierarchies are tree-structured graphs in which each node has only one parent. A property of hierarchies is that there is only one type of relationship, which is a *more-specific-term* relation which subsumes the *subclass-of* relationship.

The authors of [13] have argued that almost all earlier approaches to schema and ontology matching have been *syntactic* matching approaches, as opposed to *semantic* matching. In syntactic matching, the labels and sometimes the syntactical structure of the graph are matched and typically some similarity coefficient

[0,1] is obtained, which indicates the similarity between the two nodes. Semantic Matching computes a set-based relation between the nodes, taking into account the meaning of each node.

The possible relations returned by the Semantic Matching algorithm are equality (=), overlap (∩), mismatch ($\perp$), more general ($\subseteq$) or more specific ($\supseteq$). The correspondence of the symbols with set theory is not a coincidence, since each concept in the classification hierarchies represents a set of documents. In semantic matching algorithm for graph matching it contains two levels of granularity for matching, and this matching is distinguished as, element level matching and structure-level matching. At the element level, it is concerned with individual nodes. The authors distinguish techniques with weak semantics and techniques with strong semantics.

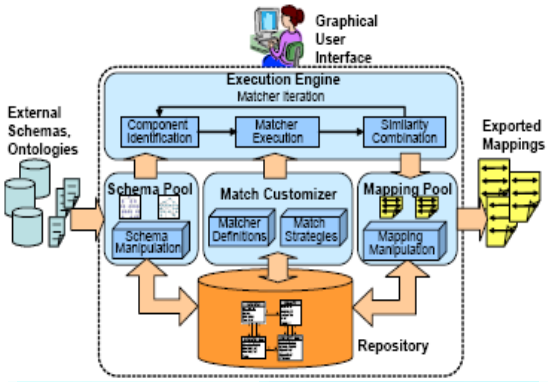
Element-level matching with strong semantics is done using thesauri, which typically contain synonym and hypernym relations between terms. These relations can be used to find semantic relations between nodes in the graphs. In the next phase, the structure-level matching, the matching problem, i.e. the two graphs together with the mapping query are translated into a propositional formula and then checked for validity. A mapping query is a pair of nodes and a semantic relationship between the pair of nodes. If the propositional sentence is valid, then the semantic relationship between the two nodes in the query holds and thus can be added to the mapping result. A potential problem with the algorithm is that the propositional satisfiability check which is known to have nondeterministic polynomial complexity has to be performed for every pair of nodes from the two graphs. This algorithm does not scale for large graphs.

D. COMA++

COMA++ is built on top of COMA by elaborating in more detail the alignment reuse operation. Also it provides a more efficient implementation of the COMA algorithms and a graphical user interface. COMA++ can be used as a platform to evaluate different match algorithms. In a comprehensive evaluation, we achieved high quality even on large real-world schemas and ontologies. Due to the highly optimized implementation of the matchers, in large matching problem COMA++ shows faster execution time than COMA. Without providing domain specific taxonomies or synonyms, COMA++ can solve many problems.

Figure 7 shows the underlying architecture of COMA++[14]. The GUI of COMA++ provides access to the five main parts. the *Repository* to persistently store all match-related data, the *Model and Mapping Pools* to manage schemas, ontologies and mappings in memory, the *Match Customizer* to configure matchers and match strategies, and the *Execution Engine* to perform match operations.

FIG. 7: ARCHITECTURE OF COMA++



To maximize the potential for reuse [15,16] the *Repository* centrally stores various types of data related to match processing, in particular imported schemas and ontologies, produced mappings, auxiliary information such as domain-specific taxonomies and synonym tables, and the definition and configuration of the matchers. A generic data model is used to implement in a relational DBMS to uniformly store the different kinds of schemas and ontologies and mappings between them.

Models are uniformly represented by directed graphs as the internal format for matching. The *Model Pool* provides different functions to import external schemas and ontologies, and to load and save them from/to the repository. Formats supported by COMA++ include XSD, XML Data Reduced (XDR), OWL, and relational schemas. From the Model Pool, two arbitrary models can be selected to start a match operation. The model pool also maintains all generated mappings and offers various functions to further manipulate them.

Automatic match processing is performed in the *Execution Engine* in the form of match iterations, which are the building blocks for match strategies such as fragment based matching. As indicated in Figure 7, match iterations take place in three steps, *component identification* to determine the relevant schema components for matching, *matcher execution* applying multiple matchers to compute component similarities, and *similarity combination* to combine matcher-specific similarities and derive the correspondences between the components. The obtained mapping can be used as input in the next iteration for further refinement. Each iteration can be individually configured using the alternatives supported by the *Match Customizer*, i.e. the types of components to be considered, the matchers for similarity computation, and the strategies for similarity combination.

COMA++ supports various methods to determine the components of a schema, such as nodes, paths, and fragments, and to determine the constituents of a single component, such as its name tokens, child nodes, etc., which can be considered to estimate the similarity between two components. Multiple matchers can be selected from the *Matcher Library* to compute the similarity between the identified components, resulting in a similarity cube. More than 15 matchers exploiting different kinds of schema and auxiliary information are available. COMA++ then employs the combination scheme developed in COMA with corresponding strategies for the sub-steps *aggregation*, *direction*, and *selection* [16] to derive a match result from the similarity cube. The obtained mapping is a set of correspondences specifying the matching components between two input models. Each pair of matching components is captured in a single correspondence, i.e. a 1:1 match.

The COMA++ has two higher-level match strategies to address complex match problems, in particular *Fragment-Based Matching and Reuse oriented Matching*. To cope with large schemas, COMA++ implements the fragment-based match processing framework proposed in [17]. Following the divide-and-conquer idea, it decomposes a large match problem into smaller sub problems by matching at the level of schema fragments. With the reduced problem size, it aims not only at better execution time but also at better match quality compared to schema-level matching. The framework encompasses two matching phases *Identifying Similar Fragments* and *Match Fragments* in the first step Depending on a specified fragment type, the step determines the fragments from the input schemas and compares them to identify the most similar ones worth to be fully matched later. In the Match fragment strategy each pair of similar fragments represents an individual match problem, which is solved in a single match operation to identify correspondences between their components. The result is a set of mappings containing correspondences between fragment components, which are then merged into a global match result.

In reuse oriented matching the reuse of existing schemas is addressed in [15], focusing on learning and using component statistics in a corpus of schemas for matching. In contrast, it pursues the reuse of previously determined match results. The main mechanism for this approach is the Match Compose operation [16], which performs a join-like operation on a mapping path consisting of two or more mappings, such as A-B, B-C, and C-D, successively sharing a common schema, to derive a new mapping between A and D. Thus different matchers and match strategies in COMA++ can be used to match between schemas and ontologies from several domains. Thereby, various interaction possibilities to influence the match process will be demonstrated, such as configuration of matchers and match strategies, step-by-step execution of match operations, verification and further manipulation of match results.

E. FALCON-AO

Falcon-AO is an automatic tool for aligning ontologies. The term Falcon-AO means **F**inding **A**ligning, **L**earning Ontologies, **C**apturing knowledge, **O**ntology-driven approach, and Automatic tool for **A**ligning **O**ntologies. There are two matchers integrated in Falcon-AO: one is a matcher based on linguistic matching for ontologies, called LMO; the other is a matcher based on graph matching for ontologies, called GMO. In Falcon-AO, GMO takes the alignments generated by LMO as external input and outputs additional alignments. Reliable alignments are gained through LMO as well as GMO according to the concept of reliability. The reliability is obtained by observing the linguistic comparability and structural comparability of the two ontologies being compared.

Falcon – AO Provides enabling technologies for finding, aligning and learning ontologies, and ultimately for capturing knowledge by an ontology-driven approach. It is still under development as a component of Falcon; Falcon- AO is an automatic tool for aligning ontologies. It is dedicated to aligning web ontologies expressed in OWL DL [18]. There are two matchers integrated in current version of Falcon AO (version 0.3). One is a matcher based on linguistic matching for ontologies, called LMO, and the other one is a matcher based on graph matching for ontologies, called GMO.

Linguistic matching plays an important role in matching process. Generally, linguistic similarity between two entities relies on their names, labels, comments and some other descriptions. **LMO** combines two different approaches to gain linguistic similarities: one is based on lexical comparison; the other is based on statistic analysis. In lexical comparison, the edit distances [19] is calculated between the names of two entities and use the following function to capture the string similarity (denoted by *SS*):

$$SS = 1/e^{\frac{ed}{|s1.len + s2.len - ed|}} \quad (1)$$

Where *ed* denotes the edit distance between *s1* and *s2; s1.len* and *s2.len* denote the length of the input strings *s1* and *s2*, respectively. In statistic analysis, the VSM (Vector Space Model) [19] algorithm is used for implementation. Given a collection of documents, the *N* denotes the number of unique terms in the collection. In VSM, each document is represented as a vector in an *N*-dimensional space. The components of the vector are the term weights assigned to that document by the term weighting function for each of the *N* unique terms in the collection. The term weighting functions are defined as follows:

$$\text{Term Weighting} = TF * IDF \quad (2)$$

$$TF = \frac{t}{T} \quad (3)$$

$$IDF = \frac{1}{2} * (1 + \log_2 \frac{D}{d}) \quad (4)$$

In equation (3), *t* denotes the number of times where one term occurs in a given document and *T* denotes the maximum number of times. In equation (4), *D* denotes the number of documents in collection and *d* denotes the number of documents where the given term occurs at least once. The cosine similarity between documents is gained (denoted by DS) by taking the vectors' dot product:

$$DS = N.N^t \quad (5)$$

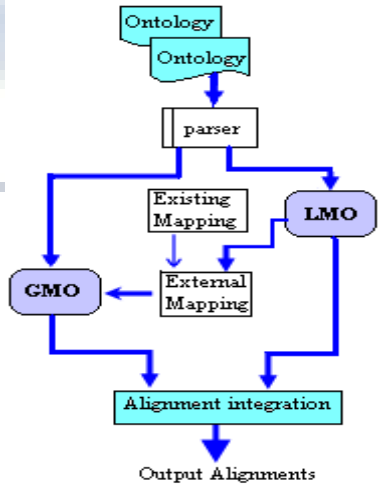
The above methods will take effect in ontology matching. In our implementation, by the combination of the equations the final equation for the linguistic similarity can be calculated.

$$\text{Linguistic Similarity} = 0.8 * DS + 0.2 * SS \quad (6)$$

Another important component in Falcon-AO is **GMO**, which is based on a graph matching approach for ontologies. It uses directed bipartite graphs to represent ontologies and measures the structural similarity between graphs by a new measurement. Similarity of two entities from two ontologies comes from the accumulation of similarities of involved statements (triples) taking the two entities as the same role (subject, predicate, object) in the triples, while the similarity of two statements comes from the accumulation of similarities of involved entities of the same role in the two statements being compared. GMO takes a set of matched entity pairs, which are typically found previously by other approaches, as external mapping input in the matching process, and outputs additional matched entity pairs by comparing the structural similarity. The GMO are irreplaceable when there was little gain from lexical comparison. The GMO can also be integrated with other matchers. While using GMO approach to align ontologies, there should be another component to evaluate reliability of alignments generated by GMO. LMO and GMO are integrated in Falcon-AO. Alignments output by Falcon-AO come from the integration of alignments generated by LMO and GMO. The architecture of Falcon-AO is shown in Fig 8.

Due to heterogeneous ways in expressing semantics and the inference capability brought from ontology languages, two ontologies being matched may need to be coordinated by removing some redundant axioms from it or adding some inferred axioms. So coordination actions should be taken before using GMO approach. Several coordination rules are integrated in Falcon-AO. The *Parser* component is based on Jena [20] has the functionality of coordinating ontology models. The given external mapping as input, GMO can find additional mapping.

FIG. 8: SYSTEM ARCHITECTURE



The external mapping is made of two parts: one is the existing mapping pre-assigned by the system; the other comes from another matcher. The existing mapping is the mapping between built-in vocabularies of web ontology languages, data types, data literals and URIs used in both ontologies. And in Falcon-AO

the alignments generated by LMO as the other part of external mapping. Entities involved in the alignments generated by LMO are set to be external entities and GMO will just output mapping between internal entities.

When the alignments generated by LMO and GMO are obtained, Falcon-AO will integrate the alignments by observing the linguistic comparability and structural comparability, following some rules. The first rule is that the linguistic similarity is more reliable than structural similarity, and that the alignments generated by LMO are always accepted by Falcon-AO. The second rule is that when the linguistic comparability is high and the structural comparability is low, only alignments generated by GMO with high similarity are reliable and accepted by Falcon-AO. And the final rule is that if the linguistic comparability is low, all of the alignments generated by GMO are accepted by Falcon-AO. In this case the information is not enough to measure the alignments can only be an assumption.

Falcon-AO is implemented in Java. The first implementation process is to Input two ontologies and parse them. Then Run LMO and obtain matched entity pairs. After matching the entity pair linguistic comparability and structural comparability are calculated. if the linguistic comparability is below a very low threshold (e.g.0.01) and the structural comparability of them is also low, we take that these ontologies are quite different and Falcon-AO exits with no alignment. External entities of the ontologies are set according to the matched entity pairs generated by LMO. Input matched entity pairs generated by LMO into GMO and form external mapping for GMO. In the current version of Falcon-AO, all the individuals of ontologies are specified as external entities and their similarities are computed by LMO. Then by running GMO matched entity pairs are obtained. Then integrate the alignments generated by LMO and GMO following the rules described above. Finally Exit with alignments as output.

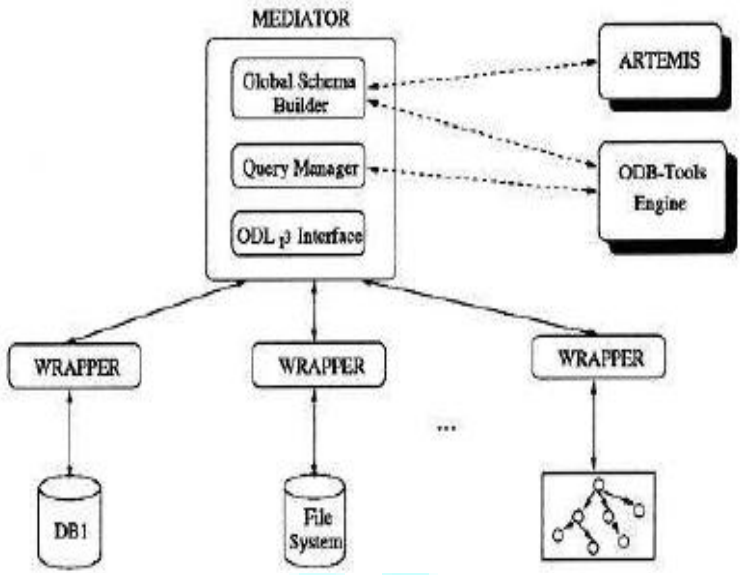
While aligning real ontologies, linguistic matching plays an important role in matching process. Therefore, GMO is integrated with LMO in Falcon-AO. Ontology matching is an important way to establish interoperability among (Semantic) Web applications using different but related ontologies. A practical system for ontology matching called Falcon-AO is implemented. And Falcon-AO (version 0.7) performs quite well and balancing on most of tasks.

G. MOIMS

MOMIS (**M**ediator envir**O**nment for **M**ultiple **I**nformation **S**ources) approach [21, 22] is an approach to the integration of heterogeneous data sources using a global ontology, which is the result of a merge of the local data schemas. The goal of MOMIS is to give the user a global virtual view [23] of the information coming from heterogeneous information sources. MOMIS creates a global mediation schema (ontology) for the structured and semi-structured heterogeneous data sources, in order to provide to the user a uniform query interface to these sources. The first step in the creation of the global mediation schema is the creation of the Common Thesaurus from the disparate data sources. First a wrapper is created for each data source in the ODL_I^3 languages. ODL_I^3 is an object-oriented language with an underlying Description Logic language OLCD, which enables making inferences (e.g. subsumption) about the classes expressed in that language.

Using the disparate schemas, a Common Thesaurus is created, which describes intra and inter-schema knowledge about ODL_I^3 classes and attributes of source schemas. The Common Thesaurus is built in an incremental process in which relationships (between classes) are added based on the structure of the source schemas, lexical properties of the source classes and attributes can be used to identify possible synonyms), relationships supplied by the designer, and relationships inferred by the inference engine.

FIG. 9: ARCHITECTURE OF THE MOMIS SYSTEM [22].



Once the Common Thesaurus has been created, a tree of affinity clusters is created, in which concepts are clustered based on their (name and structural) affinity. The name affinity coefficient is calculated based on the terminological relationships between two classes. The structural affinity coefficient between two classes is calculated based on the level of matching of attribute relationships in the Common Thesaurus. The sum of these two coefficients is the global affinity coefficient, which is used to construct the affinity tree, in which concepts with a high affinity are clustered together. For each cluster in the affinity tree, a global class is (interactively) created. For each global class a mapping (expressed in ODL) is maintained to all the source classes.

The architecture in Fig 9 shows the main tools used to support the overall architecture. A disadvantage is that there is no integrated tool environment. Any data source can be connected to the architecture, as long as an ODL_I^3 wrapper is created.

H. INFOMIX

INFOMIX[24,25,26] is a system that supports information integration by utilizing advanced reasoning capabilities. The INFOMIX system is built in cooperation with RODAN systems [27] which is a commercial database management system developer. It uses the DLV reasoning system [28] for the reasoning tasks. The DLV system is a disjunctive data log reasoning system and has been developed independently from INFOMIX. However, INFOMIX uses the DLV system for solving its reasoning tasks.

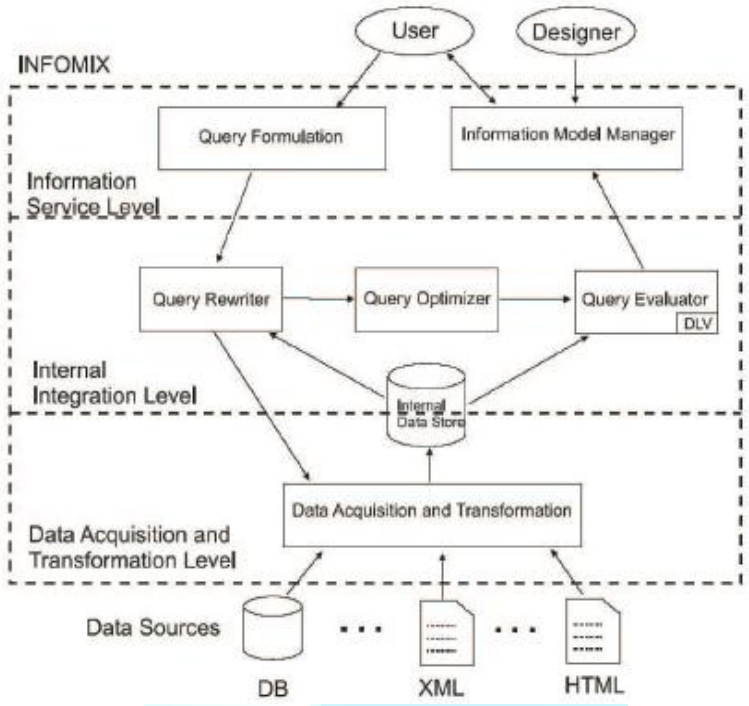
The INFOMIX architecture is depicted in Fig. 10. It is divided into three levels and supports two modes and they are design mode and query mode. In design mode the global schema, the source schema and the mapping between them are specified. Also, the wrappers for the data sources are created or imported. The data sources consist of relational and XML data. In query mode query answering facilities are provided at run time; including data acquisition integration, answer computation and presentation to the user. In both modes, the INFOMIX system is divided into three levels and they are Information Service Level, Internal Integration Level and Data Acquisition and Transformation Level.

The **Information Service Level** is a direct interface to the user is provided at run time and to the designer at design time. This level deals with global data and provides the interfaces that are necessary. It comprises two modules the Information Model Manager and the Query Formulation module The *Information Model Manager* handles the definition of the global schema and the local schemas, as well as the mapping. User-friendly interfaces for these tasks, including schema browsers, are provided. Automatic support for the verification of coherency, redundancy and adequacy of the application specification is given. Finally, this module presents query results in a suitable form to the user. The *Query Formulation module* provides a graphical, user-friendly interface for query formulation over the global schema and query validation facilities. The query validation facilities check the interactions between the user query and global integrity constraints to guarantee that query answering is always decidable.

The Internal Integration Level is based on computational logic and deductive database technology. It is composed by three modules Query Rewriter, Query Optimizer, Query Evaluator**.** The *Query Rewriter* reformulates the user query according to global integrity constraints. It makes use of a sub module to verify data consistency. This sub module exploits the mapping and unfolds the user query over the source relations and activates the corresponding wrappers to retrieve relevant data. Afterwards, the sub module checks whether there are integrity constraint violations.

If no violations occur, the reformulation produced by the rewriter is a simple (disjunction free) Datalog program. Otherwise, a suitable disjunctive Datalog program is generated that performs automatic repair of data, in a way such that cautious answers to this program evaluated over the data sources correspond to the certain answers to the query.

FIG. 10: ARCHITECTURE OF THE INFOMIX SYSTEM [24].



The *Query Optimizer* provides several optimization strategies which enhance the efficiency of the system. In particular, the module exploits some focusing techniques which are able to isolate the portion of the source database that is relevant to answer a user query.

The Data Acquisition and Transformation Level provides access to external data sources. INFOMIX has an architecture which allows for the integration of heterogeneous types of data sources. The primary types of data sources are relational, XML, HTML, and object-oriented data sources. However, it is claimed that arbitrary other types of data sources can be incorporated easily. All data sources are conceptually transformed into a uniform source data format, which is a fragment of XML Schema. Data encoded in this uniform source data format can be browsed. The acquisition and transformation of data is done by wrappers. A query plan for executing suitable wrappers is generated, which load data into the Internal Data Store. Constants are pushed to the query wrappers whenever it is possible in order to reduce the amount of data retrieved. Currently, INFOMIX offers three classes of wrappers, which provide different levels of support for query formulation and wrapper code generation. *Code wrappers* are basically a definition of an API and the code implementing it. The internals and characteristics of code wrappers are therefore inaccessible to INFOMIX. *Query wrappers* propagate queries to external data sources and treat the result as a logical data source. *Visual wrappers* support interactive development of wrappers at design time. Currently, there is support for developing LiXto wrappers and pipes as well as for Rodans Data Extractor.

APPROACH	INPUT	OUTPUT	USER INTERACTION	ONTOLOGY LANGUAGE	MAPPING LANGUAGE	AUTOMATION SUPPORT	IMPLEMENTATION
METHODS & TOOLS							
MAFRA	Two Ontologies	Mapping of Two Ontologies	Semantic Bridging Modules and Graphical Interface	RDFS	Semantic Bridging Ontologies (SBO)	Lexical and Structural Matching & Semi-automatic Creation of Mappings	2 Prototype Implementation
RDFT				RDFS	RDFTA	Discovery of Similarities Based on Instance Data	Research Prototype
PROMPT	Two Ontologies	Merged Ontology	User Accepts, Rejects or Alters System's Suggestion	RDFS , OWL	Heuristic Bases Analyser	Name and Structural Matching	Version 2.1.1
GLUE	Two Taxonomies with Data Instances	Set of Pairs of Similar Concepts	User Defined Mappings, Similarity Measure & Analysing System's Match Suggestion	Taxonomies	Similarity Measures	Multi-strategy Machine Learning Approach	Research Prototype
S-Match	-	-	-	DAGs	Ser-based (Equal, Disjoint, Subset, Superset)	Matching Based on Synsets from Thesauri using SAT Solver	1st Prototype
OntoMap	-	-	-	Proprietary Language Similar to OWL Lite	OntoMapO	-	Prototype under Development Since 2001
RDFDiff	-	-	-	RDF	Changed, Added, Deleted	Detected Automatically	Research Prototype
OMEN	-	-	-	Proprietary Language Similar to RDF Schema	Bayesian Network with individual Pairs of Matches as nodes	Mappings that depend on other Mapping can be Inferred Automatically	1st Research Prototype
WSMX Mediation	-	-	-	Flora (WSML Based)	SEKT Abstract Mapping Language	String Matching, Wordnet Similarity & Real-time User Feedback	Research Prototype
DOME Mediation	-	-	-	WSML	SKET Abstract Mapping Language	No Specific Automation Support	Research Prototype
INTEGRATION SYSTEMS							
InfoSleuth				OKBC	Wrappers	-	Project Prototype
ONION	Terms in Two Ontologies	Sets of Articulation Rules	Human Expert Chooses or Deletes or Modifies using GUI Tool	Directed Labeled Graphs and Horn Clauses	Articulation Rules	Term & Structural Matching Using SKAT Annotation Tool	Research Prototype for Unification of Heterogeneous Ontologies
OBSERVER	Two Ontologies	Inter-relationship Manager	Query Based Interface	Description Logics (CLASSIC)	Extended Relational Algebra for Mapping Ontology – DB & DL	Query Processing	Research Prototype for Access of of Heterogeneous Data Source
INFOMIX	-	-	-	Set of Logical Implications in Disjunctive Datalog	Disjunctive Datalog	-	1st Project
AutoMed	-	-	-	HDM	HDM	Bidirectional Similarity Degrees	LSDI Project ISPIDER Project RoDEX Project

Comparison of Methods & Tools for Ontology Languages, Mapping Languages, Automation Support and Implementation

CONCLUSION

Ontology mediation is enabled through interoperability of semantic data sources. It helps data sharing between heterogeneous knowledgebase and reuse by semantic applications. Ontology mediation includes operations such as, mapping, alignment, matching, merging and integration. After briefly describing these operations, this study selectively discusses set of methods, tools and data integration systems. It provides the researchers a comprehensive understanding of methods and tools intended for ontology mediation.

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INTERACTIVE E-GOVERNANCE: APPLICATION OF ICT IN AGRICULTURE WITH SPECIAL REFERENCE TO DACNET

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ABSTRACT

Communication has been taking place between man and matters for a very long time. Civilization is due to the exchange of such transaction of information between individuals and group of people. The receipt of information lead to the changes in the social, economical and political developments in the pages of history. In the more recent times, the sharing of details and information through internet and satellite have made a great impact on human knowledge which has led to enormous changes in the links between people of various societies. Using ICT in various fields of knowledge and government services takes us inevitably to the discussion of Interactive e-governance. The relationship between the government and the citizen is revealed in such application of ICT tools. Further it deals with in a detailed manner, the Interactive-Service model which is a consolidation of the other digital governance models and opens up innumerable possibilities for one-to-one and self-serviced participation of individuals in all the processes of the government. The potential of ICT is that it can bring together individuals into a digital network and enable multiple ways of flow of information and details among them. Since the participation is direct, it can assure for transparency in the process which is very important in execution of the plan of action. When the individual is willing to take part in the government plans, it gives a feeling of involvement and empowerment. This paper tries to focus on the application of ICT in the agriculture sector with special reference to the government project DACNET as it sees agriculture sector as an important field of planning in a government. It analyses in detail the appropriate application of ICT to rural agricultural areas under the project DACNET and sees the impact and improvement that follows very quickly.

KEYWORDS
Agriculture sector, communication, DACNET, ICT, Interactive-service model.

1. INTRODUCTION

In simple terms, e-governance is a governance that is managed by information and communication technologies which play an active role in delivering governance-oriented products and services to the people. In the changing scenario, it has become almost compulsory to use ICT in all the field of knowledge and consumption. It is very result-oriented when we apply it to the most important sector in our country, that is agriculture. It is the use of ICT in delivering products and services used in the agriculture sector covering farmers, herders, dairy workers, agriculture extension workers, daily- wage workers, merchants, agents, scientists and NGOs involved directly or indirectly.

A lot of interactive applications are possible in this sector which will help the agrarian community that is supposed to be the backbone of our country. Many welfare measures are to be considered in the successful execution of government plans which include increase in productivity, reducing loss or damage to the crops due to weather and insects, better stock management, speedy access to government services and schemes, appropriate market rates for farm products, food security to people, protection to biodiversity, minimum use of chemicals and also getting best seeds and improved technology. All these can be done only when the farmer or the person concerned is able to get information and details of the following: right information about the new varieties of seed; new technological developments in the field; forecast of rain and drought; information on government plans and projects in connection with environmental stability; water saving and management; awards for soil conservation activities and good over all performance in a year; ready availability of local and regional agriculture offices and name of the officers; testing centre for seeds and crops; instruction on milk production and the purification process, safety of the grains; advice on crop diseases; necessary information market values for various types of crops; availability of loan and its procedures and credit facilities.

When a farmer is contacting any official or authority in an office, he may be asked about his identity as well as the documents in support of his ownership of the land and storage of the grains which will help him in buying or selling cattle, land or seeds; for this he needs legal documents. To apply for various schemes and subsidies, to get electricity connection in his fields he needs to apply online. Also for claiming insurance, he has to see various details in the website of a particular company which cannot be given to him in any other easy way. All these are available on online and if anything is not made online, that is also to be made online. Especially to developing countries like India, ICT applications in these areas will help the agrarian community to go for good agricultural production that is essential to ensure food security for all the citizens and to give hope for the farmers. This will have a direct impact on household and community welfare of the country.

There are some other projects also funded by governments and certain donors and they too demonstrate the useful role ICT play in the agricultural sector. Instead of aiming at immediate effect on the consumers, ICT shall be used to bring deep changes in the administration of the entire governance process. This may help to bring very important changes in the field like the following:

2. ENRICHED QUALITY IN STANDARDS OF SERVICE

IT tools can be applied to inform the public through new communication channels by which information about market trends, price and its status regarding the seeds, grains and crops and the contact details of the local agriculture offices.

3. PROVIDING NEW GOVERNMENT AGRICULTURAL SERVICES EXPECTED BY FARMERS

This shall help the farmers to make or renew their records regarding their lands and data can be made accurately, provision of credit cards for the purpose of purchase of new seeds, fertilizers, farm equipments, setting up of socially interesting equipments like television at public places to update them about the rain fall prediction and movements of the wild animals.

4. ENHANCED PARTICIPATION OF FARMERS AND LAND OWNERS TO DECIDE THE MANNER OF PROVIDING VARIOUS TYPES OF SERVICES

If this is achieved, farmers and land owners can decide what type of funds are allotted to their village and how it can be spent at their place. This may include the very important problems connected with water management like cleaning and repairing the water canal lines and rain water harvesting structures at homes and multiplex complexes and malls. All the people involved in the field of agriculture should be in a position of getting what they want from the government the details regarding qualification for farm subsidies, dam construction and increasing or decreasing the water level in it. The course conducted or the bulletins issued at regular intervals by the regional government centre shall reach the agricultural workers and others linked to the crop building process at right time.

5. ADDING MORE EMPLOYEES AND LABOURERS TO KNOW GOVERNMENT SERVICES

It is not enough if regular land owners and farmers are alone getting the benefits of government services under the speedy functioning of ICT-oriented programmes of action designed by the officials. New section of agrarian workers who tend themselves to keep away from the regular process like unorganized farm workers, landless farmers, migrant labourers, women farmers and tribal people who have given their life to gardens and forests. When they also come under the broad and wide coverage of various government facilities, it will surely help the agriculture sector of the nation. In turn it will improve the economic development of the country.

When all these efforts are fulfilled, we can feel proud to say that good governance through ICT has become a reality for all the sections of the society, especially the agricultural community which leads to a strong improvement in the households of those who are dependent on agriculture. Thus we see that the role of e-governance in agriculture sector is very important. It does not stop with digitizing of government records, making available government announcements and application forms online, ready grievance- redressal system or exposing workers and land owners to computers that are kept in local and regional agriculture training centres. And thus it becomes a tool for effective and uniform service applications.

Electronic governance applications which are sure to focus on governance products and services will become popular and a profit is possible to reap from it. If the ICT applications do not focus on the agriculture workers, then it becomes costlier and may not justify the trust on it. The ICT tool created will help the farmers who browse the government agriculture departments. So when it is produced, e-governance models have useful information, data, statistics etc., that can be really supplied by the agriculture ministry and officers related to it. An example of one innovative use of new ICTs is the implementation of the so-called telecentres or information kiosks. In Tamil nadu, the portal by name India Agriline connects the farmers and others in rural places to markets and to market information, knowledge like weather data, agricultural extension services and crop cultivation practices, social welfare agencies like Primary Health Centres. In Tamil nadu there is a network of information kiosks related to the IndiaAgriline website portal that aims at the sugarcane farmers. Though farmers are asked to register as members in it, the service is provided free of cost.

Earlier in India, the Satellite Instructional Television Experiment (SITE) project was started in 1975. It was aimed at reaching 2400 villages in 20 districts with satellite television broadcasts. The basic idea was to broadcast synchronized agricultural, health, nutrition and family planning messages to the rural farmers. It contributed much to the development of farmers giving them a good confidence in proceeding with their work. The government of India, going further to fulfill its vision to improve the services in the agricultural sector, has created a unique project nearly a decade ago, by name DACNET. In elaborating on it, this paper further gives insights into the integration of nature, culture and technology which are blended successfully in this project. In the following passages we can see more about its recent roles in the agrarian industry.

6. DACNET – AN E-GOVERNANCE INFRASTRUCTURE FOR THE GLOBALIZATION OF INDIAN AGRICULTURE

Trusting strongly on the development of agriculture leading to overall development of the country, India's Department of Agriculture and Cooperation (DAC), Ministry of Agriculture authorized a project called DACNET to be implemented by the National Informatics Centre which is the technology division of the Indian government. The most important vision of DACNET is to facilitate Indian agriculture online. The key criteria of DACNET includes ease of use, speed of information delivery, low incidence of errors in providing statistics and data, reduction in corruption and affordability of services to common public. Approved in September 2001, the project aims to dramatically strengthen the information technology infrastructure in all the Department of Agriculture and Cooperation directorates, regional directorates and its field units. The DACNET project has reduced the time taken to deliver services while making information available to its citizens over the internet.

6.1 APPLICATIONS OF DACNET

It is applicable in various areas of agricultural field where usage of IT tools are possible. They are as follows:

Plant Quarantine Information System
Crop Weather Watch
Market Prices Analysis
Bio-fertilizers Informatics Online
Integrated Pest Management Information System
Computerized Registration of Pesticides
Knowledge Management System
e- Granthalaya
Farm Machinery Informatics Online

6.2 OBJECTIVES OF DACNET

The very aim of it is to make easy availability of reliable information and exchange of the same across the departments and its directorates and field units on understanding the needs of the utilisers. Its objectives can be identified as follows:

Better communication internally to the organization using e-mail and instant messaging for enhanced coordination, knowledge sharing and research
Quantitative enhancements in the government's work culture
Telecommuting features that will provide for geography independent work
Streamlining existing methods and practices, both administrative and technical
Easy access to the publishable information and minimal administrative intervention with proper search features
Greater integration and use of the data from a variety of data sources
Optimal utilization of available budget and staffing resources, simultaneously moving towards the goal of the paperless office

This project has been undertaken by the National Informatics Centre.(NIC). The goal of the National Informatics Centre is to deliver coherent and integrated solutions that offered farming best practices, shared experiences and global solutions to India's farmers. NIC also enables the Department of Agriculture to provide agricultural information to farmers over the internet, making it widely available on a cost-effective basis.

7. PAPERLESS OFFICE

The National Informatics Centre seeks to create an electronic, paperless office environment to aid employees in delivering more services while requiring fewer resources to achieve it.

The electronic office (e-office) includes

a) Directorate Portal Services for providing the general public with policy and guidelines information on each directorate

b) Development of e-governance applications that automates the business process of each directorate in the areas of government functions, interaction of government and business enterprises and government and citizens and the like. Feedback from the current systems will influence future business process re-engineering projects

c) Development of an intranet for employees that provides them with self-help human resources and budgeting applications

7.1 INCREASED EMPLOYEES EFFICIENCY THROUGH IT EMPOWERMENT

To empower employees with IT applications, a comprehensive training program was developed and implemented for 4,000 employees across various directorates and field units. The employees previously had little or no prior knowledge of personal computers(PCs) and information technology. The program therefore had topics that covered basics of PCs such as interacting with Microsoft Windows XP, Office productivity tools, database design and analysis, decision support systems and geographic information systems. Mr. Moni, Deputy Director General, NIC is of the view that these systems, their secure networking and readily accessible information reinforce the commitment of the department. This project demands the concerned staff to take quick decisions to improve capacity for crop production and food supply in the country.

7.2 RECHARGING CITIZENS WITH DIGITAL POWER

The DACNET project has helped to provide better delivery of government services to the citizens of India in deep villages in the country too. It is true that our people are empowered with easy access to information. This digital upbeat in rural areas of the country facilitates rural prosperity and the ability for rural people to help themselves due to the abundance of information. This is really a forward step towards digital inclusion to foster rural enterprise.

8. CONCLUSION

In India, the new ICTs including computers, internet, e-mail and mobile phones are in the centre of discussions on development in any field. To achieve more meaningful change, the use of new ICTs are taken up by even international organizations like the World Bank and UNESCO with perspectives on certain initiatives. Such a new kind of interest in ICTs for agricultural development has been remarkable and it raises the question of quality of change. In our country, ICTs are not used at the cost of cultural relevance in its very perspective. Another important point is that ICTs need not be always targeting a large number of audience; it can play its role for selective local and community level groups connected with agriculture. Though there are some difficulties in implementing, the ICTs have the potential of becoming a very easy and more liberal medium of communication. The flexibility, speed, interactivity and specificity are not compromised in sharing the information while using the ICTs. Instead of simply sharing the knowledge, ICTs in agriculture are employing social learning, participation and interactivity. This is a very remarkable impact in the agricultural sector after the arrival of ICTs leading to a kind of cooperation between natural sciences and communication technologies. Because of this, the Indian farmers and other related employees will have a big chance of being successful in an appropriate and sustainable way.

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A STUDY OF SUCCESS FACTORS IN INTERNATIONAL EXPANSION OF A BUSINESS

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ABSTRACT

Many studies have come out about how organizations utilize the Internet same a device in the development method, Anyhow a neglected field already been the way Internet organizations extend the business Universally. The fluctuating sweeping statement has been recognized inside these territories, with the authoritative Structure, advertising and deals, and financial variables being the most institutionalized among the Careful investigation subjects. The findings can be utilized an example of simple achievement figures at Universal extension through another Internet-administration organizations.

KEYWORDS
International expansion, Marketing strategies, success factors.

1. INTRODUCTION

The Internet has empowered worldwide development, conceivable outcomes to business Which prior just was restricted to those of deciding association model and budgetary quality. The Structural IT-advancement inside the most recent era and the leap forward about Internet kept having an Broad effect on worldwide business. The Internet system is best of the quickest developing correspondence Stations on the planet "International Telecommunication Union 2008" to a consistent appraisal, which is Very nearly 1.6 billion clients "Internet World Statistics 2009". The Internet has established new principles to Correspondence and justified data offering distributed. Countless Plans of action have been imagined through the utilization of the Internet, and also making another business Space for all advanced organizations of today. The internationalization is a key methodology for Internet Organizations in spite of the fact that there are a few boundaries, including geological and social variables Contingent upon the nation extended to. Varieties can hence be needed in the administration Conveyance and in addition, hierarchical structure. Likewise distinctive nations oblige particular showcasing Also deals techniques and in addition plan level- and money related administration. The particular An internationalization technique for Internet-administration organizations is accordingly a fundamental part of Being fruitful on the Internet commercial center. Because of the Internet there are various ways To finish a worldwide extension (Kjellman 2005). Sweden, in spite of the fact that a little Market, has been the cause of various fruitful Internet-administration new businesses i.e. Skype, Exchange Doubler and Price Runner. Because of the way which Sweden has become a little home market and the Internet- Administration organizations become compelled to stretch globally with a specific end goal to wind up positively Effective, subsequently describing the essentials "of the internationalization for Swedish Internet- Administration organizations". Today, advancement execution is a pivotal determinant of intensity.

What's more national advancement. Besides, advancement is vital to help address worldwide Difficulties, for example, environmental change and feasible improvement. Anyhow regardless of the The vitality of advancement, numerous OECD nations face troubles in reinforcing Execution around there. In reality, numerous OECD nations have seen little change In gains execution lately notwithstanding the new open doors Offered by globalization and new advances, particularly the date and correspondence advances.

2. REVIEW OF LITERATURE

THE DETERMINANTS AND FORMULATION OF INTERNATIONAL BUSINESS STRATEGY

2.1. CLASSIFICATIONS OF INTERNATIONAL BUSINESS STRATEGY

To figure out which technique is suitable for a global business, we take a gander at hypothesis of universal procedure detailing. Thoughtfully, the business system is about making a fit between interior capacities to outer circumstance (Porter, 1996). Consequently, a thorough definition arranges that incorporates both inward and outside elements is required. Tallman and Yip (2008) gave such system of key examination which incorporates: setting objectives, examining the earth (aggressive and industry investigation), examining assets and abilities, creating key choices, picking a methodology furthermore actualizing that method before doing a reversal to then begin again with criticisms. Adding to this are the specifics of other situations (industry and business) identified with a business working multinationally. These specifics include (1) expanded geographically spread; (2) building cross-national monetary combination; (3) changing neighborhood inclination prompting nearby 5 responsiveness weight; (4) diverse, vital choices of going into an alternate nation (Tallman & Yip, 2008). These diverse measurements need to be taken into thought in choosing which global business technique is fitting to utilization.

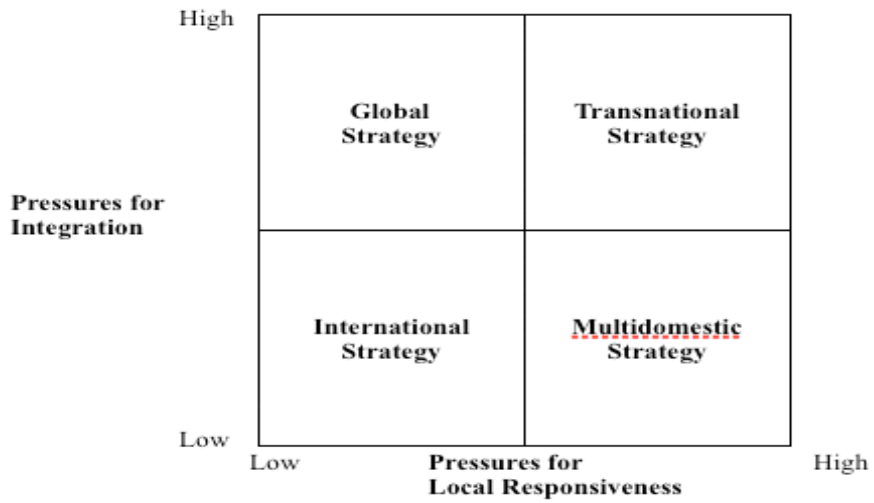

Figure 1. Relationship Between Strategies and Pressures

2.3. SUCCESS FACTORS OF INTERNATIONAL BUSINESS STRATEGY

A few studies propose that the viability of a global business method can be followed back to when the choice to utilize that procedure was done. On the off chance that the privilege theprocedure was picked and executed in the privilege business at the privilege time then it will be compelling. So in this situation, the determinant of achievement is the outer environment in which the organization works in (Carpano, Chrisman & Roth, 1994; Kim & Mauborgne, (1993). Nonetheless, this perspective is overlooking the inward abilities of an organization, it accepted that each organization has homogeneous assets and they are utilized as a part of the same way (Zou & Cavusgil, 1996). This presumption is excessively shortsighted and implausible. Different studies propose that achievement components relies on upon which methodology is picked and how the interior abilities, association structure and corporate society helps and fit that procedure (Zou & Cavusgil, 1996). For an organization that has a Global Strategy the fruitful variables are the qualities of a generation, advertising and R&d exercises in keeping the generation cost low. For Multidomestic, they are affected ability to nearby requests and creation capacities to react to them. For Transnational, the components are solid capacities to keep costs low while separate item offerings and cultivating multidirectional streams of data and aptitudes. What's more for International Strategy, it is the capacities to exchange center skills to other business sector (Bartlett & Ghoshal, 1998; Hill et al, 2008).

2.4 PRODUCT-MARKET DEVELOPEMENT STRATEGY

"Ansoff expressed his Product-Market model in excess of 50 years back (Boag & Dastmalchian, 1988)". This model has two measurements: "Markets and Products and presents four development procedures" which are shaped for these two measurements). (Table 1)

TABLE 1: TWO DIMENSIONS

Product-market grid matrix (Boag & Dastmalchian, 1988) **Current products**	**New Products**	
Current markets	Market penetration	Product development
New markets	Market development	Diversification

2.5 GOODS VS. SERVICE

For distinguished achievement figures to global extension in web access organizations it is vital to know the contrasts in the middle of products and administrations. The current research on internationalization of administration organizations isolate into two gatherings. To start with the anyone, which recommend to know about the contrasts about the internationalization to administrations and the globalnationalization in merchandise and furthermore, the which ones don't find other distinctions (Blomstermo & Sharma, 2003). The primary gathering concentrates on those benefits which have to accompanying five attributes:

1. Elusiveness – administrations are imperceptible
2. Intertwined state – concurrent creation/utilization, administrations can't be sent out
3. Perishability – Services can't be put away and showed
4. Variability – Services provide not more institutionalized
5. Proprietorship – Ownership which cannot be exchanged

Another gathering expresses about the negative requirement to an exceptional globalnationalization hypothesis for administration organizations. Present speculations could settlement "them by making basic alterations (Boddewyn 1986)". A study contends about the issues postured through concurrent generation and utilization trademark could be replaced by modulisation. The meaning of the modulisation is explained institutionalization in the administrations of partitioned which could be consolidated by client (Sundbo 1994). "Erramilli (1991)" recommend about a high measure to control in administrative organizations are conceivable to a restricted level in asset duty. There are dangers and expenses for making an entirely possessed auxiliary are restricted to building an office that can generally, effortlessly be shut and Achievement Factors in International Expansion . Exchanged should be in a better place. In the starting and after onperiods of the globalnationalization methodology, administration organizations request high-control remote market.

2.6 MARKET STRATEGIES IN INTERNATIONAL EXPANSION

Universal extensions could be established with distinctive techniques. The hypotheses here it could bepertinent of recognizing conceivableachievement variables. Blomstermo & Sharma (2003) identify twotrademark outside business entrance techniques: customer emulating and business looking for. Customeremulating is protective and implies that the administration organizations tail its current local customers abroad. Business sector looking for is a hostile approach and alludes to an administration, organization enteringremote markets essentially to serve clients wide. This result demonstrates those markets-looking fororganizations liable for utilizing such entrancing modes, for example, trading, unions and joint wander.Customer emulating organizations indicate less inclination for low coordination and control section modes.They chose a completely possessed and halfway claimed backups. "Hollensen (2007)" expresses that"electronic promoting/Internet as an internationalizing technique" implies for administration, organization amplifies for the availability by the utilization of the cutting edge electronic engineering. "Amazon.com" forcase dispatched for the idea together considering that the enthusiasm for its administrations wouldconsequently create outside national fringes. At the point when utilizing electronic promoting the organization which is
not related to any specific area. The administration would be supervised and administered from any place over theworld and still achieve clients all through a tremendous universal business sector by means of Internet associations.

2.7 MARKET STRATEGIES OF ELECTRONIC MEDIA IN INTERNATIONAL EXPANSION

Global developments can be made with distinctive procedures. The speculations around this could be significant to distinguish conceivable achievement variables. Blomstermo & Sharma (2003) identify two trademark outside business sector entrance procedures: customer taking after and business looking for. Customer emulating is opposing and implies that the administration organizations tail its current household customers abroad. Business is looking for a hostile approach and alludes to an administration organization entering outside businesses, principally to serve clients abroad. The results demonstrate that market-looking for organizations are liable to utilize such section modes as trading, unions and joint wander. Customer emulating organizations indicate less inclination for low coordination and control section modes. They chose entirely claimed and mostly possessed auxiliaries. Hollensen (2007) expresses that Electronic is showcasing/Internet as an internationalizing system implies that the administration organization amplifies its availability through the utilization of cutting edge electronic innovation. Amazon.com for illustration dispatched its idea with considering that the enthusiasm for its administrations would naturally create outside national fringes. At the point when utilizing electronic advertising the organization is not bound to any specific area..

3. RESEARCH METHODOLOGY

At the point when leading "a social science research Yin (2003) proposes five potential exploration techniques": test, review, archival examination, history or careful investigation. They every single have preference and inconveniences. Yin gives three criteria for picking the most suitable technique: "i) the nature about exploration question, ii) whether the pertinent behavioral occasions can be controlled, iii) if the examination concentrates on an authentic or current occasion". Since this proposition concentrates on exploratory inquiries, not oblige any control over genuine behavioral occasions "Yin (2003)" shouldrecommend that detailed analysis is the super methodology. Because of the absence of presenting hypotheses and researched inside the particular zone, we surmise those research endeavors are ostensibly the best valuable with the end goal of its theory. Detailed analyses delivered focused around meetings inside chosen significant organizations.An alternate major choice is whether to direct either a solitary, different cases, and additionally various stages of different investigation (Yin, 2003). Here is a unique exchange off: a solitary careful investigation provides all the more inside and out examination of a secluded occasion, however, various careful investigation may give a more noteworthy foundation for belligerence the legitimacy of the experimental discoveries. Because of the uniqueness of this proposal and to discover stronger continuations for the achievement calculates in the worldwide extension of Network access organizations, numerous careful investigations are most proper. This will influence the profundityof the investigation, yet well as preference creates more general determination and as a result be more legitimate for noting the expressed theory question. So as to focus the most proper exploration strategy, this is

imperative to look into what subject should be contemplated. The higher characterized and created speculations, more prominent the likelihood is applying a quantitative study. At the point "when a study is of an explorative nature, Yin (2003) recommends that a subjective methodology is ideal". Subjective methodology considers an all the more top to bottom examination of a particular occasion as restricted to a higher shallow review for a number of occasions (Holme and Solvang, 1997).

4. CONCLUSION

A solid centralistic association where the general administration was directed by the main office is generally seen for every situation all study subjects. The centralistic association model , which is with the general administration incorporated, and nearby association restricted to deals, appears to be an undeniable achievement calculate as it can be gotten from meetings and association perceptions "made of all study subjects" Regarding showcasing and deals four key achievement components with an abnormal state of all inclusive statements were distinguished all through the study; the expansion of business pre studies, deals center amid internationalization, administration productification and also the customer emulating development. The results of that beginning business, the study is a typical achievement component among organizations to some level . There is a moderately express relationship between the multifaceted nature of the plan of action and the degree of business prestudy process .Throughout this subjective study

we have possessed the capacity to recognize various shared achievement components from the research endeavor subjects in each of six separate ranges considered. The most profitable results discovered relating general achievement variables are inside significance to a general centralistic association model and in addition, focal item advancement. Strongest common key achievement elements as indicated by the case study subjects , Centralistic association structure , Central item advancement , "High level of market" prestudy, Stand-alone nation plan and High stage of offers centering.

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IMPLEMENTATION OF IFRS IN INDIA: OPPORTUNITIES AND CHALLENGES

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ABSTRACT

The purpose of Accounting Standards is to standardize the diverse accounting policies and practices to eliminate the non-comparability of financial statements and their reliability to the extent possible. As it is essential to provide financial information of a company to all its stakeholders in accordance with internationally accepted financial norms. A number of multi-national companies are establishing their businesses in various countries and are increasingly accessing the global markets to fulfill their capital needs by getting their securities listed on the stock exchanges outside their country in which India is one of them, and also decided to converge to International Financial Reporting Standards in a phased manner with the suggestions of regulators, standard setters and law makers by the road map. A wide section of the industry is already debating about the impact that they are going to have on transitioning to IFRS. This paper provides the information regarding the adoption process of IFRS in India, the utility and challenges of adopting it. It also discussed the problems faced by the stakeholders in the process of adoption of IFRS in India It was found from the study that regulatory bodies and laws related to various acts need to be amended , and there is a need to educate and train various levels of employees and authorities in the organizations. Even at academic level to the students for their future careers. The result of implementation of IFRS in India will be known only when it is implemented in full fledge.

KEYWORDS
Adoption process, benefits, challenges of implementation of IFRS, need for IFRS in India.

INTRODUCTION

Provision of essential financial information about a company to its shareholders and other stakeholders in accordance with internationally accepted financial norms is considered as an integral and important part of good corporate governance. As number of multi-national companies are establishing their businesses in various countries to expand their business. In the emerging economy most of the companies are accessing international markets for capital requirements by getting their securities listed on the stock exchanges outside their country, even Indian companies are also being listed on overseas stock exchanges. To take investment decisions investors need to compare the financial positions of various organizations established in the country as well outside the country, to cater this need all the organizations across the world need to follow uniform standards and policies to prepare their financial statements. Sound financial reporting structure is imperative for economic well-being and effective functioning of capital markets. To ensure this and to achieve a single set of high quality global accounting standards, the Indian Government has taken a decision to achieve convergence of Indian Accounting Standards with IFRS in a phased manner beginning with April, 2011. The policy of 'convergence' of Indian Accounting Standards with IFRS would provide reliable and comparable financial information to investors globally. Such converged accounting standards also aim at bringing more transparency in financial matters, thus seek to protect the interests of investors and improve standards of good corporate governance.

REVIEW OF LITERATURE

- **Atul khurana(2014):** In order to ensure transparency consistency, comparability, adequacy and reliability of financial reporting, it is essential to standardize the accounting principles and policies, Accounting Standards provide framework and standard accounting polices so that the financial statements of different enterprises become comparable.
- **Atul khurana(2014):** Objective of Accounting Standards is to standarize the diverse accounting policies and practices with a view to eliminate to the extent possible the non-comparability of financial statements and the reliability to the financial statements.
- International Financial Reporting Standards (IFRS) are principle based standards as against the rule based standards currently in force; that establishes recognition, measurement, presentation and disclosure requirements relating to transactions in the financial statements. IFRS was developed in the year 2001 by the International Accounting Standards Board (IASB) to provide a single set of high quality, understandable and uniform accounting standards.
- **Dr Vidhi Bhargava (2013)**IFRS adoption will not only open up a bundle of benefits to Indian Corporates but it will also open up a host of opportunities for accounting professionals. As IFRS is principle based, it will provide cross border activities to professionals including accountants, valuers, auditors & actuaries, which will boost the growth prospects for BPO/KPO segments in India. The mobility of accounting professionals in industry also increases in all parts of the world.
- **Pawan Jain(2011):**The process of financial reporting of business activities was started in 2005 when European Union made it mandatory for publicly traded companies to present consolidated financial statements in conformity with International Financial Reporting Standards (IFRS) starting from January 01, 2005. Earlier, since the late 1990s, companies in some European and Asian countries were allowed to use International Accounting Standards (IAS) as a substitute for their respective domestic Accounting Standards. But IFRSs were adopted legally first time in 2005 by European Union. Other countries with developed capital markets have adopted or in the process of adopting IFRS for reporting purposes.

India as a developing country is encouraging multinational companies to encourage foreign investments and even is allowing domestic companies to establish their entities in other countries to grab the market by entering in their capital markets for which the companies need to
provide relevant data of financial statements to investors to take investment decision. This led to adoption of common accounting standards by the entire companies world wide.

OBJECTIVES OF STUDY

1. To study the need for adopting IFRS in India
2. To discuss the IFRS adoption procedure in India
3. To discuss the utility for India in adopting IFRS
4. To discuss the problems faced by the stakeholders in the process of adoption of IFRS in India

RESEARCH METHODOLOGY

The study is conceptual in nature and is qualitative. The data has been collected through secondary sources from journals, news papers, text books, and IFRS website. As IFRS implementation procedure is yet to be completed in India. The paper, therefore, does not discuss the post IFRS implementation impact on Indian corporate ate financial reporting system.

HISTORY OF IAS/ IFRS

The developing accounting and corporate reporting led to the acceptance of **Generally accepted accounting principles** (**GAAP**) which refers to the guidelines for financial accounting used in any given jurisdiction generally known as accounting standards.

The GAAP led to:

- Different countries started using their own accounting standards due to cultural differences.
- Accounting rules which were different in various countries though they followed a set of accounting standards established by accounting regulators to rule and regulate the accounting profession. E.g. the UK had SSAP/FRS, USA had US GAAP, Canadian GAAP and Ghana had GNAS. Etc. These differences resulted in lack of uniformity in financial statements prepared in different countries which failed to meet the quality of financial statements.
- Translations of companies' financial statements into other countries GAAP has resulted in to losses.
- Due to different legislations and regulations for different countries, Working in different countries as accounting professional or auditor in those countries became difficult

The International Accounting Standards Committee (IASC) was established in mid-1973 with mandated of developing new international standards, which would be accepted and implemented globally. In April 2001 it got transformed in to IASB.A series of accounting standards, known as the International Accounting Standards, were released by the IASC between 1973 and 2000. The series started with IAS 1, and concluded with the IAS 41, in December 2000. In April 2001, when IASB become operational, they agreed to adopt the set of standards that were issued by the IASC, i.e. the IAS 1 to 41, but any standards to be published after that would follow a series known as the International Financial Reporting Standards (IFRS).

Many countries recognized the need for adopting of accounting standards and are moving towards its implementation where others are more passive in their approach.

The timeline for the governance of India with IFRS is given in the year 2010 was as follows.

TIME LINE FOR ADOPTION OF IFRS

Phase		Target date for convergence to IRFS
I-	India Companies with net worth of Rs. 1000 crore and those which are part of BSE sensex, NIFTY and companies listed in overseas exchanges.	April 2011
II-	India All companies with a net worth between Rs. 500- 1000 Crore and banks & non banking finance companies.	April 2013
III-	Listed entities with net worth of 500 crores or less	April 2014

Sources: Knowledge for markets, Vol.1, No.3 April 5,2010

Following are the deadlines for Insurance, Banking, Non banking financial companies:

Class of companies	Criteria for phased implementation	Target date for convergence to IRFS
Insurance companies	All insurance companies	1 April 2012
Banking companies	✓ All scheduled commercial banks and urban co-operative banks with networth in excess of Rs. 300 crores. ✓ Urban co-operative banks with net worth in excess of Rs. 200 crores but not exceeding Rs. 300 crores.	1 April 2013 1Aptil 2014
Nonbanking financial companies	✓ NBFCs which are part of NSE- NIFTY 50 index. ✓ NBFCs which are part of BSE- SENSEX 30 index. ✓ Listed and unlistrd NBFCs with netwoth in excess of Rs. 1000 crores. ✓ All listed NBFCs which do not fall under the above category. ✓ Unlisted NBFCs which do not fall under the above category which have a net worth in excess of Rs. 500 crores .	1 April 2013 1 April 2014 1 April 2014

Source: IJCEM International Journal of Computational Engineering & Management, Vol. 15 Issue 6, November 2012 ISSN (Online): 2230-789, www.IJCEM.org.

The Council of the ICAI, on March 20-22, 2014, has finalised the roadmap. The revised roadmap recommends Ind AS to be implemented for the preparation of Consolidated Financial Statements of listed companies and unlisted companies having net worth in excess of Rupees 500 crore from the accounting year beginning on or after 1st April, 2016, with previous year comparatives in Ind AS for the year 2015-16. The stand-alone financial statements will continue to be prepared as per the existing notified Accounting Standards which would be upgraded over a period of time.

The Ministry of Corporate Affairs (MCA) had earlier notified Ind AS converged with IFRS in 2011, but the Ind AS were not notified, as per the Press Release issued by the MCA, primarily due to tax implications. Since then the Parliament has passed the new Companies Act, 2013, which is in the process of notification by the MCA. The new Act has introduced various new provisions, including requirement to prepare Consolidated Financial Statements, which would facilitate implementation of Ind AS converged with IFRS.

IFRS ADOPTION PROCEDURE IN INDIA

To establish uniformity in accounting practices the Indian Government in 1949 established Institute of Charted Accountants of India (ICAI act 1949) for the same reason ICAI constituted Accounting Standard Board (ASB). The objectives of the Board are: (i) conceive of and suggest new areas in which Accounting Standards are needed, (ii) formulation of Accounting Standards, (iii) examine how far IAS and IFRS can be adopted while formulating the accounting standards and (iv) review the existing Accounting Standards and revise them regularly based on the necessity. In 2006, a task force was set up by ICAI to prepare a road map for the adoption of IFRS.

THE 3 STEP PROCESS WAS RECOMMENDED BY THE TASK FORCE FOR THE ADOPTION OF IFRS IN INDIA IS GIVEN BELOW:

Step 1 – IFRS Impact Assessment: In this step, the firm assess the impact of IFRS adoption on Accounting and Reporting Issues, on systems and processes, and on Business of the firm then it will decide the key conversion dates and accordingly an IFRS training plan will be laid down. Once the training plan is in place, the firm will have to identify the key Financial Reporting Standards that will be applied by the firm and also the differences among current financial reporting standards which are followed by the firm and IFRS. The firm will also identify the loopholes in the existing systems and processes.

Step 2 – Preparations for IFRS Implementation: This step will carry out the activities required for IFRS implementation process. It will begin with documentation of IFRS Accounting Manual. The firm will than revamp the internal reporting systems and processes. IFRS 1 will guide the first time IFRS adoption procedure. To make the convergence process smooth, some exemptions are available under IFRS 1.These exemptions are identified and applied.

Step 3 – Implementation This step involves actual implementation of IFRS. The first activity carried out in this phase is to prepare an opening Balance Sheet at the date of transition to IFRS. proper understanding of the impact of the transition from Indian Accounting Standards to IFRS is to be developed. This will follow the complete application of IFRS as and when required. First time adaptation of IFRS requires to the training to the accounting practitioners and auditors, they may experience some difficulties. To ensure a smooth transition from Indian Accounting Standards to IFRS, Continuous training to staff and addressing all the difficulties that would be experienced while carrying out the implementation is also required.

UTILITIES FOR INDIA IN ADOPTING IFRS

As how companies in different countries are getting benefited by adopting IFRS .India being a developing country by adopting IFRS would get benefits to spread in the global market.

1. EASY ACCESS TO CROSS-BORDER CAPITAL MARKETS

Indian economy has emerged as strong economy during last decade. Indian companies are not only establishing plants in other countries but also acquiring other entities across the world. To serve this purpose, the firm requires funds at cheaper cost which is available in American, European and Japanese Capital Markets. To acquire the capital from these countries Indian need to meet the regulatory requirements of the above stated market by maintaining their financial reports according to IFRS guidelines. Hence the adoption and implementation of IFRS will helps Indian firms in accessing global markets for the requirement of funds and also makes available funds at cheaper cost.

2. COMPATIBILITY IN COMPARISON

The adoption of IFRS by Indian companies makes easy to compare one company with other. With this reporting process Investors, Bankers and Lenders and prospective investors can easily compare the two financial statements as Indian firms have to provide financial results to interested parties while raising funds from cross border capital markets. As major Indian business entities are operating European Capital markets by preparing and presenting financial statements according to IFRS and the firms are getting easy accessibility to such markets.

3. EASY LISTING OF COMPANIES IN GLOBAL MARKET

It will be easy for Indian companies to acquire capital from the global market by adopting IFRS in preparation of financial statements.This will help them in listing in various stock markets by disclosing financial information in IFRS standards.

4. QUALITATIVE FINANCIAL REPORTING

Implementation of IFRS ensures better quality of financial reporting due to regular application of Accounting Principles and improves the reliability of financial statements and accounting practices. As IFRS follows a concept of true/ fair value which will help Indian entities to reflect their true worth of Assets in the financial statements.

5. ELIMINATION OF MULTIPLE REPORTING

Most of Indian companies are not only listed in Indian stock markets but also outside India in European and American capital markets. The corporate houses registered in India are maintaining their accounts as per Indian Accounting Standards whereas the firms registered outside India, prepare their financial statements as per the Accounting Standard of the respective country. By adopting IFRS, multiple financial reporting standards can be eliminated by such firms as they are following common standard financial reporting.

CHALLENGES IN THE PROCESS OF ADOPTION OF IFRS IN INDIA

ICAI set up a task force in 2006 to study and suggest a path for adoption of IFRS in India. They have recommended a 3 phase programme which was discussed above. Many professional explained about the benefits of adoption of IFRS, but some practical problems may arise while adopting the IFRS. Some of them have been mentioned below

1. AWARENESS OF IFRS PRACTICES AMONG STAKEHOLDERS

Adoption of IFRS means a complete set of different reporting standards have to be implemented. Most of the stake holders like Firms, Banks, Stock Exchanges, and Stock Exchanges etc. do not have awareness of adoption of IFRS. To bring a complete awareness of these standards among these parties is a difficult task.

2. TRAINING AND EDUCATION TO THE PROFESSIONALS

For successful implementation of IFRS, Accountants, Government officials, Chief Executive Officers, Chief Information officers should be well trained and educated as they are responsible for a smooth adoption process and implementation of IFRS. India lack training facilities to train such a large group. It has been observed that India does not have enough number of fully trained professionals to carry out this task of adoption of IFRS in India.

3. AMENDMENTS TO THE EXISTING LAWS

In India, Accounting Practices are governed mainly by Companies Act 1956 and Indian Generally Accepted Accounting Principles (GAAP). Existing laws such as Securities Exchange Board of India regulations, Indian Banking Laws & Regulations, Foreign Exchange Management Act also provide some guidelines on preparation of Financial Statements in India. But,IFRS does not recognize the presence of these laws so, accountants will have to follow the IFRS fully with no overriding provisions from these laws. Indian Lawmakers will have to make necessary amendments to ensure a smooth transition to IFRS.

4. TAXATION

IFRS adoption will affect most of the items in the Financial Statements and consequently, the tax liabilities would also undergo a change. Currently, Indian Tax Laws do not recognize the Accounting Standards. A complete change of Tax laws is the major challenge faced by the Indian Law Makers in this short tenure. Enough changes are to be made in Tax laws is not a small task.

5. USE OF FAIR VALUE FOR VALUATION OF ASSETS AND LIABILITIES

Fair value means the amount at which the asset could be sold or bought in a transaction between two parties. Presently Indian companies valuing their assets and liabilities at historical cost. According to IFRS companies need to value the assets at their fair value, which generates lot of volatility and subjectivity in financial statements .Because of which the changes in gains and losses of assets and liabilities will have impact on income statement and the adjusted values of the these assets and liabilities will show impact on the balance sheet. Therefore Indian Corporate World which has been preparing its Financial Statements on Historical Cost Basis will have tough time while shifting to Fair Value Accounting.

6. FINANCIAL REPORTING SYSTEM

Indian corporations need to make changes in their reporting system which suits the reporting system of IFRS. The amended reporting system will take care of various new requirements of IFRS. The above challenges can be overcome by bringing a proper Internal Control & Reporting system in place. Firms, Regulators and Stock Exchanges in India should take some guidelines from the countries which have adopted the IFRS and have similar economic, political and social conditions.

SUGGESTIONS

The solution to the problems arises while adopting of IFRS in India.

- All the stakeholders in the organization should be trained and educated about IFRS practices specially accountants, auditors in preparation of financial statements.
- IFRS should be introduced as a full time subject in the universities.
- Timely steps should be taken to ensure amendments in the existing laws to the extent they are inconsistent with the provisions of IFRS.
- Taxation laws should make amendments in the treatment of tax liability as per IFRS
- Indian Firms will have to ensure that existing business reporting method is amended to suit the requirements of IFRS.
- All regulatory authorities like SEBI, RBI,IRDA, Companies act, Foreign Exchange Management Act, Tax laws need to come together and make required amendments in their respective areas to smoothen the process of IFRS adoption.
- Adopting International Financial Reporting Standards is not enough. Each interested party, namely Top Management and Directors of the Firms, Independent Auditors and Accountants and Regulators and Law Makers will have to come together and work as a team for a smooth adoption of IFRS procedure.
- Indian banks and other institutions need to gear up the process of hiring consultants to train their employees in International Financial Reporting Standards (IFRS).
- To ensure that all the Firms are complying with adoption procedure, Indian lawmakers and Accounting Body (ICAI) should have a Financial Reporting Compliance Monitoring Board. Other than the internal monitoring department for every firm, the board can play the advisory role also for the firms on IFRS Adoption Procedure.

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EXTENT OF USING ELECTRONIC AUDIT AND DISCLOSURE METHODS, AND OBSTACLES FACING THEIR IMPLEMENTATION IN JORDAN

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ABSTRACT

The study aims to identify Extent Of Using Electronic Audit And Disclosure Methods, And Obstacles Facing Their Implementation. A questionnaire was designed by the two researchers and distributed for the purpose of the study, the number of questionnaires distributed were (50) questionnaires (44*) questionnaire from them were suitable for analysis. The questionnaire data was analyzed using the (SPSS) and a number of statistical techniques through descriptive statistics, arithmetic means, and standard deviations and percentages, the study hypotheses were tested by T- test. The study found that the companies apply to a great extent the e-disclosure methods. and also there are many obstacles facing e-disclosure and auditing operation Companies and auditing offices try to overcome the obstacles facing disclosure and auditing operations through enhancing the trust of data and financial information users of the benefit of the disclosed or audited information electronically in making-decisions process.*

KEYWORDS
Electronic Audit, Electronic Disclosure, Auditing.

INTRODUCTION

The major goal of electronic audit is to evaluate and understand the weak and strong points in the accounting information systems since the auditors need to evaluate the accuracy and the reliability of the information presented by the computerized accounting information systems so as to use this information in taking decisions concerning the truth and fairness of financial statements**.** to increase the ability of judgment on the financial statements and to increase audit quality , concurrent audit is used to measure the components of the electronic environment complication to come up with high quality results taking into account that the electronic environment is more complicated than the traditional one because the auditor has to retrieve and remember the important information and to find different ways to adapt to the systems' complication (Rosman, anddrew ,et al. ,2006,P59). The concurrent audit's function is to test the programs at the same of time of work without stopping the system (Mcleal Raymond and Schell george**,** 2001.P430).
Because of the technical development in the field of electronic computers and the expansion of its use in all the scientific areas , the nature of inputs and ways to get output have changed and so it was a necessity for the methods of external auditing to cope up with the every development and change . Undoubtedly, any change means a change in the philosophical approach which auditing methods rely on. In other words , means of auditing will transfer from the traditional auditing to the auditing around or through or by the computer (Goma`,2012,p 369)

THEORETICAL FRAME & PREVIOUS STUDIES

1. The study of Dneibat(2008) aimed to determine the role of information technology in auditing process in Jordan in terms of the areas where the external auditors use information technology in different fields and activities of auditing . the study also aimed to evaluate the extent of using information technology in the specified fields and the effects of this use in the efficiency and effectiveness of auditing process. Results showed sing information technology in the fields of planning , control and documentation helps greatly in achieving and improving the efficiency and effectiveness of auditing process despite the problems that hinder taking decisions process to utilize information technology in a way that leads to improve the efficiency and the effectiveness.
2. The study of Migbil(2003) aimed at clarifying the systems which the companies use in processing the electronic information and identifying types of fraud and error that can be committed in the systems of the electronic data processing . the study also aimed to identify the most efficient ways of auditing that are used in light of the electronic environment of data processing and to determine the most technological methods which are the most effective ones in discovering the error and fraud used in auditing. Results revealed that auditing through the computer is the most ways of auditing used to discover the errors in light of the electronic environment of data processing and the most effective techniques in discovering the errors were Simulation of parallel method and the Optional data method.
3. 3. The study of Poonpool,Chanthinok (2011) aimed to identify the effect of Computerized-audit competency on audit efficiency and to examine the relationships among Computerized-audit competency. The study also aimed to identify the best methods to check fraud operations . Additionally, the study aimed to examine saving time factor as an effective mediator on the relation between computerized audit and the auditor's judgment and to examine the relation between the auditor's psychology as an effective mediator between the auditor's judgment and his efficiency . Results showed the impact of audit judgment is directly related on audit independence and then, audit independence also has positive influence on audit efficiency.
4. The study of Omoteso,e (2010) aimed at identifying the effects of information and communication technology in auditing accounts and auditors in addition to the consequence effects in the audit and audit offices' tasks as a result of using audit with the computer. Moreover, the study aimed at identifying the effects of information and communication technology in the organisations where auditors work for from the point of view of coordination, control, authority and structure. Interview were carried in 2005 in UK n accounting companies BIG4 ,other accounting companies , institutions of public sector and organizations . results showed reliance on information and communication technology and technology in the field of auditing the accounts tends to reduce the number of the unqualified auditors in the audit offices.
5. 5.The study of Chaveeru&Ussahawanitchakit (2009) aimed to identify the relation between the effective implementation of auditing accounts with the computers in the performance through the influence of the judgment quality of auditing accounts which makes error value in looking for data low in

addition to identify specific courses specialized in auditing public accounts. Results showed the effective implementation of auditing the accounts with the help of the computer has positive relations in the judgment quality and there were effective and positive relations with auditing with the help of the computer.

6. The study of Alfehaid,Higson(2008) aimed to identify the importance of auditing in information technology environment in Saudi Arabia . The analytical descriptive approach was used through interviewing accounts auditors working the companies in Riyadh and Breeda randomly. The study concluded that problems facing the external auditor related to the customers' accounting systems and lack of the specialized employees who deal with accounting systems based on information technology. results also showed points of weakness in the customers' internal control systems and the customers' rapid use of information technology complicated the work of the external accounts auditors.
7. The study of Hayale,Abu Khadra (2006) aimed to evaluate the level of control systems and the efficiency of computerized accounting information systems in the Jordanian banks and to keep the privacy and transparency plus to provide data to the banks. Results showed that Jordanian banks do not have effective control and there were many fraud operations without being discovered and using control limits errors and fraud while it does not work carefully towards (Physical access, Logical access, Data security, Documentation standard, Disaster recovery, Internet, communication and E-Control and Output security controls).

E-AUDITING OF ACCOUNTS

The auditor is responsible to express his neutral opinion about fairness of the financial statements and so his opinion is not changed according to the change of operating accounting data and preparing the records. In other words , the auditor is committed to the common auditing standards whether operating the accounting data was manual or electronically. Ad therefore, traditional audit procedures are no longer suit systems of operating data electronically so the auditor has to have knowledge in the computers(Kahal,2010,200).

Although there were many definitions of the process of E-audit of accounts but there is an agreement to some extent on the following definition: it is a process of collecting and evaluating that aims to determine whether the computer system helps in achieving the desired goals and the specific administrative ones as protecting the company's assets, achieving efficiently the company's goals , and using its resources efficiently and effectively (Al-rawi,2009,200). And e-audit of accounts can be defined as follows : it is a process of application to any system using information technology to help the auditor in planning , control and documenting auditing (Hamdoona, 962).

OBJECTIVES AND ADVANTAGES OF E-AUDIT OF ACCOUNTS

The purpose of e-audit is to audit and evaluate the internal control that protect the system so the auditor has to check the availability of the following : the availability of precautionary measures to protect the computer and software, telecommunications and data from the unauthorized access or from vandalism, the preparation of the software and purchasing them by the management's authorization , checking accuracy and completion of the transactions , files and reports , dealing with the original data according to the management's policies and checking the accuracy and the completion of the computers files (Steibart& Romni,456).

It is necessary for the auditor to know the functions and the abilities of the computers which will help greatly to achieve the following objectives (Al-kateeb&Mesad,2009,284-285)

1. Checking the truthfulness of the procedures quickly with accuracy and less cost than the traditional auditing.
2. Classifying data and choosing samples directly from the records.
3. The ability to read and type the reports , papers of auditing and the ability to implement the logical processes .
4. Examining the accounting records to detect unusual factors.
5. Preparing payrolls of the auditor's samples , results of auditing procedures and enclosing them in the auditing papers.

STAGES OF e-AUDIT OF ACCOUNTS

The process of e-audit process passes by the following stages (Al-hifnawi,2001,311)

1- Organizational auditing: it is the first stage in auditing where element of this system were identified ;equipments, documents , people, procedures , regulations and reports.
2- Application auditing: it aims to audit the steps of developing accounting information systems to make sure that the system achieved its goals and requirements including technical, economic ,operational and legal aspects in case there was a transition from the old system to the new one appropriately without harming the existed system.
3- Detailed auditing: it aims to audit the accounting software the process the transactions data in the accounting information system by ensuring the safety and the accuracy of inputs and to make sure that there is an effective and independent control of its process.

OBSTACLES FACING ACCOUNTS e-AUDIT

Auditing offices may face obstacles and problems that accompany the process of e-audit , some of these problems are as follows (Dneibat: 262):

1- The auditors' assistants' lack of experience in the field of computer .
2- Difficulty of keeping the privacy of important information
3- The auditors' lack of enthusiasm towards using the computer
4- Difficulty of applying the computer's programs in reality .
5- Auditing needs high skills in using computer
6- Killing the creativity of auditors who use the computer and the increase of the employees' number in the audit offices.

After addressing the problems facing audit offices using the computer , it is necessary to distinguish between audit accounts methods in the computer's field :

ELECTRONIC AUDIT OF ACCOUNTS METHOD

The auditor faces risks in using information technology systems and this risk refers to the fact that input and output e-operation were stored on tools or means that can be read by the computer which may cause lost or disappearance of auditing route and therefore auditing accounts can be done through or about the computer (Gomaa`,p369). Consequently, using e-systems implies having different methods of auditing which are according to Qabani(2006,p176) " methods of auditing the accounts are "around" or "through" or "by" the computer".

AUDIT AROUND COMPUTER METHOD

The auditor follows auditing route starting from data access to the computers till they get out as printed reports regardless the use of control methods in the central unit for his belief that the output accuracy is based on the outputs validity and truthfulness (Al-qabani,p177)

AUDIT THROUGH COMPUTER METHOD

In this method, the auditor follows the track of accounts audit starting from the computer internal operations to process data through operation system in order to examine and evaluate methods used in the central unit of the accounting systems(Al-Rawi,p 305). It is possible to say that his method is used in two areas : the first area : in the field of checking operation levels which implies checking the use of safety means and the validity of the programs used . Concerning the other area, it checks the truthfulness and results' accuracy generated from operating data through the computer by carrying out basic test to confirm its use. (Hijazi,2010:303-305)

AUDIT WITH COMPUTER METHOD

The early programs of these methods have developed since 1960 and have been used in the field of accounting , audit accounts and the internal audits in the sampling applications in accomplishing tests of accounts audit and any other tasks of audit that were used to be done manually(Abd-raboh:244). Auditing techniques or methods by the computer are used as a toll to collect and analyze the necessary data for processing the important data for auditing by the e-systems(Budacia ,2010.P117). auditing account with the computer means that the auditor uses the computer to read data so as to check its validity and to choose sample and carry out necessary steps to get the appropriate evidences and to print the results in a clear way.

THE EXTERNAL AUDITOR'S RESPONSIBILITY IN e-AUDITING

The responsibility of the external auditors is shown through the following (Garbo,2000,p:386).:

1. Provide the company's administration with the accurate accounting financial data which are adopted in planning and taking decisions stages .
2. Protecting the company's assets and properties from embezzlement.
3. Encouraging productivity competency
4. To make sure all the employees in the company are committed to the implementation of the procedures to achieve its goals
5. Providing financial trusted records to prepare the reports for the internal and external use
6. Having the appropriate people in the proper positions
7. Providing the suitable procedures for recording the operations
8. Physical control over the assets, records, documents availability and proper records.

CHALLENGES FACING EXTERNAL AUDITOR IN THE ELECTRONIC AUDITING

he external auditor faces a set of challenges as a result of using the computers in the accounting systems , and most important challenges are as follows (Khateeb&Misa`d,273-275)

1- It is difficult for the auditor to follow the system of data flow inside the computer's system .
2- The auditor's lack of knowledge of the computer's techniques and the necessary technical knowledge .
3- Disappearance of auditing track which leads to the difficulty of access to the documents.
4- It is easy to enter data wrongly purposefully or not and the difficulty to discover it .
5- It is difficult to follow data because of the viruses in the computer.
6- The responsible group of analyzing the systems lacks the experience of the accounting systems plus the computers managers' lack of experience causes more errors and even the failure in operating and storing data in addition to the shortage of information which are necessary to control's planning or taking decisions.
7- The inability to achieve the internal control because of the separation between the tasks in the process of using the computer.

GOALS THAT THE EXTERNAL AUDITOR COULD ACHIEVE IN THE ELECTRONIC AUDITING

Some goals which the external auditor can achieve using the computer to save time and efforts are as follows (Al-deiba &others, p41):

1- Using the computer in implementing the calculations to check accurately the calculations procedures which the company did .
2- Using the computer capabilities in implementing logical operations to classify different files and choose directly samples of factors from the electronic records to check their validity as choosing samples from the customers' accounts to send approvals.
3- Using the computer's capabilities in reading and printing to prepare approvals, or inventory lists, or any other issues concerning collecting evidences .
4- Using the computer's capabilities and memory in implementing logical operations to do directly mathematical analysis.
5- Using the computer's capabilities in examining the accounting records so as to detect unusual items as customers' credit balances, or slow moving inventory items through printing them for further studying and discovering reasons for having them.
6- Using the computer's capabilities in calculating and preparing auditing samples and auditing results in a way that can be read easily.

THE STUDY'S PROBLEM

In light of the great progress in all the economic areas, the audits have to make great effort so as to express their opinions towards the fairness of financial statements. Because of the tremendous development in information technology , using the computer in daily operations of auditing, the society's needs of expressing its opinion of fairness of financial statements, lack of a clear role of the auditor in the financial society and his responsibilities , the reports' inability to keep up with the changes in the financial society (users of accounting information)(Garbo,2007:p386) plus the need to increase the trust of output of the e-audit operation , this study aims to identify the extent to which e-audit is used by the Jordanian accounts auditors, and therefore the problem of the study is summarized by answering the following major question:

"What is the extent of the Jordanian account auditors' use of e-audit in auditing companies' accounts in Jordan? And the following sub-questions were extracted from the major question:

1- What is the extent of the Jordanian account auditors' use of e-audit methods?
2- What is the extent of the Jordanian account auditors' application of e-disclosure from the perspective of Jordanian account auditors?
3- What are the obstacles facing the application of electronic audit and disclosure from the perspective of Jordanian account auditors?

THE STUDY'S SIGNIFICANCE & OBJECTIVES

The significance of the study lies in getting more trusted information through using better method of auditing the electronic accounts so as to have decisions with greater quality. Many parties rely on the report which is resulted from this audit as investors and government agencies . it is true that when report is clear , it is trusted more by the beneficiaries of these reports that use concurrent audit techniques which helps in providing trusted results of the audit process on time. The objective of this study is to identify the extent of the electronic disclosure's application in the Jordanian companies and the electronic audit in the Jordanian audit offices and to identify the obstacles facing their application .

STUDY'S HYPOTHESES

The hypotheses of the study are as follows :

HO1: the Jordanian auditors do not use methods of e-audit in auditing the Jordanian companies' accounts.
HO2: the Jordanian companies do not apply the e-disclosure from the perspective of the Jordanian auditors .
HO3: there are no obstacles facing the Implementation of electronic audit and disclosure from the perspective of the Jordanian auditors.

POPULATION AND STUDY SAMPLE

The study population consists of the of auditors, which is (44) auditors who deal with e-auditing and e-disclosure. A questionnaire has been distributed for the auditors. The number of distributed questionnaires was (50), (44) questionnaire from them were suitable for analysis. Thus, the percentage of valid questionnaires and recovered for analysis (88%).

STATISTICAL ANALYSIS

A field for answers has been identified, by giving five options for each question to know the opinion of Respondents about the using of internal auditing standards, identifying their set levels by using Five Likert scale, According to the table below:

TABLE 1: MEANS & STANDARD DEVIATIONS OF THE DEGREE OF THE COMPANIES' USE OF THE ELECTRONIC DISCLOSURE METHODS

Item	Mean	Std
1. Many companies use electronic disclosure of the financial statements	4.92	.38
2. e-disclosure via internet to update the information and provide its users of the latest financial and nonfinancial information.	4.92	.61
3. The auditor has a trust in the e-disclosure of the information (correct and objective).	4.83	.500
4. The information in the financial statements are linked with the administrative decisions and the nonfinancial information	4.64	.500
5. Company under auditing has the ability to protect its website from unauthorized access internally and externally	4.67	.49
6. Auditor's report shows that the company is responsible for results of any manipulation with e-disclosed report	4.61	.49
7. The company uses PDF for e-disclosure or any other program that reduces manipulation	4.89	.38
8.e-report is signed by the audit office and the auditor and it is protected legally.	4.83	.94
9. The auditor announces he is not responsible for any hyperlink with the disclosed financial statements or any files are not signed by the audit office .	4.64	.38

It is noted that the items' means were high as they ranged from 4.58 to 4.92 and items 1: " Many companies use electronic disclosure of the financial statements," came in the first rank with a mean (4.92) and std (0.38) which enhances the auditors' trust of the information which are disclosed electronically by the these companies.

It is worth mentioning here that these companies try to develop its disclosure operations continuously and this was clear in item 2 : " the company updates the website ," and this enhances the trust of the disclosed information and it guarantees the safety of its website from any manipulation especially when the company announces its responsibility in case there was any manipulation and this was stated in item(6).

TABLE 2: MEANS &STANDARD DEVIATIONS OF THE COMPANIES' DEGREE OF USING e-AUDITING

Std	Mean	Item
1. the auditor presented his report without allowing any one to adjust or change it	4.7222	.63932
2. the financial information are linked to the accompanied tables for general explanation	4.5833	.47809
3. the company under auditing guarantees that the audited financial information do not overlap with the unaudited information	4.5833	.48714
4.company under auditing pays attention for updating its website to increase its safety and protect it from any hacking.	4.6389	.49441
5. office of audit issued a paper copy of the audited report to enhance the e-report	4.6389	.31873
6. audited data were distinguished by color or type of font or any other way	4.6389	.48714

It is clear from table 2 that all the items' degrees are high as the means ranged from 4.58 to 4.72 and item : " the auditor presented his report about the financial statements without allowing any one to adjust it or change it," was in the first rank with a mean 4.72 and standard deviation 0.63 and this enhances information users' trust . it is worth mentioning that accounts auditors try to develop audit operations continuously through linking the financial information to the accompanied tables to explain the information generally , issuing a paper copy of the e-report , and identifying the audited information by color ,or type of font or any other mean and this would enhance trust degree of the audited information.

TABLE 3: MEANS & STANDARD DEVIATIONS OF OBSTACLES FACING THE COMPANIES' USE OF THE ELECTRONIC DISCLOSURE AND AUDITING METHODS

Obstacles	M	Std
The company under auditing does not have the ability to deal with e-disclosure	3.5278	.94070
The companies are not convinced of the safety of e-disclosure	3.5278	.69636
The companies are not convinced of the benefit of e-disclosure	3.5000	.73679
Lack of an expert of updating website for the purpose of e-disclosure	3.6111	.76636
The auditor's lack of trust of the e-information to be audited	3.1389	.89929
Office of audit does provide e- infrastructure as (networks ,internet) that have enough efficiency to implement auditing process on the financial information	3.0000	.92582
The auditor tends to deal with paper financial information more than dealing with e-information and so he prefers paper disclosure	3.8000	.75926
Accounts auditors' lack of ability do deal with information or e-disclosure	2.6944	.82183
Users of financial statements do not trust e-information	3.1143	.83213
Users of financial statements do not trust e-information	3.3143	.79600
All users of financial statements do not have the ability to deal with e-information for cultural reasons	3.2000	.93305
All users of financial statements do not have the ability to deal with e-information for lack of trust of information security	4.1667	.50709
Weakness of internet service supplier& slowness	4.9167	.28031
Internet supplier does not guarantee protecting the website from any hacking despite of purchasing programs of to protect information from hacking or viruses.	3.5278	.94070
Total	***4.2222***	***0.46972***

It is noted from table 3 that all the items' level was high as the means ranged from 2.69 to 3.80. item 5 : " the auditor tends to deal with paper financial statement than dealing with e-information and therefore to deal with paper disclosure ," got a mean 3.80 and standard deviation 0.76.

Table 3 showed auditors' agreement on the existence of these obstacles and so it is expected that such thing will limit the use of e-disclosure and auditing but the results mentioned in table 1 showed that although of having such obstacles but the companies insisted on using these methods concerning the e-disclosure. Table 3 showed that the auditors' lack of ability in dealing with information and e-disclosure was the least obstacle that may hinder the application of e-disclosure which indicates the auditors' efficiency and their keeping up with the latest developments in the career.

The researchers expected that these obstacles will reduce the degree of using e-disclosure through increasing the companies' and auditors' belief of the lack of feasibility and usefulness of e-disclosure although it is not considered an obstacle of using it. Despite using e- disclosure methods with a high degree and the companies' try to overcome obstacles facing using them , but the users of data do not accept these methods nor the financial and non financial output which are issued by these companies.

The greatest obstacle was related to service suppliers in terms of weak and slow services which were presented to the companies with a mean (4.92) followed by "the inability of all users of financial statements to deal with e-information", and this may due to the users' lack of trust of information security (4.67) or their lack of ability to deal with e-information culturally.

The researchers expect that these obstacles will reduce the degree of using the e-audit of disclosure methods by increasing the companies' and auditors' belief of the lack of feasibility and usefulness of e-disclosure or auditing although it is not considered an obstacle facing using it. Despite using e- disclosure methods

with a high degree and the companies' try to overcome obstacles of using them , but the users of data do not accept these methods nor the financial and non financial output which are issued by these companies

TEST OF HYPOTHESES

TABLE 4: MEANS, STANDARD DEVIATIONS & T TEST OF THE COMPANIES' DEGREE OF USING E-DISCLOSURE METHODS

Field	M	Std	R value	t	Df	Sig t	Result
Disclosure	***4.625***	***1.578***	***3.00***	***4.94***	***35***	***0.000***	Rejection

The previous table showed the value of the calculated T is (4.94) and it is the value that illustrates the mean of the e-disclosure field according to the respondents' estimations differs greatly from the referential value (3) which represents the mean of Lickert scale because the value of the significance level (0.000) was less than 0.05 which indicates that the high use of e-disclosure methods reflects the respondents' belief of this level as the mean was (4.625) . Therefore, the null hypothesis is rejected and the alternative one is accepted .

TABLE 5: MEANS, STANDARD DEVIATIONS & T TEST OF THE COMPANIES' DEGREE OF USING e-AUDITING

Field	M	Std	R value	t	Df	Sig t	Result
e-auditing	***4.538***	***0.370***	***3.00***	***26.538***	***35***	***0.000***	Rejection

The previous table showed that the value of calculated T was (26.538) and it is a value illustrates the mean of the e-auditing filed according to the respondents' estimations differs from R value (3)which represents the mean of Liker scale because the significance level (0.000) was less than 0.05 which indicates the high use of e-auditing and the mean (4.538) reflects the respondents' belief of the degree of using e-auditing methods and therefore the null hypothesis is rejected and the alternative one is accepted .

TABLE 6: MEANS, STANDARD DEVIATIONS & T TEST OF THE OBSTACLES FACING USING e- DISCLOSURE AND AUDITING

Field	M	Std	R value	t	Df	Sig t	Result
Obstacles facing using e- disclosure ad auditing	***4.222***	***0.470***	***3.00***	***15.612***	***35***	***0.000***	Rejection

The previous table showed the value of the calculated T was (15.612) which indicates that the mean of the field of obstacles facing using e-disclosure and auditing according to the respondents' estimations differs greatly from the R value that represents the mean of Licker scale because the value of the significance level (0.000) was less than 0.05 which indicates obstacles facing the use of e-disclosure and auditing. Additionally, the mean's value (4.538) reflects the respondents' belief of the degree of using the e-auditing methods and so the null hypothesis is rejected and the alternative one is accepted .

CONCLUSIONS & RECOMMENDATIONS

1. The companies apply to a great extent the e-disclosure methods.
2. There are many obstacles facing e-disclosure and auditing operation.
3. Companies and auditing offices try to overcome the obstacles facing disclosure and auditing operations through enhancing the trust of data and financial information users of the benefit of the disclosed or audited information electronically in making-decisions process.

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HIGHER STUDIES IN A GLOBALISED ENVIRONMENT

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ABSTRACT

India stands at the third number when we compare the size of the higher education network in the world. Some of our institutions are world class in their standard of education, like the Indian Institute of Management, Indian Institute of Technology. On the other hand, the credibility of many is questioned by the evaluation agencies worldwide. Now, with the advent of foreign universities, Indian institutions need to step up to maintain pace with the competition. This paper attempts to understand the Indian scenario in the current market dynamics and give suggestions therein. For this purpose, secondary data was taken and a thorough review was done of the available literature. It was found that the higher education needs to strictly follow the standards provided by the regulatory agencies and to modify the Acts suitably to adapt to the demands of the markets.

KEYWORDS

redibility, Globalization, Higher Education, UGC, WES.

INTRODUCTION

The ever-growing population of India is demanding an equivalent growth in the number of educational institutions to educate it. India stands at the third number after USA and China in terms of higher education network. It is expanding fast, almost 20000 colleges and 8million students have been added within a span of ten years (2000-2010). The main regulatory or governing body for Higher education is the Union Grants Commission which has constituted further 12 autonomous institutions to oversee the accreditation processes. The Indian higher educational scenario is known for its stress on the technological studies with more of the institutions falling in this category. Every year we have thousands of engineers coming out of these colleges and fighting for their luck in the job market. Another feature of Indian higher education is the distance learning and open education looked after by Distance Education Council. Though we boast of some of the largest or best institutions in the field, still do not have anything that would fall in the league of Ivy League Colleges. Some of our institutions are world class in their standard of education, like the Indian Institute of Management, Indian Institute of Technology. Yet, still the credibility of many is questioned by the evaluation agencies worldwide. Now, with the advent of foreign universities, Indian institutions need to step up to maintain pace with the competition. This paper attempts to understand the Indian scenario in the current market dynamics.

REVIEW OF LITERATURE

Higher education is an educational level that follows a completion of a school providing a secondary education, such as a high school, secondary school, or gymnasium. Tertiary education is normally taken to include undergraduate and postgraduate education, as well as vocational education and training. Colleges, universities, and institutes of technology are the main institutions that provide tertiary education (sometimes known collectively as tertiary institutions).

It is a process that is "super charging" the interaction and integration of cultures, politics, business and intellectual elements around world. Driven by technology, information and finance, a full spectrum of views exist, some praising, some disparaging, as to the value of globalization. However, most observers believe that the ability to harness the good from globalization and avoid the bad lies in the cultivation of knowledge (Robertson 1992; Ali 2000; Friedman 2000; Newman, Couturier and Scurry 2005).

Today, possessing knowledge and having the ability to use knowledge in a world-wide arena is critical to personal and societal advancement. Likewise, having a skilled and globally focused workforce is perhaps the most important ingredient to any organization's competitiveness in a world where competitors can come from next door or around the world. Any entity that does not support an environment that attracts, sustains and retains creative, imaginative, and globally resourceful individuals will eventually fall behind. The role of higher education in such nurturing is most apparent as universities and colleges are considered by many to be the primary suppliers of such individuals (see Florida 2002, Friedman 2005).

IMPORTANCE OF THE STUDY

Since education is one service that would continue to be in demand irrespective of the economies' or market dynamics; it is imperative to understand the vastness of the Indian higher education system and its present status in the globalized environment. Moreover, higher studies are of utmost importance for any nations' economy as they build the skill base of the workforce. This study is an effort in that direction and aims to explore the shortcomings of this important system and it is expected that the findings would help in formulating suggestions to improve the overall situation.

OBJECTIVES

The objectives of this paper are:

1. To understand the vastness of the Indian Education Scenario.
2. To evaluate the prevalent system in the globalized environment.
3. To find the shortcomings and suggest remedies for it.

HYPOTHESIS

This research is done on the hypothesis that vastness of the education network is no guarantee of the quality of education.

RESEARCH METHODOLOGY

This research employs descriptive cum exploratory cum diagnostic research design as it utilizes the existing available data for the purpose of understanding the vastness of the Indian higher education and aims to explore its shortcomings in order to suggest remedies.

RESULTS

The following figure explains the percentage of the students enrolled in various streams of academics in India:

FIGURE 1: PERCENTAGE OF STUDENTS ENROLLED IN DIFFERENT SECTIONS OF ACADEMICS IN INDIA

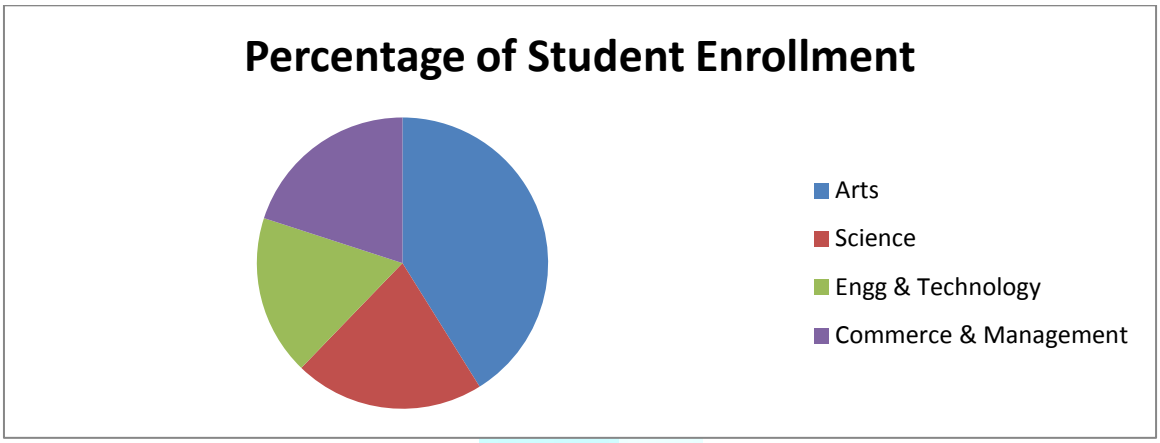


TABLE 1: AN YEAR WISE DEPICTION OF NUMBER OF INDIAN STUDENTS GOING ABROAD TO STUDY

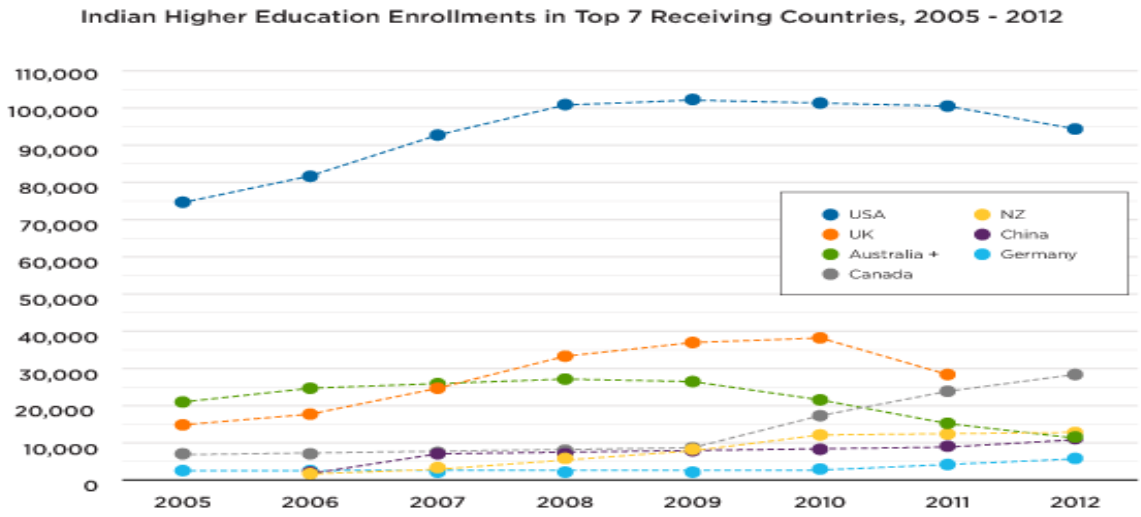
Indian Higher Education Enrollments in Top 7 Receiving Countries, 2005 - 1012								
Year	USA	UK	Australia+	Canada	NZ	China	Germany	Total
2012	96,754	N/A	12,629	28,929	11,349	10,237	5,745	190,055**
2011	100,270	29,900	15,395	23,601	12,301	9,370	4,825	228,774
2010	103,895	39,090	21,932	17,549	11,616	9,014	3,821	253,743
2009	104,897	38,500	28,020	9,561	9,252	8,468	3,236	247,631
2008	103,260	34,065	28,411	8,325	6,348	8,145	3,217	216,516
2007	94,563	25,905	27,078	7,304	3,855	7,190	3,431	205,852
2006	83,833	19,228*	25,497	6,927	2,599	3,245	3,583	158,215
2005	76,503	16,872*	22,529	6,688	N/A	N/A	3,807	N/A

Sources: IIE Open Doors, UK Higher Education Statistics Agency, Australia Education International, Citizenship and Immigration Canada, New Zealand Ministry of Education, China Scholarship Council, DAAD/HIS (Germany).
** Inferred from percentage of total international student body*
*** Minus UK total for 2012, which is not currently available*
+Higher education (University) enrollments only; no VET

Source: http://wenr.wes.org/2013/12/indian-study-abroad-trends-past-present-and-future/

It is clear from this table that the total number of students going abroad for higher studies is increasing every year. The figure below corroborates this fact. It also shows the favorite destination for overseas study is USA. Indian universities need to take up this challenge and overcome the gaps in their services to reduce this outflow.

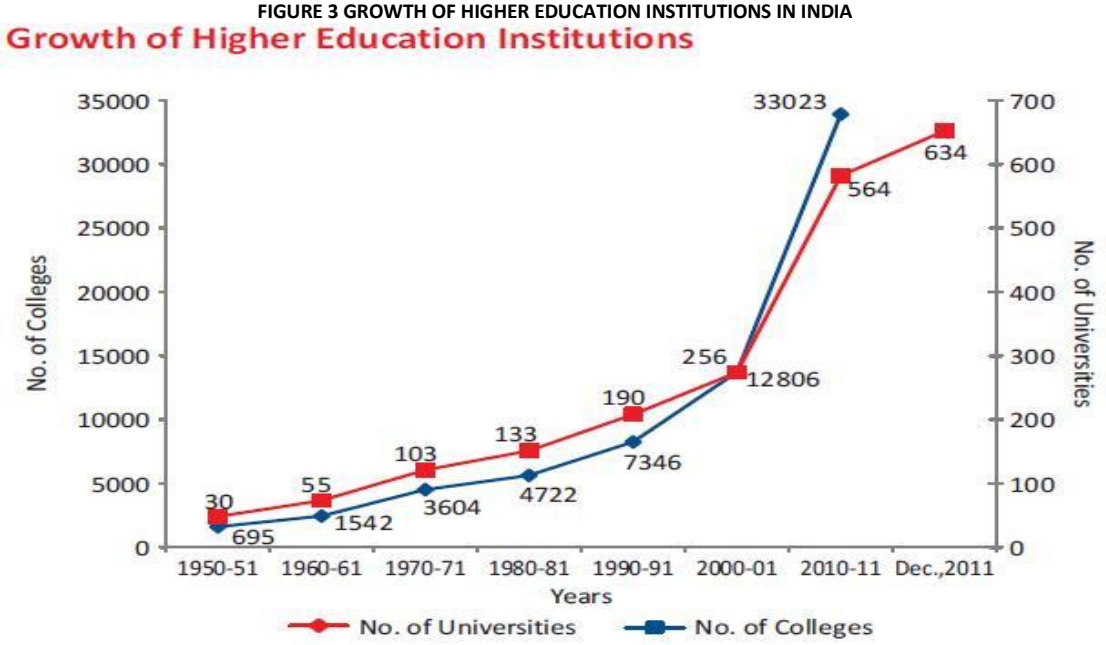
FIGURE 2: THE ENROLLMENT OF INDIAN STUDENTS STUDYING ABROAD YEARWISE



Source: http://wenr.wes.org/2013/12/indian-study-abroad-trends-past-present-and-future/

Now, to understand the Indian scenario, it is imperative to see the present status of growth of such institutions. Following figure explains it all:

FIGURE 3 GROWTH OF HIGHER EDUCATION INSTITUTIONS IN INDIA



Source : MHRD / UGC

It is clear that such institutions are rapidly increasing in number. But they need to be at par with international quality standards to compete with the global competitors.

FINDINGS

The higher education system suffers from very poor enrollment rates as in a developing nation like India; education itself is not a priority for people. With government's support and incentives majority of the people finish just their primary education. On the top of it, still not many options, apart from the usual science and technology, are available to those who wish to pursue higher studies and if they are available, they are not promoted well. People get into higher courses to either refine their expertise or to better their chances of employment. Poor quality institutions offer none. Thus, dissuading those few who are willing to study more. Not just this, a plethora of fake institutions and universities granting unrecognized degrees or diplomas act as a deterrent to the growth of this field. The country suffers from an accreditation system marred with loopholes that lower down the standards of even the recognized institutions. With time, more and more students are opting for universities abroad as they find education in India equally expensive. So, the added factor of global exposure makes the option of studying abroad a better one.

SUGGESTIONS

1. The study says the main problem with higher education is low enrollment rate, so the government along with institutions, need to work on it.
2. The regulatory bodies need to take stringent actions against fake institutions.
3. The whole university system of India need a revamp and it should be updated with time.
4. More transparency should be brought in the working of the institutions involved in higher education.
5. The government sector needs to come out to support the higher education sector.
6. More options for studies should come in this regard wherein the focus on technology and science moves to other sections.
7. People need to be more aware of the options available.
8. The universities need to nurture an environment of progress and strengthen the employment prospects to lure more students.
9. The students that opt for courses in universities abroad can be retained if they get a better deal at home. So, the curriculum and the courses need to provide a better return on investment.

CONCLUSIONS

In the nutshell, the Indian higher education system calls for a stringent accreditation implementation system. The quality of the education is of utmost concern if India wants to strengthen its skill base. Moreover, government needs to provide more incentives to the people to go for higher education as right now its focus is more on the primary education to all.

LIMITATIONS

This study suffers from the following limitations:

1. Due to less time, only a limited study was conducted.
2. The financial constraints did not allow access to few expensive reports.
3. As it is based on secondary sources, it suffers from the limitation of the data used.

SCOPE FOR FURTHER RESEARCH

This study offers lot of scope for further research on the improvement of the course structures and accreditation systems. Further researches can be taken up on the ways on retaining the flow of Indian students going abroad for study purposes.

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PERCEPTION OF TOURISTS TOWARDS THE HOUSEBOATS IN KASHMIR

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ABSTRACT

Kashmir is "Paradise on the Earth" due to its attractive and mesmerizing natural beauty. In Kashmir valley, there are several other famous fabricated tourist attractions as well which motivates tourists nationwide and across the globe to visit valley in which Houseboats have unique place. The houseboats are the special form of accommodation in Kashmir valley that originated in Indian administered Kashmir by the coming of Britishers to Kashmir. These houseboats became unique attraction to the tourists of their unique experience in Kashmir valley. However, this houseboat heritage is representing the pure craft, culture and architecture in water bodies (lakes and river) of valley. The study aims to know the tourist perception towards houseboats as attraction and to examine the tourist satisfaction after consuming services in houseboats. In order to get the results of this study, extensive literature review based questionnaire was administered, later on, which was filed by 60 respondents in which 44 were Indian and 16 were foreign tourists. A 5 point likert scale was used to get the resonances for tourists and. However, before visiting Kashmir houseboat was in mind, food quality, behavior of staff, room service, communication services and so on were the statements asked to the tourists; the results of this study indicates that houseboats are the tourist attraction and tourists are satisfy with regard the services rendered in houseboats of Kashmir valley; but still there is need of improvement in houseboat services as results showed several tourists are neutral and dissatisfy. This study could be a good tool for the houseboat owners and service providers in understanding how to conduct or modify the existing houseboat services in future for making the loyal customers.

KEYWORDS

Dall Lake; houseboats; houseboat accommodation; Kashmir valley; tourists.

INTRODUCTION

Tourism industry is a service industry which plays a pivotal role in the all-round development throughout the globe. Efforts are made to attract the tourists from each corner of the globe to meet the needs of every tourism stakeholder. When talking about 'tourist' as the stakeholder, it is difficult to satisfy the needs of tourists because of service product of tourism industry. The tourist expectations at destination is affected by several factors, such as the tourist demographic profile, life style, events, climate, culture, scenery, history, entertainment, uniqueness of destination etc., a tourist is accordingly setting his/her expectations at the destination prior visiting to it and after experiencing the services, the perceptions comes in mind (Williams and Buswell, 2003:65). But tourists are not always waiting till the last moment to judge the services; they perceive the services during the service delivery also (Zeithaml, 1988). The tourist satisfaction is the outcome of expectation and perception equilibrium. If the tourist expectations are not met at the destination, it will dis-satisfy the tourists, while as if the tourists experience is above his/her expectations, it will turn tourist a loyal customer and the positive expectations and perception is one of the prime travel motive to the tourist (Bennett (2000). The positive tourist perception is most important aspect of any destination, because without consistency in customer loyalty, a destination cannot survive in present competitive global market. The destination image should always be depicted in the mind of tourist for repeat visits at the same destination in future.

HOUSEBOATS IN KASHMIR VALLEY

Houseboat is a place in a water body which can be moored, used to be as a home after the payments paid by the guest. It can be said that a houseboat is a flat-bottomed, barge like boat fitted for use as a floating dwelling but not for rough water or to travel or live on a houseboat.

The history of houseboats is an interesting one that has relied on humankind's consistent fascination with the idea of living a life afloat. Originally, the evolution of houseboats occurred in the region of Kashmir of India during the nineteenth century traces back to nearly 140 years (Abrar M Shah and Dr. Shabana Ali, 2012) and was made mostly from cedar. The living in these houseboats became the recreation and leisure activity for the tourists throughout the world. However, how a permanent nomad boat dweller is feeling about the houseboat life, is different as the tourist is feeling in houseboat.

The Kashmir is considered the motherland of Houseboats, which are, nowadays, founded in different waters in different countries. Houseboat in Srinagar is counted as one of the key tourist's attractions of the Kashmir valley. Large numbers of tourists are attracted to Kashmir by the mesmerizing charm of houseboats, which provides ethereal experience of living on the water in a wooden paneled bedroom, with all modern amenities of a luxury hotel. Kashmir Houseboats are with all aspects of comfortability, modernity, beauty and elegancy for the tourists.

REVIEW OF LITERATURE

As for as the tourist perception and satisfaction are concern, the researchers have worked a lot over them on different destinations, hotels, food outlets, airlines, railways, cruises, road transport etc. it was founded that the customer satisfaction depends on the quality of services provided to tourists (Oliver, 1980: 460-469; Abdeldayem and Khanfer, 2007: 303-309; Cronin, Taylor, 1992: 55-68; Parasuraman et al., 1988: 12-37) and today, the tourist satisfaction is increasing by providing sophisticated services in hospitality, travel and recreation to the tourists (Kozak, Rimmington, 2000: 260). Loyal tourists are very important for receiving new tourists; the satisfied tourists will act as ambassadors of the destination through 'Word of Mouth publicity' (Akın Aksu et al.2010), furthermore, the tourist satisfaction plays an important role in destination survival and development anywhere (Phuong Giang Quach, 2013). Boltan (1998) and Bitner (1994) argued that customer satisfaction is the outcome of understanding the customer behavior before serving the customer(s) according to his/her likes, dislikes and need better than the competitors. Fornell and Anderson (1996) stated that customer satisfaction is the main factor of customer loyalty in the hospitality industry which's product is tangible as well as intangible and it's satisfaction depends on level of services, food & drink, value for money, cleanliness & hygiene and other service which customer experiences at a particular time. Tijani Nasiru et al. (sources: http://www.jthca.org/Download/pdf/V4%20IS3/chap%201.pdf) concluded that professional and experienced staff of a firm and prior knowing the guest expectations is important to satisfy the customer.

The tourist perception has been discussed by the several scholars. Perception is based on sensations (Seaton & Bennett, 1996, p.73-74). It was discussed that perception is a process of selecting, organizing, and interpreting stimuli into a meaningful picture of the world (Seaton & Bennett, 1996, p.74). Moreover, tourist perception is a process in which tourist information is transmitted into the internal mental world from the external that each of us experience (Pizam & Mansfeld, 1999, p.104-106). Echtner & Ritchie (2003, p.41) and Hübnera & Gössling (2012, p.48) stated that the destination image and elements of personality may influence to the tourist perception. In addition to this, the perception is affected by the personal characteristics of the people (Reisinger& Turner, 2003, p149). While studying the tourist perception and expectation, Cheang (2011) says that tourists have experienced the local culture, friendliness of local people, and local hospitality facilities beyond their expectations. Henderson (2011) mentions that foreign visitors have perceived tourism infrastructure of Philippine negatively to choose a destination, he added that political insurgency and safety & security issues also influences on Philippine international tourism. Hsieh & Kai Li (2008) examined organizational brand is iconic factor in consumer's perception while thinking about company product, moreover, Hankinson (2004)

highlighted that tourism brand image is directly related with history, people, cultural heritage etc of a destination. Muhammad Sabbir Rahman (2012) used structural modeling equation and concluded that internet, destination brand image and customer satisfaction played a significant role in influencing tourist's perception in selection of a destination for travelling in Bangladesh.

OBJECTIVES

1. To analyse the tourist perception towards the houseboats as an attraction
2. To examine the tourist satisfaction after using the services in houseboats of Kashmir Valley

RESEARCH METHODOLOGY

This is an empirical study. The aim of this study was to know tourists' perception about houseboats and their satisfaction after staying in houseboats of Kashmir valley. In order to get the results of this study, the 60 questionnaires were filed by the domestic and foreign tourists in which 47 tourists are India and 13 tourists are foreigners who stayed in houseboats in Kashmir and used all the services provided in the houseboats to them. The questionnaire was divided into two parts in which Part-I was related to demographic profile of the respondents and Part-II was related to objectives of this study. In Part-II of questionnaire, a 5 point Likert scale was used to get the responses from the respondents in which 1= Highly Satisfy .....and 5= Highly Dis-satisfy was considered. The results are measured by percentage technique by the SPSS 16.0 version software.

DATA ANALYSIS AND DISCUSSIONS

TABLE 1: DEMOGRAPHIC PROFILE OF THE RESPONDENTS

		Frequency	*Percentage*
Age in years	Less than 25	14	23.3
	26 – 40	18	30.0
	46 – 55	17	28.3
	56 +	11	18.3
	Total	**60**	**100.0**
Income/Annum in Lakh (₹)	less than 1.5	20	33.3
	1.5 to 3	18	30.0
	3 to 4.5	9	15.0
	4.5 to 6	9	15.0
	Above 6	4	6.7
	Total	**60**	**100.0**
Education	up to 10+2	3	5.0
	UG	11	18.3
	Graduate	23	38.3
	P.G	21	35.0
	Above P.G	2	3.3
	Total	**60**	**100.0**
Occupation	self-employment	8	13.3
	Govt service	19	31.7
	Business	19	31.7
	Agriculture	12	20.0
	Study	2	3.3
	Total	**60**	**100.0**
Sex	Male	47	78.3
	Female	13	21.7
	Total	**60**	**100.0**
Marital Status	married	47	78.3
	unmarried	13	21.7
	Total	**60**	**100.0**
Nationality	domestic	44	73.3
	foreigner	16	26.7
	Total	**60**	**100.0**

The *Table-I* is the clear about the demographic profile of the respondents. The highest respondents (30%) are from age group of 26 to 40 years followed by age group of 46 to 55 years (28.3%), less than 25 years (23.3%) and of above the 56 years (18.3%). Mostly, the budget class tourists have used the houseboat services as the 33.3% respondents have annual income less than Rs 1.5 lacs followed by the annual income Rs 1.5 to 3 lacs of 30% respondents, Rs 3 to 4.5 lakh of 15% respondents, Rs 4.5 to 6 lacs of 15% respondents and only 6.7% have more than Rs 6 lacs annual income. The highest percentage of respondents is of postgraduates (35%) while as only 3.3% having more than P.G qualifications. 38.3% are graduates and 18.3% are undergraduates, moreover, 5% respondents have up to 10+2 level qualifications. Talking about the occupations of respondents, majority of respondents are involved in government service (31.7%) and in business (31.7%) activities followed by agriculture (20%), self-employment (13.3%) and study (3.3%). In this study, the mail respondents are 78.3% and only 21.7% are females. In addition to this, 78.3% respondents are married and 21.7% are unmarried. The percentage of domestic respondents (73.3%) is high as compare to foreign respondents (26.7%) in this study.

ANALYSIS OF TOURIST PERCEPTION TOWARDS THE HOUSEBOATS

TABLE-2: BEFORE VISITING KASHMIR, HOUSEBOAT WAS IN MIND

Valid	Frequency	Percent
Strongly agree	25	41.7
agree	26	43.3
Neither agree nor disagree	4	6.7
Strongly Disagree	5	8.3
Total	60	100.0

43.3% respondents are agree with the statement that before visiting to Kashmir houseboat was in their minds followed by 41.7% respondents who are strongly agree with same statement. 6.7% are neutral and 8.3% are strongly dis-agreed with this statement. Overall satisfaction level of respondents is quite high.

TABLE-3: EFFICIENT HOUSEBOAT ROOMS

Valid	Frequency	Percent
strongly agree	11	18.3
agree	30	50.0
neither agree nor disagree	14	23.3
disagree	3	5.0
strongly disagree	2	3.3
Total	60	100.0

Maximum number of respondents (50%) is agreeing that houseboat rooms are efficient and 18.3% respondents are strongly agreed with the above statement. The 23.3% respondents are neutral with the same statement and 3.3% respondents are strongly disagree while as 5% respondents are disagree with this statement.

TABLE-4: BETTER COMMUNICATION FACILITIES

Valid	Frequency	Percent
strongly agree	7	11.7
agree	29	48.3
neither agree nor disagree	14	23.3
disagree	8	13.3
strongly disagree	2	3.3
Total	60	100.0

The 48.3% respondents are agreeing that communication facilities are better in houseboats followed by the 11.7% of strongly agreed respondents. The 23.3% respondents are neutral in this statement. The 3.3% respondents are strongly disagreeing and 13.3% disagree respondents with the said statement.

TABLE-5: SERVICES IN HOUSEBOATS WERE PROVIDED IN KASHMIRI STYLE

Valid	Frequency	Percent
strongly agree	7	11.7
agree	29	48.3
neither agree nor disagree	11	18.3
disagree	11	18.3
strongly disagree	2	3.3
Total	60	100.0

The highest number of respondents (48.3%) are agree with the that they were served in Kashmiri traditional way, while as the 11.7% respondents are strongly agree with the same statement. 18.3% respondents are neutral about this statement. The 3.3% respondents are strongly disagree and 18.3% are disagree with this statement.

TABLE-6: APPRECIABLE BEHAVIOR OF SERVICE PROVIDERS

Valid	Frequency	Percent
strongly agree	21	35.0
agree	31	51.7
neither agree nor agree	2	3.3
disagree	6	10.0
Total	60	100.0

51.7% respondents are agreeing with that the behavior of service providers is appreciable and 35% respondents are strongly agreed with the same statement. The 10 % respondents are disagreeing and 3.3% respondents are neutral in this statement.

TABLE-7: EFFICIENT WASHROOM, TOILET, WATER ETC FACILITIES

Valid	Frequency	Percent
strongly agree	5	8.3
agree	34	56.7
neither agree nor disagree	11	18.3
disagree	6	10.0
strongly disagree	4	6.7
Total	60	100.0

Talking about the efficiency of washroom, toilet points, water etc facilities, the 56.7% respondents are agree and 8.3% respondents are strongly agree with it. The 18.3% respondents are neutral and 10% respondents are disagree, while as 6.7% respondents are strongly disagree with this statement.

TABLE-8: HYGIENIC FOOD QUALITY IN HOUSEBOATS

Valid	Frequency	Percent
strongly agree	11	18.3
agree	25	41.7
neither agree nor disagree	19	31.7
disagree	5	8.3
Total	60	100.0

The 41.7% respondents are agreeing with the hygienic food quality in houseboats and 18.3% respondents are strongly agreed with the same statement. The 31.7% respondents are neither agree nor disagree and only 8.3% respondents are disagree with the said statement.

TABLE-9: REASONABLE CHARGES FOR HOUSEBOATS SERVICES

Valid	Frequency	Percent
strongly agree	9	15.0
agree	33	55.0
neither agree nor disagree	8	13.3
disagree	8	13.3
strongly disagree	2	3.3
Total	60	100.0

55% respondents are agree that they are charge reasonable for houseboat services and 15% respondents are strongly agree for the same statement. 13.3% respondents are neither agree nor disagree in this case. The 13.3% respondents are disagreeing and 3.3% respondents are strongly disagreeing with this statement.

TABLE-10: STAYING IN A HOUSEBOAT WAS CURIOSITY

Valid	Frequency	Percent
strongly agree	13	21.7
Agree	39	65.0
neither agree nor disagree	6	10.0
Disagree	2	3.3
Total	60	100.0

65% respondents are agreeing with the statement that '***staying in a houseboat was curiosity***'. Followed by the strongly satisfied 21.7% respondents, while as 10% are neutral and 3.3% are disagreeing with this statement. Overall, there is sufficient support and positive perception of respondents towards the houseboats.

TABLE-11: STAYING IN HOUSEBOAT WAS MUCH ENJOYABLE THAN HOTEL

Valid	Frequency	Percent
strongly agree	16	26.7
agree	22	36.7
neither agree nor disagree	14	23.3
disagree	8	13.3
Total	60	100.0

36.7% respondents are agree that houseboat accommodation was enjoyable than hotels, while as 26.7% respondents are strongly agree with the same statement. The 23.3% respondents are silent about the said statement and 13.3% respondents are disagreeing with this statement.

TABLE-12: WILL TAKE HOUSEBOAT ACCOMMODATION ON NEXT VISIT TO KASHMIR

Valid	Frequency	Percent
strongly agree	20	33.3
agree	23	38.3
neither agree nor disagree	9	15.0
disagree	6	10.0
strongly disagree	2	3.3
Total	60	100.0

Only a satisfied customer can wish to take the services of same service provider again and again, that is why 38.3% of respondents are agree with on their next visit to Kashmir they will take houseboat accommodation again and 33.3% respondents are strongly agree with the same statement. Only 3.3% respondents are strongly disagreeing and 10% respondents disagree with the above said statement.

TABLE-13: YOU WILL SUGGEST HOUSEBOATS IN KASHMIR TO OTHERS

Valid	Frequency	Percent
strongly agree	28	46.7
agree	25	41.7
neither agree nor disagree	3	5.0
disagree	4	6.7
Total	60	100.0

The maximum percentage of respondents (46.7%) are strongly agree that they will suggest the house boat accommodation to others in Kashmir and again the 41.7% respondents are agree with the same statement, only 6.7% respondents are disagree and 5% respondents are neutral in this statement. The response of respondents shows that tourists are satisfy with services of houseboats hence they want to suggest the houseboats to others.

TABLE-14: IF HOUSEBOATS NO MORE EXIST IN KASHMIR, WOULD HAVE RECONSIDERED DECISION

Valid	Frequency	Percent
strongly agree	4	6.7
Agree	18	30.0
neither agree nor disagree	13	21.7
Disagree	25	41.7
Total	60	100.0

The houseboats are not getting here much positive responses from respondents in the statement *'If houseboats no more exist in Kashmir, would have reconsidered decision'*. 41.7% are disagree with this statement and 21.7% are neutral about it; only 30% are agree and 6.7% are strongly agree with same statement.

TABLE-15: SATISFIED EXPERIENCE AT HOUSEBOAT

Valid	Frequency	Percent
strongly agree	19	31.7
agree	25	41.7
neither agree nor disagree	8	13.3
disagree	6	10.0
strongly disagree	2	3.3
Total	60	100.0

The 25% respondents are agreeing that they are satisfied with the experience of houseboat services and 13.7% respondents are strongly agree with the same statement. The 13.3% respondents are neither agree nor disagree with houseboat experience. The 10% respondents are disagreeing and 3.3% respondents are strongly disagreeing with above mentioned statement.

CONCLUSION

The study is about to know the tourists' perception about the houseboats in Kashmir valley. Both, Indian as well as foreign tourists have expressed their perception as per the statements asked in the questionnaire. It is noted that majority of respondents have good economical background, moreover, mostly the young and married tourists are consuming the houseboat services in Kashmir valley. The respondents are good enough educated persons and are, mostly, involved in the government services and self-businesses. The overall perception of tourists' is positive towards the statements, like before visiting Kashmir houseboat was in mind, friendly behavior of staff, efficient houseboat rooms and so on. In addition to this, several tourists are neutral in some statements, like better communication, traditional serving style, food quality, will take houseboat accommodation on next visit etc. The important thing to take into consideration is that the perception of various tourists' is negative towards the overall performance of houseboat industry of Jammu and Kashmir. Many tourists are not satisfy with the statements, like communication facilities, serving in Kashmiri style, reasonable charges, enjoyable stay, will take houseboat accommodation next time and the satisfied experience.

This study could be a good tool for the houseboat owners and service providers of Kashmir valley in understanding how to conduct or modify the existing houseboat services in future for making the loyal customers, because tourist satisfaction is the outcome of efficient tourism services and best experience of tourism services.

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A REVIEW ON RECENT RESEARCH LITERATURE ON ERP SYSTEMS

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ABSTRACT

This report is a review of work published in various journals on the topics of Enterprise Resource Planning (ERP) between 2005 and 08th November, 2013. A total of 100 articles from various journals were reviewed. This report intends to serve two goals. First, it will be useful to researchers who are interested in understanding and following the recent trends in the area of ERP. businesses or industries; because it seeks to highlight the current unanswered but justified research and development (R&D) questions raised in research papers for research and/or development needs.

KEYWORDS

ERP, Review, Implementation, Adoption, Optimisation, Case studies.

INTRODUCTION

The research activity on ERP systems has shown an impressive development in the last few years, visible through a constant increase of the number of articles, special issues of journals or dedicated sessions in international conferences. A successful ERP can be the backbone of business intelligence for an organization, giving management a unified view of its processes [3].

ERP products—such as those by SAP, Baan, JDE, SSA, JBA, Oracle, and PeopleSoft—conceptually contain a set of functional components, integrated around an enterprise data-warehouse. These components provide automated support in traditional business process areas such as inventory control, material requirements planning, and order processing. With each product suite emerging from a different historical perspective, today's ERP products offer a wide variety of capabilities. People- Soft, for example, began by specializing in back office systems, and then expanded into the front office. Oracle specialized in relational database management systems, branched into data warehousing, and then moved into ERP. SAP started by specializing in manufacturing automation before expanding into other areas. Thus, each product derives its strengths and weaknesses from its history and its company's current business strategies. Some vendors design their products to be flexible in capturing and using customer business processes; others dictate the processes to be used. For example, Oracle's ERP product is among the most flexible; SAP's is among the least flexible[4]. Over the past years, ERP products super specialized for particular industry segments—such as the oil and petroleum, Parma industry's and many such manufacturing and service industries. These highly complex and highly specialized, ERP systems contain many hardware, software, and people-ware components that can be interconnected in a variety of patterns.ERP packages also allows the organization reuse its existing elements when developing customized variants of systems. Information is said to be the life blood of management but as information is growing its leaps and bounds,it has become very essential to manage the information successfully, and it requires a suitable information system.ERP is the central element of any information system architecture. I today's dynamic and ever changing business environment, organizations have to face tremendous competitions of multinational companies and rising customers expectations .This compels the organization to lower total cost of the product, shorten throughput time, reduce inventories, expand product variety, provide more reliable delivery dates , better customer service , improved quality and many more. In order to achieve this more and more companies are turning to the Enterprise Resource Planning .An ERP is a packaged enterprise-wide information system that integrates all necessary business functions, such as product planning ,purchasing ,inventory control, sales, finance and human resources into a single system with the shared database[5], that's the reason ERP is becoming popular so rapidly. According to the Global Association of Risk Professionals (GARP) (the only globally recognized leader in financial risk testing and certification programs),ERP from since its inception, have registrations grown 99% year-over-year. ERP Annual Growth in Registration Volume, 2009-2012 is as follows:

FIG. 1

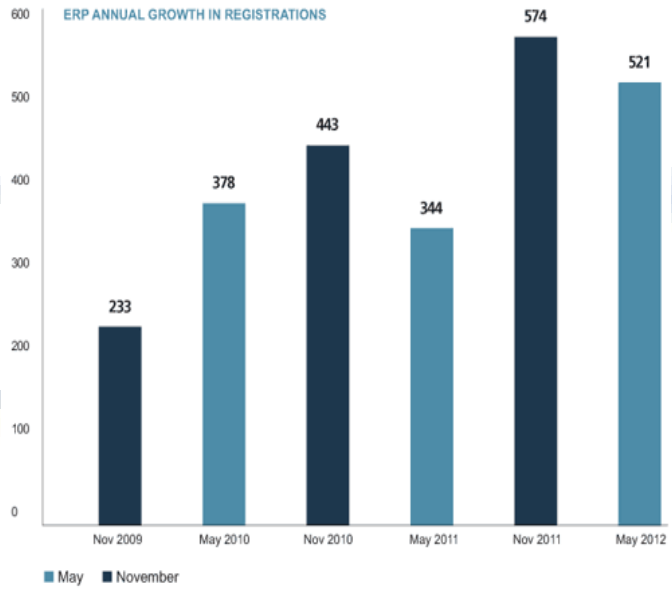

TABLE 1

Sr.No.	Name of Country	% of ERP Certified Professionals
1	US	35
2	UK	11
3	Switzerland	8
4	Canada	7
5	India	7
6	Singapore	7
7	Germany	6

Current Issues in ERP Implementations:

FIVE MAIN IDENTIFIED FACTORS

TABLE 2

Sr.No.	Factors	Cites	Author's
1	Organizational Culture	20	33
2	Organizational Structure	15	21
3	Top Management	30	46
4	User Training	23	44
5	interaction between transferor and transferee	21	44

REVIEW OF THE RELATED WORK

WHY ERP

Through implementation of ERP,many firms are able to achieve an '' end-to-end'' connectivity, thus, bringing various diverse functions and divisions together.

SYSTEM QUALITY

Ease of use: ERP simplifies the system, it breaks the complex system into simple manageable and understandable modules.

Ease of learning: Since ERP follows one standard format throughout which makes the learning process easy.

User requirements: Every good ERP system satisfies the user requirement at least to 80%

Systems accuracy Flexibility Sophistication Integration and Customization are some of the quality attributes

INFORMATION QUALITY:

ERP provides Concise and relevant information in he desired format ,the usability of the information increases as the information is provided as and when required

INDIVIDUAL IMPACT

Because of information quality awareness increases which improves learning and helps an individual to make effective decisions which in turn increases individual productivity.

ORGANIZATIONAL IMPACT

As the business process undergoes a drastic change the overall staff requirements and organizational cost goes down resulting in improved outcomes better E-Commerce thus increasing overall productivity.

Evolution of ERP

Modern Enterprise Resource Planning (ERP) systems have their roots in Materials Requirement Planning (MRP I) systems which came to limelight in 1960s. MRP I systems were computer-based systems which managed and controlled the inventory and schedules. As data from the factory floor, warehouse, or distribution center began to affect more areas of the company, the need to distribute this information across the entire enterprise which gave rise to Manufacturing Resource Planning (MRP II) systems, which have now given way to ERP. MRP II systems could evaluate the entire production environment and create or adjust master schedules based on feedback from current production and purchase conditions. Finally, companies such as SAP, Oracle, and others are reaping the rewards of dramatic growth as companies move away from legacy MRP II systems and begin the process of ERP implementation. Their solutions are more robust than any host-based MRP system to date.

ERP TRENDS AND PERSPECTIVES

Journal articles belonging to this subject mostly provide introductions to ERP definitions and issues of ERP, common Topics include, different perspectives of ERP, survey studies on industry experiences, recent trends in ERP and surveys of the ERP literature. And major reasons of ERP failure and success Business Process Reengineering is emphasized and studied in many articles along with change engineering.

Future Trends and Perspectives

ERP II

(The second generation of Enterprise Resource Planning)

ERP II contains applications which extend supply functionality to external enterprises (generally vendor-affiliated companies or enterprises) to reduce cost, improve supply chain efficiency, and to perform collaborative innovation.

Extends "back office" processing functions and operations into the extended supply chain with a heavy emphasis on supply chain automation, additional efficiency, more cost control, and some vendor collaboration for limited innovation. This area of the application moves into the "last mile" of improvements that can be more expensive to implement and yield lower returns. However, carried out properly with significant supply chain collaboration and joint engineering or development efforts this can provide new / innovative products or services addressing both lagging indicators of cost control and efficiency while exploring leading indicators of new products or services.

SERVICE ORIENTED ARCHITECTURE (SOA)

One of the main market trends is the technology transformation to; Service Oriented Architecture (SOA) which will have the largest effect on redefining the ERP market. As indicated by analysts, SOA will transform software from an inhibitor to an enabler of business change by 2015 [12].The 'services' can be distributed across the word from different geographical area. The SOA provides more flexibility than older technologies with respect to re-using and re-combining the services. This provides agility to meet the ever-changing needs of the plant, business unit, enterprise and the supply chain.[13]

REVIEW OF THE JOURNAL ARTICLES

The five Major topics and sub-topics within the domain of ERP in this report are

ORGANIZATIONAL CULTURE

The congruence between ERP systems and organizational culture is the prerequisite to successful ERP implementation [14] and [15]. The implementation of an integrated system such as ERP requires that the basic business practices embedded in the ERP system be adapted to the organizational processes and culture.

ORGANIZATIONAL STRUCTURE

The inability of these companies to realize competitive advantage from ERP implementation is attributable to failure of proper usage of technology to address changes in the design and structure of an organization. Organizations that realize full benefits of a technology are those that make necessary changes in their organizational structure, strategies, and processes [16].

Organizations might not be able to realize full benefits of a technology unless they make the necessary changes in organizational structure, strategies and processes. Many renowned scholars in MIS including Grover, Teng, Segars,Fiedler, Henderson, Venkatraman, Scott-Morton, Lucas and Baroudi have called for changes in business processes, organizational structures and such man-agement related issues in order to take full advan-tage of the implemented information technologies[17,18, 19]

TOP MANAGEMENT

ERP is a transformation process in terms of business practices, structure, policy processes and employees, and as detailed above often requires assistance from external consultants. A proactive top management support remains critical in IS implementation even when external consultants are involved. Traditionally, top management support can assist organizations to overcome hurdles such as political resistance and encourage participation throughout the organization; it has further been identified as a crucial factor related to information systems effectiveness . During a successful ERP implementation, top managers need to not only continuously monitor the progress of the project and provide direction to the implementation team, but also champion ERP within the organization and allocate sufficient required resources and . Top management support is consistently identified as one of the most important factors for ERP implementation success [20]

USER TRAINING

Education and training on functionality and configuration gives the project team the needed insight to map the new process design. A sound project management framework acts as a significant condition for achieving overall success with an ERP system. the people intended to use the system and those influenced by it will go through the education and training needed to understand how data flow through the system and how the system is operated at each point in the supply chain. Knowledge gained from the development of these phases served as the groundwork for the success of the system, but since training is the last phase in the ERP implementation activity it is generally cut short if the project runs out of dates.

INTERACTION BETWEEN TRANSFEROR AND TRANSFEREE

This refers to the psychological state of participation in terms of system development and implementation betwen representatives of target user groups and the traineers. Large systems development requires user input in order to be successful and this is only possible when the interaction between the trainer and trainee. When a company decides to implement a large system such as ERP, users from all affected departments are required to commit to the definition stages of the company ERP systems requirement analysis and ERP project implementation. Although users are often less influential both in ERP systems requirement analysis and implementation, a lack of user support may still hinder successful ERP implementation. Finally, if users are not psychologically ready to change and accept a new ERP system, they are likely to resist working and communicating with Trainers. For these reasons, it is important to have a healthy interaction between trainer and trainee.

SENARIO OF ERP IN INDIA

Small businesses at times can succeed in India without ERP but MNC have to adopt ERP or in other words it is impossible for MNC's to succeed in India without ERP. The literature shows India argues that business needs, competition, market survival, and customer retention are among the main drivers that force SMEs to adopt ERP system [21]. The current research shows that SMEs in India are benefited mainly in reducing the need for support, improving customer services and improving communication.

Based on the literature review certain issues and factors leading to successful ERP implementation have been identified .On the basis of frequency of citations made by authors in ERP implementation issues in context to small scale enterprises of similar developing countries like India 25 issues have been identified.

TABLE 3

1. Issues mentioned in the literature	2. Number of instances cited in the literature
3. Education & training	4. 9
5. Top management support	6. 8
7. Properly defined goals & objectives	8. 5
9. Competent project team	10. 3
11. Project management	12. 2
13. Change management	14. 2
15. Proper package selection	16. 2
17. Effective communication	18. 2
19. Vendor support	20. 1
21. Data accuracy	22. 1
23. User knowledge	24. 1

ANALYSIS

The field of ERP has matured in a relatively short period of time. As Fig. 1.shows, the number of journal articles published from 2005 has steadily increased. Considering the fact that most of the earlier journal articles in the topic area started appearing in late 1990s, this field certainly has gained significant research interests from many researchers in a short period of time.

From the data in Table 1 above a conclusive analysis could be drawn ERP Trends and perspective's – (In a particular sector) like; ERP in SMEs and ERP indeveloping countries (Africa and parts of Asia) are areas, which are lacking in ERP research and development. Furthermore, ERP Education andTraining are another area lacking much research as this can be seen from table 1.

Even though this is true in India ERP is gaining more popularity and is becoming a common buzz word in Small and Medium size Business.

Table 2 shows the common issues faced while implementing ERP in developing countries like and India and other similar Asian countries.

CONCLUSION

The concept of ERP is growing and expanding. It will be useful to investigate topics such as how the companies using the ERP system perceive these trends of extension, how they will cope with the changes and challenges that pose ahead, what tools are needed, such as the infrastructures available to them and the kind of skills and expertise required. Methodologies required and the kind of models useful in the expansion efforts or approaches, etc.ERP is truly multi-disciplinary and inter-disciplinary therefore research is needed from diverse point of view. The field of ERP will certainly continue to mature and even more in the extension period. As more experiences have been gained with the implementation process, different topics such as the importance of using ERP and the assessment of ERP values seem to be becoming of interests to both the researchers, businesses and industrial organizations as they are potential areas for future research.

RESEARCH GAPS; FINDINGS AND CONTRIBUTIONS FOR FUTURE/FURTHER

In this global village, businesses and industrial organizations must be very competitive in order to survive. Thus, Future researches on these ERP topics seem very promising. Some of the areas include the education of ERP; ERP implementation on the large scale among SMEs; ERP implementation in developing countries taking into accounts the fact that these countries are not as rich as the Western countries and hence the ERP systems should be administered more in the form of Software as a Service (SaaS); all of these areas listed according to the findings in this review report are eminent research gaps for business and industrial organizations as well the academia. A large scale, simultaneous survey studies might generate useful insights on these topics.

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EVALUATING CORPORATE SOCIAL RESPONSIBILITY PRACTICES IN INDIA FOR COMPETITIVE ADVANTAGE

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ABSTRACT

Business ethics and consumerism in recent years have promoted the global concept of corporate social responsibility to evolve business practises that are competitive and sustainable. The concept of CSR is regarded as a powerful way of achieving sustainable, competitive advantage and for achieving long-lasting value for the investors, shareholders and stakeholders. The definition of CSR in India varies from company to company and many use other terms for it such as sustainable growth, corporate responsibility, social responsibility or corporate citizenship. The Ministry of Corporate Affairs has come up with voluntary guidelines for taking up CSR initiatives and companies have started including it in their annual reports. Although India has been one of the largest emerging markets, its CSR practises is still evolving. The present study tries to evaluate through an exploratory research the different CSR practises followed by the major groups of Indian companies in recent years against the backdrop of the Companies Act, 2013.

KEYWORDS

Business ethics, corporate social responsibility, stakeholders, sustainable growth.

INTRODUCTION

India is one of the fastest growing economies in the world .India has a long tradition of corporate responsibility, dating back to the 19th century, many aspects of its CSR tradition are still valid today., The increasing demand for a more inclusive and sustainable global economy, UN Secretary General Kofi Annan, in 2000, launched the Global Compact, the first CSR initiative at the global level. The Ministry of Corporate Affairs in India has come up with a revised set of CSR guidelines and companies have started incorporating their CSR initiatives in their annual reports. Companies in India too have started taking up CSR initiatives and integrating them into their business processes. The definition of CSR varies from company to company and many use other terms such as sustainable growth, corporate responsibility, social responsibility or corporate citizenship. The dawn of a 'new consciousness' regarding social and environmental obligations by the corporate world is known as Corporate Social Responsibility (CSR) since 1970s. [1]

DEFINITION

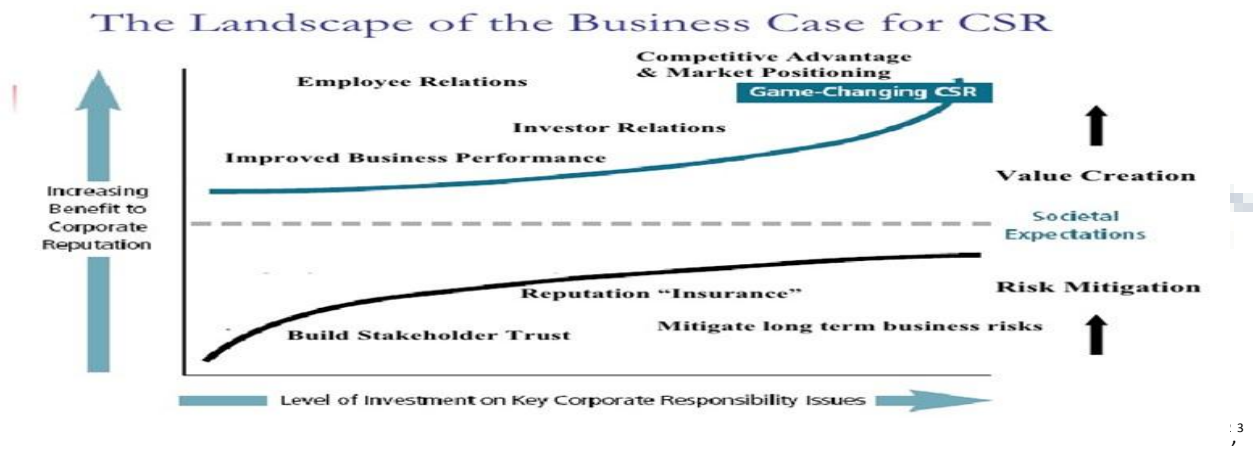
CSR is a concept through which companies incorporate social and environmental issues into their everyday business operations to have better relations with their stakeholders, directly or indirectly. Stakeholders include employees, investors, shareholders, customers, business partners, clients, civil society groups, Government and non-government organisations, local communities, environment and society at large. It is a long term and voluntary commitment of a business organisation to ensure success through improved and sustainable economic, socio-cultural and environmental practises. Its definition is still quite debatable and sometimes even criticised.

According to the World Business Council for Sustainable Development (WBCSD) [2] , Corporate social responsibility is the commitment of business to contribute to sustainable economic development, working with employees, their families, the local community and society at large.

According to Carroll, "CSR encompasses the economic, legal, ethical and discretionary (philanthropic) expectations that society has of organizations at a given point in time."

Although there are many approaches to CSR, there are mainly two extremities – self regulation and regulation by law. In the self-regulation approach, companies decide for themselves the extent to which CSR can be implemented. In legal regulation, the government is the most important player who decides the extent of CSR measures.. Multi-stakeholder initiatives, a "third way" **(Utting 2005)**, such as the Global Compact[3] or the OECD Guidelines for Multinational Companies, are located between the two extremes and can be defined conceptually as co-regulation approaches in which stakeholders are involved in a company's CSR policy-making process. In this NGOs, business associations, governmental organizations and multilateral institutions work together in a constructive manner to achieve complementary goals in the CSR policy making process.

FIG. 1



[1] Corporate social responsibility is a concept which started after 1970s, basically emerging from philanthropic ideas.

[2] The World Business Council for Sustainable Development. (WBCSD) is a coalition of 160 international companies united by a shared commitment to sustainable development via the three pillars of economic growth, ecological balance and social progress.

[3] UN global compact is a set of 10 principles which covers 4 broad areas- human rights, labour rights, environment and governance. For more details refer to the website of UNGC.

CSR increasingly covers a wide range of issues such as plant closures, employee relations, human rights, corporate ethics, community relations and the environment. The formal way of expressing the Corporate Social Responsibility orientation of an organization is the annual CSR Report. The corporate Social Responsibility reports which have now become an annual report in addition to the traditional annual financial reports is one of the vehicles used to demonstrate how funds allotted for CSR over a financial period is utilized and reported.

PRESENT SCENARIO OF CSR IN INDIA

On 29 August 2013, the Indian parliament passed the Companies Act, 2013, the concept of CSR being governed by clause 135 of the Act.[4] The New Act has made far-reaching changes affecting company formation, administration and governance, and it has increased shareholder control over board decisions. One of the New Act's most startling changes—which came into effect on April 1, 2014 has been to impose compulsory corporate social responsibility obligations ("CSR") upon Indian companies and foreign companies operating in India. These obligations mainly come in the form of mandatory amounts companies must contribute to remediating social problems.

Under the new law, a minimum of 6000 companies will be required to undertake CSR projects with many Indian companies starting these initiatives for the first time. All companies with at least Rs 1,000-crore turnover or more or a net worth of 500 crore or more or a net profit Rs 5-crore or more will have to spend 2% of their annual net profit on CSR activities — which include promotion of education, eradication of extreme hunger and poverty, environmental sustainability, gender equity and women empowerment, social business projects, combating AIDS, with effect from the fiscal year 2014-2015. Companies meeting these thresholds are required to set up a CSR committee, develop a CSR policy, spend a minimum amount on CSR activities and report on these activities, or prepare to explain why they didn't. An entity or business that meets these specified thresholds must spend on CSR activities no less than two percent of its average net profit of its previous three financial years.

An effective CSR strategy should have a target group, geography or the local region and a sector or an issue. The Act encourages companies to spend their CSR funds in those areas which exclude normal business activities of the company. Many SME's are also expected to be covered under the new provisions of the Act, leaving out the microenterprises.[5] The New Act requires companies to appoint a Corporate Social Responsibility Committee consisting of at least three directors out of whom at least one is an independent director.

The CSR committee is required to recommend a formal CSR Policy, prepare a detailed plan of CSR activities, recommend the amount of expenditure and prepare a monitoring and reporting mechanism. The CSR committee must also oversee the project development and implementation, project approval and budgeting, impact measurement, reporting and communication.

REVIEW OF LITERATURE

Business impacts on society and environment have existed since the institution of business **(Boyce & Ville, 2002).** A corporation is not just a self-centered profit-making entity but the company and its actions are integral to the economy, society and environment in which they operate **(Herrman, 2004).** CSR means that corporation and businesses in general while working on their main goal of maximizing shareholders' profit should also keep in mind the societal concerns, needs and act responsibly towards the society in which they operate **(Melikyan, 2010).** CSR had already gained considerable interest in the 1960s and 70s, reviving a broad range of scholarly contributions **(Cheit, 1964; Heald, 1970; Ackermann & Bauer, 1976; Carroll, 1979).** A great deal of research has been conducted on CSR in Western countries, but relatively little research has been focused on Asia (Birch & Moon, 2004). Though past evidence suggests a negative relation between CSR towards the community and firm performance **(Berman et al., 1999),** it is now observed that investments in community development activities help a firm to obtain competitive advantage through tax savings, decreased regulatory burden, and improvements in the quality of local labor **(Waddock and Graves, 1997).** Higher CSR towards employees in terms of employee-sensitive policies and practices by firms enhances employee productivity, reduces absenteeism, and facilitates recruitment and retention of better quality employees **(Turban and Greening, 1997).**

Krishnan and Balachandran (2004), studied the impact of emerging markets on corporate social responsibility. The findings of the study show that consumers prefer to boycott a company's products and services in case of negative corporate citizenship behavior. A recent survey on business–community relations in India shows that 85% of the surveyed firms agree that they have a responsibility to the surrounding community and are committed towards their cause **(Mahajan, 2004).** A socially responsible image of companies among the local community improves the brand and loyalty of consumers. According to **Herrmann (2010)** an effective CSR regime needs to focus on four important issues: setting standards; monitoring compliance with standards and exposing abuses; creating binding legal obligations; and enforcing those binding laws.

NEED/IMPORTANCE OF THE STUDY

Very limited research work has been done to investigate the CSR practices in developing and emerging nations. Even academic publications on this emerging and controversial issue is primarily western centric and very limited. **Belal (2001)** noted that most of the CSR studies conducted so far were in the context of developed countries and we still know too little about CSR practices in smaller and emerging countries. Thus the present study tries to evaluate the present CSR concept in India and its progress among the corporate world.

The study can be further extended to include many more companies. Also a comparative study of their CSR activities through their annual reports can also be studied to have a better understanding of reality.

STATEMENT OF THE PROBLEM

CSR has been one such issue in the corporate world which lacks efficient control and coordination. With so much resources available with the corporate world, greater degree of research is required to understand the role of the corporate world and their social accountability. The present study tries to incorporate a few major companies taking up CSR.

OBJECTIVES OF THE STUDY

CSR being a relevant and a global concept needs to be discussed to understand the disparity, inequality and the growing divide that exists in India. The combination of regulatory and societal pressures have forced the companies to pursue CSR activities professionally. The twin objectives of the present study are:

a. To study the evolution of Corporate Social Responsibility in India.
b. To evaluate the Corporate Social Responsibility practises adopted by Indian companies which helped them gain a competitive edge.

RESEARCH METHODOLOGY

CSR in India has remained within the philanthropic space with limited documentation but has moved slowly from institutional building to community development. The following study has been conducted with an exploratory research design based on the availability of secondary data sourced from journals, magazines, articles, handbooks and media reports.

DATA COLLECTION

The study is based on secondary data available from various sources at the national and international level. The data from international sources includes WBCSD, UNGC, and OECD etc. At the national level, data has been sourced from CII, FICCI, journals, articles, handbooks etc. The required analysis has been done using in-depth study to highlight the facts of the analysis.

[4] Handbook on corporate social responsibility in India, CII. www.pwc.in.

[5] The CSR activities of the SME's are dominated by the promoters who hold a significant stake in the business. Due to their small revenue, they can cluster and form a CSR pool fund.

EVOLUTION OF CORPORATE SOCIAL RESPONSIBILITY IN INDIA

In the 1960s and 1970s the civil rights movement, consumerism, and environmentalism affected society's expectations of business. An ideal CSR has both ethical and philosophical dimensions, particularly in India where there exists a wide gap between sections of people in terms of income and standards as well as socio-economic status **(Bajpai, 2001).** Carroll (1991) argues that corporations should not only be judged on their economic success[6] but also on non-economic criteria and his four tier CSR model was one of the earliest which is given below:

FIG. 1

Source: Carroll (1991)

Economic: To earn a fair return on capital to satisfy the shareholders, deliver value for money products to satisfy customers, create new jobs and new wealth for the business, and promote innovation.
Legal: To comply with the law.
Ethical: To be moral, fair, just, respect people's rights, avoid harm or social injury and prevent harm caused by others.
Philanthropic: To perform beneficial activities for society.
Over the time four different models have emerged in India regarding corporate responsibility (Kumar et al., 2001). The models of CSR followed in India are:

TABLE 1

MODEL	FOCUS	CHAMPIONS
ETHICAL	Voluntary commitment by companies to public welfare	M.K Gandhi
STATIST	State ownership and legal requirements determine Corporate responsibility	Jawahar Lal Nehru
LIBERAL	Corporate responsibilities limited to private owners (shareholders)	MILTON FRIEDMAN
STAKEHOLDER	Companies respond to the needs of stakeholders-customers, employees, communities, etc	R. EDWARD FREEMAN

Ethical Model (1930 –1950): One significant aspect of this model is the promotion of trusteeship that was revived and reinterpreted by Gandhi. Under this notion the businesses were motivated to manage their business entity as a trust held in the interest of the community. The idea prompted many family run businesses to contribute towards socioeconomic development. The efforts of Tata group directed towards the well-being of the society are also worth mentioning in this model.
Statist Model (1950 –1970s): Under the aegis of Jawaharlal Nehru, this model came into being in the post -independence era. The era was driven by a mixed and socialist kind of economy. The important feature of this model was that the state ownership and legal requirements decided the corporate responsibilities.
Liberal Model (1970s–1990s): The model was encapsulated by Milton Friedman. This model implies that it is sufficient for businesses to obey the law and generate wealth, which through taxation and private charitable choices can be directed to social ends.
Stakeholder Model (1990–Present): The model came into existence during 1990s as a consequence of realization that with growing economic profits, businesses also have certain societal roles to fulfill towards its various stakeholders. The model expects companies to perform according to "triple bottom line" approach. The businesses are also focusing on accountability and transparency through several mechanisms. [7]

EVALUATION OF CORPORATE SOCIAL RESPONSIBILITY IN INDIA

Many Indian multinationals, like the Tata Group, ITC, Infosys, etc., have endeavored to create a better social image in society, providing a better and healthier work atmosphere to its employees. Of late, companies are pursuing meaningful partnerships with non-governmental organizations (NGOs) to empower the local community. Endeavors by Indian companies such as Kisan Kendra by Tata group, e-Chou pals and KisanIndia.com by ITC, Shubh Labh services by Mahindra, and Kisan Kendra by Ralli empower rural Indian farmers **(Singh and Bhagat, 2004).** For Indian companies, the absence of methods and tools for the evaluation of CSR practices and performance is among the most serious obstacle to the adoption and diffusion of CSR, according to the survey by UNDP et al. (2002, 28).
Today financial investors are becoming increasingly aware of social and environmental factors while taking their investment decisions. Also the funds channeled into Socially Responsible Investing (SRI)[8] have risen steeply since the early 1990s and now total around $ 2.4 trillion worldwide (IFC and CSM 2003, 2). However, the awareness of the Indian financial markets still appears to be very low. It is argued that, even though SRI does not play a major role in India today, it will become a major driving force in CSR activities in the future.
There is a long ongoing debate in search of a significant relationship between a company's social and financial performance based on a comparison between countries **(OECD 1996, 2000)** and companies. Overall, there is evidence that socially and environmentally responsible companies do not at least perform any worse than traditional firms, weak though that evidence may be.[9]

[6] The pyramid of CSR depicted the economic category as the base (the foundation upon which all others rest), and then built upward through legal, ethical and philanthropic categories (Carroll,1991,p.42). The CSR firm should strive to make a profit, obey the law, be ethical, and be a good corporate citizen" (p.43).
[7] Multi-stakeholder initiatives have gained in importance particularly since the UN Conference on Environment and Development (UNCED) and the follow-up World Summit on Sustainable Development (WSSD) in Johannesburg. At the latter, more than 200 initiatives embracing businesses, NGOs and governments were signed.
[8] Socially responsible investing (SRI), also known as sustainable, socially conscious, "green" or ethical investing, is any investment strategy which seeks to consider both financial return and social good. In general, socially responsible investors encourage corporate practices that promote environmental stewardship, consumer protection, human rights, and diversity.
[9] See Social Investment Forum Foundation (2004) for an overview)

TATA GROUP

Tata Group has emerged as biggest CSR spending group in the country. As per a media report an Indian conglomerate, the Tata Group had spent Rs 1,000 crore on corporate social responsibility (CSR) in 2013-14 which was well above 2% of its net profit, a minimum requirement for an Indian company under the Companies Act.[10] A significant amount of the total CSR spend by the Tata Group has gone into skill development, health and education, with Tata Steel emerging as the biggest spender within the group.

Tata Steel has adopted the Corporate Citizenship Index, Tata Business Excellence Model and the Tata Index for Sustainable Development. Tata Steel spends 5-7 per cent of its profit after tax on several CSR initiatives like-

(a) Over 500 self - help groups are currently operating under various poverty alleviation programs; out of which over 200 are engaged in activities of income generation thorough micro enterprises. Women empowerment programs through Self-Help Groups have been extended to 700 villages.. For providing portable water to rural communities 2,600 tube wells have been installed for the benefit of over four Lakh people.

(b) Tata Steel supports various **social welfare organizations**. They include-

- Tata Steel Rural Development Society
- Tribal Cultural Society
- Tata Steel Foundation for Family Initiatives
- National Association for the Blind
- Shishu Niketan School of Hope
- Centre for Hearing Impaired Children
- Indian Red Cross Society, East Singh hum district

(c) **Healthcare Projects** - Facilitation of child education, immunization and childcare, plantation activities, creation of awareness of AIDS and other healthcare projects

(d) **Human Capital development** - Scholarship programs for higher education of children, various workshops, creative & outdoor sessions

(e) **Relief works –** Various relief measures like Uttarakhand tragedy etc.

INDIAN OIL CORPORATION

Indian Oil has been taking concrete action to realize its social responsibility objectives, thereby building value for its shareholders and customers. The Corporation respects human rights, values its employee In the past five decades, Indian Oil has supported innumerable social and community initiatives in India. Touching the lives of millions of people positively by supporting environmental and health-care projects and social, cultural and educational programs. Every year, Indian Oil sets aside a fixed portion of its profits for spreading smiles in millions of lives across the country through a comprehensive community welfare and development program. About one-fourth of the community development funds are spent on the welfare of Scheduled Caste and Scheduled Tribe beneficiaries. Indian Oil has a concerted social responsibility program to partner communities in health, family welfare, education, environment protection, providing potable water, sanitation, and empowerment of women and other marginalized groups. Indian Oil has always been in the forefront in times of national emergencies. Indian Oil People have time and again rallied to help victims of natural calamities, maintaining uninterrupted supply of petroleum products and contributing to relief and rehabilitation measures in cash and kind.

The Community Development Program adopts a multi-disciplinary approach incorporating health, family welfare, education, drinking water and sanitation, empowerment of women and other marginalized groups in the vicinity of our major installations. While utilizing the Community Development Funds, more emphasis is laid on the projects for providing Clean Drinking Water, Health & Medical Care and Education.

Providing Clean Drinking Water: Installation of hand pumps/bore well/tube wells/submersible pumps, construction of elevated water tanks, providing water tap connection, rainwater harvesting projects/kits, aqua guard water purifiers/water coolers to schools/community center etc.

Health & Medical Care: Organizing Medical/Health Camps on Family Planning, Immunization, AIDS awareness, Pulse Polio, Eye, Blood Donation, Pre and Post-natal Care, Homeopathic Medicine etc., distribution of free condoms, providing anti-mosquito fogging treatment, toilets, medicines to primary health centers, mosquito nets, ambulances to Medical Centers /Hospitals/NGOs, hearing aids/wheel chairs to physically challenged, financial assistance to hospitals, medical equipment etc.

Indian Oil also runs and maintains the following for the benefit of the local community:

Assam Oil School of Nursing, Digboi, Indian Oil (AOD) Industrial Training Centre, Digboi, Indian Oil Sachal Swasthya Seva (Moblie Medical Units), Swarna Jayanti Samudrik Hospital, Indian Oil Scholarship Schemes.

ADITYA BIRLA GROUP

The Aditya Birla Group, which has a presence in cement, telecom, carbon black and financial services, spent Rs 150 crore on CSR in 2012-13. The CSR spend has risen in 2013-14 with growth in profits. The group's CSR initiatives are led by Aditya Birla Centre for Community Initiatives and Rural Development. Aditya Birla Group spent Rs 200 crore on CSR in fiscal 2014, which is a little over 2% of the net profit from India.

There is a unique project identification mechanism in which all projects are planned in a participatory manner, in consultation with the community. "Participatory rural appraisal", technique is used with the consensus of the village panchayats. And thus a project is born. Implementation and monitoring is the responsibility of the community and the CSR team. Monitoring entails physical verification of the progress and the actual output of the project. Infrastructure. Developing model villages is their unique initiative so each of their major companies is working towards the total transformation of a number of villages in proximity to their plants. Making of a model village entails ensuring self-reliance in all aspects viz., education, health care and family, agriculture and watershed management, and working towards sustainable livelihood patterns.

Various initiates taken under CSR program are:

Education - Formal schools, Balwadis for elementary education, Quality primary education, Aditya Bal Vidya Mandirs, Girl child education, Adult education.

Health care - Primary health care centers, Mother and Child care projects, Immunization program with a thrust on polio eradication, Health care for visually impaired, and physically challenged, Preventive health through awareness.

Sustainable Livelihood program - Formation of Self Help Groups for women empowerment, Vocational training through Aditya Birla Rural Technology Parks, Agriculture development and better farmer focus, Watershed development, Partnership with Industrial Training Institutes.

Infrastructure Development - Basic infrastructure facilities, Housing facilities, Safe drinking water, Sanitation & hygiene, Renewable sources of energy.

Social Change - Dowry less marriage, Widow remarriage, Awareness programs on anti-social issues, De-addiction campaigns and Espousing basic moral values.

I.T. COMPANIES

I.T companies like TCS and Wipro have developed software to help teachers and children in schools across India to further the cause of education. Wipro Cares - a not-for-profit trust is an earnest initiative by Wiproites to use the collective wisdom of volunteers to make compelling and channelized contributions in the areas of education, community service projects and social development, continually. Wipro Cares is currently engaged in 16 projects across India. It has also worked for various disaster rehabilitation program. Infosys Limited has been an early adopter of Corporate Social Responsibility ('CSR') initiatives. Infosys Foundation works towards removing malnutrition, improving healthcare infrastructure, supporting primary education, rehabilitating abandoned women and children, and preserving Indian art and culture. Its primary CSR initiatives are:

[10] (Times of India, 16 July 2014)

Hunger, poverty, malnutrition and health: Eradicating extreme hunger, poverty and malnutrition, promoting preventive healthcare and sanitation, and making available safe drinking water.

Education: Promoting education, including special education and employment-enhancing vocational skills especially among children, women, elderly and the differently abled, and livelihood enhancement projects; monetary contributions to academic institutions for establishing endowment funds, chairs, laboratories, etc., with the objective of assisting students in their studies.

Rural development projects: Strengthening rural areas by improving accessibility, housing, drinking water, sanitation, power and livelihoods, thereby creating sustainable villages.

Gender equality and empowerment of women: Promoting gender equality and empowering women; setting up homes, hostels and day care centers for women and orphans; setting up old age homes and such other facilities for senior citizens; and adopting measures for reducing inequalities faced by socially and economically backward groups.

Environmental sustainability: Ensuring environmental sustainability, ecological balance, protection of flora and fauna, animal welfare, agro-forestry, conservation of natural resources and maintaining the quality of soil, air and water.

National heritage, art and culture: Protecting national heritage, art and culture including restoration of buildings and sites of historical importance and works of art; setting up public libraries; promoting and developing traditional arts and handicrafts

BANKING SECTOR

The CSR in Indian Banking Sector is aimed towards addressing the financial inclusion, providing financial services to the unbanked or untapped areas of the country and the socio-economic development of the country by focusing on the activities like poverty eradication, health and medical care, rural area development, self-employment and financial literacy trainings, infrastructure development and environmental protection etc. RBI also insisted upon taking measures for sustainable development of economy through realizing the dire necessity of CSR. Reserve Bank of India (2007) stated that CSR entails the integration of social and environmental concerns by companies in their business operations and also in interactions with their stakeholders. The major thrust areas for CSR practice in Indian banks are common in public sector and private sector banks. These areas include children welfare, community welfare, education, environment, healthcare, poverty eradication, rural development, vocational training, women's empowerment, protection of girl child and employment.

There are only a few banks which report their activities on triple bottom line principles. Most of the banks use CSR practices as a marketing tool and many are only making token efforts towards CSR in tangential ways such as donations to charitable trusts, NGOs, sponsorship of events, etc. Very few banks have a clearly defined CSR philosophy. Mostly Banks implement CSR in an ad-hoc manner, unconnected with their business process and don't state how much they spend on CSR activities **(Dhingra and Mittal 2014).**

Some interesting but rare examples of CSR approach shown by major Indian companies-

- ✓ Reliance Industries and two Tata Group firms - Tata Motors and Tata Steel - are the country's most admired companies for their corporate social responsibility initiatives, according to a Nielsen survey released in May 2009.
- ✓ As part of its Corporate Service Corps (CSC) program, IBM has joined hands with the Tribal Development Department of Gujarat for a development project aimed at upliftment of tribals in the Sasan area of Gir forest.
- ✓ The financial services sector is going green in a steady manner. With an eye on preserving energy, companies have started easing the carbon footprint in their offices. The year 2009 witnessed initiatives including application of renewable energy technologies, moving to paperless operations and recognition of environmental standards. Efforts by companies such as HSBC India, Max New York Life and Standard Chartered Bank have ensured that the green movement has kept its momentum by asking their customers to shift to e-statements and e-receipts.
- ✓ NALCO has contributed US$ 3.23 million for development work in Orissa's Kora put district as part of its CSR **(Prabhakar and Mishra, 2013).**
- ✓ Reliance Industries initiated a project named as "Project - Drishti" to bring back the eyesight of visually challenged Indians from the economically weaker sections of the society.
- ✓ Tata consultancy services is India's largest software service company and has won the Asian CSR award for initiating community development work. It has designed a computer based literacy model to teach adults.

FINDINGS

Though economic reforms in India have started but it has not resulted in a substantial change in its CSR approach adopting only some aspects of global mainstream CSR. The findings can be summarized as under-

- ✓ The Indian understanding of CSR seems to be shifting from traditional philanthropy towards sustainable business. Nevertheless, philanthropic patterns remain widespread in many Indian companies.
- ✓ Community development still plays the decisive role in the Indian CSR agenda. Most Indian companies are trying to make self-sufficient local communities. Companies were engaged mainly in education and skill development, also focused on health and family welfare.
- ✓ There is limited use of environment friendly technologies and also environmental protection activities are rare under the CSR approach.
- ✓ Most companies are trying to have a CSR Committee or body at the top management level. Funds allotted towards CSR activities.
- ✓ Most companies lack a clear CSR policy and approach. Companies with huge amounts of net profit have adopted CSR to have a competitive edge to fight global competition. Small to medium sized companies are yet to come up with a discrete CSR framework.
- ✓ TATA group has been leading from the forefront with maximum amount of CSR spending. This shows the reason for it being a household name in India.
- ✓ Sector wise there is no uniformity towards CSR approach. Companies within a particular sector have been found to behave differently.
- ✓ The attitude and commitment of the CSR Committee guides the CSR allocation for a particular company.

CONCLUSION

It can be concluded that of late major companies in India have started addressing CSR issues seriously for adding a new dimension to their own businesses. It would be interesting to see in the coming years how far CSR in India have progressed. Till then, a realization has come to take up the causes of stakeholders through innovative work. Reporting and monitoring of CSR activities should be improved for value creation by companies. Government regulations should be stricter for implementation of CSR issues.

Also stakeholders must come up to demand strongly for corporate commitment towards themselves. Participation of small and medium business should be encouraged to make significant contributions towards society. Companies should also start putting up their CSR activities in their official websites as a responsible citizen.

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AGRICULTURE AND WTO

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ABSTRACT

Agriculture plays a very important role in the economic growth and development cycle of the vast majority of developing countries. There is a lesser proportion of the population which is dependent on agriculture in advanced countries but this small proportion has a strong lobby. Agriculture remains one of the contentious issues in the WTO negotiations. Developing and developed countries are at loggerheads over the proposed amendments to be included in the Agreement on Agriculture. This paper attempts to cover the important provisions of Agreement on Agriculture, different types of concessions provided by WTO member countries to its farmers, controversial issues and bottlenecks obstructing the successful conclusion of Agriculture related aspects of Doha round of negotiations.

KEYWORDS
Agriculture, Developing Countries, Doha Round, WTO.

INTRODUCTION

Agriculture plays a very important role in the economic growth and development cycle of the vast majority of developing countries. The situation in the advanced countries is different from developing countries. Developed countries are less dependent on agriculture for their economic growth and development. Over the decades this situation has been reflected in persistent demands by developing countries for substantial improvements in access to world markets for their agricultural exports, for more equitable conditions of competition, particularly as regards export subsidies, as well as demands for special and differential treatment in one form or another. As is evident from the negotiating proposals already submitted in Geneva, there is no doubt that developing countries will use the WTO agricultural negotiations now underway to achieve more substantial liberalisation than ultimately proved to be possible in the Uruguay Round.

The most recent collapse of World Trade Organization negotiations occurred in July 2008 because countries were unable to reach an agreement on how to protect farmers in developing countries from the negative effects of greater trade liberalization. Although an attempt was made to restart talks in September 2008, little progress was made, and if talks are to continue, it will not likely be until 2009. The current round of negotiations, titled the Doha Development Agenda ("DDA"), began in 2001 and included an emphasis on the needs of developing countries. However, subsequent negotiations have raised many questions about the commitment of developed countries to the DDA goals and highlighted the increasingly central role of agriculture in the WTO. The Uruguay Round of negotiations, which continued from 1986 until 1994, created both the WTO and the Agreement on Agriculture ("AoA"). Prior to the Uruguay Round, it was commonly believed that the international trade regime did not include agriculture. This can be traced to a 1955 waiver on agricultural import restrictions granted to the United States, which resulted in global disregard of trade rules. The AoA firmly returned agriculture to the WTO trade regime with specific binding commitments regarding market access, domestic support, and export competition. Yet it does not take into consideration non-market aspects of agriculture and food markets, such as the relatively inelastic supply and demand in agriculture, the lack of political and economic power of farmers, and the fact that corporations rather than countries or farmers are the actors who engage in agricultural trade.

The original GATT did apply to agricultural trade, but it contained loopholes. For example, it allowed countries to use some non-tariff measures such as import quotas, and to subsidize. Agricultural trade became highly distorted, especially with the use of export subsidies which would not normally have been allowed for industrial products. The Uruguay Round produced the first multilateral agreement dedicated to the sector. It was a significant first step towards order, fair competition and a less distorted sector. The Uruguay Round agreement included a commitment to continue the reform through new negotiations. These were launched in 2000, as required by the Agriculture Agreement.

AGREEMENT ON AGRICULTURE

The objective of the **Agriculture Agreement** is to reform trade in the sector and to make policies more market-oriented. This would improve predictability and security for importing and exporting countries alike. **The agreement does allow governments to support their rural economies, but preferably through policies that cause less distortion to trade.** It also allows some flexibility in the way commitments are implemented. Developing countries do not have to cut their subsidies or lower their tariffs as much as developed countries, and they are given extra time to complete their obligations. Least-developed countries don't have to do this at all.

The AoA has three central concepts, or "pillars": domestic support, market access and export subsidies.

1. **"Market access"** refers to the reduction of tariff (or non-tariff) barriers to trade by WTO member-states. Under the terms of the agreement, developed countries agreed to cut tariffs by an average of 36% in equal steps over the period 1995-2000, while developing countries agreed to make tariff cuts of 24% over a 10 year period. Least Developed Countries (LDCs) were exempted from tariff reductions. Import restrictions like quotas have been converted to tariffs- a process known as tariffication. Then, over a period of time, these tariffs have been gradually reduced.
2. **Domestic support-** The main complaint about policies which support domestic prices, or subsidize production in some other way, is that they encourage over-production. This squeezes out imports or leads to export subsidies and low-priced dumping on world markets. The Agriculture Agreement distinguishes between support programmes that stimulate production directly, and those that are considered to have no direct effect. Domestic policies that do have a direct effect on production and trade have to be cut back. Domestic support in the agricultural sector is categorised as

a) Amber-box subsidies- All domestic support measures considered to distort production and trade (with some exceptions) fall into the amber box except those in the blue and green boxes. These include measures to support prices, or subsidies directly related to production quantities. These supports are subject to minimal limits of 5% of agricultural production for developed countries and 10% for developing countries.

b) Blue box subsidies- This is the "amber box with conditions" — conditions designed to reduce distortion. Any support that would normally be in the amber box, is placed in the blue box if the support also requires farmers to limit production. At present there are no limits on spending on blue box subsidies. Blue

box subsidies are considered somewhat less trade distorting, because while they directly link production to subsidies, they also set limits on production by way of quotas,

c) Green box subsidies- Measures with minimal impact on trade can be used freely — they are in a "green box" ("green" as in traffic lights). They include government services such as research, infrastructure, etc. Research and training services provided to farmers by the state are one example of such aid. They also include payments made directly to farmers that do not stimulate production, such as certain forms of direct income support, assistance to help farmers restructure agriculture. Green box subsidies were initially considered non-distorting in terms of production and trade, though it is increasingly being recognised that they are at best minimally trade distorting. Direct income support schemes unlinked to production would be typical examples of green box subsidies. The commitments to reducing subsidies made under the AoA were restricted to amber box subsidies alone. This has led to serious anomalies that have effectively undermined the spirit of the AoA. For instance, the EU and the US can get away with providing huge levels of subsidy to their farmers simply by redesigning an amber box subsidy into one that falls into the blue or green box. In theory, the developing world can also play this game, but that is little more than a debating point. After all, developing world governments can hardly afford the quantum of subsidies farmers in the EU, US or Japan get.

The AoA's domestic support system currently allows Europe and the USA to spend $380 billion every year on agricultural subsidies alone. "It is often still argued that subsidies are needed to protect small farmers but, according to the World Bank, more than half of EU support goes to 1% of producers while in the US 70% of subsidies go to 10% of producers, mainly agri-businesses.". The effect of these subsidies is to flood global markets with below-cost commodities, depressing prices and undercutting producers in poor countries.

EXPORT SUBSIDIES: LIMITS ON SPENDING AND QUANTITIES

The 1995 AoA required developed countries to reduce export subsidies by at least 36% (by value) or by at least 21% (by volume) over the six years. In the case of developing country Members, the required cuts are 14% (by volume) and 24% (by value) over 10 years.

CRITICISMS OF AGREEMENT ON AGRICULTURE

- The AoA has been subject to several criticisms. A valid criticism is that there are imbalances in the AoA because industrialized countries have been able to secure exemptions for some of their policies (like the Blue Box) and were allowed to continue using significant amounts of expenditures for domestic support and export subsidies. Rich countries have the legal room and the resources to implement the variety of policies allowed under that legal text, while developing countries, although having legal room of maneuver, lack the needed financial resources.
- Contrary to the proclaimed intent of AoA to reduce and eliminate the huge agricultural subsidies of developed countries, both the U.S. and EU have retained and even increased their annual farm subsidies to the tune of USD 70- 80 billion each. They were able to do this by classifying their subsidies under the different forms of exemptions allowed by the AoA.
- Without reducing or eliminating such huge subsidies, which have not solved but rather exacerbated the problem of overproduction in developed countries, import dumping and import surges continue to threaten many developing and least developed countries which at the same time were compelled to lower tariffs and to dismantle their protective trade walls in compliance with WTO rules and IFIs' loan conditionalities. Between 1990 and 2000, developing countries cut their average applied tariffs on agricultural imports from 30 percent down to 18 percent.
- And while developing countries complied with liberalization measures, developed countries managed to retain their protectionist walls by using tariff peaks or setting tariffs at a very high level from the base year of implementation, resulting in negligible tariff reduction and insignificant market access for the exports of developing and least developed countries. They have also invoked the Special Safeguards (SSG) provision of the GATT-UR to discriminate against developing country exports.3 No wonder, under these circumstances, the share of developing country in agricultural exports has remained stagnant at around 36 percent during the past two decades.
- Gross imbalances that are built-in the AoA rules and actual practice of developed countries to further circumvent these rules to their advantage have undoubtedly undermined the food security and rural livelihoods of developing and least developed countries. Evidence abounds. Food imports by developing countries grew by 115 per cent between 1970 and 2001, transforming their combined food trade surplus of $1bn into a deficit of more than $11bn. A case in point is rice, which is the staple food for 3 billion people or half of the world's population and the source of livelihood for 2 billion people - mainly smallholders in the South. Tariff cuts on rice imports were forced upon rice-producing developing countries through a combination of IMF and World Bank loan conditionalities and WTO and bilateral trade deals, transforming many of these countries from self-reliant rice producers to net food importers. While most developing countries could barely provide domestic support to their farmers even lower than the 10% de minimis ceiling provided by the AoA, the combined subsidies poured in by the U.S., Japan and EU for their rice sector in 2002 reached US$16 billion. The U.S., the third largest rice exporter, is subsidizing its rice sector to an amount equivalent to 72% of its cost of production, something that is very obscene because U.S. rice production cost is more than twice the production costs of the two other leading rice exporters, Thailand and Vietnam.

INDIA AND WTO: ISSUES IN AGRICULTURE

India has come under heavy criticism recently for blocking the implementation of a World Trade Organisation (WTO) agreement reached at Bali in December. Proponents celebrated the Bali 'package' as a long-awaited achievement by the WTO, which had failed to reach a significant agreement since 1995. However, critics lamented that the Bali deal was skewed in the favour of developed nations above developing nations. The final package included a Trade Facilitation Agreement (TFA), which aimed to simplify logistics and customs, as well as parallel proposals for food security and agriculture which were important for developing countries. The TFA was controversial because it had required developing countries to invest in sophisticated customs technology regardless of their level of development. It is now uncertain whether the Bali deal will actually be ratified, after India blocked the implementation of the TFA in July, 2014, citing that there had not been enough progress on food security and agriculture issues.

In Bali, India was joined by 33 other developing countries who wanted to amend the existing Agreement on Agriculture in order to protect their ability to continue food security programs, which involve governments buying food from farmers at above market rates in order to stockpile staples like wheat and rice to distribute at subsidised prices for their poorest citizens. The existing rules meant that countries implementing these essential food security programs could face legal challenges if they went above the tight limit set by the WTO. An agreement was made in Bali to implement a temporary "peace clause" which would protect these countries from legal challenges in the absence of a permanent solution.

Ahead of resumption of negotiations in Geneva to end the stalemate over the Bali agreement, India has notified its farm subsidies for six years from 2004-05 to 2010-11 to the World Trade Organization (WTO). India claims that it has not breached the permissible subsidy levels under WTO rules. India had not notified its farm subsidies to the WTO since 2003-04; updating the information is expected to help it answer rich nations' complaints that it doesn't comply with WTO notification requirements, a significant move even as it fights for a permanent solution on food subsidies.

As per the notification, in 2010-11, India's aggregate measurement of support (AMS) for rice, or subsidy for procurement of rice, has been calculated at $2.3 billion. WTO rules allow such subsidy to be within 10% of the total value of paddy produced in the country. Without revealing the total production figure, India has indicated to the WTO that its subsidy for rice is within the prescribed limit. The commerce ministry had earlier communicated unofficially that its AMS for rice was around 7% of the total value of paddy produced in 2010-11. India's subsidies for wheat remained in the negative, against the prescribed limit of 10%.

Under WTO rules, the domestic price support is calculated as the difference between the fixed external reference price prevailing between 1986-88 and the minimum support price (MSP) provided by the Indian government. India announces MSP for as many as 23 crops but the subsidy is largely restricted to paddy and wheat, where the amount of government procurement is huge.

As the government keeps increasing the MSP every year, the market-distorting subsidy limit according to WTO rules keeps increasing, too, thus threatening to breach the 10% cap prescribed by it. Developing countries including India argue that the reference period of 1986-88 is outdated and that they need to be given

flexibility to stock enough grains for the food security of millions of their poor. At Bali in December 2013, developed countries agreed to find a permanent solution to this issue by 2017, until which time member countries would not be able to challenge poor and developing countries through the WTO dispute settlement mechanism if they breached the 10% cap.

Australia, Japan and the European Union have questioned that while India had minimum support prices in place for 25 crops in 2004-13 (including rice, wheat, cotton, soyabean, sugarcane, bajra, maize, ragi, arhar, moong, urad, nuts, sunflower seeds, sesamum, nigerseed, barley, gram, lentil, rape seed, safflower, toria, copra, and jute), it notified prices for only 12 crops in 2004-05 and just three for 2010-11.

CONCLUSION

The entire discussion of conflict between developing and developed countries over agricultural subsidies could be summed up as follows-

- **Market orientation v. protection**: whether special protection and support should be allowed for developing countries to address their particular situations, or whether liberalization with some flexibility is more effective.
- **Unique v. shared concerns for developing and developed countries**: whether issues such as food security and rural development should be handled uniquely for developing countries, or whether others such as transition economies and developed countries should also be covered.
- **Unique v. shared weaknesses among developing countries**: whether provisions should apply generally to all developing countries, or whether specific groups of developing countries need extra provisions. Underlying this discussion is the question of whether a liberal trade regime would favour some developing countries with inherent advantages in agriculture, or whether other developing countries would be hurt by more liberal trade.

Concerns of developing countries regarding unfair rules of trade in agriculture must be addressed and accommodated into any future WTO negotiations in order to ensure the smooth functioning of WTO negotiations. Developed countries should reduce the subsidies given to domestic agricultural producers, as well as the tariffs on agricultural imports from developing countries. It is also essential that countries recognize that trade may lead to food insecurity in developing countries and take measures to support both subsistence farmers and consumers there. Since the Doha Round began, developed countries have proposed some reductions in their subsidies and to allow some of the poorest developing countries to maintain tariffs on a limited number of products. However, the developing country proposals do not go far enough to fulfill the objectives outlined by the Doha Ministerial Declaration, such as taking into account the development needs of non-industrialized nations, including food security and rural development. Developing countries should continue to work together to build agreements and power blocks to ensure that any future trade agreement embodies the original intent of the Doha Development Agenda.0

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AGRICULTURE USING SOLAR TRACTOR WITH WIRELESS SENSOR NETWORK ESSENTIALS

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ABSTRACT

This paper presents an overview on agriculture using wireless sensor with solar tractor. The wireless sensor can make lot of changes in world. Using wireless sensor, here we discuss about Soil Monitoring, Animals Protections, Fertilizer, Harvesting and so on. The farmer cultivates the land in level by level to protect plants growth, and farmers spend lot of money for human workers, and waste time for yielding. So we use solar tractor with wireless sensor network. And one more important task, the farmer lands are covered by power supply to protect plants from animals like elephant, forest cow, tiger. The tractor avoidance system give an alarm to protect the animals and send the information to farmer through messages with the help of Bluetooth, it prevents the death of animals.

KEYWORDS
Precision Agriculture, Environmental Monitoring, Process Control, Wireless Sensor Network.

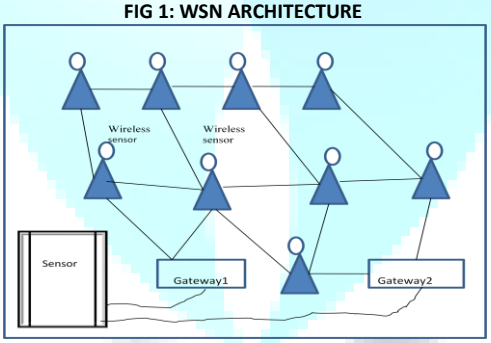
1. INTRODUCTION

India is an agriculture country. The basic need of an Indian cultivation is agriculture, 75% sides are surrounded by water, 25%sides land. By using solar tractor they yield land very easy with less amount of time, with WSN we collect the day to day data factors like soil, weather condition, and others. Farmer plays an important role. Automatic sensor and Wireless network enable local and real-time observation and monitoring. In future robotics plays an important role to cultivate. In some country they invent this type of robotics for research.

1.1 REQUIREMENT OF WIRELESS SENSOR AND TRACTOR

Sensor and Telecommunication technology has quickly developed. Using Grass Land and labor-intensive Downloading to develop wireless on-line sensors and is moving towards interoperable and also self-sufficient sensor webs. Most new tractors are implements are sold with factory installed (GNSS) global navigation satellite system and receive a variety of sensors.

FIG 1: WSN ARCHITECTURE



2. RELATED TO WIRELESS SENSOR NETWORK MODULES

Based on soil characteristics, plant resources, crop protection, some other diseases and pest attacks are inform through the farmer with WSN. Using tractor, the necessary action taken like spraying, cropping, yielding, spraying chemicals to plants depend on farmer land. How many acres of land can calculate by using sensor and done the process.

The different factors related to task are

- Soil monitoring
- Plant protections
- Insect protections
- Animal protections
- Fertilizers
- Tractor Guidance system
- Irrigations
- Harvestings

2.1 SOIL MONITORING

Wireless sensor helps the farmer depending on soil characteristics. A huge quantity of fertilizer is used depends on place to another, can estimate by using Wireless Sensor Network. It help farmer to reduce time consumption and yield cost more toward farmer. The tractor using sensor update the data's day to day activity.

2.2 PLANT PROTECTION

Using WSN, The seed or disease which is caused can be easily monitored through sensed or detected(removed). After sensing the unwanted seeds or disease can be used to destroyed. The use of checking the plant protection is growth of a plant can be yield more cost.

2.3 INSECT PROTECTIONS

The agriculture can spoil more with and without insects protection. The insects can cause some disease to plant, spoils the growth of a plant. To control these, By use sensor tractor to spraying Chemicals to avoid the insects.

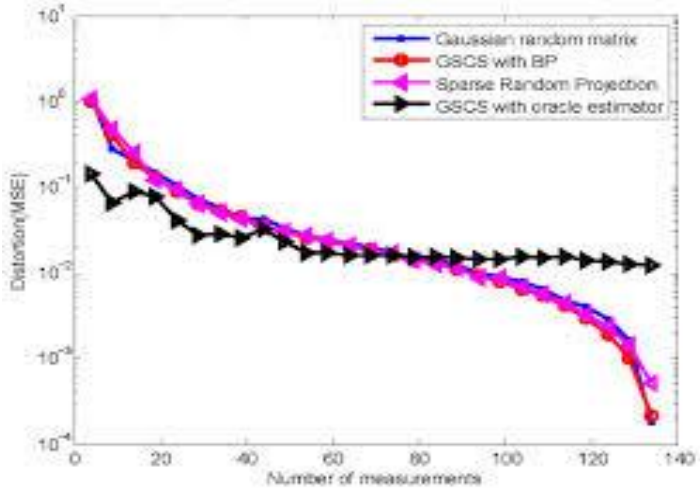
2.4 ANIMAL PROTECTIONS

Farmers have large acres to cultivate the plants. Animals entered and destroy the field and they cause more loss to farmer. They covered his acres to power supply through current wires, They prevent yielding but it causes the death of animals. Whether WSN entered into field, An alarm given to a farmer for such kilometers animals are entered and they inform to forest department.

2.5 FERTILIZERS

The progress has been made in the use of proximal remote measurements with handheld &tractor mounted sensors for nutrient management inerrable farming.

FIG 2. GRAPH BASED SENOR MEASUREMENT



It helps to growth the plant health and good culture to soil, destroy the insects. Because of these farmer earned more profit

2.6 TRACTOR GUIDANCE SYSTEM

Using tractor guidance system upload Soil Type Data, Plant culture, Sheltered Machine mechanism, Spraying the Chemical, manure are recorded in the data's with sensor network. Depends upon the climate condition summer to winter(6 months) and winter to summer(6 months) variations are saved into it. Farmers obtain an safety measure through messages with help of Bluetooth.

2.7 IRRIGATION

The potential of sensor technology for irrigated agriculture has been studied since standard 80's. Since then rapid development of communication technologies has been replaced with wired soil conditions monitoring systems with wireless sensor. The wireless techniques made systems faster to deploy and provide flexibility. While challenges were founded in cost of sensors, depending on staff experience in electric supply.

2.8 HARVESTING

In harvest there are several techniques of sensors, that may include

A moisture sensor, a ground speed sensor, a cut with sensor, an elevation speed sensor and a DGPS(Differential global positioning system)

The grain field sensors are

- Mass Measurements
- Flow Measurements
- Impact Sensors and Indirect Methods

3. EQUIPMENTS OF SENSOR WITH AGRICULTURE

Fleet management in agriculture crop production consist of two main components a transport telecommunication

- Located on the vehicle
- And a software Application

FIG. 3: USING WIRELESS SENSOR TO YIELDING WITH SOLAR

3.1 TELECOMMUNICATION MONITORING

The transport Telecommunication consists of a positioning system

a) A keyboard for fleet management and

b) A series of networked sensor nodes

Large and intensive crop production farms invest heavily in machinery. Therefore their usage and safeguarding must be efficiently planned and implemented.

Fleet management in WSN agricultural crop application can be classified into two groups
1) Plant production vehicles and equipment,
2) Unmanned aerial vehicles
The field operations are soil monitoring, plant and animal protections, insect protections, fertilizers, irrigations and harvestings.

3.2 WIRELESS MACHINERY AND DATA

The automatically collected and processed operational task for agricultural machinery in real time.
The machinery-based unit collects
1) The machine position and
2) Attitude data
The office-based unit collects
1) Data fusion to estimate the machine position accurately wireless
Data-link layer transmits the data between machinery and office based units.
The machinery positioning data and sampling rate of 50 hertz. Apart from research journalism and prototyped trial, major agricultural equipment company are becoming key actors in agriculture.

FIG 4: FARMER MAGNITUDE THE PATH

One drawback to spraying the seeds with the help of flying vehicles the plants are not in correct manner to growth. They presented an ultra low volume sprayer for a UAV helicopter. The spraying seeds will in specific portion.
Production management focused on the use of a combination of simple digital photographic cameras with spectral filters. Successful test were performed on ten varieties of wheat grain in trail micro-plots can seen using a tractor mechanism.

4. CONCLUSION

India being an agricultural country needs some becoming increasingly concentrated on monitoring and innovation in the field of agriculture. The tractor is used for unknown thermal places like foreset, river, dams… etc. This can be achieved controlling the entire conservatory yielding process. During recent technologies which support computing, the necessities in the aspect of WSN based crop communication and control within devices ad solar .WSN suit for monitoring system functions can be mainly summarized. Technologies have become a backbone for modern precision agriculture monitoring. Our population increases year by year. So this WSN techniques are very helpful to the farmer to gain more cost depend on the climate situation. In Future we concentrate on machineries replacement and sensor signal and also cost of machinery. By using back propagation algorithm with neural network the data are created. It helpful to cultivator, and robotics are implemented in future enhancements.

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A LITERATURE REVIEW OF TECHNIQUES OF CONCEALING SINK NODES IN WIRELESS SENSOR NETWORKS

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ABSTRACT

Wireless Sensor Networks (WSNs) have been used in a variety of applications to observe various objects. The location security of the Base Station is becoming one of the major issues in WSN due to its critical placement. The issue requires great protection. The privacy of the message can be protected through encryption content. This paper formalizes a novel efficient privacy preserving scheme to secure sink node location. The aim is to keep the location security of the base station from being located by using the traffic flow passive analysis. F-CSH is based on the hiding of the location of the main sink using fake sink holes been elected using fuzzy score function. Also, evaluations prove that the F-CSH technique greatly reduces both the delivery time and conservation energy cost as compared to existing strategies. The overall motive of this paper is to make a comparison of the various secured sink based techniques. At the end of the paper, suitable future directions to enhance this work further are provided.

KEYWORDS
F-CSH, multiple path segments, sink privacy.

1. INTRODUCTION

A Wireless Sensor Network (WSN) is a network composed of resource-constrained devices having limited capabilities, and are called the sensors. The sensors are equipped with wireless communications facilities. These sensors send data to the main node in the Wireless Sensor Network (WSN) which is called the Base Station (BS). The Wireless Sensor Networks (WSNs) are deployed in a variety of applications. The applications of Wireless Sensor Networks (WSNs) vary from homeland security to environment sensing, health monitoring, forest fire detection, manufacturing tasks and many more applications.

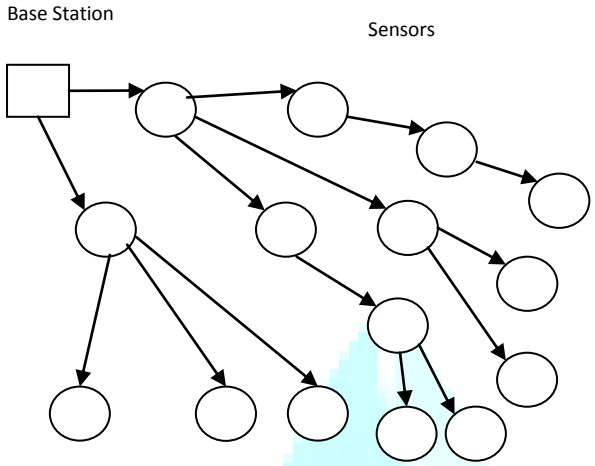
The messages in the Wireless Sensor Network (WSN) are subject to many of the vulnerabilities. The messages may be eavesdropped from the channel and fake messages may be injected into the network without the need of physical access to the network components. The Wireless Sensor Network (WSN) is subject to eavesdropping at the nodes level too. If an opponent gets full access over a node, he may steal the important information from the node, or may change the programming of the node and hence change its behavior, or may physically damage the hardware. In addition, the topology needs to be kept care of. A Wireless Sensor Network (WSN) needs to be secure for its proper functioning. The main features of a secure Wireless Sensor Network (WSN) are the availability, integrity, confidentiality, privacy, authorization, and authentication. A WSN needs to possess these features to work as a secure WSN.

The security of a Wireless Sensor Network (WSN) is challenged by many of the attacks to the WSN. The attacks in the Wireless Sensor Network can be categorized into many of the categories depending upon their intent and the effect. The attacker is an insider or an outsider; the attacks are active or passive; what is the actual purpose of attack, are the main considerations for the categorization of the attacks. Many of the attacks in the wireless sensor network can be categorized as Active Attacks, Passive Attacks, Flood Attacks, Black hole Attack, Denial of service Attack (DoS), Sybil Attack, Information Alteration, Worm Holes, Looping, and Node Replication.

- **Active Attacks** are the attacks in which the attacker causes physical damage in the network like destruction of resources, change of data, changing traffic direction or restriction of data to sink nodes.
- **Passive Attacks** are another types of attacks in which the attackers only observe various activities on the network, extract private information but don't cause any physical destruction or any change of information. Passive attackers can launch active attacks.
- In **Flood Attacks**, Hello messages are flooded in the network. The attacker pretended that the sender of the packet is in their neighbor, therefore when the sender node want to send any sensed information to a sink node, then they forward it towards the attacker node.
- In **Black Hole Attacks**, the attacker nodes act like a black hole, where the attacker node sees the route request packets from its neighbors and replies them back using fake information about shortest route toward sink node. Therefore, any node which wants to send data to a base station will forward it towards attacker.
- In **Denial of Service (DoS) attack**, the attacker sends extra packets in the network without any need and keeps the route as well as the base station busy. So the legitimate users are unable to send data, access resources and get services.
- In **Sybil Attacks**, a node changes its ID continuously and attacker nodes using multiple identities of the legitimate sensor nodes at the same time.
- In the **Information Alteration Attack**, an attacker may spool the data in the middle of communication, and he may alter the complete message or a part of it to misguide the base station.
- In the **Worm Holes Attack**, the whole traffic of the network is sent in a particular direction at a distant place, which causes restriction of data receiving in the other parts of the network.
- In **looping attack**, few nodes in the network cause the circulation of data in a restricted region which stops the data to send to the destination node.
- In the **Node Replication Attack**, the attacker adds a new sensor node in the network, which is using the ID of a trusted user and can attack any node or sink node by pretending himself as a trusted user.

F-CSH is a fuzzy based scheme for concealing sink node with fake holes. The scheme uses the traffic flow passive analysis for concealing sink node. The algorithm works in three phases. The three phases are Network Discovery Phase, Fake Sink Holes Announcement Phase and, Data Delivery Paths Phase. In the Network Discovery Phase, the sink node broadcasts the identification message holding the id. Each node estimates how far it is from the sink node using the RSSI (Received Signal Strength Indication) of this message. Each node broadcasts this message to every other node. During the Fake Sink Holes Announcement Phase, nodes calculate their fuzzy score based on the residual energy of the node, connectivity factor and the centrality factor of the node. The nodes with the highest fuzzy function are selected as the fake sink holes of the current round. In the Data Delivery Phase, nodes send multi-casted packet holding the address of its fake sink hole and randomly one of the nearest neighbors to the target real sink node. This method is repeated by the intermediate nodes on the path from the source node to the real sink.

FIG. A: WIRELESS SENSOR NETWORK



2. LITERATURE SURVEY

Since the location privacy of the sink node is an important issue in wireless sensor networks (WSNs), it requires great protection. A. Din et al. [1] proposed an original and capable privacy protecting method to protect the sink node location. The scheme keeps the location privacy of the sink node from being known. The method uses the traffic flow passive analysis. The method elects fake sink holes for concealing the location of the main sink. The election of the fake sink holes is based on the fuzzy logic.

Black hole attack occurs when a mediator investigates and re-programs some of the nodes in the network. The mediator blocks/drops the packets and generates false messages towards the base station. B. Mishra et al. [2] studied the techniques proposed for the identification and prevention of black hole attack in wireless sensor network. These identify the black hole attack and provide the successful delivery of data to the base station. It is observed that the techniques suffer from very little false positives. A number of security algorithms like AES, DES, XXTEA have been proposed to deal with the black hole attack. The features of each of the algorithms has been studied and compared.

R. Banerjee et al. [3] proposed a new scheme for optimal energy utilization. The scheme is based on cluster based routing protocol. The sink node is considered to be mobile. The cluster head is selected by using the fuzzy function. Agent node selection algorithm is also used for selecting cluster head and Agent node. In addition to the node's energy, the node's distance to Base Station and node's distance to other members is also considered while calculation the fuzzy score. The new protocol is compared with the traditional LEACH protocol. The Simulation results show that the network lifetime improves by an average of 50% in comparison to the traditional LEACH protocol.

Black Hole presents a shortest path to the destination node but in reality it drops all packets. So, security is threatened. G. Pathak et al. [4] proposed a new protocol to protect against the Black Hole attack in Wireless Sensor Networks (WSNs). The protocol uses the Hierarchical Cluster Topology. The proposed protocol has been compared with one of the existing approach in terms of packet delivery ratio, throughput and end-to-end delay using Network Simulator Tool NS2. The new protocol is robust against both single and cooperative Black Hole attacks in a dynamic environment.

In a sinkhole attack, an attacker compromises a node or introduces a fake node inside the network and uses it to commence an attack. J. Chaudhry et al. [5] described the problems in investigating sinkhole attacks in WSNs. Many approaches such as the anomaly-based, rule-based, statistical, cryptographic and hybrid approaches are available for the sinkhole attack detection and prevention. The choice of the approach depends on the particulars of the WSN in question. For example, WSNs where new nodes are not added after initial setup are suited for a rule based approach. A WSN where the sensor nodes are difficult to challenge and have sufficient power are suited for a cryptographic approach.

In a WSN, a large number of sensor nodes are identified to spread out in a geometric region, with close by nodes communicating with each other directly. W. Wei et al. [6] studied the topology discovery with boundary recognition in a wireless sensor network. The scheme detects the holes in the topological architecture of sensor nets only by connectivity information. PPA (Poincare-Perelman Theorem) has been designed to decide whether there are holes in WSNs-monitored areas. The theorem can detect holes on the topological surfaces. These surfaces can, then, connect into meaningful boundary cycles. The method has been proved to be suitable for continuous geometric domains as well as for discrete domains. The algorithm even gives good results in networks with low density.

Coverage holes have become an important problem in Wireless Sensor Networks (WSNs). Coverage is an important pointer to measure if the wireless sensor networks' performance is good or bad. J. Yang et al. [7] proposed two algorithms based on the traditional VOR algorithm to develop the coverage holes recovery. The simulation results establish that these algorithms make holes recovery more effective than the traditional algorithm. The proposed algorithms are the VORP and VORCP algorithm. The results show the betterment of the proposed algorithms in terms of both performance and efficiency.

A wide variety of attacks are known that the wireless sensor networks could suffer. The attacks affect the power consumption and performance of these networks. P. Sanchez et al. [8] simulated the most familiar and dangerous attacks that a WSN can experience. NS-2 and OMNET++ are the simulators that have been used to model WSNs. The simulation technique used is the native HW/SW Co-Simulation. The proposed virtual platform includes a HW node, embedded SW, a RTOS, a wireless sensor network and attack models. The simulations show that three types of attacker nodes have been identified: link-noise, fake-packet injection and direct attack nodes. The affect of these attacks on power utilization and software execution time are also studied. The results show that the given technique is able to investigate the functional and power utilization impact of attack on WSNs.

Security is of major concern in Wireless Sensor Networks (WSNs). M. Khan et al. [9] identifies different challenges and necessities for security of wireless sensor networks. A number of security methods for wireless sensor networks had been proposed. The weaknesses of existing methods have been identified. Different security threats and possible attacks have been analyzed. Different security protocols like the SNEP protocol, TESLA with Instant Key Disclosure (TIK), REWARD have been discussed. The existing security approaches proposed by different researches with their basic characteristics have also been analyzed. However attack identification and prevention has been abandoned.

L. Feng et al. [10] proposes a multi-path energy hole avoidance routing algorithm based on genetic algorithm (GA). The algorithm uses the Genetic Algorithm to select numbers of next-hop nodes and allocate suitable magnitude of data to be transmitted. The proposed algorithm redefines the code, operations and policies of searching optimal solution for the genetic algorithm. The algorithm can not only be applicable to flat networks. It would also be applicable to hierarchical networks, if improved. The algorithm can provide global optimal routing approach for energy balance without assuming the topology structure of network. The simulated experiments show the accuracy of the algorithm. But, there is deficiency of centre optimization device.

Since energy is a limited resource in Wireless Sensor Networks (WSNs), techniques need to be developed which save energy. One such technique is data aggregation. Data aggregation is a collection of data readings that represents a joint view of a set of nodes. Although data aggregation reduces collisions due to

interference and eliminates redundancy, it makes data integrity verification more complex since the received data is distinctive. Bagaa et al. [11] presented a new protocol called SEDAN (Secure and Efficient Data Aggregation protocol for wireless sensor Networks) that provides control integrity for aggregation in wireless sensor networks. It is based on a two-hop verification mechanism of data integrity. It allows us to avoid referring to the base station for data integrity verification. Therefore, SEDAN minimizes the blind rejection of sensed data. In addition, SEDAN saves many useless transmissions between sensors and the sink, and thus minimizes energy consumption. Simulations and comparisons of different techniques and SEDAN using the TinyOS environment show that SEDAN saves energy and minimizes blind rejection while providing the same level of security for aggregated data. In addition, the mean time to bogus data detection (MTTD) in SEDAN is less than in other techniques.

Contextual information such as the information regarding whether, when, and where the data is collected cannot be protected using only native techniques (e.g., encryption). Contextual information can be protected against global eavesdropper who can monitor the entire network traffic by periodic packet transmission combined with dummy traffic filtering at proxy nodes. Bicakci et al. [12] used a Linear Programming (LP) framework to characterize the network dynamics and energy dissipation trends. PFS (Proxy based Filtering Scheme) and TFS (Tree based Filtering Scheme) schemes proposed earlier have been modeled. PFS scheme uses a single level proxy architecture, where data packets pass through a single proxy at most. Both ordinary nodes and proxy nodes always generate data at a steady rate. In TFS scheme, proxies are organized in a tree structure; proxies at higher levels in the tree aggregate the packets coming from lower level proxies. Bicakci et al. proposed and modeled a new scheme called OFS (Optimal Filtering Scheme). PFS is suitable for small-size WSNs. As network size grows, the OFS becomes more significant for use than the PFS.

Data trustworthiness is a fundamental requirement in a Wireless Sensor Network (WSN). Location-aware sensors are becoming the reality standard in WSNs. The trustworthiness about the node position information and the privacy conformity are used for evaluating data trustworthiness. Trustworthiness, security of localization information and privacy are the fundamental requirements in WSN. Porisini et al. [13] presented an approach, named Cross Layer Protocol (CLP), for improving data quality based on an integrated solution that considers a sound privacy management policy along with a secure localization protocol. The approach is largely independent from the adopted routing protocols, the verification localization algorithm and the used encryption technique. CLP relies on cross-layer evaluation to assess the overall quality of the collected information. CLP combines verification of localization information and the identification of privacy violations and, thus, evaluates nodes reputation and therefore data quality. The simulations were carried out using Omnet++. The obtained results from the simulations prove that besides guaranteeing anonymity, CLP provides secure node localization and the capability to identify malicious behaviors.

Two-tier architecture has been widely adopted for Wireless Sensor Networks (WSNs) because it can save power and storage consumptions for sensors and improve the efficiency of query processing. In a two-tiered wireless sensor network, resource-constrained sensor nodes act as the lower layer and sense data, and resource-rich storage nodes act as the upper layer and store data and process queries from the sink. But, the storage nodes may be attacked in an unfriendly environment and violate privacy of sensor data. Yao et al. [14] proposed a privacy-preserving protocol specializing for MAX/MIN query that prevents eavesdroppers from gaining sensitive information from sensor collected data.

One way of hiding the sensor nodes' detectability is by limiting the transmission power of the nodes that eavesdroppers cannot detect the existence of the WSN unless they are within the sensing range of the WSN. The network is said to be operating in the stealth mode. Position dependent transmission power adjustment enables the network to maintain its level of secrecy while allowing nodes farther from the network boundary to use higher transmission energy levels. In order to mitigate the irregular energy dissipation characteristic, nodes that cannot disperse their energies on communications reduce the amount of data they generate through computation so that the relay nodes convey less data. Compression/decompression techniques can be used to reduce the amount of data generated. Dynamic data compression/decompression strategies achieve better energy savings when compared to static compression/decompression of data in which the data is always compressed independently of the power transmission strategy. Incebacak et al. [15] employed contextual privacy measures through a novel mathematical programming framework. Five data compression strategies are employed which are No Compression (NC) strategy, Always Compression (AC) strategy, Optimal Compression (OC), Optimal Single Level Compression (OSLC), and Limited Compression (LC). Inceback et al. [15] also investigated the effects of Optimal Single Level Compression (OSLC) and Limited Compression (LC) strategies through Mixed Integer Programming (MIP) models. The impact of node density and limited transmission range due to contextual privacy scenarios are explored.

Several privacy-preserving techniques for Wireless Sensor Networks (WSNs) are available. There are two main categories of privacy-preserving procedures for protecting two types of private information, data-oriented and context-oriented privacy. First is privacy concern on information being collected, transmitted, and analyzed in a Wireless Sensor Network (WSN) and that of sensitive queries executed. Second is the protection of contextual information such as the location of a sensor initiating data communication and the base station as well as the timing of the generation and transmission of sensitive data. Effective countermeasure against the disclosure of both data and context-oriented private information is an indispensable prerequisite for the broad application of WSNs to real-world applications. Li et al. [16] provided a state-of-the-art survey of privacy-preserving techniques for WSNs. Privacy protection has been extensively studied in various fields related to WSN such as wired and wireless networking, databases and data mining. Li et al. attempted to compare the existing techniques in terms of such metrics as privacy, accuracy, delay, and power consumption. A number of important open challenges are discussed for future research.

Securing surveillance wireless sensor networks (WSNs) during Base Station (BS) failure is challenging. BS is a critical part of a WSN and the whole WSN can be made useless by taking down its BS. The eavesdroppers can make the network useless by only destroying the BS as the required efforts to destroy the BS is much less than that is needed to destroy the network. Megahed et al. [17] proposed a novel security architecture called Surveillance Security (SurvSec) for efficient network recovery from single BS failure of surveillance WSN with single BS. The new designed security architecture will detect the BS failure, monitor the network sensitive security issues to store security data in multiple replicas, and send the stored data to the new Base Station after it is authenticated. SurvSec employs a set of sensor nodes to work as Security Managers for management and storage of the security concerned data of all sensor nodes. SurvSec has three components: (1) Sensor nodes serve as Security Managers, (2) Data Storage System, and (3) Data Recovery System. Megahed et al. evaluated the designed security architecture for reliable network recovery from BS failure. The evaluation showed that the proposed security architecture can meet all the desired specifications and the provided Security Managers are capable of network recovery from BS failure.

Concealing the locations and the identities of the nodes, especially the sink node or the Base Station in a wireless sensor network (WSN) is challenging. Nezhad et al. [18] explained that appropriate solutions for this problem depend on the nature of the traffic generated in the network and the capabilities of the eavesdropper that must be resisted. Nezhad et al. proposed a DCARPS anonymous routing protocol that can support location privacy against a global eavesdropper. The protocol is based on label switching. Layered cryptography has been used to make a packet look randomly different on consecutive links. To have energy conservation, the Destination-Controlled Anonymous Routing Protocol for Sensornets (DCARPS) for abundant traffic situations use only modest symmetric cryptography. In addition, the sink is responsible for all routing calculations while the sensors only perform simple label swapping actions when forwarding packets. Another advantage of labels is preventing unnecessary cryptographic operations. DCARPS is suitable for abundant traffic networks but two variations of this protocol called Probabilistic DCARPS are also available for scarce traffic networks.

Pietro et al. [19] addressed the problem of preserving the location privacy of the sensors of a wireless sensor network when they send reply to a query broadcast by the Base Station. These queries focus on obtaining aggregate features such as SUM, AVERAGE, or MAX/MIN of data readings. These values are provided by the sensors to the sink. Therefore, preserving location privacy is an important aspect in such situations. In addition, resilience is another important feature to be met which assures that assures that the overall computation is not disturbed by a subset of sensors compromised by eavesdropper. A probabilistic and scalable protocol is provided in the paper. The protocol has the following features: (i) it ensures the location privacy of the sensors replying to the query (ii) it is resilient to an active eavesdropper willing to change the readings sent by the sensors; and, (iii) it allows to trade-off the accuracy of the result with (a small) overhead increase [19].The protocol ensures that even an adversary that can monitor the whole network, it cannot extract any information about the sensors that have the value queried by the Base Station. The protocol is lightweight and expandable; communication overhead is evenly distributed among sensors.

End-to-end data integrity is an important concern in Wireless Sensor Networks (WSNs). Whenever the number of messages in the transmission buffer increases than a given threshold, messages are aggregated to eliminate the buffer overflow. The messages in the transmission buffer are aggregated as soon as the

transmission queue starts increasing in length. Sicari et al. [20] presented an approach for dynamic secure end-to-end data aggregation with privacy function, named DyDAP. It is an innovative and integrated solution for dynamic data aggregation with privacy solution. DyDAP introduces an original aggregation algorithm that uses a discrete-time control loop and is able to dynamically handle data fusion inside the network which reduces the communication load. The protocol has been designed starting from a UML model. Computer simulations have been provided showing that DyDAP avoids network congestion. It improves WSN estimation accuracy; and guarantees anonymity and data integrity.
DyDAP is a building block of several secure Internet of Things (IoT) scenarios.

TABLE 1

Ref No.	Year	Authors	Techniques	Features	Sink Privacy	Source Privacy	Soft Computing	Tools
1	2014	A. Din et al.	F-CSH	Fuzzy logic	Yes	No	Yes	MATLAB
2	2014	A. Mishra et al.	Security against Black Hole Attack	Black hole attack is identified	No	No	No	NA
3	2014	R. Banerjee et al.	Cluster Based Routing Protocol	Energy Hole is by-passed	Yes	No	No	NA
4	2014	G. Pathak et al.	Hierarchical Cluster Topology	Black Hole Attacks are detected and prevented	No	Yes	No	Network Simulator Tool NS2
5	2013	J. Chaudhry et al.	Dealing Sinkhole Attacks	Sinkhole attacks are detected and neutralized	Yes	No	No	NA
6	2012	W. Wei et al.	Poincare-Perelman Theorem	Detects holes by connectivity information	No	No	No	NA
7	2013	J.Yang et al.	VOR, VORP, VORCP algorithm	Coverage holes are detected	No	Yes	No	MATLAB
8	2013	P.Sanchez et al.	Security Simulation	Security and Performance Analysis is perfomed	No	No	No	NA
9	2011	M.Khan et al.	Security Protocols	Security techniques are discussed	Yes	Yes	No	NA
10	2008	L.Feng et al.	Multi-path routing Genetic algorithm	Provides global optimal routing approach	No	Yes	Yes	NA
11	2011	M.Bagaa et al.	Data aggregation	Efficient data aggregation is provided	No	Yes	No	TinyOS
12	2011	K. Bicakci et al.	Life Maximization	Linear Programming (LP) framework is used	No	No	No	NA
13	2012	A. Porisini et al.	Cross Layer Protocol	Data quality is improved	No	No	No	Omnet++
14	2013	Y.Yao et al.	HMAC-MD5 DES algorithm	Two-tier WSN is used	No	No	No	NA
15	2014	D.Incebacak et al.	Optimal Data Compression	Contextual privacy is provided	Yes	Yes	No	NA
16	2009	N.Li et al.	Privacy Preservation	A Survey	Yes	Yes	No	NA
17	2011	M. Megahed et al.	Surveillance Security (SurvSec)	Base Station Failure Recovery is provided	Yes	No	No	Matlab
18	2008	A.Nezhad et al.	DCARPS protocol	Symmetric Cryptography is used	Yes	Yes	No	OPNET
19	2011	R.Pietro et al.	Location Privacy and Resilience	Location Privacy and Resilience	Yes	Yes	No	
20	2012	S. Sicari et al.	DyDAP privacy function	End-to-end data aggregation is provided	Yes	Yes	No	

3. CONCLUSION AND FUTURE WORK

A novel privacy-preserving scheme applying intelligent fake sink node topology to protect the location security of BS has been considered in this paper. In this paper, F-CSL based on the hiding of the main sink using fake sink nodes has been elected using fuzzy score function. The sink location could be replaced with dummy sink nodes. The analysis has evaluated the performance of the new technique and found that the scheme can effectively secure the sink location. The energy utilization and delivery time is also more efficient as compared with others. In near future, I will extended F-CSL further in order to improve sink privacy with multiple path segments using mobility control. My work will also consider the dual membership function to minimize the energy utilization more.

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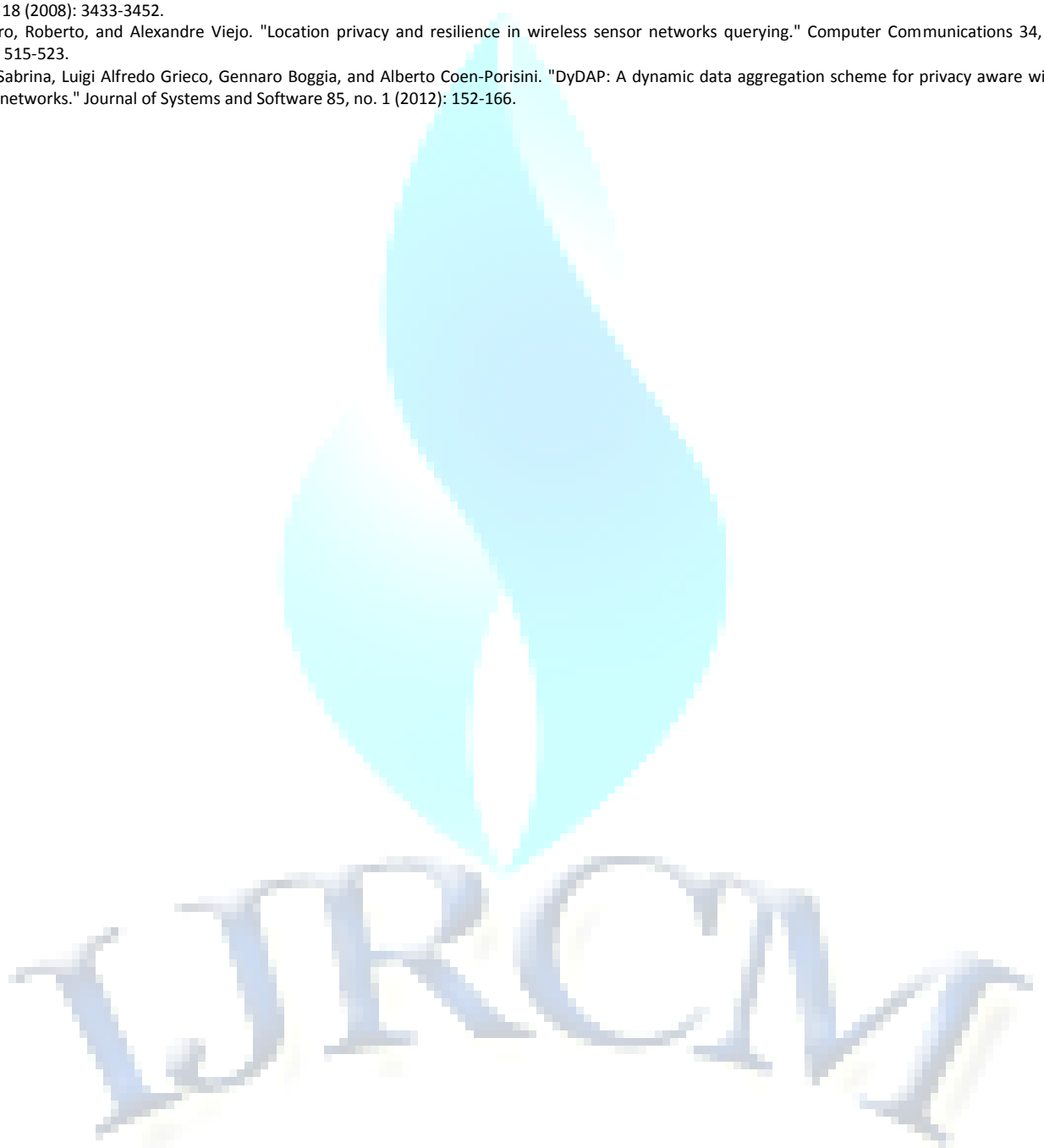

PRESENT SCENARIO OF CASHEW MARKET AND FACTORS AFFECTING ON PURCHASE OF CASHEW: SOUTH GUJARAT RETAILERS PERSPECTIVES

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ABSTRACT

India is one of the major producer and exporter of the cashew. The study considered the determinants of present scenario of cashew and factors affecting on purchase of cashew. Data collection was through well structured questionnaire administered on 100 respondents were contacted. The simple statistics were used to analyse data. The present study will identify various factors affecting on purchase of cashew, attitude and opinion regarding cashew. Results showed that majority of retailers were age group of 30-40 years i.e. 30% of total respondents and also there are having more than 20 years of experience in business. Result further showed that majority of respondents say that margin, quality, time availability, support for company, and consumers acceptance, this all parameters are important when purchase of cashew. It is also revealed that price, taste, and availability these are the parameters which are important for customer while purchasing of cashew according to retailer's opinion.

KEYWORDS

Cashew Purchase, Factors affecting on cashed purchase, Retailers.

INTRODUCTION

Cashew is popularly, known as the 'Gold Mine' of wasteland. Cashew is primarily an export-oriented commodity in India. (A. Balamurugan et.al. (2013)). The cashew tree is native to coastal areas of Brazil. In the 16th century, Portuguese explorers took cashew trees from this South American country and introduced them into other tropical regions such as India and some African countries, where they are now also cultivated. The cashew tree has always been a prized resource owing to its precious wood, cashew balm and cashew apple, but the cashew nut itself did not gain popularity until the beginning of the 20th century. Today, the leading commercial producers of cashews are India, Brazil, Mozambique, Tanzania and Nigeria. (http://www.whfoods.com/genpage .php?tname=foodspice&dbid=98)

India is the largest producer of raw cashew nut in the world, with a share of 29 per cent of global raw cashew production during 2013. However, the domestic production is not enough to meet its processing demand. Hence India imports equivalent or even more than its production from other producing countries, mainly African countries. (Cashew Handbook 2014)

TABLE 1: INDIA'S EXPORT OF CASHEW KERNELS

Countries	2011	2012	2013	2014 (upto April- May
	QTY(in MT)	QTY(in MT)	QTY(in MT)	QTY(in MT)
U.S.A	47611	33898	30106	17.62
U.A.E	14173	17437	13625	9.52
Netherlands	11515	9934	8589	5.09
Saudi Arabia	5135	7195	5862	4.48
Japan	7055	6703	6370	5.51
Others	45379	39937	35553	31.73
Total	**130869**	**115104**	**100105**	**73.95**

Source: Press Information Bureau GOI ministry of Commerce & Industry (11th July 2014)

Most of the Indian kernels go to American zone and West European zone. The other areas catered by India are South East and Far East Asia, West Asian zone, Oceanic zone and East European zone. To a very limited extend Indian cashew goes to African zone also. (Press information bureau, GOI, Ministry of commerce & Industry)

Cashew kernels are the most important item of domestic as well as international trade. The globalization has provided dual impact as one is with inculcating number of opportunities to various countries but another is with throwing challenges before developing countries as well as underdeveloped countries. The globalization has made an impact on the trade of different agricultural commodities like cashew. The cashew trade has an important contribution in India's international trade. India is major player in the international cashew market. (Shrikrishna et.al. 2012).

TABLE 2: ALL – INDIA AREA, PRODUCTION AND YIELD OF CASHEW NUT

Year	Area in '000 hector	Productive Area '000 hector	Production in '000 Tonnes	Yield (kg/ha)
1990-91	532	464	295	636
1991-92	534	482	305	633
1992-93	560	508	349	687
1993-94	565	517	348	673
1994-95	577	510	322	631
1995-96	635	485	418	862
1996-97	659	515	430	835
1997-98	675	512	360	703
1998-99	706	573	460	803
1999-00	686	601	520	865
2000-01	720	627	450	710
2001-02	750	666	470	710
2002-03	770	675	500	760
2003-04	780	684	535	800
2004-05	820	700	544	810
2005-06	837	760	573	815
2006-07	854	765	620	820
2007-08	868	770	665	860
2008-09	893	835	695	773
2009-10	923	882	613	695
2010-11	945	906	653	720
2011-12	979	924	725	749
2012-13	992	944	753	760

Source: The Directorate of Economics and statistics. (2013)

TABLE 3: AREA, PRODUCTION AND YIELD OF CASHEW NUT IN MAJOR CASHEW NUT PRODUCING STATES IN 2012-13

State	Area in '000 hector	Production in '000 Tonnes	Yield (kg/ha)
Andhra Pradesh	184	118	641
Maharashtra	184	225	1221
Odisha	164	101	616
Tamil Nadu	136	62	454
Karnataka	122	75	611
Kerala	85	77	906
Goa	57	30	526
Jharkhand	12	5	417
West Bengal	11	12	1091
Others	36	49	1357
All India	**992**	**754**	**760**

Source: The Directorate of Economics and statistics. (2013)

In Andhra Pradesh and Maharashtra the total area under cashew is 184000 hectare with an annual production of 118000 and 225000 respectively tons. The area under cashew of Odisha, Tamil Nadu, Karnataka, Kerala, Goa, Jharkhand and West Bengals are as follows 164000, 136000, 122000, 85000, 57000, 12000 and 11000 tonnes respectively.

The production of Odisha, Tamil Nadu, Karnataka, Kerala, Goa, Jharkhand and West Bengals are as follows 101000, 62000, 75000, 77000, 30000, 5000 and 12000 tonnes respectively.

The yields from the cashew kernels is 641000, 1221000, 616000, 454000, 611000, 906000, 526000, 417000, and 1091000 Kg/ha in Andhra Pradesh, Maharashtra, Odisha, Tamil Nadu, Karnataka, Kerala, Goa, Jharkhand and West Bengal respectively.

The Cashew processing is a highly labour intensive activity.(V.V. GIRI,2014) The cashew processing industry is highly dependent on imported raw materials for value addition. The export marketing is highly competitive for India. Hence, growth in the indigenous production is a must for the existence and growth of the industry currently, domestic production is hardly half of the requirement. There is good market in India for cashew nut & tremendous export potential too. The markets for processed cashew nuts are growing. (NIIR Project consultancy services)

Thus, apart from its economic significance cashew industry has the potential to play a leading role in social & financial uplift of rural poor for this reason; cashew is generally described as poor man's crops and rich man's food. (Shrikrishna et al. 2012)

REVIEW OF LITERATURE

Retailers view is a new emerging trend that studies the *factors affecting for purchase of cashew.*

Robert L. Degner & Kary Mathis (1977) in the study entitled "*Point of purchase advertising materials for fresh produce: Retailers' preference*" has been analyze the advertising material affecting on the point of purchase for fresh produce of retailers preference. After analysis of interpretation of data it is concluded that according to retailers' preference the *Quality, quantity, size, and price* are point of purchase advertising materials for fresh produce. Here in this study of factors affecting for purchase of cashew, include quality, price, quantity, size etc. parameters which affecting for purchase of cashew.

Valarie A. Zeithaml (1988) concluded that price, quality and value which affecting consumers as well as retailers purchasing decision, the researcher research in this area about *Consumer perceptions of price, quality and value: A means- end model and synthesis of evidence* has been analyzed that the consumer perceptions towards the price, quality and value. Consumers perceived price, quality, and value of the product or services. The study has made an attempt to understand the consumer perceptions of price, quality and value. The result of these studies through perception on consumer about related price, perceived quality, and perceived value and the factors determining their purchase of products such as price, quality, and value. The study will be useful to the marketers to understand the consumer perceptions towards the related price, perceived quality and perceived value and the study would also be informative to the consumers.

Luanne Lohr (2001) in the study entitled *"Factors affecting international demand and trade in organic food products"* has been analyzed the factors which affecting the international demand of organic food products and the trade of organic food products. The result of these studies price premiums is expressed to the percentage by which the price of organic product is more than the price of the similar conventional product which has been affecting to the international demand. Price-quality trade off, country of product origin and social goals which factors affecting international demand of organic food products.

Ike, P.C. and Chukwuji, C.O. (2005) in the study entitled, *"Efficiency measurement of cashew nut marketing in Enugu state, Nigeria"* has been analyzed the efficiency measurement of cashew nut marketing. It is concluded that in Enugu state, Nigeria the performance of cashew nut marketing. It also measurement of

the effect of inputs which involved in the cashew nut marketing on the variable profits and also measured the sellers structure has been measured by the *market margin analysis* of the *sellers concentration*. This study of cashew nut marketing through profitable measurement from the viewpoint of markets structure and profit functions.

Aglrongiarhuoyi Anthony E., Aigbekaen E. O., and Akinbile L.A. (2008) in the study entitled, *"Awareness of cashew products potentials and market information among farmers in Kogi state, Nigeria"* has been analyzed the awareness of cashew products potential and market information among farmers and also the study of the factors influencing cashew marketing. It is concluded that the factors influencing of cashew marketing has been poor price of nuts, inappropriate government policies, poor extension contacts, inadequate processing and small nut sizes also affect the cashew marketing.

T. Vilasachandra (2007) in the study entitled, *"Supply chain analysis of raw cashew nuts in Goa"* has been analyzed that the supply chain of the raw cashew nuts. It is concluded that there are three marketing channels in cashew raw nuts. The first one is co-operatives intermediary between producer and processor. The co-operatives are playing a role of intermediary in cashew raw nuts. The second channel of marketing of cashew raw nut is direct marketing by producer to processor. There are no intermediaries between producer and processor. And the last channel of marketing of raw cashew nut is traders as intermediary between producer and processor. It indicates that the *intermediaries are playing an important role for the cashew nut products*. An intermediary includes *retailers*, traders, co-operatives etc.

A Balamurugan, Dr. S.K.Nagarajan (2013) in the study entitled, "A marketplace investigation of cashew nut in Cuddalore" has been undertaken with the objectives to marketing analysis of cashew in Cuddalore district in Tamil Nadu analysis of the study was undertaken with the help of survey conducted. After analysis and interpretation of data it is concluded that in cuddalore irrespective land size the farmers are not get sufficient support from the government for the cashew marketing. It also concluded that there are lacking in information channel to get the more awareness about the cashew markets. The retailers or intermediaries are the best sources (channel) for the marketing of cashew nut and cashew products.

Naik Amita Namdeo, K. Koulagi and L.K.Wader (2007) in the study entitled, "Grade development and study of price –quality relationship of cashew nut in north district of Goa" has been concluded that the grade of the cashew nut standard based on their price-quality relationship. The price and quality relationship are based on the different parameters. The price and quality these two parameters are important for the cashew nuts. And the cashew nut price is based on the quality of cashew.

OBJECTIVES OF THE STUDY

The present study is undertaken with objective to know the present scenario of cashew market and to analyse the various factors affecting for purchase of cashew. It will also investigate the factors focused by on purchase of cashew by consumers.

STATEMENT OF THE PROBLEM

India is one of the major producers and processor of cashew. Cashew is one of the important dry fruit in food basket. The present study focuses on the present status of cashew industry. As intermediaries are playing an important role for the cashew nut products (Vilasachandra (2007)) the study will investigate on various factors affects on cashew purchase from retailers point of view. Thus the study entitled "*Present Scenario Of Cashew Market And Factors Affecting On Purchase Of Cashew: South Gujarat Retailers Perspectives" will reveals the insights of it.*

RESEARCH METHODOLOGY

The research methodology includes data and the sources of data, sample size, area of the study and framework of analysis. The present study is empirical in nature and it is based on primary and secondary data. Primary data had been collected from 100 respondents through a structure questionnaire covering different groups of retailers in Valsad and Navsari districts. The secondary data have been collected from various books, magazines, journals, news paper, internet and published and unpublished thesis. The sample sizes of 100 respondents were taken for the research wok in Valsad and Navsari districts. The sampling technique follows in this study is purposive sampling. The Retailers engaged in selling cashew were contacted to get desired information for the study.

RESULT AND DISCUSSION

For the present study the retailers were surveyed in the study area having characteristics shown in table no.4.

TABLE -4: PROFILE OF RESPONDENTS

Age of Respondents		
Parameters	**Frequency**	**Percent**
Below 20 Years	1	1.0
20-30 Years	27	27.0
30-40 Years	30	30.0
40-50 Years	22	22.0
50-60 Years	15	15.0
More than 60 Years	5	5.0
Education of Respondents		
Below SSC	28	28.0
SSC	28	28.0
HSC	27	27.0
Graduate	14	14.0
Post Graduate	1	1.0
Others	2	2.0
Annual Turnover		
Less Than 50000	48	48.0
50000-100000	34	34.0
100000-150000	7	7.0
150000-200000	4	4.0
200000-250000	3	3.0
More Than 250000	4	4.0
Experience in Business		
Less Than One Year	5	5.0
1-5 Year	11	11.0
5-10 Year	19	19.0
10-15 Year	15	15.0
15-20 Years	19	19.0
More than 20 years	31	31.0

Source : Primary Data

Out of the total respondents majority are of 30-40 years group followed by 20-30 years age. There are 79% of respondents having age between 20-50 years while, 56 % of respondents having SSC or below SSC in education. There are 48 % retailers in study area having less than 50000 annual turnover through cashew while 34 % respondents are there having annual turnover through cashew in range of 50000-100000. Majority of retailers were having more than 20 years of experience in cashew business.

TABLE 5: TYPE OF STORE/SHOP

Type of Store	Frequency	Percent
Provision Store	23	23.0
Kirana Store	56	56.0
Departmental Store	16	16.0
Bakery	5	5.0
Total	**100**	**100.0**

Source: Primary Data

As shown in table no 5 majority of respondents were from Kirana store followed by provision store. There are 51 % retailers doing business in cash and 49 % retailer doing business in credit and out of that 65 % retailers get more than 25 days credit.

TABLE -6: CORRELATION BETWEEN ANNUAL TURNOVER AND MARGIN EXPECTED BY RETAILERS

			Margin Expected	Annual turnover
Spearman's rho	Margin Expected	Correlation Coefficient	1.000	.332(**)
		Sig. (2-tailed)	.	.001
		N	100	100
	Annual turnover	Correlation Coefficient	.332(**)	1.000
		Sig. (2-tailed)	.001	.
		N	100	100

** Correlation is significant at the 0.01 level (2-tailed).

Source: Primary Data

Table 6 shows the Correlation between Annual Turnover and Margin Expected by retailers. The correlation co efficient is significant at the 0.01 level. It can be concluded that there is significant positive weak correlation between Margin Expected by retailers and Annual Turnover.

TABLE -7: CORRELATION BETWEEN ANUUAL TURNOVER AND EXPERIENCE IN BUSINESS BY RETAILERS

			Annual turnover	Experience in business
Spearman's rho	Annual turnover	Correlation Coefficient	1.000	-.211(*)
		Sig. (2-tailed)	.	.035
		N	100	100
	Experience in business	Correlation Coefficient	-.211(*)	1.000
		Sig. (2-tailed)	.035	.
		N	100	100

* Correlation is significant at the 0.05 level (2-tailed).

Table 7 shows the Correlation between Annual Turnover and Experience in Business by retailers. The correlation co efficient is significant at the 0.01 level so, It can be concluded that there is significant negative weak correlation between Annual Turnover and Experience in Business by retailers.

TABLE 8: FACTORS AFFECTING ON ORDERING OF CASHEW

Parameters	Mean
Past Experience	2.52
Margin	1.00
Quality	1.00
Discount	5.00
Packaging	2.46
Replacement	2.60
Time availability	1.00
Support for company	1.00
Credit period	2.47
Varieties	1.04
Consumer acceptance	1.00

As shown in table no 8 it is surveyed various factors affecting on retailers decision on cashew purchase are Margin, Quality of cashew, Timely Availability, Consumer Acceptance and various varieties.

TABLE 9: FACTORS AFFECTING ON CASHEW PURCHASE (Consumer from retailer point of view)

Parameters	Mean
Price	1.00
Discount	5.00
Packaging	2.49
Taste	1.04
Availability	1.00
Color	1.40
Size	1.40
Shelf life	1.28

The information regarding various parameters on which consumers take decision for cashew purchase was surveyed and its revealed that consumers focuses on Price, Availability, Shelf life, Colour and Size while purchasing cashew.

FINDINGS AND IMPLICATIONS

In present study it is revealed that majority of respondents were young and educated up to HSC. More than 82 % respondents generate less than Rs.100000 turnover through cashew. Majority of retailers are having rich experience in cashew business. In the study it is also find out that there is correlation between Margin Expected by retailers and Annual Turnover. The Correlation between Annual Turnover and Experience in Business by retailers was also identified.

Margin, Quality of cashew, Timely Availability, Consumer Acceptance and various varieties are the factors that affect on retailers purchase decisions. The consumers giving importance to factors like Price, Availability, Shelf life, Colour and Size while purchasing cashew.

The cashew processors need to focus on above said parameters which processing of cashew. It is also implied that it is meaningful to appoint retailers having rich experience in cashew business

CONCLUSION

India is the one of the major producer, processor , exporter and consumer of cashew kernel in the world. The study on present scenario of cashew market indicates the great opportunity for cashew. The study concluded that retailers are one of the important member of supply chain. There are various factors that affects on purchase decision of retailers like Margin, Quality of cashew, Timely Availability, Consumer Acceptance and various varieties available.

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ENERGY SAVING ROUTING PROTOCOL WITH POWER CONSUMPTION OPTIMIZATION IN MANET

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ABSTRACT

As technology rapidly increases , diverse sensing and mobility capabilities have become readily available to devices and consequently mobile adhoc networks (MANETs) are being deployed to perform a number of important tasks. The energy efficiency at individual nodes is the key concern in MANET. We propose a hybrid protocol comarising of LEACH and EPAR (efficient Power Aware Routing) i.e. LEPAR (Leach efficient Power Aware Routing). In contrast to conventional power aware algorithms , LEPAR identify the capacity of node not just by its residual battery power , but also by the expected energy spent in reliably forwording data packets over a specific link . This protocol must be able to handle high mobility of nodes which often cause change in the network topology. Our proposed scheme reduces for more than 10% of the total energy consumption.

KEYWORDS
Manet, energy saving, power consumption optimization.

I. INTRODUCTION

MOBILE ADHOC NETWORK

Communication nows day has become very important for exchanging information between people from one place to anywhere at any time.[1] A mobile ad hoc network (MANET) is a collection of randomly moving wireless nodes within a particular area. In cellular networks, there are fixed base stations but in MANET.There is not any fixed base-stations to support routing and mobility management. These mobile devices are equipped with wireless transmitter and receivers that allow them to communicate with each other without the help of wired base stations. Therefore effective range of each transmitter is limited and distant nodes communicate through multihop paths with other nodes in the middle as routers.[2]

Therefore those mobile devices are battery driven and increasing the battery lifetime has become an important aim. Recently Most of the researchers have started to consider power-aware development of effcient algorithms for MANETs. As the routing function is performed by each mobile node in a MANET for establishing communication among different mobile nodes, the vanishing of even a few of the nodes due to power exhaustion might cause disconnect of services in the entire MANETs ,because Mobile nodes in MANETs are battery driven. Thus they suffer from limited energy level problems.[4] In such a network, each node acts as a host and may act as a router. Multiple hops may be needed to exchange data between nodes in the network due to the limited transmission range of wireless network interfaces.Because of the frequent changes in the network topology and limited network resources, link failure can occure during routing in MANET more oftenly.[3] There are two major reasons of link breakage in such an network :

- Node dying with energy exhaustion
- Node moves out of the radio range of other node [1]

II. ROUTING SCHEMES

In an ad hoc network , Mobile nodes use multi hop wireless link to communicate with each other. There is no stationary infrastructure and no base station .Each node in the network also act as a router , forwording data packets for other nodes. Deployment of dynamic routing protocols is a research issue in the design of ad hoc network. High degree of node mobility often change the network topology so that routing protocol must be able to keep up with that. In large networks , flat routing schemes produce an plenthora of information that can saturate the network . Nodes with large computational and communication power and powerful batteries are more suitable for supporting the ad hoc network routing than other nodes.[5]

PERFORMANCE PARAMETERS

The following terms are used to evaluate the performance of routing protocols:

- **Stability Period:** Stability period or stable region is the time interval between the start of the network operation and the death of the first sensor node.
- **Instability Period or Unstable Region:** The time interval between the death of first node and the death of the last sensor node is called instability Period or Unstable Region.
- **Network Lifetime:** Network lifetime is the time interval between the start of the network operation and the death of the last sensor node.
- **Number of Cluster Heads per round:** cluster heads selected from the total number of nodes from the whole network in each round. These cluster heads collects the data from member nodes and then sends these data, after aggregation, to the sink.
- **Number of Alive Nodes:** The total number of sensor nodes that have not yet depleted all of their energy.
- **Number of Dead Nodes:** The total number of sensor nodes that are not able to do any kind of functionality and have consumed all of their energy.
- **Throughput:** The throughput is defined as the rate of data sent from the cluster heads to the sink. It may also be defined as the rate of data sent from member nodes to their respective cluster heads.
- **Reliability:** The term reliability depends upon the measurement of the stable region and the unstable region. The meaning of better reliability means larger stable region and smaller unstable region.
- There is a trade-off between network lifetime and reliability. Network lifetime includes both unstable and stable regions. For the same stable region, a smaller unstable region means more reliability but a shorter network lifetime.

III. RELATED RESEARCH WORK

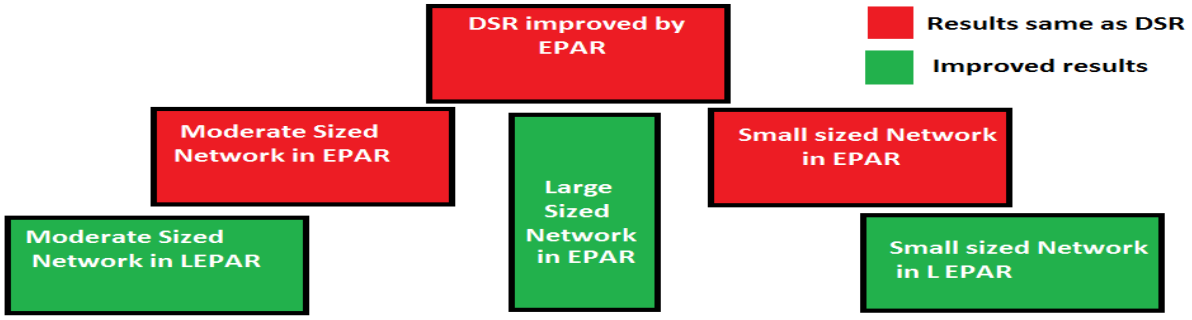
Dynamic Source Routing (DSR) is a routing protocol for wireless mesh networks. It is similar to AODV in that it forms a route on-demand when a transmitting node requests one. However, it uses source routing instead of relying on the routing table at each intermediate device.

Determining source routes requires accumulating the address of each device between the source and destination during route discovery. The accumulated path information is cached by nodes processing the route discovery packets. The learned paths are used to route packets. To accomplish source routing, the routed

packets contain the address of each device the packet will traverse. This may result in high overhead for long paths or large addresses, like IPv6. To avoid using source routing, DSR optionally defines a flow id option that allows packets to be forwarded on a hop-by-hop basis.

Energy Profile Aware Routing (EPAR), which consists in the minimization of the overall energy consumption based on the EP of network devices and the actual traffic load.

FIG. 1



In the above mentioned block diagram there the process of DSR is first improved using EPAR algorithm to enhance the energy efficient output. With this merging of processes we are able to enhance the output of the system in Large sized networks only but we were required the improvement in all sizes of the networks i.e. in small as well as moderate sized networks. So firstly we implemented LEACH algorithm in EPAR which is a cluster based algorithm.LEACH stands for Low-Energy Adaptive Clustering Hierarchy. LEACH is the network protocol that uses hierarchical routing for wireless sensor networks to increase the life time of network. All the nodes in a network organize themselves into local clusters, with one node acting as the cluster-head. LEACH incorporates randomized rotation of the high-energy cluster-head position such that it rotates among the sensors in order to avoid draining the battery of any one sensor in the network. In this way, the energy load associated with being a cluster-head is evenly distributed among the nodes. When we merged the two processes EPAR and LEACH a new algorithm formed and named as LEPAR. This LEPAR is now re-merged to DSR process and now we achieved a new improved algorithm which is highly efficient and is very useful and energy efficient not only in the large networks but also in the moderate and small networks effectively

A. LEACH (LOW ENERGY ADAPTIVE CLUSTERING HIERARCHY)

LEACH is one of the first cluster-based routing protocols.[9] It is most popular hierarchical routing protocol for [10] MANET. LEACH is based on a hierarchical clustering structure model and energy efficient cluster-based routing protocols for sensor networks. In this routing protocol, nodes self-organize themselves into several local clusters, each of which has one node serving as the cluster-head. In order to prolong the overall lifetime of the sensor networks, LEACH changes cluster heads periodically. Clustering in mobile adhoc netwoks as virtual partitioning of the dynamic nodes into various groups. [6] Cluster based routing is a good solution to address nodes heterogeneity and to limit the amount of routing information that propagates inside the network. The idea behind clustering is to group the network nodes into a number of overlapping clusters. Clustering makes possible a hierarchical routing in which paths are recorded between clusters instead of between nodes.[11] This increases the routes lifetime therefore decreasing the amount of routing control overhead. Inside the cluster one node that coordinates the cluster activities is clusterhead (CH). Inside the cluster, there are ordinary nodes also that have direct access only to this one clusterhead and gateways. Gateways are nodes that can hear two or more clusterheads.[7]

Ordinary nodes send the packets to their cluster head that either distributes the packets inside the cluster or (if the destination is outside the cluster) forwards them to a gateway node to be delivered to the other clusters. By replacing the nodes with clusters, existing routing protocols can be directly applied to the network. Only gateways and cluster heads participate in the propagation of routing control/update messages. In dense networks this significantly reduces the routing overhead thus solving scalability problems for routing algorithms in large ad hoc networks.[8]

B. EPAR (EFFICIENT POWER AWARE ROUTING) PROTOCOL

This is one of the more obvious metrics . To conserve energy, there should minimize the amount of energy consumed by all packets traversing from source node to destination node. i.e. we want to know the total amount of energy the packets consumed when it travels from each and every node on the route to the next hop. The energy consumed for one packet is calculated by the equation

$$E_c = \sum_{I=1}^{k} T(n_i, n_{i+1})$$

E_c = Energy consumed by one packet

T = Energy consumed in Transmitting and receiving a packet over one hop.

n_i and n_k = nodes in route

The main objective of EPAR is to minimize the variation in the remaining energies of all the nodes and therby increase the network lifetime.

ROUTE DISCOVERY AND MAINTENANCE IN EPAR ALGORITHM

For EPAR, however, the path is chosen based on energy. Firstly, they calculate the battery power for each path, that is, the lowest hop energy of the path. The path is then selected by choosing the path with the maximum lowest hop energy. For example, consider the following scenario. There are two paths to choose from. The first path contains three hops with energy values 22, 18, and 100, and the second path contains four hops with energy values 40, 25, 45, and 90. The battery power for the first path is 18, while the battery power for the second path is 25. Because 25 is greater than 8, the second path would be chosen. EPAR alghorithm is an on demand source routing protocol that uses battery lifetime prediction. In Fig. , DSR selects the shortest path AEFD or AECD and MTPR selects minimum power route path AEFD. But proposed EPAR selects ABCD only, because that selected path has the maximum lifetime of the network (1000s). It increases the network lifetime of the MANET shown in equation . The objective of this routing protocol is to extend the service lifetime of MANET with dynamic topology. This protocol favors the path whose lifetime is maximum .

$Max_k T_k t = Min_{iek} T_i t$

Where T_k (t) = lifetime of path k

T_i (t) = predicted lifetime of node I in path k

Proof :

1. $T_k 0 = Min\ T_i 0 = Min\ (T_A 0 , T_B 0 , T_C 0\ T_D 0)$

$T_k(0)=Min\ (T_i(0)) = Min\ (800 , 1000,400 ,200) = 200$

2. $T_k 0 = Min\ T_i 0 = Min\ (T_A 0 , T_B 0 , T_C 0\ T_D 0)$

$T_k(0)=Min\ (T_i(0)) = Min\ (800 , 700,400 ,200) = 200$

3. $T_k 0 = Min\ T_i 0 = Min\ (T_A 0 , T_B 0 , T_C 0\ T_D 0)$

$T_k(0)=Min\ (T_i(0)) = Min\ (800 , 700,100 ,200) = 100$

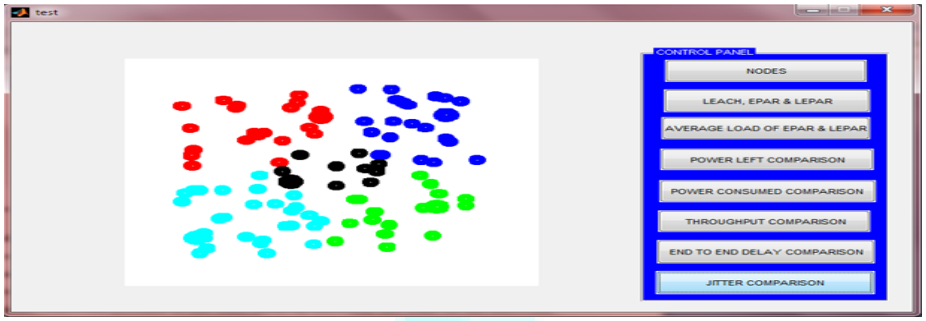
Hence $Max_k T_k$ = 200,200,100 = 200

This approach is a dynamic distributed load balancing approach that avoids power congested nodes and choose lightly loaded paths.

IV. SIMULATION SETUP AND RESULTS DISCUSSION

Simulations were conducted using MATLAB.The Simulated network consist of 120 nodes randomaly deployed . Nodes are moving at six different uniform speeds ranging between 0 to 10 m/s and uniform pause time of 10s.

FIG. 2: RANDOM DEPLOYMENT OF NODES

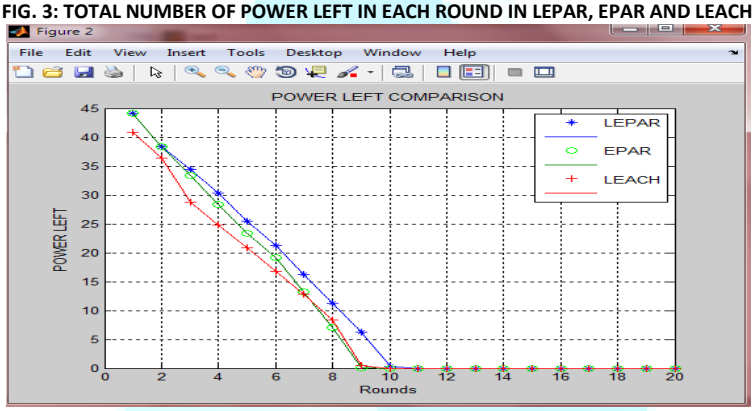


V. SIMULATION RESULTS

POWER LEFT COMPARISON

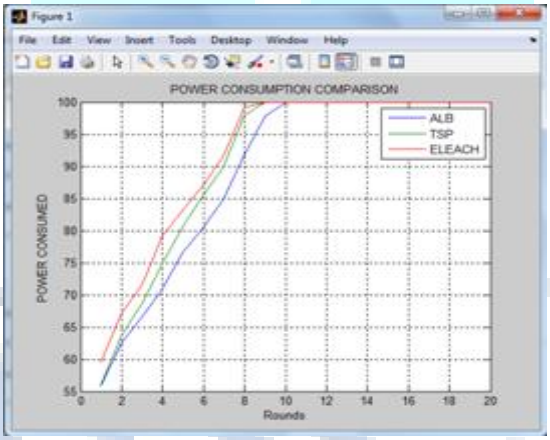
Figure 3 shows the total number of power left after each round of LEACH, EPAR & LEPAR. The LEPAR protocol has the overall network life of 10 rounds, while EPAR and LEACH has network life of 7 and 9 rounds respectively. This shows that our proposed protocol is about 30% and 10% better network lifetime than LEACH and EPAR respectively.

FIG. 3: TOTAL NUMBER OF POWER LEFT IN EACH ROUND IN LEPAR, EPAR AND LEACH



POWER CONSUMPTION COMPARISON

FIG. 4: TOTAL NUMBER OF POWER CONSUMED



This comparison is just like the power left it is just that it measures otherwise.

VI. CONCLUSION

Sensors are required to routing packets as well as transmit the data to the base station. If more of these operations are performed the sensor battery life decays drastically. By using the proper communication protocol, the control of congestion and unnecessary data transmission or reception can help in better management of battery life. By considering the influencing factors such as congestion, energy awareness, scalability and latency, the purpose of this research is to find a congestion free energy efficient routing protocol for Wireless Sensor Networks. In this paper , we proposed an optimized routing scheme for MANETs. The main focus was to provide the congestion free and Energy efficient protocol. In our proposed scheme, LEPAR is used in MANETs. In LEPAR, we have removed the issues that we had found out in problem formulation. LEPAR as an improvement to DSR in MANETs improves upon the energy and QoS in Moderatee and small sized Networks.

VII. FUTURE WORK

In Future the issue which is to be resolved is that it is mandatory for us to think of solutions which are of different magnitude and which applicable for all kind of scenarios. After this work we would also like to work upon an Idea of a protocol which generated great power efficiency in all forms of a network. Thus creating a protocol which is as efficient as EPAR in large networks will be the Future objective.

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THE ANALYZE OF FACTORS INFLUENCES IN IMPROVING LATEX PRODUCTION OF RUBBER SMALLHOLDERS IN SOUTH SUMATRA PROVINCE, INDONESIA

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ABSTRACT

The latex production of rubber smallholdings in the South Sumatra Province, on the average, only 0.7 ton per hectare annually. It is lower than the national average production of 1.2 ton per hectare per year. The objective of this study was to analyze the factors that influences in improving latex production of rubber smallholders in the South Sumatra Province. The total sample used for the study was 300 respondents. Data was analyzed using the descriptive statistics and multiple regression analyses. The Results of research indicated that factors such as use of recommended seedlings, fertillisers, pesticide, planting density (rubber trees per hectare) and participation in government programs significantly affect rubber latex outputs. There are two serious problems faced by the rubber farmers, i.e. costly and hard to find of recommended seedlings, fertilizers and pesticides. Besides, the frequency of farmers participation was also very low although the program was free of charge. The rubber farmers have a management problem that affects the quality and quantity of the latex. A significant implication of the study is that smallholders need to use the recommended rubber seedlings, adequate use of fertilizer, use of pesticides and need to attend training programs provided by the government to improve their latex output. Thus government assistance is needed to better improve the rubber smallholdings in the form of subsidy and more trainings and agricultural extension services.

KEYWORDS
latex production, rubber smallholders.

1. INTRODUCTION

Rubber is one of the top foreign exchange earners among Indonesia's primary agricultural commodities. Production per hectare needs to be rapidly increased by improving efficiency and using modern technology as well as cultivating high quality varieties if Indonesia aims to be the biggest rubber producer country in the world. Rubber is a non-oil and non-gas commodity and its export value is increasing consistently. In 2013 rubber exports contribution 4.61 percent of foreign exchange earner in the non-oil and gas sector. Indonesia's export earnings from rubber was aobut US$ 149.92 billion in 2013 (*Departemen Perdagangan*/Commerce Department, 2014).

In an effort to improve Indonesia's rubber producer, it is necessary to develop rubber smallholdings. In addition, development of the smallholding would increase their production and improve farmers' incomes. Eighty percent of the land in Indonesia which is used for the cultivation of rubber consists of smallholdings and the remaining 20 percent are large plantations (*Direktorat Jenderal Perkebunan* / Directorate General of Plantations, 2011).

South Sumatra Province is an important rubber smallholding area in Indonesia. Based on the data from BPS (2013), the total area used for planting rubber in South Sumatra Province is about 1.200.000 hectares or 26.47 percent of the total area of rubber cultivation in Indonesia. The total hectare of rubber smallholdings in this province is 85 percent of rubber cultivation. Thus, only 15 percent of rubber belongs to and managed by big companies and government-owned corporations (BUMN). Generally, the size of rubber smallholders in this province ranges from less than one hectare to five hectares (*Dinas Perkebunan*/Plantations Department, 2012) and less than one percent of the rubber smallholders have more than 5 hectares of land.

The latex production of rubber smallholdings in the South Sumatra Province, on the average, only 0.7 ton per hectare annually. It is lower than the national average production of 1.2 ton per hectare per year (Indonesian Industrial and Beverage Corps Research Institute or Balai Penelitian Tanaman Industri dan Penyegar/BALITRI, 2012). It is evident from these figures that the production rubber smallholdings in this province is low. The objective of this study was to analyze the factors that influences in improving latex production of rubber smallholders in the South Sumatra Province.

2. THEORETICAL FRAMEWORK

Rubber trees are tropical plants which grow well at height of 166 meters above sea level at an optimum temperature of 28° C (Haryanto, 2010). Rubber trees grow well in Indonesia in areas like Sumatra, Java and Kalimantan, including the South Sumatra Province. A rubber plant grows tall and has big trunk. A mature rubber plant can reach 15 to 25 meters. It grows straight up and has braches at the top parts. To have good plants with latex production of good quality and high quantity, farmer should grow good variety of rubber plants. This variety is usually produced as a product of research and examination for years conduct by private and public rubber plant research center. Good variety seedlings have more advantage than plants grown from the old rubber variety. The advantage includes uniformity of plants, short maturity age and high latex outputs when compared to the older rubber varieties. Farmers choose grow the old rubber variety because it is cheaper and easily obtained. Seeds are germinated and let grow until it has a bud after eight months. The seedlings are then planted in the farm (Haryanto, 2010; Setyamidjaja, 2010).

The good varieties seedlings recommended for rubber smallholder plantation in Indonesia is AVROS 2037, BPM 24, GT 1, PR 26, PR 300 and PR 303 (Setyamidjaja, 2010). In South Sumatra recommends using the type of GT-1 cloning for rubber plants seedling and PR 300 for rubber plants (Haryanto, 2010). The both types are good for South Sumatra condition. The definition of suitable use as recommended (good quality for high production) refers to the use of usage rules, quality, quantity, and frequency recommended by the Department of Plantation or Central of Research and Development of Agriculture Department (Ministerial Regulation No. 39/Permentan/OT.140/8/2006).

A research project carried out in Indonesia, where the GT 1 clone was planted on yellowish brown podzolic soil, concludes that the effect of N, P, and K on mature rubber trees during the first four years is not significant. In summary, studies of fertilizer impact on latex production suggest that if the plantation is under a well cultivated system during the immature period, fertilizer application can be started four years after commencement of tapping. The nutrient status of the trees should be monitored at 3-5 years intervals. Generally, rubber trees can be tapped up to 6 years after planting and have an economic life to 25 years. In the first two to three years of the immature period, leguminuos cover plants can be planted between the rows of rubber trees. When rubber trees are mature, latex is harvested by cutting a slope with a tapping knife.

The rubber plants cannot be tapped every day because there must be a period of rest. To avoid stress on the plant, rubber plant should be tapped 5 days with 2 days rest period (Haryanto, 2010; Setyamidjaja, 2010). For that generally in some rubber plant literatures and research, measuring of rubber latex production is per year. After maturity, maintenance of the plantation requires fertilisation, pest and disease control, and weeding. Experimental results indicate that with fertiliser application, the grace period before tapping is reduced from eight years to five years as compared to that of control plots (Forbes et al., 1996). For a mature rubber tree, fertilisation is used to increase production, mainly to achieve sustainable growth. The use of pesticide in rubber plantation will solve problems on pests and diseas which will hamper and even hill the plants. A pesticide comprises insecticide, fungicide, rodenticide, bactericide, hervicide and nematicide. For rubber plants, keep away the most disease from the plants such as fungus because it can kill the plants, as well as area of tapping disease, root disease and leaf disease. According to Sembawa Research Center of Agriculture (2011), the plant diseases often cause significant losses in rubber plants is fungus. That is why the use of pesticide is very important for the treatment of rubber plants. Soil and nature are important determinant in the latex production.

In Indonesia generally, and especially in Sumatra, ideally the number of rubber trees per hectare is 500 trees with a spacing at 4 x 5 meters. This mean that the addition of the rubber tree will only increase latex up to a maximum of 500 rubber trees per hectare, after that each additional tree reduces latex productions.

In agricultural production, human capital is associated with people's knowledge, experience and skills involved in the production process. The education, training and extension directly affect them. The use and utilization of technology are very important because they can affect the allocation of resources and production. as illustration, a labor force who is well-trained and well-educated is considered to have a better position to assess changing conditions and make necessary adjustments. His/her ability becomes increasingly important, particularly in the commodity markets which need fast responses. Investment in human capital includes both investments in formal schooling and post-school and on-the-job training and in the form of improved health and family care. Whereas, social capital refers to one's ability to utilize social networks and institutions. It can be affected by social status, education, and the available range of social institutions. This social capital is very necessary because it affects the access to physical capital, land title, credit and cooperatives. All of these imply the resource allocation and production.

The research conducted by Supriadi et al. (2004) showed that the rubber farmers in Kabupaten Ogan Komering Ulu, South Sumatra Province that have longer experience will be able to produce more latex tapping better than the farmers who still lack experience. Similarly, farmers who participate more in government training program have better latex production than those who did not participate. This is because they acquire learning in applying management and technology to improve production of latex.

The research conducted by Boerhendhy et al. (2007) also showed that the monitoring by Field Extension Officers (*Petugas Penyuluh Lapangan/PPL*) in the use of technology to increase the production of smallholders in Tabalong District, South Kalimantan was instrumental in increasing the production of latex.

Another related study is on the contribution of education to increase production of rice farmers conducted by Syafaruddin M. Syawwal and Muhammad Arsyad (2010). This study used multiple linear regression analysis. The result of the study showed that the extension program has a significant affect on rice production. In addition variables such as education, farming experiences and the land area also have a positive effect on rice production.

3. RESEARCH METHOD

This research was carried out in South Sumatra Province. Kabupaten Banyuasin and Kabupaten Muara Enim was chosen for the study because both Kabupaten is the biggest rubber smallholdings areas in South Sumatra. The total sample used for the study was 300 respondents and Kabupaten Muara Enim also 150 respondents. The sample was taken using random sampling with accidental technique. Data was analysed using the descriptive statistics and multiple regression analysis. Descriptive analysis is used to analyze the constraints faced by farmers to improve production. Multiple regression analysis is used to analyze the factors such as quality of rubber seedlings, fertilizers, pesticides, number of rubber trees per hectare and participation in government training program contributing to production of rubber smallholders.

The unit of measurement of latex produced in ton per year per hectare. The production of rubber smallholder is influenced by:

i. **Seedlings (X_1).** The seedlings are used to grow new plants is areas away from the parent plant. In this research, the quality of seedlings is a dummy variable where:

1 = Good quality seedlings (i.e. if rubber smallholder uses the seedlings recommended by the Department of Plantation or Centre of Research and Development of Agriculture Department)

0 = if otherwise.

ii. **Fertilizers (X_2)** are used to increase production. in this research, the quality of fertilizers is a dummy variable where:

1 = Good quality fertilizers (i.e. if rubber smallholder uses kinds of fertilizers recommended by Department of Plantation or Centre of Research and Development of Agriculture Department)

0 = if otherwise

iii. **Pesticides (X_3)** are substances that help protect plants against molds, fungi, rodents and insects. The measurement of pesticides in this research is a dummy variable where:

1 = Using pesticides (i.e. if rubber smallholder uses kinds of pesticides recommended by Department of Plantation or Centre of Research and Development of Agriculture Department)

0 = if otherwise

iv. **Number of rubber trees per hectare (X_4)** is the total number of rubber trees owned and managed by a farmer per hectare. Based on the Department of Plantation or Center of Research and Development of Agriculture Department, smallholders plant a average of 500 trees per hectare.

v. **Participating in government training program (X_5)** refers to the the number of times the farmer has participated in training programs per year.

The rubber smallholding production modes in an ordinary least square (OLS) model. According to Studenmund (2001), on the OLS model, the class of unbiased linear estimators has a minimum variance, that is they are BLUE (best linear unbiasedness property). The equation for rubber smallholders production is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

This research equation is used to identify the influence of explanatory variables X_1, X_2, X_3, X_4 and X_5 on the dependent variable (Y). Variables X_1, X_2, and X_3 are nominal-scale variables which are defined as follows:

X_1 : 1 = use seedlings as recommended
: 0 = otherwise

X_2 : 1 = use fertilisers as recommended
: 0 = otherwise

X_3 : 1 = use pesticides as recommended
: 0 = otherwise

And variables X4 and X5 are defined as follows:

X_4 : Number of rubber trees / hectare is data of the number of rubber plants.

X_5 : Participation in government training program.

4. DATA ANALYSIS

Many studies in agricultural economics have explained farm latex production and tis include studies by Zhengfei et al. (2006), Hayami & Ruttan (1985) and Ahearn et al. (1998). This study identifies factors such as the use of recommended seedlings, fertilizers and pesticides, the number of rubber trees per hectare and farmers participation in government agricultural training programs.

Equation 1 is used to identify the influence of explanatory variables X_1, X_2, X_3, X_4 and X_5 on the dependent variable. Variable X_1, X_2, and X_3 is nominal data:

X_1: 1 = if the farmers used the recommended seedlings

0 = otherwise

X_2: 1 = if the farmers used the recommended fertilisers

0 = otherwise

X_3: 1 = if the farmers used the recommended pesticides

0 = otherwise

While, variables X4 and X5 are as follows:

X_4 : Number of rubber trees / hectare

X_5 : Participating in government training is number of programs attended per year

The result of the regression model for rubber plantation production in in South Sumatra Province can be written as follows:

Y = 67.423 + 380.352X1 + 325.504X2 + 198.091X3 +7.462X4 + 15.483X5

With 95 percent of confidence level (α = 5%), all the independent variables (explanatory variables) affect the dependent variable (Y) significantly. The amount of contribution of all independent variables in explaining the variation in the production of rubber (Y) is as much as 79.9 percent given the value of adjusted R^2 = 0.779, the remaining 22.1 percent is determined by other variables that are not taken into account in the model. In addition, the results of the F test shows that the F-statistic (i.e. 2.87) which implies that the explanatory variables' regression coefficients in the underlying population are not all zeros.

This study was also carried out tests to multicollinearity problems. According to Studenmud (2001), multicollinearity test is to see whether or not there is a high correlation between the independent variables in a multiple linear regression model. Results of tolerance and VIF values shows that the variables used in the study do not have multicollinearity problems.

The value of the t-statistic for each variable exceeds the critical value at 95 percent confindence level. This implies that each variable has a significant influence on rubber production. based on research data, the rubber smallholders in South Sumatra generally acknowledge the benefit of using the recommended seedlings, fertilisers and pesticides. The high price and the difficulty of getting the recommended seedlings, fertilisers and pesticides explain why 63 percent of the rubber farmers do not use the recommended seedlings. It is noted that the high cost is a greater deterrent than the problem of availability of the recommended seedlings.

Rubber smallholdings in South Sumatra, based on observations, are monoculture units. Monoculture means planting only one type of plant, i.e. rubber trees. In fact, rubber trees can be interspersed with vegetable crops, i.e. vegetables can be planted on the margins of the rubber farm and this does not interfere with the rubber plants as long as proper planting distance is observed. The rubber farmers in South Sumatra are of the impression that they can get more latex with more trees planted per hectare. however, if the plaing exceeds the limit, young and old trees are interspersed and this will create a management problem. Young rubber trees usually need more treatment than the old ones. It will raise problems in the use of land fertility and old trees will cover up the young ones. This condition affects the quality and quantity of the latex.

Agricultural knowledge helps farmers very much in increasing their agricultural production. The farmers' knowledge is very helpful in adding insight and absorption of agricultural technology. Improving knowledge of farmers can be done through participating in government programs (Supriadi et al., 2004; Boerhendhy et al., 2007). In South Sumatra the program is in a form of training and counseling programs conducted by the Office of Agriculture. The results of these findings also directly refute the notion of the rubber farmers that participation in government programs is not useful, that approximately 50,7 percent of the smallholders farmers did not participate in the activities of agricultural extension or training conducted by the government. The participation was taken part 4 times a year at the most and it was even participated by only a few farmers. In fact, after having cross-checked with the Office of Plantation of South Sumatra, the agricultural extension and training programs were conducted twice a week by Field Extension Officers *(Petugas Penyuluh Lapangan (PPL)*. The meeting is carried out in certain places determined by the *PPL* and they name it Farmer Group Meeting. In additon to the low level of formal education of the family heads of the rubber farmer households, particularly poor farmers, the frequency of their participation was also very low although the program was gree of charge. This affects the production of the latex.

5. CONCLUSION AND RECOMENDATION

A significant implication of the study is that smallholders need to use the recommended rubber seedlings, adequate use of fertilizer, use of pesticides and need to attend training program provided by the government to improve their latex output. Thus government assistance is needed to better improve the rubber smallholdings in the form of subsidy and more trainings and agricultural extension services to improve rubber smallholder's outputs. The government assistance is needed in improving latex production of rubber farmer's smallholding in the form of subsidy and more trainings and agricultural extension service.

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THE ART OF LEADING THROUGH MOTIVATING EMPLOYEES IN ORGANISATIONS: REFLECTIONS ON LEADERSHIP DEVELOPMENT IN GHANA

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ABSTRACT

In our daily pursuits of our missions or mandates, we are managers, leaders or followers. We use the people under our control /influence to achieve our goals. This paper discusses the content theories of motivation as they are so fundamental in influencing decisions of the employees to work harder or slower than others towards meeting various states of deprivation. Hunger and poor leadership styles necessarily affects staff turnover or retention depending on whether the job provides the employee with satisfaction or dissatisfaction of some basic needs. The frustration of poor leadership partly explains what and why some people quit their jobs due to unfulfilled personal expectations. The paper also re-iterates the importance of the content theories in understanding the behavior of poor workers. Migration, enculturation and the globalization of markets further complicate the behaviour and performance patterns of poor workers. Besides observation, the study relied on literature review (desk study).The insufficiency of the content theories to explain how workers arrive at their decisions to stay on or leave their jobs explains the origins of the process theories to guide managers/leaders in understanding the expectations of workers. Strategies such as job enrichment, job enlargement, job training and retraining, providing conducive working environment, periodic systems reviews and organizational redesigns are recommended as aids to managers/leaders. Continuous education is also advocated since knowledge continues to be power in the global arena.

KEYWORDS
Behaviour Modification, Globalization, Job Satisfaction, Leadership Development. Motivation.

1.0 INTRODUCTION

This article is focused on leadership and development in Ghana by means of motivating employees.
The art of managing or leading people does not come easily to many human beings. It entailsunderstanding, directing and inspiring those whom you have control over or can influence to modify their behavior positively to meet planned and anticipated goals in the workplace. Leaders are people who according to peters and Waterman (1982) apply their intimate knowledge of the workplace, the structure, systems and psychological needs of people to help team mates to unleash a greater amount of effort towards meeting the tasks assigned to them. Leaders in this regard do the right things to influence the understanding, performance and aspirations of those in their charge. Leaders are different from managers only because the former concentrates on inspiring rather than controlling, asking what and how rather than how and when, innovate rather than initiate and press for change rather than maintain the status quo. Mason (1996) says about managers that their love of imitation is a limitation for growth.
To be an effective manager/leader, one must fill oneself up with knowledge of one's working environment, the employees and tasks before one. A person who is hollow in anyjob analysis of what needs to be done cannot head anybody. A blind man cannot lead other blind employees. This is where intimate knowledge allows for informed choices and enables a leader to resist being pushed from behind by his or her followers. Leboeuf (1985) points out that humans being intelligent animals are often quick to seethe greatest management principle played out that "what gets rewarded gets donein every workplace.
The paper looks at the qualities of an effective manager/leader that allow a person with authority to bring out the best in their followers. Passion and style in leadership allow motivation of staff to yield the desire results. The paper seeks to discuss the content theories of motivation as methods which some leaders use very much in developing world to increase workplace productivity. This is not to say that the process theories are not important or relevant in seeking behavior change in developing countries. Understanding what motivates people leads to a better understanding of how to use people.

2.0 MATERIALS AND METHODS

Besides observation, the study relied on literature review (desk study).

3.0 LITERATURE REVIEW AND FINDINGS

3.1 THE DEBATE MANAGERIAL/LEADERSHIP DEVELOPMENT

A leader should also demonstrate considerable selflessness to command loyalty. By serving others, the followers perceive their leader as a caring and dependable father-figure they can trust. Intimate knowledge of tasks or industry standards allows leaders to create wonderful visions and passions which inspire their subordinates. What a leader really does is to create an environment where the inner energies of those influenced as supervisors, peers or subordinates are aroused, resulting in greater productivity or work output.
Either as managers, leaders or followers, one needs adequate knowledge to direct other confidently or to make decisions for subordinates to follow. Most followers also need some education on organizational politics, whom to obey and whom not to obey, whom to align with and whom to avoid as part of the process of career survival or learning the ropes. Education helps both the leaders and followers to resist or succumb to others with skills to grow at desirable levels of intelligence. This is why continuous learning is important to survive, grow and prosper in every economic, political or social engagement within an unpredictable human environment. Managers and leaders differ only in the focus and styles of pursing their goals. The effective leader, to Carr (1995) and Adair (1983), seeks to move people from co-operation to consensus and finally to high commitment and performance.
Donnelly, Gibson &Ivancevich (1992:384) point out that there are managers and there are leaders. Few are both. Some leaders may not even be near the managerial rungs but nevertheless, wield considerable power. Clearly, the top dogs in every organisation are not only leaders but also managers while the underdogs may just be gang supervisors.

3.2 LEADERSHIP AND ORGANIZATIONAL POLITICS

An effective leader to blake (1981) must maintain a delicate balance between tolerating wayward behaviours and sanctioning deviant behaviours to maintain discipline and productivity among employees under his charge. The Ancient Greeks believed that virtuos men are almost always in short supply; hence leaders should manage their subordinates carefully to reward good behaviours and sanction unacceptable behaviours. Indeed, tolerating bad behavioursis like nurturing serpents and beasts and turning around later to complain about their natural detestable appetites when they are fully grown and become nuisances to society. The impoverished manager with low concern for performance and low concern for people neither helps himself/herself, the employer nor the business entity.
For a leader to motivate his bosses or subordinates, he or she must know which subordinates and leaders matter in the organization. The leader must know the needs and talents of people indispensable in building good team and stick to this since power and alliances are important in building effective teams. The manager /leader must know his socio-metric stars whose job security is important to most people because of their popularity in the life of that organization. The leader must similarly know the intelligent staff whose ideas sell like hot cakes in the organization. Good old Thomas Hobbes (1929) observed that "friends are good because they come to our defense when we are in difficulty, riches are good because they buy the allies we need for our security; intelligence is good

because it alerts us to danger "An effective leader should be able to fix a perfect match between the tasks on hand, the talents of the people on hand and the style that enables the subordinates to achieve the tasks with elevated egos.

Dei-tumi (2007:38) captures this matter vividly when he observed that: "There is the noble art of getting things done. There is also the art of getting things undone. The wisdom of life is leaving out the essentials." Success in any endeavour is about choices and getting one's priorities, planning horizons and competitive competences right.

3.3 THE CONTENT THEORIES OF MOTIVATION

I now want to locate the discussion of motivation of workers by leaders within the context of Maslow's Hierarchy of Needs Theory, Herzberg's Two-Factor Theory, Alderfer's ERG Theory and McClelland's Learned Needs Theory. They are chosen merely because they seek to explain what can cause behaviour modification and energize workers towards higher productivity in areas people on the fringes of.

3.3.1 THE APPLICATION OF MASLOW'S HIERARCHY OF NEEDS THEORY

Maslow (1954 &1970) postulate that the desire to work is influenced primarily by the physiological needs of man. He believes that as the need for food, shelter, water, air and safety are basic, people's needs rise to affection, dignity and finally to the desire to attain the best for oneself. To Maslow (1954), "Man lives by Bread alone when there is no bread." The leader/manager must be able to tell the level at which his workers are placed in the hierarchy of needs and seek to meet those unmet needs for them to be motivated.

The import of the hierarchy of needs theory is that a satisfied need can no longer motivate a person. When one has food, shelter and security, one looks up to higher needs, hence, monetary payment and other prerequisites meant to guarantee these physiological needs will no longer motivate the worker to perform more. By Maslow's hierarchy of needs, management must know the needs of workers and match the institutional rewards against such needs at all times.

Another import of the hierarchy of theory is that when a person is rich, it means he has money to meet his physiological needs; hence paying a rich worker more money will not necessarily motivate such a person. It also means that a manager who knows his workers well makes a better manager by looking for a better fit between their needs and rewards. Maslow's Hierarchy of Needs theory does not, however, explain why people from rich families who inherit large fortunes still desire to work since fortune has provided adequately for them. It does, however, show that employees work based on certain personal goals. These goals may compete with the corporate goals to evolve a culture that is peculiar to that organization.

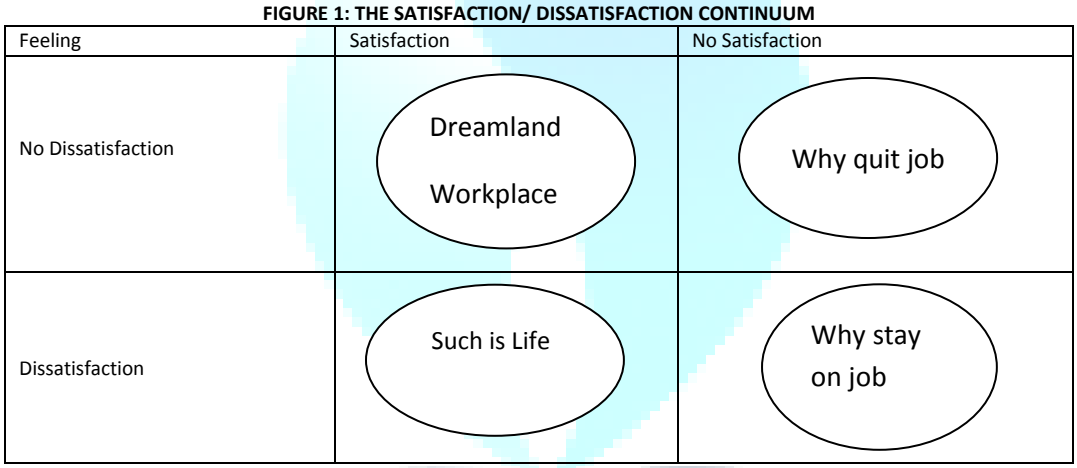
3.3.2 HERZBERG TWO-FACTOR THEORY

Herzberg (1966; 1970) conceived the idea of behavior modification as arising also from knowing what really motivates people differently from the hygiene factors. To Herzberg, the hygiene factors are those extrinsic rewards .which when present does not create satisfaction, but when absent, create increased dissatisfaction. These maintenance or hygiene-factors were listed as salary, company policies, supervision, condition of service, interpersonal relationships. Salary does not necessarily motivate as staff often tends to impulse buying too.

To Herzberg's, the things that motivated people are opportunities for career development, work assignments itself, responsibility, or giving recognition for outstanding performance. The Two-Factor theory postulates that in work places, the expectation of employees move along a continuum of satisfaction to no satisfaction. By this theory, the opposite of satisfaction is no satisfaction and necessarily dissatisfaction. Workers also find themselves along a continuum of no dissatisfaction to dissatisfaction.

The Two-Factor Theory of Herzberg better explains why people may not be satisfied at the workplace but resign or quit the organization. It also explains why some employees may be satisfied but nevertheless quit their jobs. Figure 1 shows the dynamics of forces between being satisfied and being dissatisfied and other matrix states.

FIGURE 1: THE SATISFACTION/ DISSATISFACTION CONTINUUM



Source: Herzberg (1966: 1970)

According to Herzberg, because there is a continuum between satisfaction and no satisfaction and no dissatisfaction and dissatisfaction, the interplay of the motivating and maintenance factors explain worker retention and turnover. The pay may be bad, but social relations may be so good that people looking for lasting friends or partners to marry may still hang on to certain jobs.

Similarly, turnover may be high in an organization that is well structured, has opportunity for talented workers and recognizes good output and behaviour but these may not be the reasons its employees are looking for in the job. A person might have joined the organization in the hope of high salary to put bread on the table, save adequate and retire in comfort. It is not uncommon to see some people paid so low and yet they hang on and paid so high and yet they quit. When managers are able to obtain a fit between the physiological, social, physiological and other needs and expectations of their workers, the workplace becomes a dreamland and staff turnover will be low.

By the application of Herzberg's two factor theory, the dreamland workplace is where there is satisfaction and no dissatisfaction as well. This is rare as in real life, it may not be possible to meet the psychological, social and economic needs of all workers from varied backgrounds in one organization. Similarly, if there is no satisfaction and also dissatisfaction, then staff turnover will tend to be very high in that organization. Most employees expect a real life situation where there is some amount of satisfaction and also some amount of dissatisfaction. The motivating leader should be able to increase satisfaction and reduce dissatisfaction.

3.3.3 THE APPLICATION OF ALDERFER'S ERG THEORY

Alderfer (1972) propounded another content theory called the Existence, Relatedness and Growth Theory ERG. Alderfer's ERG Theory postulates that humans desire survival or existence first before all other things. This human craving for existence is similar to Maslow's lower needs classification. After existence /survival is guaranteed, humans now tend to relate as social animals. This is also similar to Maslow's needs for affection, belongingness and esteem in the hierarchy of needs theory. Alderfer concludes that the final stage is the desire to be oneself based on one's estimated potential in life-the self-actualization needs of humans.

Alderfer's content theory is important and different from Maslow's in many respects. Since friendship affiliations and interactions are important in providingsatisfaction to employees, managers should be more careful in forming formal groups or teams in the workplace, managers should be more sensitive in doing this to provide a sense of security and belonging among employees to enjoy their jobs and not feel threatened. This calls for a delicate balance in sacrificing ethnic and racial prejudices in building productive work groups, to deal with observed negative behaviors in an organizational culture.

Secondly the desire to grow on a job is important for loyalty and commitment from employees. The manager/leader should develop academic and professional training programmes that will empower employees to meet this need in the workplaces. It is an observed fact that motivated employees tend to have a very high tolerance level for dissatisfaction and stay longer on jobs than unmotivated employees. The latter groups tend to have a high turnover than the former. Perceived hope for growth in an organization can be a motivator. The threat of deprivation or loss of an envisaged want may be motivational and a perception that the envisaged deprivation could be more easily obtained elsewhere may be an incentive to quit a job.

Thirdly because relationships are very important in this model, employees will not only look forward to improved conditions of service, but satisfying relationships in the workplace. If the personal objective of male employees in joining a predominantly female organization is to have and eventually marry one of the beautiful lasses, repeated failure or rejection of love proposals may cause them considerable embarrassment as to want to leave the organization, no matter the state of other attractions. The frustration-regression potential on the productive lives and potential for turnover should not be lost on mangers in their study of employees. The contest between the personalizing goals of employees and the socializing goals of companies is far from over. Indeed, it is exacerbated by the rising tide of trade unionism and human rights activism by employees with the globalization of markets.

Similarly, Blake (1981) noted that concern for satisfaction of employees and the concern for results from them should lead managers/leaders to avoid impoverished management styles where concern for people and work are both low. A high demand for results and high employee welfare should lead to building efficient and effective teams. A delicate balance for people and tasks would guarantee a stable workplace.

Application of McClelland propounded the Learned Needs Theory of Motivation.

David McClelland propounded the learn needs theory of Motivation. This is also clarified as a content theory because it seeks to explain what really motivates employees for higher performance in the workplace. The theory propounds that human behaviors within most cultures show that high achievers are those who have great affinity for:

- Achievement
- Affiliation
- Power

McClelland observed that most people who become successful entrepreneurs pursue their felt needs and businesses to achieve their goals. Indeed persons who are not ambitious for dreamless in life do not become disappointed. A desire to be successful almost always goes with a desire to avoid failure in one's business.

McClelland (1961) further observed that every great achiever has a high desire for affiliation with people. Such people expect to work with other people employ talented people and rain talented people to do their business for them; they recognize that to attain one's potential; one must work with people or through people to build an empire.

McClelland, motivated individuals are risk takers who enjoy challenges, seek personal responsibility and appreciate feedback on their performance of tasks, the desire for power is seen naturally as a' desire to be recognized, commended and reward for high achievement to serve or perform better.

The learned Needs Theory implies that managers should endeavor to understand what employees will do or not do itself constrained by the culture of the organization and its surrounding environment. Some poor people may be unwilling to accept job offers such as conservancy labourers because of cultural mindsets that look with disdain on such jobs as degrading. The mindset will not change even if the name of that job is changed to sanitary Engineering Assistant; the job is the same.

Managers must also know that culture is dynamic and changes as a result of socialization, migration and social advancement. What is felt need in one's culture may not be a felt need in another culture. For instance, in some cultures, it is considered a disgrace for an adult not to have his own dwelling place. Such a cultural view may make opportunities for owning houses in organization located within that cultural area very motivational but not motivating to others in whose cultures working adults still live in large compound houses with uncles, aunties, wives, brothers and sisters.

The craving for power is particularly important in understanding people and their behaviors either in organizational or unionized activities, political party participation or contesting for traditional authority power which may have effect on the performance reliability on some employees in the workplace. When a person has money and many friends, he will next seek power.

3.4 THE WAY FORWARD FOR MANAGERS/LEADERS

Every manager needs a thorough understanding of the theories of motivation to achieve good results from his / her employees. In ThirdWorld countries, it is only fair to begin with the content theories because many employees in workplaces still come from poverty-stricken homes where basic needs are important in calculations as to whether to work harder, stay on or quit their jobs.

Realistically, money is seen by Herzberg as a hygiene factor extrinsic and dissatisfied because its inadequacy does not introduce dissatisfaction and its presence does not necessarily introduce satisfaction. Parkinson (1957) and Wilson (1992) observe through Parkinson's two laws that when more cash is paid to workers in the form of salaries, their wants and desires increase dramatically. The resulting expenditure rises to meet income levels and occasionally over expenditure may even lead to indebtedness and other frustrations carried over to the workplace. Indeed Peter (1972) believes that sometimes excess cash could lead some workers into day dreaming, malingering, absenteeism, alcoholism or womanizing. The temptation to relax and enjoy themselves may lead to the Parkinson's trite truth that "work expands to meet the time available for its completion.

3.4.1 JOB ENRICHMENT

Meeting human needs is a welfare function or a demonstration of concern for people by management. The nature of the work and workplace environment is important to provide more satisfaction for employees. It is important therefore for managers with over simplified job designs to redesign them to enrich the jobs. The nature and depth of assignments should have meaning such that workers do not feel bored but appreciated and enjoy the work.

3.4.2 JOB ENLARGEMENT

Because humans like to be recognized and appreciated for their contribution, employees love to read meaning in the jobs assigned them. A range of related jobs assigned to a person makes the person feel that he is a significant player in the provision of outputs or services wherever they find themselves.

3.4.3 MATCHING COMPETENCIES TO TASK

Match making in order to provide challengers to employee and constantly searching for perfect fits between tasks and abilities is motivational leadership. Knowing the abilities of people prevents misassignments, job overloads and underutilizing of the abilities of path competencies of staff. Mason (1996:17) points out that in an era of globalization in the sale of products and services, managers need to be more innovative, take more risks than others and also dream more than others in the global marketplace.

3.4.4 TRAINING FOR EMPLOYEES

Training is the best method of remedying any observed performance deficiencies of employees. Managers need to develop a systematic method of diagnosing training needs among its employees. Remedying the performance deficiencies reduces the cost of internal failures – cost of replacing defective goods products before they go out. Effective training also reduces considerably any external failures the cost replacing defective goods that have been returned for replacement as substandard in breach performance specifications

3.4.5 THE POWER OF KNOWING EMPLOYEE BY NAMES

Many employees feel honoured when a chief Executive officer meets them and addresses them by their names. They feel after wards that they must be playing significant roles in their organizations to get noticed even at the shop floor by the Chief Executive Officer. They begin to exercise extreme care not to be noticed for negative behaviors. They begin to hope that one day they would be appropriately rewarded for the reasons that led to their being recognized by their names by the Chief Executive Officer who does not directly, supervise them. Hope of goodwill is important in maintaining an employee's performance momentum. How true it was when Kerr (1987) said: "whether dealing in monkeys, rats or human beings, it is hardly controversial to state the most organisms seek information concerning what activities are rewarded and then seek to do (or at least pretend to do) these things, often to the virtual exclusion of the activities not rewarded."

3.4.6 POSITIVE COMMUNICATION TO CUSTOMERS

Whether one is selling physical products or intangible services, one has to appear nice and willing to reach out positively to prospective customers to increase markets shaves and survive in a competitive market place. The manager/leader has to sharp his spoken and written communication as well body language before employees and clients. Carnegie(1981) was instinctive when he noted that an infectious "smile costs nothing but creates much. It enriches those who receive without impoverishing those who give. It happens in a flash, and the memory of it sometimes lasts forever." Communication well in organizations not only dispels mistrust but allows employees to understand the mission and vision and how to achieve the goals. Effective communication increases the arena through transparent goal clarification blind spot and forthrightness in interactions.

4.0 CONCLUSIONS

Understanding how the content theories work in developing countries and for that matter Ghana is surely important because several working people still live at the fringes of poverty. The motivational factors are important but the extrinsic/maintenance factors are also very important for political reasons and maintaining harmonious industrial climates. Managers/leaders must these as guides to understanding human behaviour and blend concern for productivity with concern for people in the kind of situation McGregor proposed as Theory X and company growth and viability.

The basic needs of people make these theories relevant and the complex unpredictable environment of man as a rational animal makes understanding the process theories of motivation important. The content theories offer some useful lessons to mangers/leaders. The different circumstances of workers necessitate an overlay of needs. Managers/leaders need reliable feedback systems to match tasks to competences. Feedback can be obtained not only at the workplace but from other social events like engagement, marriages, outdoorings and funerals.

There is also need for managers/leaders to respect the top dogs in companies because their knowledge, skills and power and alsohonour the underdogs because they are the "doers". Sociable bosses get to know their workers, in good times and at bad times. Some of the secrets of success may be discerned by consulting Chancellor & Richardson (2005) to draw from over one hundred success recipes for manager/leaders.

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CLIMATE CHANGE AND GLOBAL EFFORTS: THE ROAD AHEAD

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ABSTRACT

Climate change is a natural phenomenon. The earth that we live in today was framed due to these phenomena. Yet climate change has become a global threat today. The reason for this drastic change in temperature now is no more natural but it is manmade. Understanding the long term effects in 1992 the International community[11] responded to the threat of global climate change by adopting the United Nations Framework Convention on Climate Change (UNFCCC) at the United Nations Conference on Environment and Development in Rio de Janeiro. UNFCCC established the first (non-legally binding) guidelines for energy policy. Although much has been spoken about the effects of climate change on human beings and other creations on earth yet not much has been done practically. The paper looks into the policies on paper and how far the same has been effectively applied and implemented at various levels. The paper emphasis the efforts of United Nations along with its specialized agencies United Nations Environment Programme (UNEP) and initiative taken up by regional agencies like European Union in curbing the green house gases which is one of the causes of climate change.The paper concludes by bringing in comparision between the policies framed to curb the effects of climate change and the shortcomings in its implementation.

KEYWORDS

Climate Change, Green House Gases, Intergovernmental Panel On Climate Change (IPCC), Policies, United Nations Framework Convention On Climate Change(UNFCCC).

INTRODUCTION

Scientists for a very long time have been observing the changing face of the earth which is a very interesting subject. But what has changed in this observation is the speedy change in the structure and working of the natural system due to human influence and it is clear from studies that recent anthropogenic emissions of greenhouse gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems. Hence the study about climate change and its harsh impact on humanity becomes interesting.

In 2011 the world population reached 7 billion. It is expected to grow to 9 billion by 2043, placing high demands on the Earth's resources.[12]As we are well aware the natural resources cannot renew in the phase in which human beings are exhausting them. Some of these resources are non renewable. The indiscriminate use of these resources are not just depleting them but the unscientific way in which it is being exploited has led to increase in environmental pollution and also warming of the earth's crust. Scientists have spent decades figuring out what is causing global warming. They've looked at the natural cycles and events that are known to influence climate. But the amount and pattern of warming that's been measured can't be explained by these factors alone. The only way to explain the pattern is to include the effect of greenhouse gases (GHGs) emitted by humans.[13]

AIMS AND OBJECTIVES

Human beings are rationale creatures. They can distinguish right from wrong and good from bad. Law has played a very important role in the evolution of human race. The present legal system in which the human beings are living are helping them to decide the future path.

International law is not similar to that of the state law. States being sovereign have a choice of accepting/rejecting or partially accepting/rejecting with minor changes of the laws made by the International Institutions. One such area where the International Organisations like the Intergovernmental Panel on Climate Change (IPCC) under the aegis of the United Nations (UN) is working on is about Climate Change, Green House Gases and Global Warming. Hence the aim of this paper is to emphasise on the legal regime that is in place relating to climate change. The paper aims to trace the path in which the climate change legal regime has developed and the future of these laws and its effective implementation by the states.

METHODOLOGY

The methodology has been both qualitative and quantitative in nature. The qualitative research for the paper has been in the form of searching for meanings, concepts, definitions, characteristics, and descriptions of things relating to the issue of climate change the quantitative research has been on hard core data and reports of various international institutions in the form of synthesis reports, Conference of Parties(CoP), Working Groups Reports and many other data and survey which has helped in the culmination of this research paper.

INTERNATIONAL SCENARIO – *EFFORTS AND DRAWBACKS*

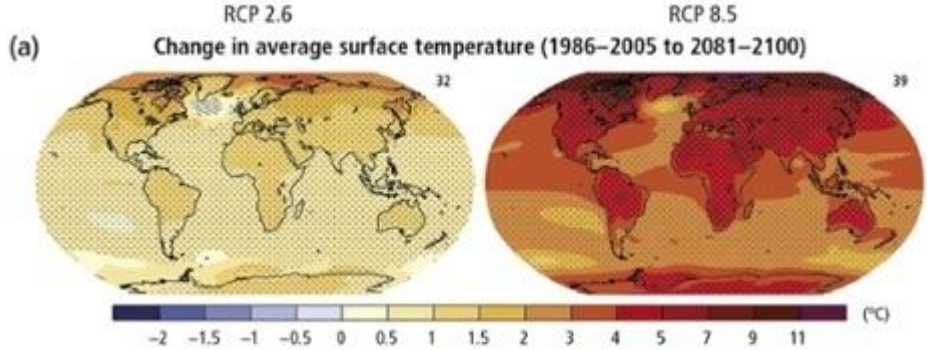
The UN family is in the forefront of the effort to save our planet. In 1992, its "Earth Summit" produced the ***United Nations Framework Convention on Climate Change*** (UNFCCC) as a first step in tackling the problem. In 1998, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) set up the Intergovernmental Panel on Climate Change (IPCC) to provide an objective source of scientific information.[14] This group of scientists called the Intergovernmental Panel on Climate Change, meets every few years to review the latest scientific findings and write a report summarizing all that is known about global warming. Each report represents a consensus, or agreement, among hundreds of leading scientists.[15]

These reports have been very helpful in understanding the way in which the human activities are changing the face of the earth. In many regions, changing precipitation or melting snow and ice are altering hydrological systems, affecting water resources in terms of quantity and quality. Many terrestrial, freshwater, and marine species have shifted their geographic ranges, seasonal activities, migration patterns, abundances, and species interactions in response to ongoing climate change.

It is true that there will be more frequent hot and fewer cold temperature extremes over most land areas on daily and seasonal timescales, as global mean surface temperature increases.(*fig 1*)

[11] Currently, there are 196 Parties (195 States and 1 regional economic integration organization) to the United Nations Framework Convention on Climate Change.
[12] http://www.un.org/en/globalissues/climatechange/ accessed on 20-09-2014
[13] http://environment.nationalgeographic.com/environment/global-warming/gw-causes assessed on 20-09-2014
[14] http://www.un.org/en/globalissues/climatechange/ accessed on 20-09-2014
[15]http://environment.nationalgeographic.com/environment/global-warming/gw-causes assessed on 20-09-2014

FIG. 1



Projections for increase in average temperatures in 2081– 2100, above late 20th-century average temperature Photograph: IPCC

Due to the increase in the temperature in urban areas, climate change is projected to increase risks for people, assets, economies and ecosystems, including risks from heat stress, storms and extreme precipitation, air pollution, inland and coastal flooding, calamities like landslides, drought, water scarcity, sea-level rise, and storm surges. The risks in rural areas are amplified as there would be major impacts on water availability and supply, food security, infrastructure, and agricultural incomes, including shifts in the production areas of food and non-food crops around the world.[16]

The increase in temperature is due to the excessive of Green House Gases(GHGs) in the atmosphere which has accumulated over the years due to human activities. (Industrialisation, deforestation etc). Many greenhouse gases occur naturally in the atmosphere, such as carbon dioxide, methane, water vapor, and nitrous oxide, while others are synthetic. Those that are man-made include the chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs) and Perfluorocarbons (PFCs), as well as sulphur hexafluoride (SF_6)

As the global population has increased and our reliance on fossil fuels (such as coal, oil and natural gas) has been firmly solidified, so emissions of these gases have risen. This has inturn increased the temperature of the planet which the scientists have termed as Global Warming. The changes in the climate has been also due to the global warming. This has led to the rise in the sea levels due to melting of glaciers which are a threat to many island nations and coastal areas.

Global sea level rose by about 120 m during the several millennia that followed the end of the last ice age (approximately 21,000 years ago), and stabilised between 3,000 and 2,000 years ago. Sea level indicators suggest that global sea level did not change significantly from then until the late 19th century. The instrumental record of modern sea level change shows evidence for onset of sea level rise during the 19th century. Estimates for the 20th century show that global average sea level rose at a rate of about 1.7 mm yr^{-1} [17]

These being some of the issues concerning climate change the greatest challenge that the United Nations is facing is to bring in a consensus among the nations to accept a common legal regime which can reduce the emission level which in turn would reduce the effects of climate change. Distribution of global emissions reinforces the need for broad multilateral cooperation in mitigating climate change. Fifteen to twenty countries are responsible for roughly 75 percent of global emissions, but no one country accounts for more than about 26 percent. Efforts to cut emissions (mitigation) must therefore be global. Without international cooperation and coordination, some states may free ride on others' efforts, or even exploit uneven emissions controls to gain competitive advantage. And because the impacts of climate change will be felt around the world, efforts to adapt to climate change (adaptation) will need to be global too.[18]

Hence the United Nations Framework Convention On Climate Change (UNFCCC) (Frame Work Convention) was ratified. The foundation for the international climate change regime is this Framework Convention, a treaty with practically global participation by governments. The Framework Convention was opened for signature in 1992 and garnered a sufficient number of ratifications to enter into force in 1994.[19] The Framework convention as the name suggests acts as a framework for further action and cooperation on the issue of climate change. This is one of the efforts which brought in global consensus on the ill effects of climate change on all nations. Hence it may be said that this Framework Convention serves as a constitution-like document guiding intergovernmental cooperation on the issue of climate change but the UNFCCC does not establish binding limits on GHG emissions for any nations.

By 1995, countries realized that emission reductions provisions in the Framework Convention were inadequate. They launched negotiations to strengthen the global response to climate change, and, two years later, adopted the Kyoto Protocol. The Kyoto Protocol legally binds developed countries to emission reduction targets. The Protocol's first commitment period started in 2008 and ended in 2012. The second commitment period began on 1 January 2013 and will end in 2020. There are now 195 Parties to the Convention and 192 Parties to the Kyoto Protocol.[20]

The Kyoto Protocol is seen as an important first step towards a truly global emission reduction regime that will stabilize GHG emissions, and can provide the architecture for the future international agreement on climate change.

In Durban, the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP) was established to develop a protocol, another legal instrument or an agreed outcome with legal force under the Convention, applicable to all Parties. The ADP is to complete its work as early as possible, but no later than 2015, in order to adopt this protocol, legal instrument or agreed outcome with legal force at the twenty-first session of the Conference of the Parties and for it to come into effect and be implemented from 2020.[21]

With all these efforts yet the Framework Convention and its Conference of Parties(COPs) are not without criticisms. The greatest drawback of the Kyoto Protocol is the non consensual part between the developing and developed countries about how to interpret a fundamental underpinning of the Framework Convention and Kyoto Protocol namely the principle of "common but differentiated responsibilities" among industrialised (Annex-1) and developing(non-Annex 1) countries particularly when it comes to meaningful mitigation targets.

At the most basic level, countries disagree over climate monitoring and financing stipulations in the Kyoto Protocol and other legally binding accords. Climate frameworks struggle to effectively monitor greenhouse gas outputs, especially in developing countries. Many countries lack the domestic capacity to audit their total emissions; even if they are able to monitor national levels, some fear that reporting such numbers would encourage international pressure to cap their emissions. Others, like China, argue that an international monitoring system represents an infringement on national sovereignty and that developing states should be afforded some leniency in emissions as they are currently in critical stages of economic development.

The climate regime does not adequately address the sources of financing needed to help developing countries cope with climate change. The Green Climate Fund is in place but the allocation of the funding has to be clearly defined.

[16] http://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_SPM.pdf - *CLIMATE CHANGE 2014 SYNTHESIS REPORT* Approved Summary for Policymakers, 1 November (2014).
[17] http://www.ipcc.ch/publications_and_data/ar4/wg1/en/faq-5-1.html - IPCC Fourth Assessment Report: Climate Change 2007.
[18] "The Global Climate Change Regime." Jul 2012. Council on Foreign Relations. Nov 2014
[19] http://unfccc.int/essential_background/convention/items/2627.php accessed on 10-10-2014
[20] http://unfccc.int/essential_background/items/6031.php accessed on 10-10-2014
[21] http://unfccc.int/kyoto_protocol/items/2830.php accessed on 10-10-2014

The international climate regime is at its strongest when it comes to understanding the threats posed by climate change. The IPCC has through its panel of scientists are constantly looking at the changes happening and releasing assessment reports, which synthesize global data on climate change. The IPCC reports are central in policy discussions of climate change, and their estimates play an outsized role in setting benchmarks for international action. The IPCC also produces occasional reports on urgent subjects such as carbon capture and technology transfer. Yet, the infiltration of politics into the climate change debate has hampered the legitimacy and pervasiveness of new findings.[22]

The IPCC reports have been critiziised as being politically driven and few believe that IPCC reports overestimate the state of the problem. The main drawback has been about lagging behind the current state of science because of its long and bureaucratic approval process. At a time when many studies are raising the possibility of extreme climate change, this may tend to bias the IPCC conservatively. Many reforms have been brought about in its working but nevertheless the findings and working of the IPCC cannot be undermined as the present awareness created among the nations has been through the findings of the IPCC.

REGIONAL ARRANGEMENTS - *THEIR CONTRIBUTIONS*

MAJOR ECONOMIES FORUM (MEF)

Many countries have tried to find an alternative way which may in the long run be more flexible and effective approach to combat the effects of climate change like the United States and other emitters have begun to turn to "à la carte multilateralism,"(small arrangements) focusing on smaller, less formal frameworks, such as the Major Economies Forum (MEF) and the Group of Twenty (G20)

The Major Economies Forum on Energy and Climate (MEF) was launched on March 28, 2009. The 17 major economies participating in the MEF are: Australia, Brazil, Canada, China, the European Union, France, Germany, India, Indonesia, Italy, Japan, Korea, Mexico, Russia, South Africa, the United Kingdom, and the United States.[23]

Together, MEF member countries are responsible for over 80% of global GHG emissions and make up 75% of global gross domestic product (GDP).[24] Their aim is to facilitate a candid negotiation among developed and developing economies so as to achieve a successful outcome at the annual UN climate negotiations and initiate a joint venture in clean technology thus cutting green house gases.

GROUP OF TWENTY (G20)

The G20 membership comprises a mix of the world's largest advanced and emerging economies, representing about two-thirds of the world's population, 85 per cent of global gross domestic product and over 75 per cent of global trade.

The members of G20 are Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, the United Kingdom, the United States and the European Union.[25] The Green Climate Fund by these nations now stands at $7.5 billion following pledges by the United States, Japan, France, Germany, Mexico and South Korea. That is within sight of a $10 billion goal, brightening prospects for a U.N. climate pact next year.[26]

ASSOCIATION OF SOUTH EAST ASIAN NATIONS (ASEAN)

ASEAN has also contributed to the ongoing efforts to curb climate change. Southeast Asia is highly vulnerable to climate change as a large proportion of the population and economic activity is concentrated along coastlines; the region is heavily reliant on agriculture for livelihoods; there is a high dependence on natural resources and forestry; and the level of extreme poverty remains high.

A study carried out by Asian Development Bank (ADB) revealed that the mean temperature in the region increased by 0.1 to 0.3 degree Celsius per decade between 1951 and 2000; rainfall trended downward from 1960 to 2000; and sea levels have risen 1 to 3 millimetres per year. Heat waves, droughts, floods, and tropical cyclones have also become more intense and frequent.[27]

The same study projects a 4.8 degrees Celsius rise in mean annual temperature and a 70 centimetres rise in mean sea level by 2100 in Indonesia, the Philippines, Thailand and Vietnam. A rise in sea level would result in major problems for many of ASEAN's largest coastal cities, such as Jakarta, Bangkok and Manila. Millions of people may have to be resettled and massive expenditures incurred to protect the coastal cities.

ASEAN Member States, though not the source of significant emission of greenhouse gases, have taken actions to address climate change through various environmental, economic and social activities over the years. Several ASEAN Member States have announced voluntary mitigation targets, including Indonesia (emission reduction of 26% from business-as-usual (BAU) by 2020, and can be increased to 41% with enhanced international assistance), Malaysia (reduction of 40% in terms of energy intensity of GDP by 2020 compared to 2005 levels), Philippines (deviate by 20% from BAU of their emission growth path), and Singapore (emission reduction of 16% below BAU by 2020). Collectively, ASEAN countries have been responding to climate change by focusing on the implementation of relevant actions in following ways:[28]

1. ASEAN Socio-Cultural Community (ASCC) Blueprint 2009-2015. **Section D10 of ASCC speaks about** Responding to Climate Change and addressing its impacts.
2. ASEAN Working Group on Climate Change (AWGCC) was established in 2009 to oversee the implementation of the relevant action lines in the ASCC Blueprint.
3. The Action Plan on Joint Response to Climate Change was also developed in 2012 to provide a more detailed reference in implementing the Blueprint.
4. ASEAN Environmentally Sustainable Development Film Festival held on 18 October 2011 in Phnom Penh, Cambodia to inspire and promote awareness among ASEAN citizens of the importance of multi-stakeholder participation in addressing climate change.
5. ASEAN-India Expert Meeting on Regional Programme of Climate Change was held on 27-29 June 2012 in Bangalore, India, to exchange information and develop a framework for collaboration and discuss ways forward to address climate change both on mitigation and adaptation fronts.
6. The Yogyakarta City Greenhouse Gases (GHG) Emissions and HEAT+ – Launch and Training: In collaboration with International Council for Local Environmental Initiatives (ICLEI) – Local Governments for Sustainability, the ASEAN-US technical Assistance and Training Facility (ASEAN-US TATF) held a two-day workshop on 20-21 September 2012, in Yogyakarta, Indonesia, to present the Yogyakarta City Greenhouse Gases (GHG) Emission Inventory Report and to demonstrate the use of ICLEI's internationally recognized monitoring software system the Harmonized Emissions Analysis Tool (HEAT+). In 2012, Yogyakarta became an ASEAN pilot city to demonstrate a systematic and standardized methodology to measure and monitor citywide carbon emissions. The pilot will serve as a model for other ASEAN cities, and is expected to encourage them to adopt a systematic approach for inventorying GHG emissions and the use of tools such as the HEAT+ software, allowing ASEAN cities to become better equipped to measure and monitor carbon emissions and, in turn, develop effective strategies for low carbon economic growth and climate resiliency
7. ASEAN Action Plan on Joint Response to Climate Change was adopted on 26 September 2012, to implement Joint Response and implementation on Climate Change.
8. Climate Leadership Academy (CLA) on Urban Climate Adaptation for Cities in Southeast Asia was held on 13-15 August 2013 in Jakarta as the first activity of the CityLinks Pilot Partnership project between the United States (US) and ASEAN Member States (AMS). With the theme "From Risk Barriers to Results – Managing the social, Political, Environmental, and Financial Risk of Urban Infrastructure,"

[22] *"The Global Climate Change Regime."* Jul 2012. Council on Foreign Relations. Nov 2014.
[23] http://www.majoreconomiesforum.org/ accessed on 25-07-2014
[24] http://climate-l.iisd.org/news/major-economies-forum-calls-for-urgent-climate-action/ accessed on 25-07-2014
[25] https://www.g20.org/about_g20/g20_members accessed on 25-07-2014
[26] http://www.reuters.com/article/2014/11/19/us-australia-france-climatechange-idUSKCN0J307K20141119 accessed on 25-07-2014
[27] http://environment.asean.org/asean-working-group-on-climate-change/ accessed on 27-08-2014
[28] For more details on the initiatives seehttp://environment.asean.org/asean-working-group-on-climate-change/

THE AFRICAN UNION COMMISSION (AUC)

The African Climate Policy Centre (ACPC) is an integral part of the Climate for Development in Africa (ClimDev-Africa) programme, which is a joint initiative of the United Nations Economic Commission for Africa (UNECA), the African Union Commission (AUC), and the African Development Bank (AfDB).[29]

THE PACIFIC ISLAND FORUM

The Pacific Island Forum represents Heads of Government of all the independent and self-governing Pacific Island countries, Australia and New Zealand. In 2005 the Leaders endorsed the Pacific Islands Framework for Action on Climate Change. The Framework's goal is to ensure that Pacific Island peoples and communities build their capacity to be resilient to the risks and impacts of climate change with the key objective to deliver on the expected outcomes under the following Principles[30]

EUROPEAN UNION (EU)

The European Union has long been committed to international efforts to tackle climate change. It has taken many climate-related initiatives since 1991, when it issued the first Community strategy to limit carbon dioxide (CO 2) emissions and improve energy efficiency. These include a directive to promote electricity from renewable energy, voluntary commitments by car makers to reduce CO 2 emissions by 25% and proposals on the taxation of energy products.

The EU has long been a driving force in international negotiations on climate change and was instrumental in the development of the UN Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. EU is instrumental for UN's negotiations are under way to draw up a new global climate agreement covering all countries to achieve greater cuts in global emissions over the rest of this decade. The aim is to keep global warming below 2°C compared to the temperature that prevailed in pre-industrial times.

The new framework is to be finalised by 2015 and implemented from 2020.. As part of the transition to the future global climate regime, the EU is taking part in a second phase of the Kyoto Protocol running from 2013 to 2020.

As the world's leading donor of development aid, the EU also provides funds to developing countries to tackle climate change. It gave just over €7.3 billion in "fast start" financing to developing countries over 2010-2012 and is continuing to provide climate finance every year.[31]

SHORTCOMINGS IN THE POLICIES

The very important consensus among countries about climate change has been the United Nations Framework Convention on Climate Change(UNFCCC) and Kyoto Protocol. The continued fight between the developed countries and the developing countries about the standard of emission of green house gases has not been resolved. Countries like the United States which always talks about the global warming and curbing climate change has not committed itself to the norms laid down in the Kyoto Protocol. This as usual has led to a debate among other developed countries as to the binding effect of this protocol on nations when one of the major developed countries is not a part of the above. The other drawback found in the protocol is the cap on the emission levels for the developing nations and its strict compliance. Countries like India and China whose economy is booming if the framework does not specifically lay down the curb on the emission then the same would become an example for other countries whose economies are under development. Hence the regime still falls well short of promoting needed action to effect positive change, including committing to a post–Kyoto framework.

Another major drawback is the about the consensus among nations. From Kyoto to Copenhagen and Cancun to Durban the issue still continues. Nations are not able to commit as to when the commitments would strictly be enforceable and till when should the Kyoto protocol be extended. Also when it comes to strict enforceability the weakness of International law comes in the way as to what is the mechanism that should be adopted which is the major issue as all the nations are sovereign and can this be compromised for laying down standards for greenhouse gas emissions.

At the most basic level, countries disagree over climate monitoring and financing stipulations in the Kyoto Protocol and other legally binding accords. Climate frameworks struggle to effectively monitor greenhouse gas outputs, especially in developing countries. Many countries lack the domestic capacity to audit their total emissions; even if they are able to monitor national levels, some fear that reporting such numbers would encourage international pressure to cap their emissions. Others, like China, argue that an international monitoring system represents an infringement on national sovereignty and that developing states should be afforded some leniency in emissions as they are currently in critical stages of economic development.[32]

Another issue of concern is the parallel minilateral arrangements made between nations made on major issues like trade, commerce public health, finance etc. They also have a significant effects on various issues including climate change though not directly. Despite concern that alternative efforts to the UNFCCC process might undermine the credibility and success of that universal forum, yet every small effort is helps in bringing in positive changes. The drawback is the lack of coordinated policies and programs which can be a problem and lead to redundancy.

The variance between commitment and action remains an obstacle to the development of a comprehensive solution. Despite the arguments, disagreements and shortcomings the hard work of the United Nations specifically UNFCCC is commendable. Even a small change in the attitude of the nations will go a long way curbing the effects of climate change. The nations also must be appreciated for their individual and collective efforts which has led though not a gigantic change but definitely a positive change which in the long run will yield success. The best example for this is Canada. The government has already taken action on two of Canada's largest sources of GHG emissions: transportation and electricity. As a result of this action:

- Canada became the first major coal user to ban the construction of traditional coal-fired electricity generation units.
- In the first 21 years, the coal regulations are expected to result in a cumulative reduction in GHG emissions of about 214 megatonnes (Mt)—the equivalent of removing 2.6 million personal vehicles from the road per year over this period.

As a result of the above effort:

- In 2012, Canada's GHG emissions were 5.1 per cent lower than in 2005, while the economy grew by 10.6 per cent during the same period.
- Canada boasts one of the cleanest electricity systems in the G7 and in the world, with 79 per cent of our electricity supply emitting no greenhouse gases.
- Emissions intensity (emissions per dollar of GDP) has been decreasing—a trend that is projected to continue to 2030.
- Furthermore, Canada's per capita GHG emissions are now at their lowest level since tracking began in 1990, all while the economy has grown.
- A 2013 report by the International Energy Agency ranked Canada number two worldwide in energy efficiency.[33]

CONCLUSION

Thus the road to success in nullifying the effects of climate change is indeed very far but the tiny mile stones touched by nations and international and regional organisations cannot be sidelined or undermined. The success of any negotiations regarding this issue is in consensus as nations must be aware that we may be divided as nations geographically but all these nations are on one planet called Earth and anything that affects one nation will definitely have its serious repercussions on another nation. Hence all the nations must frame policies keeping these issues in mind. Sovereignty over a territory can be enjoyed if the territory can be preserved from calamities.

[29] http://www.uneca.org/acpc accessed on 24-07-2014

[30] http://www.sprep.org/climate_change/pycc/documents/PIFACC.pdf accessed on 24-07-2014

[31] http://ec.europa.eu/clima/policies/brief/eu/index_en.htm accessed on 21-11-2014

[32] "*The Global Climate Change Regime.*" Jul 2012. Council on Foreign Relations. Nov 2014.

[33] For more details http://www.climatechange.gc.ca/default.asp?lang=En&n=72F16A84-1 accessed on 21-10-2014

JOB WITHDRAWAL BEHAVIORS: A RESEARCHER'S PERSPECTIVE OF WHAT MATTERS

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ABSTRACT

During the early days of work and organizational psychology, arriving late at work, being absent from work, and quitting work were few of the first phenomena considered by work psychologists. The psychological processes underlying these job withdrawal behaviors are reviewed in the study. Withdrawal model has dominated the studies in this area in the past few decades and it was later established that its dominance was more of a historical accident. The main purpose of this paper is to define the job withdrawal behaviors, discuss the progression of withdrawal, compare the alternates of withdrawal model - social model and the dispositional model and narrow down the areas of improvement in withdrawal research.

KEYWORDS

job withdrawal behaviour, HRM.

DEFINITIONS

Lateness has been defined by Adler and Golan (1981) as the tendency of an employee to arrive at work after the scheduled starting time. According to the definition given by Johns (1995), absenteeism is the failure to report for scheduled work. For Price (1977), turnover is the degree of individual movement across the membership boundary of a social system. The common thread linking these traditional definitions is the physical removal from the workplace, either for portion of a day, whole day, or permanently.

Data from employee personnel files are used by most academic psychological research concerning lateness, absence, and turnover to measure these behaviors. For expressing lateness, researchers usually use minutes late or the number of lateness incidents, both aggregated over some period of time ranging from several weeks to a year. While measuring absenteeism, contemporary research mainly relies on total time lost (days) or frequency with typical aggregation periods ranging from 3 to 12 months. When the voluntary separation from an employer happens during some arbitrary time window ranging from a few months to well over a year, it is usually termed as turnover.

PROGRESSION OF WITHDRAWAL

The connections among the various forms of job withdrawal have been studied in detail by researchers in the past decades. Theoretically, knowing more about such connections helps in explaining more clearly what is meant by withdrawal. Practically, such understanding may help us to forecast one form of withdrawal from the occurrence of another. Even though connections among lateness, absence, and turnover have been most researched, the withdrawal rubric might be stretched to include psychological detachment, reduced in-role performance (Bycio, 1992: Bycio, Hackett & Alvares, 1990), reduced organizational citizenship (Chen, Hui & Sego, 1998; Mayer & Schoorman, 1992), choice of part-time work (Wise, 1993), or early retirement (Hanisch & Hulin. 1990). Several feasible models might explain the connections between various withdrawal behaviors (Hulin, 1991; Rosse & Miller. 1984).

Independent forms argue that despite some surface similarities, the behaviors have different causes and functions, and should thus be unrelated to each other. In the area of lateness, absence, and turnover, the independent forms can be surely eliminated, as meta-analyses reveal common attitudinal correlates and substantial positive correlations between the various forms of withdrawal at the individual level (Hon & Griffeth, 1995; Koslowsky et al., 1997; Mitre, Jenkins & Gupta. 1992). According to spill over form, withdrawal is nonspecific such that any given manifestation will be positively related to other manifestations.

The alternate form is based on the premise that if the occurrence of one form of withdrawal is constrained, a substitute form will be manifested. The inability to react to dissatisfaction with one firm of withdrawal will increase the occurrence of another form. Compensatory forms confirm that fact that any act of withdrawal relieves dissatisfaction and thus reduces the probability of some other act. Wise (1993) identified that increased absenteeism was associated with a reduction in the adoption of part-time or casual work among nurses. Similarly, Dalton and Mesch (1992) established that utility employees who ask for a job transfer but had not received it experienced double the absence of those who had been given a transfer. Dalton and Todor (1993) suggested how absenteeism and the availability of internal transfers might affect subsequent turnover.

The past research has shown strong evidence that support the progression of withdrawal model. Longitudinal studies carried out by Clegg (1983), Wolpin, Burke, Krausz and Freibach (1988), and Rosse (1988) established a lateness-absence progression, although Adler and Golan (1981) did not. Blau (1994) identified that a pattern of increasing chronic lateness was related with elevated absence within the same 18-month period. Lots of studies exposed a progression from absence to turnover (Burke & Wilcox, 1972; Farrell & Peterson, 1984; Rosse, 1988: Sheridan, 1985; Waters & Roach, 1979), and Krausz suggested that the progression was mediated by reduced job satisfaction.

WITHDRAWAL MODEL

Many key publications in the area of work and organizational psychology summarized empirical evidence bearing on a key premise of the human relations movement, the belief that positive attitudes toward one's work and organization would produce a wide variety of favorable organizational outcomes, including enhanced productivity and reduced accidents, lateness, absence, and turnover. The heart of withdrawal model lies in the assumption that withdrawal behaviors happen in response to unfavorable job or work attitudes, prominent among which are job dissatisfaction and low organizational commitment. This view is well supported by Hulin (1991) who argues that the various manifestations of withdrawal constitute means of adapting to unfavorable job attitudes.

Brayfield and Crockett (1955), in their influential work of attitude – work behavior literature summarized that there was little appreciable relationship between attitudes and performance, but that the data are indicative mainly of a relationship between attitudes and two forms of withdrawal from the job [absence and turnover}. According to an independent review carried out by Herzberg, Mausner, Peterson and Capwell (1957), the researchers were more favorably inclined toward an attitude-performance connection and stated a stronger relationship existed for withdrawal, describing attitudes as 'unequivocally related' to both absence and turnover. Finally, Vroom (1964) identified a consistent negative relationship between job satisfaction and turnover, a less consistent negative relationship between satisfaction and absenteeism, and no simple relationship between satisfaction and performance.

The three reviews cited above comfortably established the status of a withdrawal from dissatisfaction model as appropriate for explaining absence and turnover (and by extension, lateness) and did so by virtue of the supposed contrast to research on performance as much as any strong connection between satisfaction and absence or turnover. Consecutive qualitative reviews of the absenteeism and turnover literature (Muchinsky, 1977; Muchinsky & Tuttle, 1979: Nicholson, Brown & Chadwick-Jones, 1976: Porter & Steers, 1973; Price, 1977) showed that the withdrawal model exerted a theoretical closed shop on withdrawal research, as other approaches to studying the behaviors have a tendency to report atheoretical associations with demographic variables or organizational variables such as work unit size.

SOCIAL MODEL

Research on organizational demography has dominated the effect of social context on turnover. Even though it was originally conceived by Pfeffer (1983) to relate to the distribution of the length of service of a workforce (tenure diversity), the term has been extended to the study of diversity in age, gender, race, ethnicity, and functional background. According to Pfeffer, the distribution of tenure would impact the dynamics of power and control as well as cohort identity and conflict between cohorts. As an effect, these social—contextual factors were expected to change organizational performance and turnover patterns. In a nutshell, those who are most different from the dominant tenure cohort are likely to become turnover statistics.

Williams and O'Reilly (1998) argue that theories of social identity and attraction predict that diversity will promote lower social integration and cohesion in groups, by extension increasing turnover. They concluded from their comprehensive review that both tenure and age diversity are related with elevated group or organizational turnover. The studies done by Harrison, Johns and Martocchio (2000) explored how demography might influence absenteeism. It is well known that women shows higher absence rates than men (Cote & Haccoun, 1991) and that younger employees are absent more than older employees (Hackett, 1990). As gender or age diversity escalates, it is likely that disagreement concerning appropriate attendance norms would increase, especially under conditions of high task interdependence (cf. Barker, 1993).

The research done by Feeley and Barnett (1997) describe three models by which communication patterns might underlie employee turnover. In the first model of structural equivalence, turnover happens among employees who communicate with identical others, whether or not they communicate directly with each other. That means, turnover follows patterns of informal role similarity. According to social influence, turnover arises along direct communication lines. People who have direct connections with leavers are likely to quit. In the third model of erosion, turnover takes place among those who lack strong communication links to others. That means, those least central to the communication network are prone to quit.

There is good consensus among researchers on the fact that perceived work-place norms play an important role in the occurrence of absenteeism. That is, people who happen to see their coworkers as demonstrating high absence tend to be absent more themselves. This insight is applicable to a wide variety of operationalizations of absence norms, including direct numerical estimates (Johns & Xie, 1998), ratings of peer absence (Baba & Harris, 1989), subjective norm estimates, and return potential estimates (Gale, 1993). In an influential study, Gellatly (1995) established that perceived absence norms mediated the connection between workgroup absence frequency rates in one year and the absence exhibited by individual members the following year.

DISPOSITIONAL MODEL

A proneness justification grounded in disposition indicates some stability of withdrawal behavior over time and especially across situations. The evidence of such stability is fairly well recognized for absenteeism. The meta-analysis done by Farrell and Stamm's (1988) determined that absence history was correlated .65 with current absence frequency and .71 with time lost. Concerning stability under situational change, Brenner (1968) found out that absence from high school was positively correlated with absenteeism in subsequent employment. Similarly, Ivancevich (1985) found that past absence forecasted subsequent absence even when substantial job design alterations intervened.

Very little research is done in the association between personality and withdrawal behaviors. The few reviews did find evidence of links between personality and turnover, particularly implicating extreme values on personality dimensions (Muchinsky & Tuttle, 1979: Porter & Steers, 1973). According to Hough and Schneider, the recent advances in research such as the five-factor model of personality, the linking of specific traits to specific criteria, and the development of specialized work-related measures that draw on the Big Five, especially integrity tests have rekindled interest in personality in organizations.

A potential connection between disposition and withdrawal lies in the general domain of undependability, irresponsibility, and low integrity. These traits show deviance, and there is much proof that people see absence as deviant behavior. Although such negative views of turnover are less documented and probably less intense, the tendency is well portrayed in the hobo syndrome, a form of irrational occupational wanderlust proposed by Ghiselli's (1974) which is characterized by high mobility and low organizational commitment.

Based on research done by Hough and Schneider, personality is more than integrity. Indeed, there is increasing proof that there is a dispositional component to job satisfaction (Judge, Locke Si Durham, 1997). Day, Bedeian and Conte (1998) established that job satisfaction mediated the association between the personality dimensions of self-control and extraversion and propensity to quit. Obviously, personality traits external to integrity nexus may be associated with withdrawal. For example. George (1989) identified that positive affectivity was positively related with being in a good mood at work, which in turn was negatively related with absence. Iverson, Olekalns and Erwin (1998) noted somewhat analogous results, showing that positive affectivity resulted in feelings of personal work accomplishment, which in turn were associated with reduced absenteeism.

It was well established that personality affect withdrawal through its impact on cognitions about the behaviors themselves rather than via affective mechanisms. Judge and Miutocchio explored the perceived degree of control that people believed they would have when faced with a variety of absence-inducing scenarios and proved that personality affected these attributions. Researches points towards the finding that a tendency to attribute events to external than internal causes is more among Individuals with external locus of control, low work ethic, an inclination to make excuses, or self-deceptive personalities. Chronic optimists are expected to perceive more job alternatives and to view prospective job changes more favorably than pessimists.

IMPROVING WITHDRAWAL RESEARCH

A number of improvements can be recommended for withdrawal research that builds upon previous research. First, withdrawal research should benefit from more active integration with associated literature to which it has an valid but unexploited affinity. Turnover research would gain benefit from greater linkages with areas that can stress the context in which the behavior might occur such as work or career (Ornstein & Isabella, 1993; Sullivan, 1999; Taylor & Giannantonio, 1993). Second suggestion is that the withdrawal research needs to be less organization centric, better including how off the job factors affect withdrawal. In their research, Morgan and Herman (1976) described how non work consequences influenced absenteeism more than organization mediated consequences.

Thirdly, withdrawal research needs to better include the role of time. Even though the important forms of withdrawal can all be titled as problems concerning the allocation of time, place and events that unfold over time, these facts of life have not made a good impact on withdrawal research. The fourth point is that withdrawal research needs to be more concentrated on the changing world of work, accepting the influence of new technology, teamwork and revisited psychological contracts. Harrison et al. (2000) discussed how information technology allows for work to be accomplished independent of the strictures of time, space or direct social influence.

Lastly, we need to imbibe the cross cultural similarities and differences in withdrawal behaviors and their determinants and consequences. The information gap in this area is appalling since the act of withdrawal can be measured in a culture free way. According to the study done by Abrams, Ando and Hinkle (1998), organizational identified forecasted turnover intentions in both Britain and Japan, but that perceived social norms related to turnover had less influence in Britain than in more collectivist Japan. Addae and Johns (1998) depicted a cross cultural model of absence legitimacy based on locus of control, time urgency, social support and gender role differentiation.

CONCLUSION

In a nutshell, withdrawal research has an esteemed history that has not affected from the faddishness and fashion of much construct centered work. On the other hand, it has suffered from a lack of theoretical development both within and beyond the core concepts of the basic withdrawal model. Much remains to be done.

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APPROACHES TO EXPLORE MULTIBAGGER STOCK IN BSE- 100 INDEX

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ABSTRACT

By applying these approaches and establishing the criteria as per each approach, many stocks have the potential of multibagger stocks in long term period. By looking at the all the list specific stocks like Cairn India, Unitech, Bank of Baroda etc many stocks fits into the given regime of becoming multibagger stocks. Study results warn that the investor must not only blindly those stocks, investor still needs to analyse a company's past performance, its creditability of management and future growth prospects before making investment.

KEYWORDS
Multibagger stock in BSE.

INTRODUCTION

Investing money in equity stock is awesome idea but investing in multibagger stock is more fascinating since multibeggar stocks have the potential to make investor a millionaire or a billionaire. There are certain approaches and factors which caqn be used to find out multibagger stocks. Multibagger stocks have true potential in the sense that is can transform the investor investment in to many folds. Every investor is chasing for the multibagger stocks in their portfolio and through this paper I have made an attempt to to give insight about multibagger stocks in BSE 100 index.

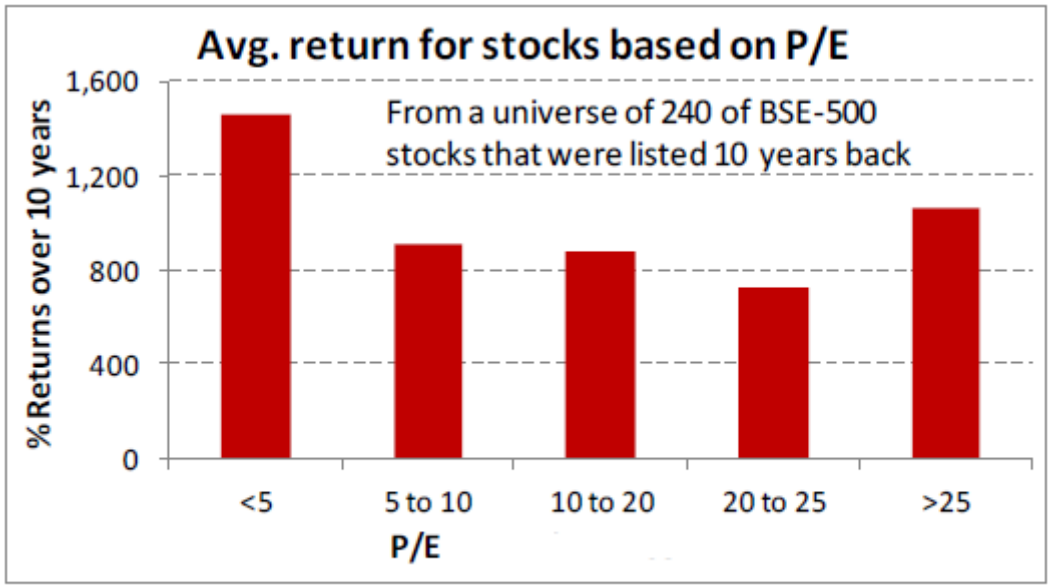
WHAT ARE MULTIBAGGER STOCKS?

Multibagger as the name suggests is used for stocks which create multiple bags over the period for an investor. The term is generally used for those equity stocks which have tremnedous potential to grow over the period of time.
A 2-bagger stock is a stock whihc makes the investment money double , while 5-bagger stock is that which multiplied the investment by 5 . Similarly 10 bagger is most amazing since it makes the invetsment into 10 folds , but it happens over the long period of time generally 10 years or more.
Generally there are various ways to identify multibagger stocks.

APPROACH –I BUYING STOCKS WITH LOW PRICE/EARNING RATIO

Purchasing equity stocks at low price earning ratio offer hifger earning yields as in comparison to stoks purchased at higher price earning ratio. The earning yield can be terms as yield which shareholder would receive when earnings are paid out as dividend.
Invetsment in stocks that are priced lower in relatioi to earning includes investm,ent in companies whose earning are expected to grwo in future. A copriced low in relation to earings whose earnings are expected to grow is more preferable to a similarly priced company whose earing are not expected to grow.

FIG. 1



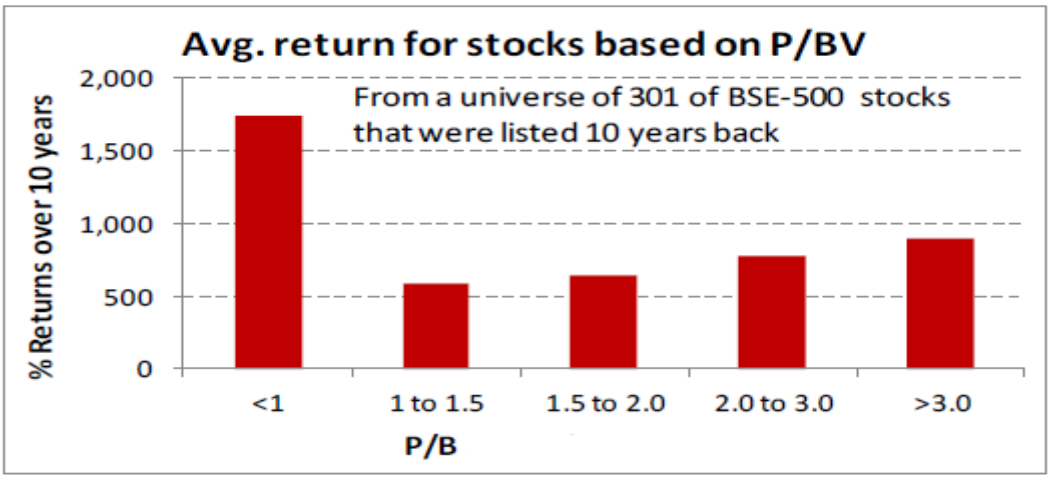
Data Source: ACE Equity

From the above mentioned chart , it is clear fact that stocks whose price/earnings ratio is low tends to give more returns than the stocks having higher price-earnings ratio. As the chart shows that stocks having less than 5 P/E has given highest return over the period of ten years.

APPROACH –II BUYING STOCKS WITH LOW PRICE/BOOK VALUE RATIO

Apart from P/E ratio, another approach is P/BV. This is derived by dividing the market price with respective company book value. Book value of a company is equal to shareholders fund. Another way to find out book value is deducting total debts from the total asset
Stocks priced at less than book value are purchased on assumption that in the future price will reflect at least their stated book value i.e. what the company has actually paid for its own assets. All other things remains constant such stocks generate higher return over the long term period as compared to stocks trading at higher P/BV ratio.

FIG. 2



Data Source: ACE Equity

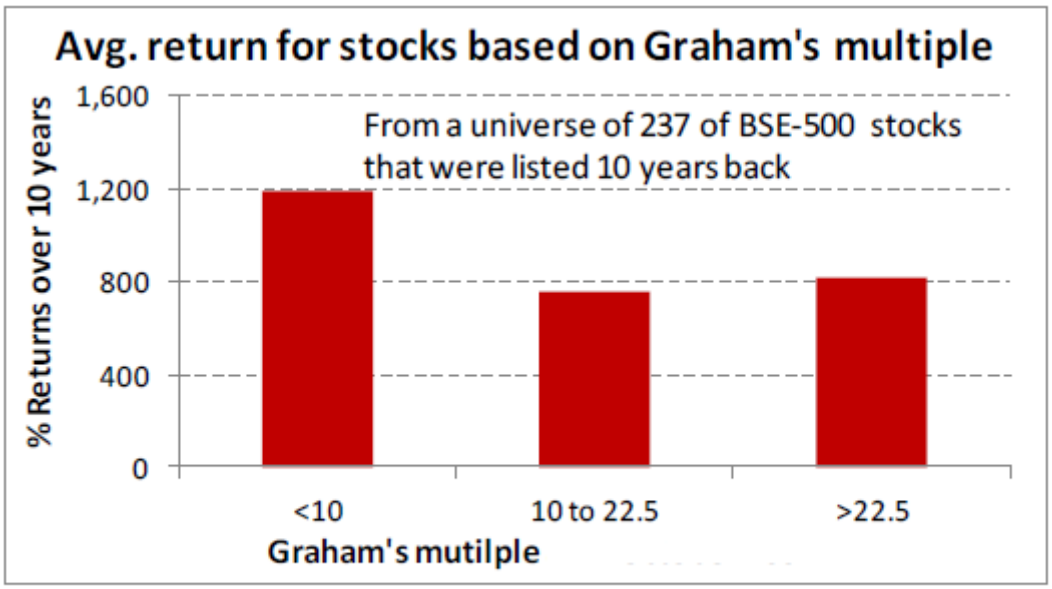
From the above chart, it can be easily noted that stocks whose P/BV value is less than 1 has outperformed those stocks that are traded at higher P/BV value. Based on P/BV ratio, it is clearly understood that buying low P/BV stocks may get investor outstanding return over the period of long term.

APPROACH –III BUYING STOCKS USING BENJAMIN GRAHAM'S MAGIC MULTIPLE

Many times investors get confused which approach should be used to determine whether stock is trading cheap or not. For that purpose Benjamin Graham has suggested "magic multiple formula". It is a multiple of a stocks's P/E and its P/BV.

Graham has given upper limit to the output of this ratio i.e. 22.5 . this he has derived by taking maximum P/E of 15 times and P/BV of 1.5 times.

FIG. 3



Data Source: ACE Equity

Analysis shows that on applying this multiple, stocks where output is less than 22.5 have significantly given more return as in comparison to the those whose output is more than 22.5.

APPLYING THE APPROACHES TO BSE 100 INDEX

After giving the approaches to explore the multibagger stock, I have applied these approaches to BSE 100 Index. The question arise whether these approach will work in all environment , certainly yes because irrespective of the environment there will always be some stocks that would be trading cheap as in comparison to their peer group.

TABLE 1: LIST OF STOCKS AS PER APPROACH –I STOCKS HAVING P/E RATIO IN BSE 100 INDEX

Company	P/E
Hindustan Petroleum Corpn. Ltd.	4.1
Cairn India Ltd.	4.36
Unitech Ltd.	4.69
Union Bank of India	5.64
Bank of India	5.98
Rural Electrification Corpn. Ltd.	6.04
Reliance Infrastructure Ltd.	6.09
Power Finance Corpn. Ltd.	6.17
Canara Bank	6.8
NMDC Ltd.	7.23
Bharat Petroleum Corpn. Ltd.	8.46
Punjab National Bank	8.51
Hindustan Zinc Ltd.	8.82
Tata Motors Ltd.	9.43
Indian Oil Corpn. Ltd.	9.89
Bank Of Baroda	9.92
JSW Steel Ltd.	10.04
Sesa Sterlite Ltd.	10.57
Tata Steel Ltd.	11.38
Federal Bank Ltd.	11.67
Reliance Industries Ltd.	11.81
National Thermal Power Corp. Ltd.	12.31
Steel Authority Of India Ltd.	12.62
State Bank of India	12.93
GAIL (India) Ltd.	13.82
Reliance Capital Ltd.	14.19
IDBI Bank Ltd.	14.28
Oil & Natural Gas Corpn. Ltd.	14.29
Adani Power Ltd.	14.51
Housing Development & Infrastructure Ltd.	15.72
Reliance Power Ltd.	15.86
UPL Ltd.	16.17
Power Grid Corpn. Of India Ltd.	16.18
LIC Housing Finance Ltd.	16.46
Coal India Ltd.	16.54
Mahindra & Mahindra Financial Services Ltd.	16.76
IDFC Ltd.	16.9
Aditya Birla Nuvo Ltd.	17.11
Adani Enterprises Ltd.	17.35
ICICI Bank Ltd.	17.61
Grasim Industries Ltd.	17.69
Yes Bank Ltd.	17.96
Wipro Ltd.	18.54
Axis Bank Ltd.	19.19
Bajaj Auto Ltd	19.87
HCL Technologies Ltd.	19.95
Mahindra & Mahindra Ltd.	20.66
Shriram Transport Finance Co. Ltd.	20.68
Infosys Ltd.	21.3
Hero Motocorp Ltd.	21.32
Idea Cellular Ltd.	21.93
Crompton Greaves Ltd.	22.61
Tata Consultancy Services Ltd.	23.37
Housing Development Finance Corpn. Ltd.	24.08
Tech Mahindra Ltd.	24.5
ACC Ltd.	25.66
Hindalco Industries Ltd.	25.85
Dr. Reddy's Laboratories Ltd.	25.89
Reliance Communications Ltd.	26.05
Bharat Heavy Electricals Ltd.	26.61
Ambuja Cements Ltd.	26.76
HDFC Bank Ltd.	27.06
Indusind Bank Ltd.	27.41
NHPC Ltd.	27.87
ITC Ltd.	28.21
Larsen & Toubro Ltd.	28.23
Divi's Laboratories Ltd.	29.11
Exide Industries Ltd.	29.32
Adani Ports and Special Economic Zone Ltd.	29.66
Tata Global Beverages Ltd.	30.53

Bharti Airtel Ltd.	31.81
Cummins India Ltd.	33.12
Maruti Suzuki India Ltd.	34.15
Ultratech Cement Ltd.	34.66
Lupin Ltd.	34.76
Zee Entertainment Enterprises Ltd.	35.29
Sun Pharmaceutical Inds. Ltd.	35.64
Kotak Mahindra Bank Ltd.	36.33
Godrej Consumer Products Ltd.	41.73
Siemens Ltd.	42.38
Titan Company Ltd.	43.27
Glenmark Pharmaceuticals Ltd.	43.47
Ashok Leyland Ltd.	44.55
Dabur India Ltd.	46.84
Cipla Ltd.	47.24
Bharat Forge Ltd.	47.56
Hindustan Unilever Ltd.	48.37
DLF Ltd.	48.38
Colgate-Palmolive (India) Ltd.	52.49
Nestle India Ltd.	59.3
Asian Paints Ltd.	59.35
United Breweries Ltd.	92.81
ABB Ltd.	119.15

TABLE 2: LIST OF STOCKS AS PER APPROACH –II STOCKS HAVING P/BV RATIO IN BSE 100 INDEX

COMPANY	P/B
HOUSING DEVELOPMENT & INFRASTRUCTURE LTD.	0.43
UNITECH LTD.	0.43
RELIANCE COMMUNICATIONS LTD.	0.44
RELIANCE INFRASTRUCTURE LTD.	0.44
JAI PRAKASH ASSOCIATES LTD.	0.47
BANK OF INDIA	0.5
IDBI BANK LTD.	0.54
UNION BANK OF INDIA	0.59
STEEL AUTHORITY OF INDIA LTD.	0.63
CAIRN INDIA LTD.	0.68
CANARA BANK	0.71
HINDALCO INDUSTRIES LTD.	0.71
SESA STERLITE LTD.	0.72
TATA STEEL LTD.	0.77
NHPC LTD.	0.78
JINDAL STEEL & POWER LTD.	0.8
RELIANCE POWER LTD.	0.8
PUNJAB NATIONAL BANK	0.81
RELIANCE CAPITAL LTD.	0.9
BANK OF BARODA	1
JSW STEEL LTD.	1
DLF LTD.	1.06
POWER FINANCE CORPN. LTD.	1.12
GMR INFRASTRUCTURE LTD	1.26
RELIANCE INDUSTRIES LTD.	1.27
INDIAN OIL CORPN. LTD.	1.3
RURAL ELECTRIFICATION CORPN. LTD.	1.3
STATE BANK OF INDIA	1.31
NATIONAL THERMAL POWER CORP. LTD.	1.38
HINDUSTAN PETROLEUM CORPN. LTD.	1.42
NMDC LTD.	1.45
GRASIM INDUSTRIES LTD.	1.47
FEDERAL BANK LTD.	1.53
IDFC LTD.	1.54
TATA GLOBAL BEVERAGES LTD.	1.58
GAIL (INDIA) LTD.	1.64
HINDUSTAN ZINC LTD.	1.67
ADITYA BIRLA NUVO LTD.	1.7
TATA POWER CO. LTD.	1.72
TATA CHEMICALS LTD.	1.75
OIL & NATURAL GAS CORPN. LTD.	1.78
BHARAT HEAVY ELECTRICALS LTD.	1.88
POWER GRID CORPN. OF INDIA LTD.	2.02
TATA MOTORS LTD.	2.14
ICICI BANK LTD.	2.35
BHARTI AIRTEL LTD.	2.47

BHARAT PETROLEUM CORPN. LTD.	2.48
MAHINDRA & MAHINDRA FINANCIAL SERVICES LTD.	2.53
CROMPTON GREAVES LTD.	2.66
SHRIRAM TRANSPORT FINANCE CO. LTD.	2.75
IDEA CELLULAR LTD.	2.78
ADANI ENTERPRISES LTD.	2.8
ADANI POWER LTD.	2.89
UPL LTD.	2.92
LIC HOUSING FINANCE LTD.	2.93
YES BANK LTD.	2.95
AXIS BANK LTD.	3.07
ACC LTD.	3.63
LARSEN & TOUBRO LTD.	3.86
MAHINDRA & MAHINDRA LTD.	3.87
AMBUJA CEMENTS LTD.	3.95
EXIDE INDUSTRIES LTD.	4
WIPRO LTD.	4.03
ULTRATECH CEMENT LTD.	4.28
COAL INDIA LTD.	4.5
INDUSIND BANK LTD.	4.65
MARUTI SUZUKI INDIA LTD.	4.72
HOUSING DEVELOPMENT FINANCE CORPN. LTD.	4.75
KOTAK MAHINDRA BANK LTD.	4.77
INFOSYS LTD.	4.81
BAJAJ AUTO LTD	4.96
HDFC BANK LTD.	5.1
CIPLA LTD.	5.13
ASHOK LEYLAND LTD.	5.27
DR. REDDY'S LABORATORIES LTD.	5.39
TECH MAHINDRA LTD.	5.82
ADANI PORTS AND SPECIAL ECONOMIC ZONE LTD.	6.25
HCL TECHNOLOGIES LTD.	6.35
DIVI'S LABORATORIES LTD.	6.48
GLENMARK PHARMACEUTICALS LTD.	6.79
HERO MOTOCORP LTD.	7.74
ITC LTD.	7.98
CUMMINS INDIA LTD.	8.15
GODREJ CONSUMER PRODUCTS LTD.	8.53
SUN PHARMACEUTICAL INDS. LTD.	9.04
BHARAT FORGE LTD.	9.2
ZEE ENTERTAINMENT ENTERPRISES LTD.	9.24
TATA CONSULTANCY SERVICES LTD.	9.33
LUPIN LTD.	9.55
ABB LTD.	9.68
SIEMENS LTD.	9.92
TITAN COMPANY LTD.	11.17
RANBAXY LABORATORIES LTD.	13.14
UNITED SPIRITS LTD.	13.15
UNITED BREWERIES LTD.	14.12
DABUR INDIA LTD.	14.62
ASIAN PAINTS LTD.	16.24
NESTLE INDIA LTD.	24.76
HINDUSTAN UNILEVER LTD.	30.71

TABLE 3: LIST OF STOCKS AS PER APPROACH –III STOCKS HAVING LOW GRAHAM'S MAGIC MULTIPLE IN BSE 100 INDEX

Company	Graham Multiple
Unitech Ltd.	2.0167
Reliance Infrastructure Ltd.	2.6796
Cairn India Ltd.	2.9648
Bank of India	2.99
Union Bank of India	3.3276
Canara Bank	4.828
Hindustan Petroleum Corpn. Ltd.	5.822
Housing Development & Infrastructure Ltd.	6.7596
Punjab National Bank	6.8931
Power Finance Corpn. Ltd.	6.9104
Sesa Sterlite Ltd.	7.6104
IDBI Bank Ltd.	7.7112
Rural Electrification Corpn. Ltd.	7.852
Steel Authority Of India Ltd.	7.9506
Tata Steel Ltd.	8.7626
Bank Of Baroda	9.92
JSW Steel Ltd.	10.04
NMDC Ltd.	10.4835
Reliance Communications Ltd.	11.462
Reliance Power Ltd.	12.688
Reliance Capital Ltd.	12.771
Indian Oil Corpn. Ltd.	12.857
Hindustan Zinc Ltd.	14.7294
Reliance Industries Ltd.	14.9987
State Bank of India	16.9383
National Thermal Power Corp. Ltd.	16.9878
Federal Bank Ltd.	17.8551
Hindalco Industries Ltd.	18.3535
Tata Motors Ltd.	20.1802
Bharat Petroleum Corpn. Ltd.	20.9808
NHPC Ltd.	21.7386
GAIL (India) Ltd.	22.6648
Oil & Natural Gas Corpn. Ltd.	25.4362
Grasim Industries Ltd.	26.0043
IDFC Ltd.	26.026
Aditya Birla Nuvo Ltd.	29.087
Power Grid Corpn. Of India Ltd.	32.6836
ICICI Bank Ltd.	41.3835
Adani Power Ltd.	41.9339
Mahindra & Mahindra Financial Services Ltd.	42.4028
UPL Ltd.	47.2164
LIC Housing Finance Ltd.	48.2278
Tata Global Beverages Ltd.	48.2374
Adani Enterprises Ltd.	48.58
Bharat Heavy Electricals Ltd.	50.0268
DLF Ltd.	51.2828
Yes Bank Ltd.	52.982
Shriram Transport Finance Co. Ltd.	56.87
Axis Bank Ltd.	58.9133
Crompton Greaves Ltd.	60.1426
Idea Cellular Ltd.	60.9654
Coal India Ltd.	74.43
Wipro Ltd.	74.7162
Bharti Airtel Ltd.	78.5707
Mahindra & Mahindra Ltd.	79.9542
ACC Ltd.	93.1458
Bajaj Auto Ltd	98.5552
Infosys Ltd.	102.453
Ambuja Cements Ltd.	105.702
Larsen & Toubro Ltd.	108.9678
Housing Development Finance Corpn. Ltd.	114.38
Exide Industries Ltd.	117.28
HCL Technologies Ltd.	126.6825
Indusind Bank Ltd.	127.4565
HDFC Bank Ltd.	138.006
Dr. Reddy's Laboratories Ltd.	139.5471
Tech Mahindra Ltd.	142.59
Ultratech Cement Ltd.	148.3448
Maruti Suzuki India Ltd.	161.188
Hero Motocorp Ltd.	165.0168

Kotak Mahindra Bank Ltd.	173.2941
Adani Ports and Special Economic Zone Ltd.	185.375
Divi's Laboratories Ltd.	188.6328
Tata Consultancy Services Ltd.	218.0421
ITC Ltd.	225.1158
Ashok Leyland Ltd.	234.7785
Cipla Ltd.	242.3412
Cummins India Ltd.	269.928
Glenmark Pharmaceuticals Ltd.	295.1613
Sun Pharmaceutical Inds. Ltd.	322.1856
Zee Entertainment Enterprises Ltd.	326.0796
Lupin Ltd.	331.958
Godrej Consumer Products Ltd.	355.9569
Siemens Ltd.	420.4096
Bharat Forge Ltd.	437.552
Titan Company Ltd.	483.3259
Dabur India Ltd.	684.8008
Asian Paints Ltd.	963.844
ABB Ltd.	1153.372
United Breweries Ltd.	1310.477
Nestle India Ltd.	1468.268
Hindustan Unilever Ltd.	1485.443
Colgate-Palmolive (India) Ltd.	1675.4

CONCLUSION

By applying these approaches and establishing the criteria as per each approach, many stocks have the potential of multibagger stocks in long term period. By looking at the all the list specific stocks like Cairn India, Unitech, Bank of Baroda etc many stocks fits into the given regime of becoming multibagger stocks. The results of the study warn that the investor must not only blindly those stocks , investor still needs to analyse a company's past performance, its creditability of management and future growth prospects before making investment.

NOTE

The author is not responsible for any loss incurred by using the above analysis.

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