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VIVEKANANDA GLOBAL UNIVERSITY, JAIPUR

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Vivekananda Group of Institutions

Arise Awake Achieve

Education is the manifestation of the perfection already in man". These are the words of the great philosopher and educator Swami Vivekananda. The contributions of the great people who devoted their life for the cause of education and youth have always inspired the promoters and, therefore, following the preaching of Swami Vivekananda, the promoters established VIT Campus, comprising of Vivekananda Institute of Technology and Vivekananda Institute of Technology (East), in 2008, to usher in technology revolution by using modern management techniques and harnessing potential of India. Another feather in the crown of Vivekananda Group of Institutions is Vivekananda Global University, established in the year 2012. Vivekananda Global University, Jaipur has been formed keeping in mind his teaching and mentoring ideals. The overall development of the techno-managers with a seeking spirit towards education is VGU's vision for its students. It Promises to develop as an institution with a commitment to excellence in education, research and consultancy and promote human advancement. Swami Vivekananda advocated the concept of 'total development' which includes physical, mental and spiritual. He also advocated incorporation of science and technology in curricula and laid emphasis on technical education that will develop industries. Our core values are inspired by Swami Vivekananda philosophy, and our institution is founded on his thoughts and ideas. To meet these ends, Vivekananda Global University encourage development of student's physical, mental, emotional, secular and spiritual faculties.

"We are what our thoughts have made us; so take care of what you think. Words are secondary. Thoughts live; they travel far."

Swami Vivekananda

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VIVEKANANDA GLOBAL UNIVERSITY

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AIMS & SCOPE

The aim of "Khoj - An Interdisciplinary Journal of Research" is to promote research activities through papers and articles publication in developing streams of Science, Technology & Management. It aims at cooperation and growth of various organizations in the field of research and development. The Journal invites original manuscripts, review articles, and short communications in any aspect of engineering, applied sciences as well as management stream, that are not published or accepted for publication elsewhere. The Editor in Chief, in consultation with the editorial committee, reserves the right to accept or reject any manuscript or discussion.

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Human Resource Development in Indian Scenario

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Abstract

We know that Human Resource Development is important part of any organization. 'HRD' is an organized learning experience aimed at matching the organizational need for human resource with the individual need for career growth & development. What started as a "Review Exercise of the Performance Appraisal System" for L&T by two consultants, Prof Udai Pareek and Prof T.V. Rao from the Indian Institute Of Management, Ahmedabad (IIMA), resulted in the development of a new function - The HRD Function. Since in India there are many regions which want to improve the Human resource Development skills like in north eastern region, Himalayan region etc. We do not find in any other part of the country such a variety – anthropologically, socially, linguistically, culturally, economically, politically and historically diversified stock of mankind. The human resources in any region have three aspects increasingly more important in the sequel: (1) physical fitness – relating to physical effort, easily captured by the number of workers, their general health (corporal), number of man-hours devoted to work, etc, (2) dexterity – agility, skill, expertise, ability, proficiency – inculcated by training, and (3) attitude, outlook and mindset – imbibed modernization ideals and their practice at a mass level. This third aspect makes 'soft resources' or the 'social capital.' Since the India has different culture, region and different human community, so we have to put a proper step in the field of HRD. Therefore we have to motivate them for the improvement in their literacy as well as their super skills in the industries or organization of India. We know that HRD is important for any institute or organization. So we have to concentrate on health of person, who will work in industry and organization. We have to plan the different training and development program for improving the human knowledge, skills and abilities according to the organizations HRD needs. India's famous "demographic dividend" of a young population could turn into a liability unless accompanied by a massive shift in corporate education across all sectors. A fresher, integrated approach to workplace learning can have a positive role in India's ability to turn its unique demographics into a dividend. We have to make different proper plan because Human development has also to concord with enhanced dexterity and favorable attitude to economic development. Customized workplace training is the most relevant, most adaptable approach for the vast

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numbers of people forecast to enter the workforce and the most suitable for the current downturn as organizations seek to make every dollar count and reposition for new markets and opportunities. For the development of human skills in India we have to full concentrate on rural region as well as urban because each year in thousand of people going to metros, sub metros and big cities for better life. Since they have the better skills but they don't have proper guidelines to reach their destiny, so HRD Ministry has to make HRD plan for them. Governments have to spent money for development of such regions.

There is another problem in the field of HRD and the term is 'Brain Drain'. Brain drain or human capital flight is a large emigration of individuals with technical skills or knowledge, normally due to conflict, lack of opportunity, political instability, or health risks. Brain drain is usually regarded as an economic cost, since emigrants usually take with them the fraction of value of their training sponsored by the government. India loses $2 billion a year because of the emigration of computer experts to the U.S. Indian students going abroad for their higher studies costs India a foreign exchange outflow of $10 billion annually. If Indian government improves the education system and involves the whole course and facility of western region of world so the brain drain problem will be solved and their HRD will be best in whole world. At last Human Resource Development is important for Indian Industries, Organization and Institute.

Keywords: Social capital, Anthropologically, Customized, HRD etc.

Introduction

Since we know that in today's world Human Resource Development is very important part of any industries and Institute.

According to Prof. T.V.Rao the best known Indian HRD expert: "HRD is a Process in which the employees of an organization are continually helped in a planned way to:

(a) Acquire or sharpen capabilities required to perform various functions associated with their present or expected future roles.

(b) Develop their general capabilities so that they may be able to discover their own inner potentialities & exploit them to full for their own & organizational development purpose.

(c) To develop an organizational culture where superior-subordinate relationships, teamwork & collaboration among different sub-units are strong & contribute to organizational wealth, motivation & pride of the employees.

Human Resource Development is a very important key of any problem of company as well as institute because if both have proper development in their personnel so they would be reached their target means profit maximization properly. [1]

Human Resource Development Help In Improving The Indian Different Region

Since In India there are a number of States and a number of union territories. Each has different problems and issues means if we want to develop the each state so we have to make different plan for improving the skill and knowledge of their personnel. Since in India there are number of region like North Eastern Region and Himalayan Region especially in rural region where we have to generate culture of Human Resource Development to increase human knowledge and skills.[2] The growth of population, very fast in the region demands immediate attention. It is not because growth of population by itself is undesirable. But when economic growth of a region does not lend support to growth of population, resources are spent on maintaining the life than enriching it. Only economic growth is not important but also growth in human skills and knowledge in different regions are essential for Human Resource Development. If we want to improve the human knowledge and skills so we have to improve the education and training of regions people for enhancing the importance of Human Resource Development. Educated youth from the rural areas seldom go back to their places of origin and stick on to the urban centers in search of some opportunities. Since for the development of Human Resource of different region we have to perform different activity like in[3] Himalaya Region means in eight States; UP Hills, HP, J&K, Manipur, Meghalaya, Assam, W.B. and Tripura the National Committee on Environmental Planning and Coordination (NCEPC) was constituted by the Government of India in 1972 for promoting research on environmental problems and establishing facilities for such research wherever necessary. In pursuance of these goals, the NCEPC constituted the Environmental Research Committee (ERC) and the Man and Biosphere (MAB) Research Committee to assist the Department of Science & Technology (DST) in fostering and supporting research work in various areas of environmental concern. This all terms were helped in Improving Human skills as well as improvement in their environment. Similarly The fundamental philosophy of the "Action Oriented Research, Development and Extension Programme (termed as IERP) for the Indian Himalayan Region" draws on the twin tenets of arresting environmental degradation in the mountains and subsequent restoration of environmental quality. The main aim of such endeavors is to ensure a sustainable, self-reliant socio-economic development with reduced dependence on external inputs or support, by strengthening existing, or opening new income generating avenues, using locally available resources while avoiding the adverse effects on the environment. Therefore, the main objective of IERP is to promote the socio-economic development of the hill people in harmony with preservation of ecological balance, and thus striving to improve the economic well being and quality of life of the people. These above point indicate that, Indian government had taken steps in improving the human skill as well as economic level of Himalaya Region. India is also possessive about Human Resource Development because it is important point of view for any country. Only economy is not an important but development of countries people are also compulsory for the improvement of the Indian economy. So, we have to put an effort on improving the education system and providing the

better new technology to our countries people. So, we have to provide better training and development programme to the peoples. In India we find such a variety like anthropologically, socially, linguistically, culturally, economically, politically and historically diversified stock of mankind. HRD processes might have existed to some extent in India earlier, but a professional outlook to HRD began only in 1970s. Larsen and Toubro is perhaps the first company in India to design and implement an integrated HRD system in the 1970s. Later on this professional outlook to HRD spread to other organizations. The first workshop on HRD was held in 1979. Since then, several workshops and seminars have been held. A National HRD Network has been established in 1985. Now several public and private sector organizations have HRD departments and HRD managers.

Human Resource Development Initiative for The Development of People

We know that the word HRD is very important for any organization or Institute because this word generate the image of the company as well as Institute. Since many words are included in HRD culture that is attitude, working culture, interaction between superior, subordinate etc. Since employees need to have a variety of competencies- attitudes, skills and knowledge in technical areas, human relations areas, and conceptual areas to perform different tasks or functions. [4] HRD aims to identify competency gaps of employees and train them to perform present roles effectively and create conditions to help employees bridge these gaps through development. The nature of jobs is constantly changing due to changes in the environment, organizational goals, priorities, strategies, customer expectation, technology, new opportunities, new challenges and new knowledge-base. Such a change in the nature of jobs requires continuous development of employee's competencies to perform the job well. Thus competency development is needed on a continuing basis for effective job performance. HRD aims at constantly assessing the competency requirements of different individuals to effectively perform the assigned jobs, and provide opportunities for development of these competencies.

'People are the most important and valuable resources of any organization. Dynamic people can build progressively and growth –oriented organizations or Institute. Effective employees can contribute to the effectiveness of the organization. Competent and motivated people can make things happen and enable an organization to achieve its goals. Therefore, organizations should continuously ensure that the dynamism, effectiveness, competencies and motivation of its people remain at a high level. Human resource development is very important part of any Indian place because it improves the knowledge and skills of the peoples. India's famous "demographic dividend" of a young population could turn into a liability unless accompanied by a massive shift in corporate education across all sectors. A fresher, integrated approach to workplace learning can have a positive role in India's ability to turn its unique demographics into a dividend. Customized workplace training is the most relevant, most adaptable approach for the vast numbers of people forecast to enter the workforce and the most suitable for the current downturn as organizations seek to make every Rupee count and reposition for new markets and opportunities. Fortunately, India has a cultural advantage in its belief in

self improvement and high regard for education, providing some optimism that the demographic dividend remains an opportunity and not a headache. HRD has multiple goals. These include employee's competency and motivation development and organizational climate development. [5]

HRD also aims at preparing people for performing roles, tasks or functions which they may be required to perform in the future as they go up on the organizational hierarchy or as the organization takes up new tasks through diversification, expansion and modernization. HRD tries to develop the potential of employees for likely future jobs/roles in the organization. HRD is very important at international level because if we want recognition in the world so, we have to put a full concentration on this term. So we have to improve the education level of our country and also concentrate on the current issue of the world trade organization for improving the skills of countries people. Modernization is very important for any country because it gives a prestige in the world. If we want to modernize our industry, organization and Institute so we have to make a better collaborative environment in the company because without it we can't put any effort in Human Resource Development. When the working environment of a company is better, development of their personnel will be better. Generally any organization is made for profit maximization, but without the HRD it will not be possible to achieve their target. Training and development are two important part of Human Resource Development because they help to improve the technical as well as managerial skill of the company personnel. Human Resource Development also promotes team building and collaborative climate. This requires building and enabling organizational culture- one in which employees use their initiative, take risks, experiment, innovate and make things happen.

Determinants Of HRD

Human Resource Development have many determinants like physical fitness of employee, number of man hour, dexterity, agility, skill, expertise, ability etc. Since all this factors influencing the HRD activity because if we want the human resource of any company will be developed. So we have to concentrate on such all determinants. First is physical fitness yes it is the most prestigious matter of human body because if body is not physically fit so man will not concentrate on their work properly. People think that building muscles is renouncing to normal life and you have to give full dedication to it. [6] True that hard work is truly essential and extreme fitness needs constant and intensive work therefore full-body work outs can help to progress you. In many industries especially HR Department conducts many Physical fitness and mental fitness program because it gives the employees relief from mental and physical tension, which is main obligation of the company. Warming up and stretching your body is necessary, such type of exercises are important for employees, giving relief from stress and physical tiredness. Company organized many sports activity for entertainment of their employee's; it gives a faith and enjoyment to the employee from the company. Also companies provide better and nutritious food to their employees. Next is number of man hour which is already known by any body. Government has already decided the working time of

man that is eight hour a day. If we give a proper time wages or piece wages so worker will work in the industry very effectively. The left contents of HRD determinants are done by training procedure because without training we can't improve skills of employees. The HRD needs differ from one organization to another. Therefore, the HRD needs of the organization should be properly examined and ascertained. Then a plan should be prepared for the proper for the proper utilization of new skills. Otherwise skilled employees may get frustrated and may resign to join some other organization. After this an action plan should be prepared to develop the necessary skills. So we have to recognize the importance of training. Generally we know that "Training is the process of increasing knowledge and skills for doing a particular job". Training is organized procedure by which people learn knowledge and skill for a definite purpose. The purpose of training is basically to bridge the gap between job requirements and present competence of an employee. Training is aimed at improving the behavior and performance of a person. It is a never ending or continuous process. Since in any industry if we want to increase the skills and ability of person so we have to give them proper training in the proper direction of target achievement because training is necessary for each institute and industry. [7] Keep the information simple because If company must go heavy so employee cant understand the technique of work, therefore people may sure you spread out the deep academic contents through the trainings. Grab employee's attention with better remuneration and mini-rewards if employer wishes. Most training touching conclusion, which give us, the participants-trainers better relationship and our commitment towards adding the value to our future participants and quality to our trainings. Social capital is a sociological concept used in business, economics, organizational behavior, political science, public health and the social sciences in general to refer to connections within and between social networks. Though there are a variety of related definitions, which have been described as "something of a cure-all for the problems of modern society, they tend to share the core idea "that social networks have value. Social capital lends itself to multiple definitions, interpretations, and uses because "it has a hard nosed economic feel while restating the importance of the social." The term "capital" is used by analogy with other forms of economic capital, as social capital is argued to have similar although less measurable benefits. However, the analogy with capital is misleading to the extent that, unlike traditional forms of capital, social capital is not depleted by use, but in fact depleted by non-use "use it or lose it". In this respect, it is similar to the now well-established economic concept of human capital. Human capital refers to the knowledge, education, training, skills and expertise of a firm's workers. Since social capital is very important for company and institute. So HRD should concentrate on social capital because if we maintain social network like better relation between employer and their employees, between copartner of business, suppliers , retailers, customers, therefore company image will be better in the external environment. This social capital concept helps in improving the target or aim of the organization because when we concentrate on our employees like giving benefits in incentive and non-incentive means rewards terms so it gives employee a faith and satisfaction towards the company. Companies' image is influenced by

social capital because it shows companies internal relationship. If company has better collaborative work pattern so such company will achieve their actual target in evergreen. [8] We know that in business world Political parties also influence the business. So company has to concentrate on social relationship with the Present political party because it also the content of social capital. We can correlate the social capital with training and Development because it is the part of Human Resource Development. If company plan or produce better training programme so it will motivate to workers and employee that they can work properly. Purpose of training and development help in people development in the organization / company / institutes has been emphasized because of the following advantages:

1. Creating a pool of readily available and adequate replacements for personnel who may leave or move up in the organization.
2. Enhancing the company's ability to adopt and use advances in technology because of a highly knowledgeable staff.
3. Building a more efficient, effective and highly motivated team, which enhances the company's competitive position and improves employee morale.
4. Ensuring adequate human resources for expansion into new programmes.

Here we emphasize on training and development because it help in creating effective management in the company. Atlas we have to preserving and generating social capital through HRD. HRD contain many terms like training and development and many more. HRD improve the life of the people because when person concentrate on training and development for incentive or non incentive term so people improve him or herself. Each and every person wants a recognition and appreciation in the company so HRD is a pioneer in the Human life. If we provide a proper direction to employee in improving their self so it will improve the organization culture. HRD enriched the Human life because it improves the all impurities of human. When the employee take a proper training and think about main purpose their job then he or she reached their target properly. Training is words which give a proper direction of achieving standard result in the company. Every time we have seen that if company face loses because they have not the proper planning and direction of training and development activity which is most important term for the organization growth. Training inculcates the dexterity, agility, skill, expertise, ability and proficiency of the people. HRD is not a simple word because in this word many points are lies like training, development, dexterity, agility, skill, expertise and many more which is the most important point of people life because this all words enriched the Human life in proper direction. HRD is an impetus for people life which is necessary.

HRD Perform Many Unique Activities in Different Conditions

Since HRD is essential for the different organization. In the industry their three sectors this are as follow primary, secondary and tertiary sectors.

1. The primary sector of industry is agriculture, mining and raw material extraction. Primary sector, largely raw material extraction industries such as mining and farming.The primary sector of the economy involves changing natural resources into primary products. Most products from this sector are considered raw materials

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for other industries. Major businesses in this sector include agriculture, agribusiness, fishing, forestry and all mining and quarrying industries. A quarry is a type of open-pit mine from which rock or minerals are extracted. Quarries are generally used for extracting building materials, such as dimension stone, construction aggregate, riprap, sand, and gravel. They are often collocated with concrete and asphalt plants due to the requirement for large amounts of aggregate in those materials. Primary industry is the acquisition of naturally occurring resources like coal and fish. Primary industry is a larger sector in developing countries; for instance, animal husbandry is more common in Africa than in Japan. Mining in 19th century South Wales is a case study of how an economy can come to rely on one form of business. Canada is unusual among developed countries in the importance of the primary sector, with the logging and oil industries being two of Canada's most important.

2. The secondary sector, which is a type of economic activity involved in the manufacturing of raw materials into goods and products. the secondary sector, involving refining, construction, and manufacturing. The secondary sector of the economy includes those economic sectors that create a finished, usable product: manufacturing and construction. This sector generally takes the output of the primary sector and manufactures finished goods or where they are suitable for use by other businesses, for export, or sale to domestic consumers. This sector is often divided into light industry and heavy industry. Many of these industries consume large quantities of energy and require factories and machinery to convert the raw materials into goods and products. They also produce waste materials and waste heat that may pose environmental problems or cause pollution. Secondary industry also includes energy-producing industries and the construction industry. Secondary industry is the manufacture of goods.

3. The tertiary sector of industry is service production. the tertiary sectors are overwhelmingly large. the tertiary sector, which deals with services (such as law and medicine) and distribution of manufactured goods; and the quaternary sector, a relatively new type of knowledge industry focusing on technological research, design and development such as computer programming, and biochemistry. Tertiary industry which serves the public as well as primary and secondary industry and includes distribution, transport, warehousing, and retailing. Some writers suggest the term quaternary industry to cover administration, finance, research, and the processing and transfer of information. The tertiary sector of the economy is also known as the service sector or the service industry. It is one of the three economic sectors. The general definition of the tertiary sector is producing a service instead of just an end product, in the case of the secondary sector. Sometimes an additional sector, the "quaternary sector", is defined for the sharing of information. The quaternary sector of the economy is an extension of the three-sector hypothesis of industry. It principally concerns the following services: information generation, information sharing, consultation, education and research and development. It is sometimes incorporated into the tertiary sector but some argue that intellectual

services are distinct enough to warrant a separate sector. Increasingly service sector businesses need to focus on this idea of the "knowledge economy". They need to keep ahead of competitors by understanding what it is their customers want and be in a position to deliver this quickly and efficiently. One good example of this is the Banking industry which has gone through enormous changes in recent years. Using information and communication technology, banks have vastly reduced the number of staff they need. Many banks and building societies have merged to form much "leaner" businesses capable of extracting more profit from a wider customer base. The key to this process is gaining information about their customers and constantly communicating new products to them.

According to the above distribution of working sectors we define that worker and employees are distributed in these sectors. We have seen that according to these sectors we can integrate the HRD culture with these sectors because already we know that HRD is essential for any sectors. HRD helps to improve the skills of such sectors personnel. When we distribute the workers according to these sectors and give the HRD working condition so, this activity will link to material prosperity. HRD is much more important to the material prosperity because HRD help the person to improve him or her self according to the working sector. When a person will working in any sector so, he or she put full effort in learning training and development activity which is a part of HRD. Therefore result will be better means material prosperity. The entire sector needs proper direction of HRD because it will give a way of reaching the profit maximization. Sectors contain any field either agriculture or service or anything else, each sector wants HRD activity because it provide better education, proper training in the specialized field means according to the knowledge of field activity. Hence we get benefit from HRD activity.

Urban Migration / Urbanization are the physical growth of urban areas as a result of global change. Urbanization is also defined as movement of people from rural to urban areas with population growth equating to urban migration. Urbanization occurs naturally from individual and corporate efforts to reduce time and expense in commuting and transportation while improving opportunities for jobs, education, housing, and transportation. Living in cities permits individuals and families to take advantage of the opportunities of proximity, diversity, and marketplace competition. We know that India is an agricultural country because we have an opportunity of such field. But in today's world each and every person wants a professional life so they leave the rural area and switch towards Urban or metro for better life. If HRD is utilize in such field so we can stop this switching condition. We have to improve the education system of our whole country means if we run such type of courses in our area which give better remuneration to the human life so no civilians will move towards urbanization. People move into cities to seek economic opportunities. In rural areas, often on small family farms, it is difficult to improve one's standard of living beyond basic sustenance. Farm living is dependent on unpredictable environmental conditions, and in times of drought, flood or pestilence, survival becomes extremely problematic. Cities, in contrast, are known to be places where money, services and wealth are centralized. Cities are where fortunes are made and where social mobility is possible. Businesses, which generate jobs and capital, are

usually located in urban areas. Whether the source is trade or tourism, it is also through the cities that foreign money flows into a country. It is easy to see why someone living on a farm might wish to take their chance moving to the city and trying to make enough money to send back home to their struggling family. If government concentrates on rural development either in education or job term then urbanization activity will stop. Similarly if government gives better health program in the rural area so urbanization problem will be less. In cities, there are better basic services as well as other specialist services that aren't found in rural areas. There are more job opportunities and a greater variety of jobs. Health is another major factor. People, especially the elderly are often forced to move to cities where there are doctors and hospitals that can cater for their health needs. Other factors include a greater variety of entertainment like restaurants, movie theaters, theme parks, etc and a better quality of education, namely universities. Due to their high populations, urban areas can also have much more diverse social communities allowing others to find people like them when they might not be able to in rural areas. If HRD put an effort to improve the working condition of rural area so it will help to retain the personnel in rural area.Urbanization is strongly correlated with economic development. Evidence from many developing countries indicates that an increasing proportion of the national gross domestic product is produced in urban areas. This is not surprising if one considers the fact that goods and services produced in towns and cities benefit from external economies and economies of scale, and enjoy better terms of trade compared with goods produced in rural areas. We have to correlate the nature of HRD with rural area working culture. Atlas HRD helps the rural area to move towards betterment.

Brain drain or human capital flight is a large emigration of individuals with technical skills or knowledge, normally due to conflict, lack of opportunity, political instability, or health risks. Brain drain is usually regarded as an economic cost, since emigrants usually take with them the fraction of value of their training sponsored by the government. It is a parallel of capital flight which refers to the same movement of financial capital. Capital flight, in economics, occurs when assets and/or money rapidly flow out of a country, due to an economic event that disturbs investors and causes them to lower their valuation of the assets in that country, or otherwise to lose confidence in its economic strength. This leads to a disappearance of wealth and is usually accompanied by a sharp drop in the exchange rate of the affected country. The converse phenomenon is brain gain, which occurs when there is a large-scale immigration of technically qualified persons. Brain drain can be stopped by providing individuals who have expertise with career opportunities and giving them opportunities to prove their capabilities. Yes brain drain is a very big problem for our country because we cannot retain our civilians. Every time each country imitates the superior country means the people always imitate to their superior people. Every time most of the people want immigration to abroad for betterment. If our country provides all facility and education to our civilians so the problem of brain drain will be stop. So HRD will help to stop the brain drain problem. If HRD give a proper direction in education system means generally we adopt the foreign study if such facility is available in our education system so we save from brain

drain problem. Brain drain by region: India: The Programme estimates that India loses $2 billion a year because of the emigration of computer experts to the U.S. Indian students going abroad for their higher studies costs India a foreign exchange outflow of $10 billion annually. Obvious this present result show how the country peoples are much motivated towards foreign country. If HRD activity is performed in each education, business and Industry so brain drain problem will be solved. Brain Drain is a very harmful factor for our country India. It is a true factor that many meritorious students want to work with a new technology, but this technology is not launched in India yet. For this reason the student should go further for study with the subject. But he will have to come back to India after completing his study and do something for India by the new technology. But who go to further for the more money and don't come back to India as because there is less money in India, for them there will be certain steps, have to be introduced by the government. Now-a-days , many doctors went to foreign country for further studies , they come back home and treats the people of India and they do something for India. In Previous days, the cricketers, Ministers, and business-men went to the foreign countries to treat themselves by the highly qualified doctors, but now a days they don't go to the abroad. They do their treatments in India only. HRD will help to solving the problem of Brain drain because if our government management includes the HRD in each field so it can help to remove the brain drain in our country. Brain drain is really a serious issue for India. It does not cause only the shortage of doctors & engineers at home but also quality is lost. This has serious implications. The cream of technical knowledge pool is now serving some other country to develop a technology which now India has to buy. India spends money on educating the youth. The issue of brain drain is very harmful for us therefore HRD will help to remove it. In our India There are many problems like Poverty, pollution, corruption, population explosion and terrorism. We are being pushed behind by one other reason called Brain Drain. Scientists, engineers, doctors and inventors are flying to foreign countries, blaming our country for lack of opportunities.

Since the HRD help in removing the old version of business activity and include the new strategies of successful business which help to retain the effective personnel in India. We know that a business without person is a meaningless concept because the company's image is generated by their working pattern and this is done by their effective personnel and only HRD is a term which helps in solving the problem. If government takes better HRD practices in their industry, business and education system so brain drain problem will be solved. Generally we have seen in India many higher studied students stuff wants to go foreign country for better remuneration because they think that their evaluation only done by foreigners not by Indian business but if India provide such remuneration to them so why they switch towards foreign country? Therefore HRD is the better solution of such problem. Atlas HRD is a solution of the entire problem like urban migration, brain drain and rural backward ness etc.

Conclusion: Since Human Resource Development is a key of every problem either developing country or underdeveloped country. Conclusion is that Human Resource Development help in solving the problem of any organization or company either

internal problem or external problem. Internal means conflict between internal person of organization like between workmen to workmen, employer to workmen so if whole organization work properly according to HRD culture, therefore company will have collaborative culture and therefore company achieved their target very conveniently. External would be the competition means if we have better Human resource development then we done our work perfectly because our personnel are well developed and perform the better result so we can compete with our rivals. In India we have seen different region like North Eastern Region and Himalayan Region especially in rural region HRD culture is required for the improvement of their civilians which is necessary for our India. HRD is a very important for modernization means it gives direction to improve the company's personnel activity according to the current international business environment. HRD is not a simple term because it helps in improving the organization personnel by improving the knowledge, skill and talent through training and development procedure. Attitude, mindset and outlook of the personnel or employee put an effect on HRD because if we want to improve the knowledge, skill and expertise of them so we have to convince them effectively. Similarly physical fitness, general health of employees are also a part of HRD activity because if the organization have healthy personnel so they work properly and similarly they can achieve their target conveniently therefore also companies target will be achieved. Training is such a procedure which helps in improving the dexterity, agility, skill, expertise and proficiency of the personnel because it inculcates the personnel effectively in the organization. We know that training is a part of HRD so it is help in modernizing the company's culture. Social capital is also an important part of HRD because if we want to better internal and external relationship so this factor should be utilized in the company. Social capital and human capital will help in better organization culture. HRD will enrich the people or personnel life very professionally. HRD will pioneer the personnel life in a proper competitive world so that people can take better position in their own company. HRD recognized the personnel talent and skills very effectively in the business world. Distribution of working sectors gives the detail of company so that company will do an effort in introducing the HRD culture in these organizations. Urban migration and brain drain is some negative point of our country which spoil the countries image in the whole world. Therefore HRD will help to improve such type of problem by introducing the effective education system, better remuneration, better incentives and non incentives means reward for their personnel. It will help to retain the civilians here in the India. Atlas whole conclusion is that HRD is the solution of whole problem and it improve the company image as well as their personnel image and in the last the most important our countries better image in the whole world.

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Naga Settlement and the Myth of Peace

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Abstract
Prior to independence, Nagaland was an unadministered territory. The British annexed it to prevent the forays made by Nagas in British India. When India became independent Naga leader Phizo declared independence and that brought the Indian army into action to quell Naga insurgency. The military reprisals being too severe further, The Nags sued for peace and in 1960 arrived at a sixteen point agreement with India Phizo fled to London and on December, 1, 1963 the state of Nagaland came into existence as part of India. Despite the formation of Nagaland an underground movement under the leadership of Issac Muivah became functional. He formed The National Socialist Council of Nagaland in and carried on depredations. Finally a cease fire was agreed in 1997. It is said that the present Government of Narendra Modi has arrived at a settlement but the terms of settlement are not made public. The old Naga leaders including Muivah are dead today and it is hoped that the new Naga leadership will be amenable to having peace with India

Keywords : Sixteen point agreement, Settlement, Depredations, Unadministered territory, Guerrilla warfare

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Introduction

A small strip of land having less than half a million souls, Nagaland presents to an avid on-looker astonishing scenario of guerrilla warfare. The landscape and logistics both favors such a war. V.K. An and has pointed out, “The jungles of Malaya, Mountains of Greece and the slushy paddy fields of Vietanam can all be found together in Nagaland."[1] The inhabitants of this area belong to Indo-Mongoloid group and speak Tibeto-burman dialects of the Sino-Tibetan family.[2]The first contact of Nagas with India was in 1832, when Captain Jenkins, with a small force, entered the areas inhabited by the Angami Nagas and brought them under control. Since then they remained under British control.

When talks began for making India an independent country, the Nagas were offered the status of a Crown colony. The Nagas reacted sharply to this offer and rejected it out of hand, demanding complete independence. Some other proposals were also made. Sir Reginald Coupland proposed a condominium of tribal areas between India and Burma but no one including serious-minded British took kindly to this suggestion. The Nagas too opposed this suggestion and insisted on severing their ties from India and England both. They kept up the chant for freedom and

demanded that if Muslims could get Pakistan, the Nagas being Christians were equally entitled to the right of self-determination on the same ground.

During this period, Zapu Angami Phizo made his appearance on the Naga scene. He was a failure in Matriculation examination, and did not do well in business also. He collaborated with the Japanese army during the operations in the Second World War and is also said to have been associated with the Indian National Army.[3] He was a secessionist from the very beginning. He led a deputation of seven persons to New Delhi in July, 1947 to submit an ultimatum that on August 14, 1947, Nagaland would become independent. On July 19, 1947, the delegation met Mahatma Gandhi in the Bhangi Colony, Delhi and tried to argue with him unsuccessfully. Mahatma Gandhi is reported to have said,

"The Nagas have every right to become independent. We did not want to live under the domination of the British and they are now leaving us. I want you to feel that India is yours. I feel that Naga Hills is mine just as it is yours. But if you say that it is not mine, the matter must stop there. I believe in the brotherhood of man, but I do not believe in force and forced unions. If you do not wish to join the union of India nobody will force you to do that."[4] When the Nagas informed him of their firm resolve to declare independence on August 15, 1947, Mahatma Gandhi asked in humor "Why not now? Why wait for 15 August."[5]

Phizo met Jawaharlal Nehru first in December, 1951 at Tezpur, then in March, 1952 at Delhi and finally in July, 1952 at Dibrugarh. In 1952, when the first General Election took place, to demonstrate the non-acceptance of Indian Constitution, the Naga National Conference (N.N.C.) gave a call to boycott the elections. The boycott was total. Not a single voter turned up an election day. Earlier no one filed the nomination. In the meanwhile a shooting incident at Kohima on October 18, 1852 involving the loss of life of a Naga boy generated a lot of heat and tension and the Vice-President of NNC Imkongmeren Ao submitted a memorandum to Prime Minister Nehru and apprised him of the Naga desire to become free.

Realizing the sensitivity of the unadministered region of India's Burmese border, the Prime Minister of Burma U. Nu was invited by Jawaharlal Nehru to undertake a joint tour and visit the area together. When the two Prime Ministers reached Kohima, the Nagas wanted to submit a memorandum to Nehru but the Deputy Commissioner banned "address either in speech or in writing." On persisting with their demand to meet Nehru, the Nagas request was firmly turned down. The Nagas felt incensed and wounded and decided to settle the score, there and then and demonstrate their solidarity. A public meeting was organized which was to have been addressed by Nehru. A big gathering of Nagas collected and the Prime Minister received a tumultuous welcome but the moment he stood to address, all Nagas stood up and left the meeting. Only the security personnel and officials remained in the meeting. Nehru came later to know of this sabotage and the reason thereof and got furious with the local administration but it was too late to mend the situation. Much damage was already done. The Naga's demonstration of their clanish solidarity, unity of purpose and oneness of aim was perfect and Nehru never visited Nagaland again in his life time. It was a dividing line.

Religion-wise, Nagaland has Christian majority. Christianity made rapid strides since the year 1851 when some Aotribes were baptized. Real conversion, however, began in 1872 with the entry of Reverend Clark of American Baptist Mission. In 1901, Naga Christians numbered 579 but in 1961, this number rose to 1, 95,538 which was 53% of Nagaland's total population. The Nagas adduce this as yet another reason for their desire to seek separation from India. The 'Christian' Nagaland could expect no fairness from 'Hindu' India. The real reason for preaching secession was the over-arching ambition of Phizo and his followers to establish the first Christian state in Asia, the Asian Rhodesia as they called it. With initial successes in the guerrilla skirmishes, their ambition started soaring higher and higher. In 1954, Phizo founded the Peoples Sovereign Republic of Free Nagaland with the support of Chang Chiefs of Tuensang.

Spurred by a vision of independence, the Nagas unleashed a reign of unprecedented terror and unremitting hostility. Macabre killings, lightening massacres, cold-blooded murders, burning of civilian settlements became the order of the day. With his robust physique, mental alacrity, cool nerves, indefatigable reserves of energy and stamina and great and unending endurance, the Naga guerrilla brought havoc on the earth.

But for quite some time, they were feeling that the politics of violence and cult of killing pursued by Phizo were ruinous and detrimental to their cause. The military reprisals were too severe for them. Hence a deputation of some moderate Nagas called on the Prime Minister Jawaharlal Nehru in October, 1956. The latter received them well and promised all help and larger autonomy, the moment peace was restored. This had a good effect on the moderate Nagas, who went back fully satisfied and reassured.

In May 1958, the second Naga Peoples' Convention was held for the first time. Its delegation met Prime Minister Nehru in Delhi in 1960 and arrived at a sixteen points agreement. In the meanwhile, extremists were getting jittery in the face of the military response of the government and their collapse was imminent. Phizo himself could not stay in Nagaland and fled to London. His exit paved the way for the ascendency of powerful Sema tribe over the Angamis. By now the miasma of tribalism was getting weaker and sanity was in the process of being restored. Steps were being initiated to create a separate state of Nagaland.

In August 1962 Pt. Nehru moved the 13th Constitution Amendment Bill, 1962, and a bill for the creation of a separate state of Nagaland. The latter bill received the assent of the President on September 4, 1962 and on December 1, 1963, the state of Nagaland was formally inaugurated by the President S. Radhakrishnan at Kohima. P. ShiluAo became the first Chief Minister of Nagaland.

It may be added in passing that by virtue of the passage of Constitution (Thirteenth) Amendment Bill 1962, Nagaland receives some special treatment. “ No Act of Parliament in respect of religious or social practices of Nagas, Naga Customary Law and Procedure, the administration of civil and criminal justice involving decisions according to Naga Customary Law, ownership and transfer of land and its resources shall apply to the state of Nagaland without the consent of the Nagaland Legislative Assembly", observes V. Venkata Rao.[6] This is a special provision in

respect to the state of Nagaland alone and no other state enjoys this uniqueness in respect of treatment by the central government. This provision was specially incorporated in the Constitution in order to safeguard the religious susceptibilities and social customs of the Nagas.

Despite the formation of a separate state of Nagaland, there was no letup in violence and its periodic recurrence is a cause of great concern. A group of underground Nagas, under the leadership Issac Muivah formed an insurgent outfit National Socialist Council of Nagaland (NSCN) on January 31, 1980. It split in 1988 because of age problem of Muviah and Thuinagalengkhaplang and its two factions came to be headed by Isaac Chu Swe Muviah and Khaplang respectively. Both stand for an independent state of greater Nagaland, to be called Nagalim with areas incorporated from the adjoining states of Assam, Arunachal Pradesh, Manipur and parts of Naga inhabited tracts of Myanmar. It is interesting to remember that both fractions demanding an independent state are headed by leaders who do not belong to present day Nagaland. Muviah is from Ukhrul district of Manipur and Khaplang in a Hemi Naga from Burma. So much was the heat generated by these two rival factions that even the Nagaland state assembly was compelled to pass a resolution in 1993 demanding the extension of boundaries of present state but made it clear that the extended state would remain in India. Nevertheless, there was no let-up in periodic bouts of insurgency which was accompanied by much violence and blood-letting and finally in 1997, a ceasefire was agreed upon for three months which continued to get periodic extensions. The last one was to expire on July 31, 2001. This time the former Foreign Secretary Padamanabhiah who was the chief negotiator and Muviah agreed upon another extension of ceasefire beyond July 1, 2001 but "without territorial limits". This is a tacit acceptance of Naga claims to territory beyond the present state of Nagaland. This sparted off a violent agitation in Manipur on June 18, 2001, which was led by 83 local groups and an estimated crowd of over one lac people. This resulted in 13 deaths and injuries to over 50 persons. The protesters burnt the effigies of Atal Bihari Vajapayee, LalKrishna Advani and Issac Muviah and insisted that the words "without territorial limits" be deleted from the agreement. Ultimately the union government, bowing under pressure, deleted these words, but this embittered relations between government of India and the Muviah faction of NSCN.

It is interesting to remember that of Manipur's population of 23 lakhs, about 18 lakhs belong to the Meitei ethnic group. Nearly 2.5 lakhs are Nagas. Other tribes like the Kukis make up the remainder. The Meiteis mainly inhabit the Imphal valley while the Nagas are scattered across four hill districts — Ukhrul, Chandel, Senapati and Tamenglong. For the past two decades the NSCN (I-has been fighting for an independent Naga homeland, a continuation of the struggle begun by the legendary Z.A. Phizo in 1947. The proposed Naga homeland, or Nagalim, would include at least the four hill districts that cover more than half the territory of Manipur. TangkhulNagas from these districts make up a large part of the NSCN (I-M) cadre; Muivah himself belongs to this ethnic group and is from Ukhrul. The map of greater Nagaland or Nagalim on view at the NSCN (I-M)'s official website www. Angelfire.com includes all of Manipur.[7] The government's decision to extend the

ceasefire outside Nagaland was thus viewed in Manipur as a first step towards recognizing Naga territorial claims over the hill districts.

The issue of a cease-fire without territorial limits has dogged the peace process ever since it was initiated in 1997. The NSCN (I-M) claims New Delhi offered a truce in the first round of talks then without setting territorial limits. Then Prime Minister I.K. Gujral reneged on it by making a statement in Parliament limiting the cease-fire to Nagaland, they allege. However, both Gujral and former Union home secretary N.N. Vohra who led the peace talks at the time both deny this. "The NSCN (I-M) was asking for it but we could not agree as both Nagaland and Manipur opposed it," says Vohra.[8]This time too Koijam, who was chief minister of Manipur at the time Vajpayee held consultations with Chief Ministers of the north-eastern states, says he had opposed the ceasefire proposal.

The Naga's demand for redrawing the map of present state of Nagaland would affect the territorial integrity of several neighboring states. This is because there are Konyak Nagas in Tirap and Changlang areas of Arunachal Pradesh, Zemi, Sema and Konyak Nagas in Karbi Anglong and North Cachar districts of Assam and Tangkhul Nagas in Ukhrul, Senapati, Chandel and Tamenglang areas of Manipur. The worst hit of all these states would be Manipur where 2½ lac Nagas out of a total population of 23 lacs occupy 70% of state's agricultural land and if four of its Naga dominated districts are separated from it, its territory would be reduced by half which the Manipuris resent and are not prepared to part with.

Whereas the Manipur-Nagaland territorial dispute still remains a sore point between government of India and NSCN (M), the point to examine is why there are periodic bouts of insurgency in this region and despite fifty years of military action, the region shows no signs of permanent peace. What has been the perception of government all these years and where did it err owing to which the problem remains intractable as ever? One may first examine the government's perceptions.

Broadly speaking, the government of India and its unthinking bureaucracy feel that the problem of Northeast India is either a law and order problem which is amenable to military solution or it is caused by economic backwardness which can be taken care of by making huge investments. Some ascribe the problem to the social backwardness of the tribals in this region. Whereas each one of these perceptions is partially right and contains a modicum of trust, none is entirely correct. Each one of these formulation need to be examined separately.

First, there is a perception that Naga problem is basically a law and order problem which can be solved by increasing military response. Peace can be achieved only if their resistance is crushed. Without use of adequate force, governmental authority and credibility cannot be restored. The issues of economic development can be addressed only after peace is restored. De-escalation of violence is possible only after insurgency is wiped out and terrorist depredations are permanently halted.

This is a one-dimensional approach which excludes all other alternatives. The problem of north-eastern tribals is not amenable to simplistic solutions. Force alone to the exclusion of other factors cannot succeed and to provide a healing touch, negotiations, political adjustments, economic development and a policy of give and take all should be employed. Problems as intractable as the Naga imbroglio does not

admit of instant solution. It would require the interplay of several variables and that too in their conjunctional perspective. Hence a mere harking on military solution to the exclusion of other road maps necessary to solve this problem would be unfruitful and uncalled for.

The second is the approach of economic determinists, who believe that the peace-dividend is possible by accelerating the economic development of the region through pumping massive funds. They look upon development as the panacea of all evils and hence advocate attractive financial package for the north east. Once again, it may be said that this is a flawed approach, which is only partially correct. This approach is flawed in as much, as it rests on the erroneous assumption that ending grievances will automatically end terrorism. One cannot tag the problem of eliminating terrorism to massive investments. There have been several studies in their respect; the chief among them is that of Walter Laqueur which shows that grievance removal alone does not lead to the end of terrorism.[9]This is because of two reasons. One, it is not enough how much funds are invested. The important thing is whether or not they affect the target population. One must make sure that the benefits of investment accrue to the people at large. In northeast on the other hand, due to the nexus between politicians and contractors, large funds are siphoned off to private contractors. It is a typical case of public funds being recklessly squandered to fill private coffers to benefit politicians, administrators and private contractors and people at large are left high and dry and denied the fruits of development.

Secondly, it should be remembered that the terrorists to begin with are cash starved and money is collected through extortion, way laying the government treasury and other undesirable means but over a period of time, they become economically self-sufficient and autonomous and begin investing their 'easy money' in trade and commerce. In Assam, wheat is given to the people through public distribution system (PDS) and the state's quota is 30,000 tons per month, most of which found its way to flour mills owned by United Liberation Front of Assam (ULFA) and surrendered ULFA known as SULFA.[10] The flour is then sold in black market generating an estimated income of about 100 million per month.[11] The same is true of rice and kerosene oil, ostensibly meant to be sold through PDS but actually finding its way to black marketers. By one estimate it generates an income of about 600 million per month, [12] a large proportion of which goes to ULFA. Thus the terrorists are not starved of funds, thanks to the trade-related operational understanding between administrators and politicians with the terrorists.

The third perception is social backwardness of the tribals which again is exaggerated. It is a concept-dependent value bias resting on an utter ignorance of the character and quality of the tribal. It is an insentient stereotyping of all tribals which is at the root of all trouble. It is an assumptional error to typecast a tribal as a no-changer. The fact is that the 'backward' tribal has shown a greater flexibility than this so-called 'advanced plainsman' in accepting changes in his life-style. His primordial society is far more autonomous and self-governing than the caste-torn society of the plainsman. The level of education is much higher among the tribals thanks to the activities of Christian missionaries and in some tribes, matriarchal

system still prevails which accords women a very high status. Hence the charge of social backwardness does not stand security and in any case, the tribals of northeast in many ways are not only excessively modernized, they are in many ways highly Westernized in their life style.

Thus many of the perceptions of our bureaucrats are off the mark. What then is the real problem? It is the collapse of civil administration owing to which many evils have cropped up, chief among them is protection money which creates a nexus between politicians and terrorists. There is a deepening evidence that of Chief Minister of Arunachal Pradesh Mukut Mithi was hand in and glove with NSCN (Khaplang) faction in order to oust his arch rival Apang Gegong who held sway over the state as Chief Minister for nineteen long years. It is alleged that Knaplang faction assured Mukut Mithi that none would contest against his Congress candidates in Tirap and Changlang districts for six years.[13]In Tripura, the National Liberation Front of Tripura (NLFT) is backed by Congress and All People Tiger Force (APTF) is linked to Left Front"[14]

Yet another problem is the hollowness and hypocrisy of ceasefire agreements in Nagaland which in effect are institutionalized collusive arrangements between the government and the militants. In arriving at such agreements, the state governments are not consulted with the result that the terrorists, despite agreement are not averse to harming state level leadership. An unsuccessful attempt was made on the life of Chief Minister of Nagaland S.C. Jamir on November 29, 1999. An enraged Jamir exposed the farcical nature of the ceasefire agreement and called at a 'licence to hill, threaten and extort", [15] pact between union government and terrorists and not between people and terrorists.

Instances such as these go to prove not only a secret understanding between the government and terrorists, it also gives evidence of India being a soft state resting on the instable planks of moribund institutions, a week and morbid infrastructure and a hierarchy of officers who are still at a moronic stage. The New Delhi based bureaucrats, owing to their Euro-centric value bias are incapable of understanding the true nature and ethos of insurgents. The continuing arms proliferation, the ebullient ethos of insurgent and motivational technique of insurrectionists and their committed cadres have left the security forces in a quandary so much so that in order to quell the resistance of underground Nagas, the security forces are arming the Kukis to take on the Nagas. Such is the incompetence of civil administration and security forces that they cannot take on the terrorists single-handedly.

Small wonder, despite a lapse of fifty years, insurgency continues unabated. Indeed even the insurgents are proliferating and newer terrorist formations are continuously raising their heads. All these are the attributes of a soft state. V.K. Anand has put it, "No insurgency is impervious to a competent, dedicated and ruthlessly efficient administrative machinery. Insurgency against Tito or Stalin is almost unthinkable as it can only grow under a system that is permissive, tolerant and provides the 'given environment' considered necessary by Engels."[16]

Conclusion

Thus, the ongoing situation in Nagaland is far from reassuring. Apart from low intensity war, the problem of Nagalim raises the specter of inter-state territorial dispute which is sure to disturb the existing fragile equilibrium and create ripples of fresh discord. What can then be done to restore normalcy? Some steps can be suggested below.

First and foremost, change the mindset of our policy-planners, decision-makers and involved actors. The glib habit of treating the entire region as an undifferentiated whole, infested by dense forests and inhabited by a plethora of tribes, all leading a common life-style despite speaking a variety of dialects is full of dangerous portents. Not only the region is not homogenous geographically, even in terms of sub-ethnicity, language and religion there is so much of heterogeneity and plurality that to consider the entire region and its various sub-ethnic groups as constituting a homogenous group without any kind of differential, dissent or dissonance is too simplistic. To understand the tribal ethos better, one must learn to differentiate between various ethnic groups, their widely-varying life-styles, cultural pluralism, religious differentiation and linguistic multiplicity. Each group needs separate treatment as per its racial characteristic and there is no such thing as a quick fix solution which will apply to all. The cultural cleavages, racial discord and religious multiplicity makes this region and its inhabitants a special category, not amenable to simplistic uniform solutions and need differential treatment in accordance with the degree and extent of its differential.

Secondly, one should not keep on harping on orthodox elements. The approach should be non-traditional and unorthodox. One should not only perceive the visible factors such as law and order, economic lags, societal schisms and over all backwardness of the region but also some of the invisible factors such as the nexus between administrators and terrorists, economic resources of the insurgents, the nature of turf-war between various contenders for extending their area of operation, the drug syndicate, activities of foreigners, geo-political situation and nature of cross border trade.

Thirdly, one should not non-challently assume that the greater the economic aid, the greater is the development and less is the popular discontentment. Indeed it is necessary to ensure that resources are not diverted into channels that retard development and do not benefit the target groups.

Fourthly, restoration of fully responsive civil administration is an imperative necessity to ward off the dangers of continuing insurgency. In a state of collapse of civil administration every group is alienated. It creates a nexus between terrorists and administrators and resources earmarked for development are diverted to assist insurgency through a variety of clandestine devices. It creates a corrupt political class and a demoralized bureaucracy both at the mercy of terrorists who constantly keep on changing the rules of the game to suit themselves.

Finally, insurgency cannot be fought by a half-baked state instrument given to spot decisions to solve problems. Adhoc measures can serve only as temporary palliatives and not as a permanent panacea. A well laid, coherent policy, backed by resolute action and a highly motivated security force are necessary to successfully combat insurgency. An oscillating bureaucracy, a vacillating political class given to

procrastinating delays and ad holism in policy formulation is unsuitable to ward off the scourge of terrorism. Napoleon once said, in organization lies half the battle. One only hopes the mandarins of north block of central secretariat at New Delhi take a lesson or two from history.

Postscript the Narendra Modi government clinched the issue the insurgent but the terms of peace accord have not been made public. It is rumored that Naga ssettled in neighboring states of North-East will be granted the same status as is enjoyed by the Nagas in Nagaland.

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Synthesis of bulk Bismuth Selenide and its thin films and their electrical properties

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Abstract
Bismuth Selenide a new topological insulator has attracted much attention in recent years because of its potential applications in thermoelectric devices. A muffle furnace technique employed to synthesized bulk Bismuth Selenide of $Bi_{1.6}Se_{3.4}$, $Bi_{1.8}Se_{3.2}$, Bi_2Se_3, $Bi_{2.2}Se_{2.8}$,$Bi_{2.4}Se_{2.6}$ at 850^0C using Selenium and Bismuth powder by solid state reaction. The synthesized materials were characterized using powder X-ray diffraction. XRD study of the material confirmed the polycrystalline nature of Bismuth Selenide. Thin films of these materials have also been prepared by thermal evaporation technique. Electrical properties were discussed. Conductivity increases as Bi increase in ratio of material. Resistivity decreases as Bi increase in ratio of Bismuth Selenide.

Introduction
In recent years considerable attention has been focused on Bi and Se and their compounds because of their use in optical and photosensitive devices[1,2]. Bismuth Selenide is a good thermoelectric material. According to slack, Bismuth Selenide is a semiconductor which has narrow band gap and high mobility carriers is best suited as thermoelectric materials. Bi_2Se_3 thin film belongs to group V-VI and has applications in photosensitivity, photoconductivity and thermoelectric power. Bismuth Selenide is a narrow band gap semiconductor (E_g=0.5-0.6 eV) and has interesting properties that can be used in solar cells[3].
Over the years a wide variety of synthesis techniques have been developed to synthesize various nano structures of Bi_2Se_3. Suraj Karan et al.[4] reported microwave assisted preparation method to obtain Bi_2Se_3 nanostructure ,Wang et al.[5] used solvothermal method to synthesize Bi_2Se_3 nanostructure and Jiang et al.[6] synthesized nanosheets by microwave heating in presence of ionic liquid. Therefore in the present investigation the bulk of Bismuth Selenide synthesized by solid state reaction using muffle furnace process and characterized by XRD. Bismuth Selenide thin films have great technology important due to their potential applications. A few reports are available on the preparation of Bi_2Se_3 thin films by chemical vapour deposition, electro deposition method[7], SILAR method[8] ,thermal evaporation[9,10] ,chemical bath deposition[11-14] etc. Among all deposition methods,

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thermal evaporation method is a simple and inexpensive method for preparation of thin films. Here we report the deposition of Bismuth Selenide thin films by thermal evaporation process. The thin films have been characterized by Hal measurement.

Experimental

1. SYNTHESIS OF BISUTH SELENIDE

A stoichiometric amount of Bismuth and Selenium powder of purity 99% in proportion as 1.6:3.4,1.8:3.2, 2:3, 2.2:2.8, 2.4:2.6 were used without further purification. The powder of the above two elements of five proportion have been take in five quartz ampoule and vacuum pressure of order 10^{-6} torr has been created slowly using vacuum pump to avoid moisture in ampoules. To prepare a homogenous compound, the ampoules heated in a uniform temperature by means of a muffle furnace. Firstly ampoules were heated at 600^0C for 15 minutes. Then temperature increase up to 700^0C and stay at this temperature for 15 minutes. Same procedure for 800^0C and then ampoules heated at 850^0C for half an hour. After using temperature profile programme, bulks of Bismuth Selinde were synthesized at 850^0C. Synthesized material crystallographic structure determined by X-ray diffraction using Cu the incident radiation.

2. SYNTHESIS OF BISUTH SELENIDE THIN FILMS

Optically flat glass slides were used as substrate. The glass slides were rinsed in acetone and then cleaned for 15 min in double distilled water. Cleaned substrate dried with drier and loaded into the vacuum chamber of thermal vacuum unit. High pure Bismuth Selenide bulk materials thin films of 100nm were prepared onto glass substrates at room temperature by thermal evaporation method, using vacuum coating unit under a vacuum of 10^{-6} torr. The rate of deposition were maintained ~2 A°/s. Thin films annealed at 200° C. Electrical properties were measured using Hall measurement.

RESULT AND DISCUSSION

STRUCTURAL ANALYSIS FROM XRD

The XRD patterns for synthesized materials of $Bi_{1.6}Se_{3.4}$,$Bi_{1.8}Se_{3.2}$, Bi_2Se_3, $Bi_{2.2}Se_{2.8}$,$Bi_{2.4}Se_{2.6}$ are shown in fig-1. The planes of the synthesized $Bi_{1.6}Se_{3.4}$, $Bi_{1.8}Se_{3.2}$, Bi_2Se_3, $Bi_{2.2}Se_{2.8\ c}$ were estimated from XRD data. XRD results indicate the polycrystalline nature of the synthesized bismuth Selenide and their preferential orientation are along (015) for all solid samples of bismuth Selenide. The observed values of interplanar spacing (d) are found to be in good agreement with standard values of taken from the ASTM diffraction data file [14] as tabulated in table 1.

Table 1- Interplanar spacing (d) obtained from XRD

(h k l)	JCPDS-Bi_2Se_3 d (A^o)	$Bi_{1.6}Se_{3.4}$ d (A^o)	$Bi_{1.8}Se_{3.2}$ d (A^o)	Bi_2Se_3 d (A^o)	$Bi_{2.2}Se_{2.8}$ d (A^o)	$Bi_{2.4}Se_{2.6}$ d (A^o)
(0 0 6)	4.80	4.78	4.78	4.78	4.77	4.57
(0 1 5)	3.03	3.04	3.02	3.04	3.071	3.07
(0 0 15)	1.90	1.90	1.91	1.92	1.90	1.91

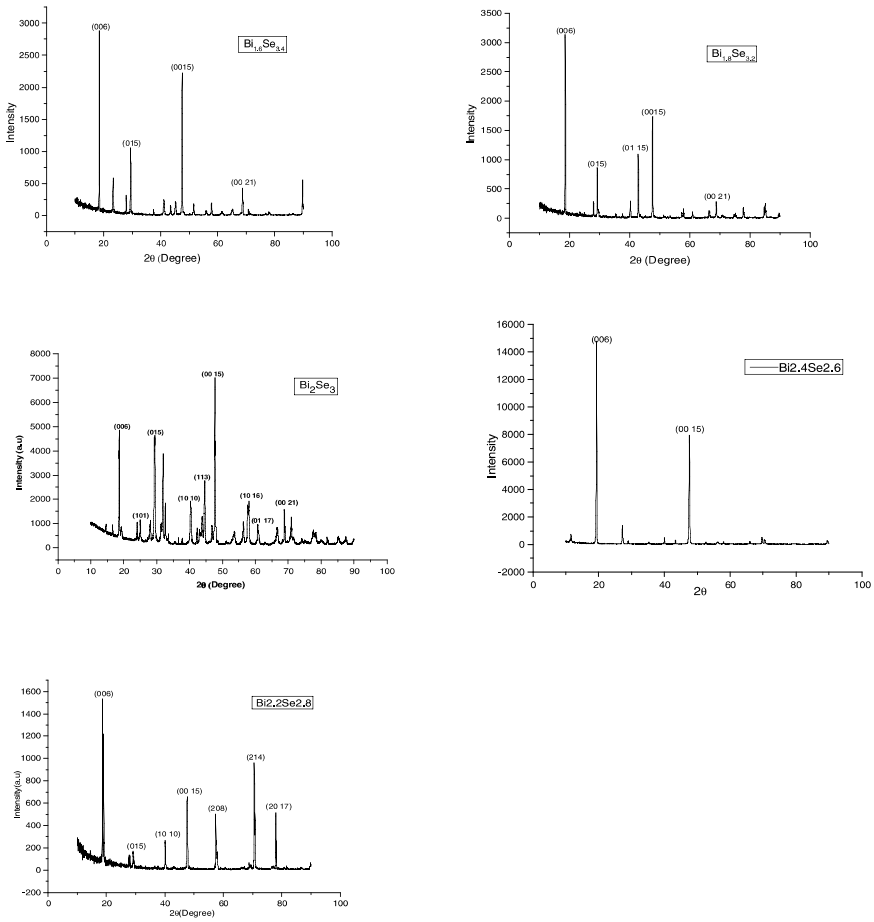

Fig-1 XRD of $Bi_{1.6}Se_{3.4}$, $Bi_{1.8}Se_{3.2}$,Bi_2Se_3 ,$Bi_{2.2}Se_{2.8}$, ,$Bi_{2.4}Se_{2.6}$ Solid

Electrical Properties

Electrical properties of the Bismuth Selenide thin films were measured using Hall Effect studies for different composition of Bismuth Selenium. The figures below shows the variation of conductivity (σ), resistivity (ρ), mobility (μ) and Bulk Concentration with respect to different composition.

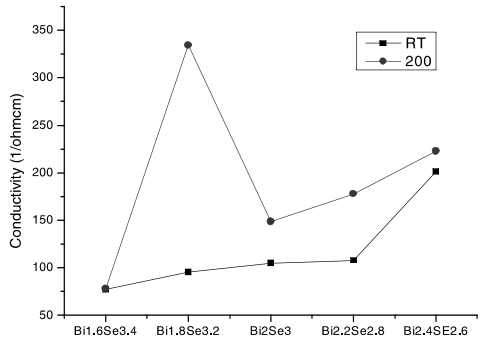

Fig-2 Variation of conductivity in different films

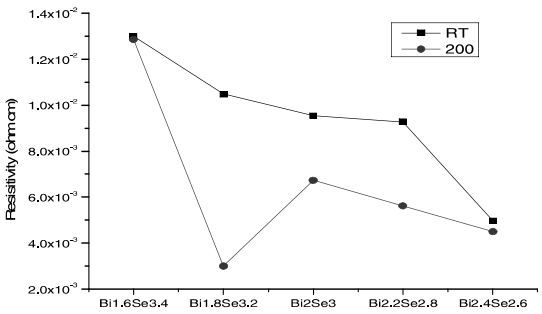

Fig-3 Variation of Resistivity in different films

Fig-2 Shows the dependence of conductivity (σ) for different films of Bismuth Selenide. As Bismuth increase in ratio of Bismuth Selenide conductivity increases. At annealing temperature (200°C) conductivity increase in compare to thin films at RT. Increase in conductivity is due to the higher value of Bismuth in ratio. Bi is metallic in nature which could induce higher conductivity[15]. But at $Bi_{1.8}Se_{3.2}$ conductivity increases suddenly that is may be of some practical error. Fig-3 shows that resistivity decrease as Bismuth increases in ratio of Bismuth Selenide. At annealing temperature resistivity decreases. Thin films at 200°C films are more conducting then RT.

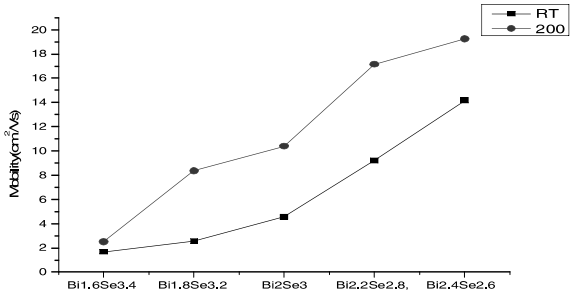

Fig-4 Variation of Mobility in different films

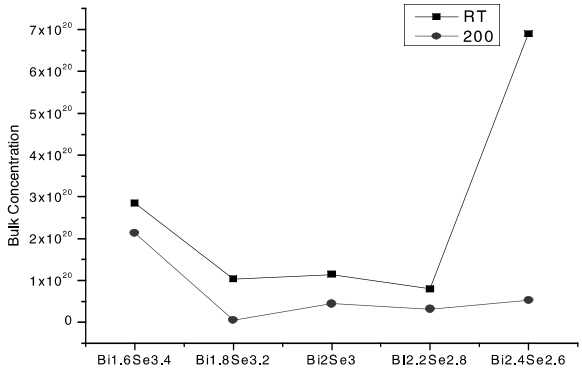

Fig-5 Variation of bulk concentration in different films

Fig-4 shows variation of mobility with different films. Mobility increase as bismuth increases in ratio of bismuth selenide. Thin films at annealing temperature have high mobility in comparison to films at RT. Fig-5 shows the dependence of bilk concentration on different films and temperature. Bulk concentration at $200^{o}C$ is low in compare to RT.

Conclusion

Solid Bismuth Selenide successfully grown using muffle furnace by solid state reaction. XRD revel that the synthesized materials are polycrystalline in nature. The crystal system and interplanar distance calculated by XRD. Bismuth Selenide thin films were deposited on glass substrate by employing the technique of thermal evaporation method. From the electrical studies various parameters were calculated and discussed. Conductivity increases as Bismuth increase in ratio of Bismuth Selenide. Mobility increases as bismuth increase in ratio of Bismuth Selenide.

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Design of FFT/IFFT Module for OFDM Using VHDL

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Abstract
To meet ever growing demand of data transmission at high data ratein communication systems with higher reliability and higher data rateOFDM has been adopted by various wireless standards i.e. ADSL,WLAN, DVB, DAB etc. In OFDM the FFT/IFFT are the importantblocks to generate OFDM symbols. In this paper the FFT/IFFTblocks implemented using DIT FFT algorithm because this use theless number of computational complexity than direct computation ofDFT. FFT/IFFT blocks designed using VHDL and synthesized usingXilinx Projector Navigator Xilinx ISE Design Suite 12.1. Thenresults verified using ModelSim 5.8c simulator. Timing analysis andmemory usage analysis also done and result validates the functioningof FFT/IFFT. FFT/IFFT block designed using VHDL and analysis isperformed by targeting the design on Vertex-6 6vlx75tff484-3.
Keywords: OFDM, FFT, IFFT, FPGA, VHDL

Introduction

The need for high speed data transmission has been increasedwith the growth of communication inrecent years. So OFDM(Orthogonal Frequency Division Multiplexing) has beenrecognized as an outstanding method or scheme for high speeddata transmission and to overcome the problems like multipathfading, ISI (Inter Symbol Interference), ICI (Inter CarrierInterference), low bit rate capacity, less spectral efficiency,need large power to transmit the data, need larger bandwidthetc. as faced in single carrier modulation.[1-3] OFDM system provides higher spectrum efficiency and supports highdata rate transmission, so OFDM is adopted by manystandards like DAB (Digital Audio Broadcasting), DVB(Digital Video Broadcasting), DSL (Digital Subscriber Line),WLAN (Wireless Local Area Network), IEEE 802.11a, IEEE802.11g etc.[4] The Fading type effect like multipath fadingor frequency fading type distortion introduced by medium or channel is minimized by IFFT/FFT (Inverse Fast Fourier Transform / Fast Fourier Transform) module without any loss of information. OFDM is type of MCM (Multi-Carrier Modulation) in which the carriers are sent orthogonally in such a way that the 50% of bandwidth is saved. The Frequency spacing and synchronization of carriers is chosen such that carriers must be orthogonal. The objective of this paper to design the FFT/IFFT blocks using VHDL. This paper is organized as: Section 2 describes about the role of FFT/IFFT in OFDM, section 3 describes present work implementation details. Section 4 starts from the simulation results, section 5 includes the conclusion and in last references are given.[5]

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Role of FFT/IFFT in OFDM

OFDM makes efficient use of spectrum by allowing overlap by dividing the channel into narrowband flat fading sub-channels, OFDM is more resistant to frequency selective fading than single carrier systems. OFDM is able to space the channels much close together, which allows for more efficient use of spectrum than through simple FDM. The advantage of orthogonality in OFDM is that 50% of total bandwidth is saved. Modulation and Demodulation of the sub-carriers is done using IFFT and FFT methods respectively, which are computationally efficient. By performing the modulation and demodulation in the digital domain, the need for highly frequency stable oscillators is avoided. OFDM makes efficient use of the spectrum by allowing overlap. Channel equalization is simpler than by using adaptive equalization techniques with single carrier systems. It is computationally efficient by using FFT techniques to implement a channel estimator.[6-8]

In OFDM scheme carriers must maintain their orthogonality. To maintain orthogonality of signals the FFT/IFFT plays an important role. IFFT is used to transfer the frequency domain signal into time domain signal, so this is used at transmitter side.[9] And FFT is used to transfer the time domain signal into frequency domain signal, so this is used at receiving side. Basic functioning of FFT/IFFT blocks can be shown in Figure 1 and Figure 2. Figure 1 shows the basic functioning of FFT/IFFT and the main blocks of OFDM is shown in Figure 2.

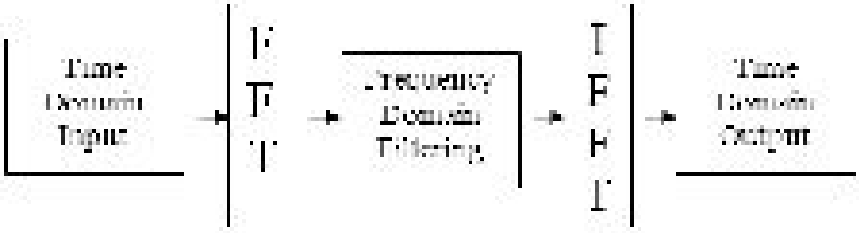

Figure 1 Functioning of FFT/IFFT

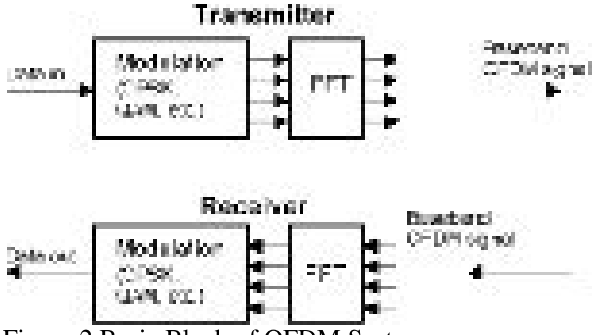

Figure 2 Basic Block of OFDM System

Present Work

DFT method proposed to perform the base band modulation and demodulation in 1971. In Digital Signal Processing the DFT (Discrete Fourier Transform) is important operation, to calculate the DFT, FFT (Fast Fourier Transform) algorithm is used. In the field of telecommunication the DSL (Digital Subscriber Line), OFDM etc. the FFT algorithms are used to calculate the DFT. J.W.Cooley and J.W.tukey are given credit for bringing the FFT to the world. The FFT/IFFT is based on complex DFT, a more sophisticated version of real DFT. These transforms are named for the way each represents data, that is using complex numbers or using real numbers. The FFT operates by decomposing an N-point time domain signal into N time domain signals each composed of a single point. The second step is to calculate the n-frequency spectra corresponding to these N time domain signals. Lastly the N spectra are synthesized into a single frequency spectrum. There are two algorithms in FFT (i) DIT (Decimation in Time) (ii) DIF (Decimation in Frequency). The IFFT transforms the signals from frequency domain to time domain. IFFT performs the just reverse operation as performed in FFT.

Table 1 Computational Complexity comparison for DFT versus the DIT FFT Algorithm

Number of Points N	Complex Multiplications in Direct Computations	Complex Multiplications in FFT Algorithm	Speed Improvement Factor
4	16	4	4
8	64	12	5.3
16	256	32	8.0
32	1024	80	12.8
64	4096	192	21.3
128	16,384	448	36.6
256	65,536	1024	64.0
512	262,144	2304	113.8
1024	1,048,576	5120	204.8

Table 1 shows the comparison of computational complexityfor direct computation of DFT versus DIT FFT, this showsthat in DIT FFT computations is less.FFT/IFFT blocks designed to offer very fast transform time while keeping a floating point accuracy at all computational stages. It is based on radix-2 architecture; it also saves memory resources compared to other approaches. To maintain an optimal SNR (Signal to Noise Ratio) throughout the transform calculation, FFT core uses floating point architecture with 8-bit exponent for the real and imaginary part of each complex sample. FFT designed using DIT method in this DFT is calculated by sequentially splitting input samples x(n) in time domain into sets of smaller and smaller sequences and then form combination of DFT's of these sub sequences.

This FFT/IFFT block designed for FFT computation for 8-point floating real and imaginary data as there are 8 outputs from modulator block.
In the design of FFT/IFFT block, DIT FFT block consists of a complex multiplier and a complex adder, complex subtraction. The number of multiplication and addition is directly related to computational speed. In custom VLSI implementation, the area of chip and power requirements is important consideration and may not be directly related to number of arithmetic operations. So a floating point algorithm implemented using IEEE-754 which represent each decimal number in 32 bit binary form, for implementing the complex FFT and IFFT.

3.1 DIT FFT Algorithm

In the DIT approach the initial DFT is divided into two transforms, one consisting of a transform of even samples and other consisting of a transform of old samples. This process is carried out until transform is reduced to a set of two-point transforms of initial data. FFT implementation allows the results of each FFT butterfly to replace its inputs. In order to use an algorithm it is necessary either to re-order the input data array or re-order the output array. The re-ordering is simply arranged by reversing the address bits. The Figure 3 shows the butterfly structure of radix-2, 8-point DIT-FFT.

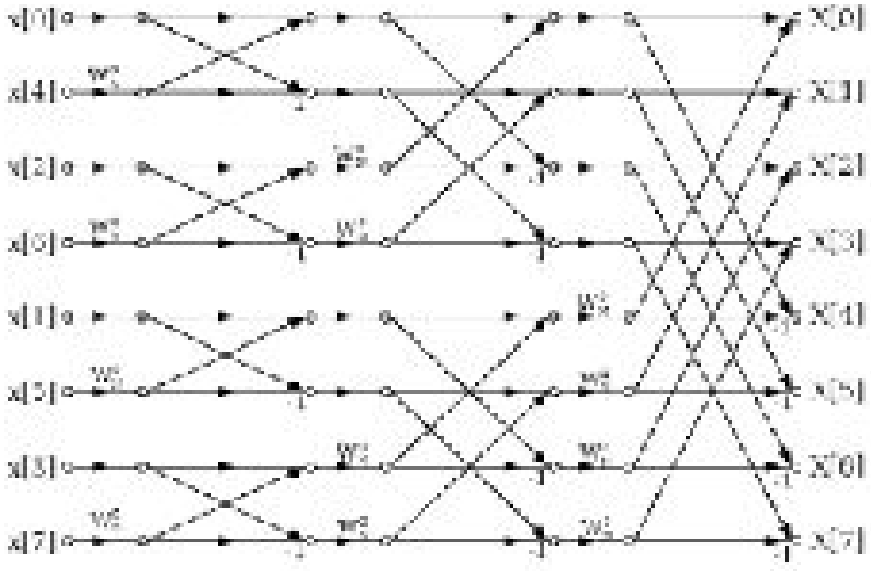

Figure 3 8-point FFT Flow graph using decimation-in-time (DIT)

The equation can be written as follows

(1)

The quantity W_N^{nk} is defined as below

(2)

This factor also called twiddle factor is calculated and put in a table in order to make the computation easier and can run simultaneously. The twiddle factor table is depending on the number of points used. During the computation of IFFT, the factor does not need to be recalculated since it can refer to the twiddle factor table thus it save time since calculation is done concurrently. In general the complexity of DIT FFT is N/2 [illegible] complex multiplication and N [illegible] complex additions. DIT FFT requires N to be a power of 2, if N is not a power of then need zero padding to let N be a power of 2 before FFT.

X(k) = [illegible] (3)

X(k) = G(k) + [illegible](4)

This signal flow graph consists of a number of butterflies. Each butterfly takes a pair of input data values A and B and outputs A' and B' as shown below in Figure 4The input data is multiplied by the twiddle factor[illegible]. The solid dots represent addition\ subtraction.

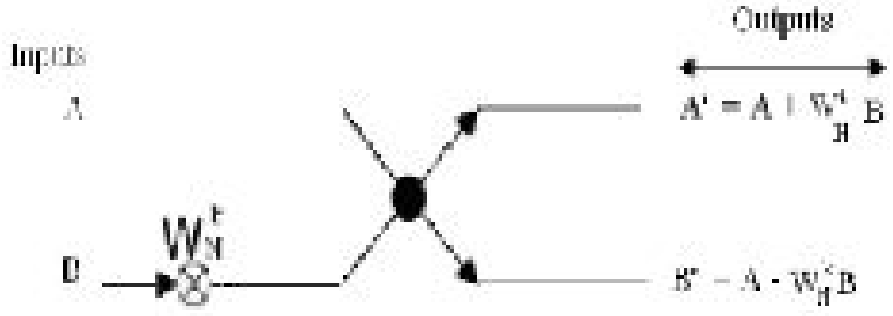

Figure 4 Figure 4 Butterfly Structure

3.2 IFFT (Inverse Fast Fourier Transform)

IFFT transforms the signals from the frequency domain to the time domain. The conversion is required because the frequency domain is defined as a spectral density. Spectral density describes how much signal (amplitude) is present per unit of bandwidth. To convert the sinusoidal amplitudes into a spectral density, divide each amplitude by the bandwidth represented by each amplitude. IFFT is defined as the equation 4.4 given below

[illegible] (5)

8-point IFFT flow graph using DIT scheme can be shown in Figure 5

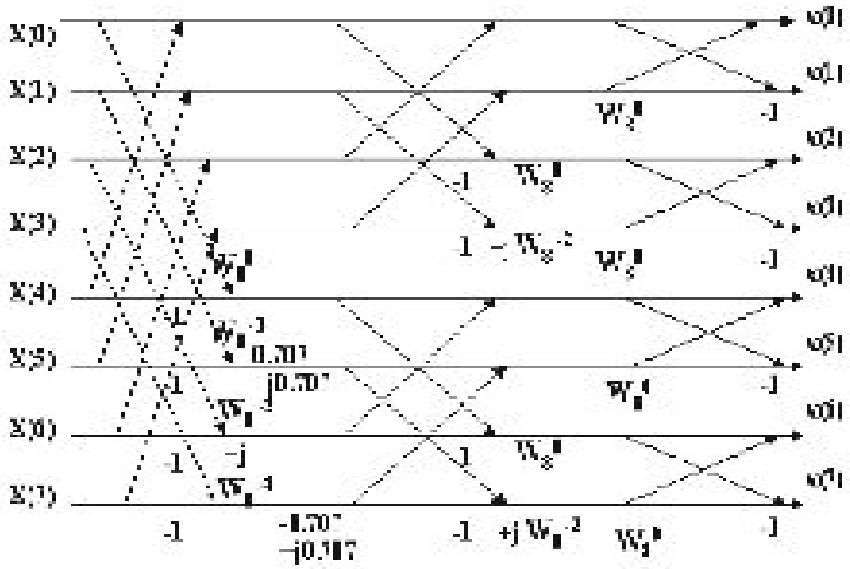

Figure 5 8-point IFFT Flow graph using decimation-in-time (DIT)

Simulation Results and Discussion

RTL view of FFT/IFFT block is shown in Figure 6. FFT/IFFTblock is implemented using VHDL and synthesized usingXilinx Projector Navigator, Xilinx ISE Design Suite 12.1.Then the results are verified by simulating the design usingModelSim 5.8c simulator. The Simulation result is shown inFigure 7. The design is then targeted on Virtex-6,6vlx75tff484-3. Then timing analysis is performed and resultcan be shown below. Table 3 shows the timinganalysis of design. Total memory used in this design is542764 Kilobytes. FFT.IFFT block designed using DITFFT algorithm because this has less number of computationalcomplexity than direct computation of DFT. Timing analysisand total memory usage results given with respect to Virtex-6,6vlx75tff484-3.

Table 2 Device Utilization Summary

Logic Utilization	Used
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

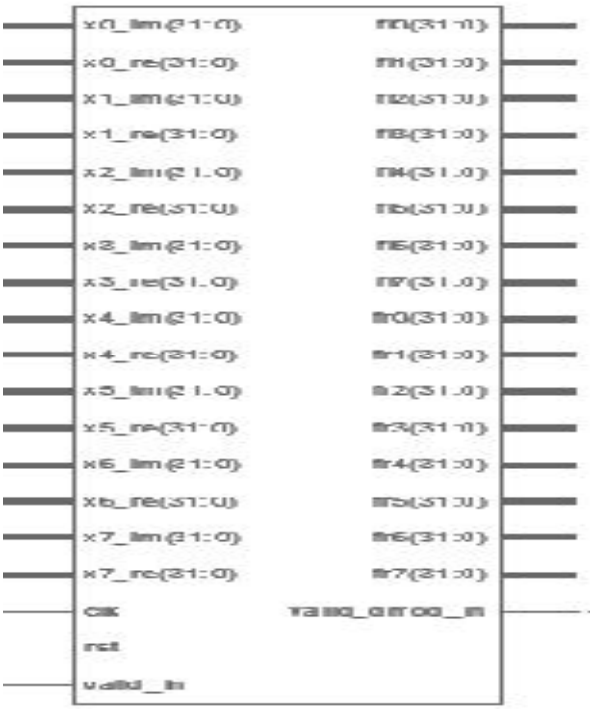

Figure 6 RTL View of FFT/IFFT block

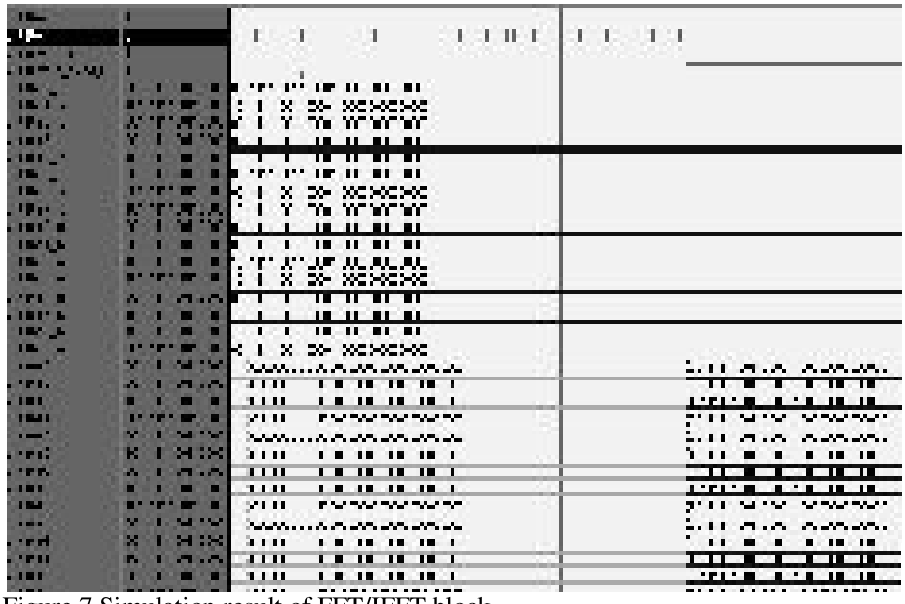
Figure 7 Simulation result of FFT/IFFT block

Table 3 Timing Analysis

S.No.	Parameter	Value
1	Minimum period	1.681ns
2	Minimum input arrival time before clock	3.066ns
3	Maximum output required time after clock	1.205ns
4	Maximum combinational path delay	No path found

Conclusion

This paper presents the design and analysis of FFT/IFFT block of OFDM module that has been adopted by various wireless standards i.e. ADSL, WLAN, DVB, DAB etc.FFT/IFFT blocks designed using VHDL and synthesized using Xilinx Projector Navigator Xilinx ISE Design Suite 12.1. Then results verified using ModelSim 5.8c simulator. Timing analysis shows the efficient design of FFT/IFFT block that consumes 1.6ns minimum timing period and maximum frequency is594.814 MHz. Although design is focused on performance of OFDM system but it occupies 542764 Kilobytes memory. FFT/IFFT block designed using VHDL and analysis is performed by targeting the design on Vertex-6 6vlx75tff484-3 and device utilization summary is also listed in Table 2. Although this design of FFT/IFFT block provides less memory with high performance but its efficient can be further enhanced by variation of different design parameters.

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An Evaluation of Operatives' PMS (With reference to Larsen and Toubro)

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Abstract
All establishments put into action performance appraisal for several purposes. The foremost concern hovers around the enquiry of what standards should be put into use to evaluate performance. Given that all assessments encompass judgments which are not always reasonable, business uses varied methods, positive performance appraisal needs a dependable method, clear standards and methods and bias-free ratings. Research pacts with "Performance Evaluation" as carried out in Larsen and Toubro (EWAC Alloys Limited). In this study, investigators have studied &judged the performance assessment technique as it is carried out in the corporation. A critical part of the assessment procedure is the preparation of the rater. Raters must be accomplished on the system being put into use and its end to confirm consistency and exactitude. The initial section of paper pacts with a comprehensive company contour. The subsequent section covenants research with performance evaluation. In the third segment of research, the investigators have steered a research study to gauge the performance management system L & T (EWAC).

Keywords : Performance, Subordinate, Superior, Training.

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Introduction

After an operative has been designated for an employment, has been taught to do it and has functioned on it for a period of stretch, his performance should be assessed. Performance assessment is the progression of determining how workers do their occupations. Enactment here refers to the amount of completion of the jobs that make up a person's job. It sign posts how well a single is gratifying the job necessities. Frequently the period is disordered with exertions, which means vigor lengthened and assumed in an erroneous sense. Performance is permanently gauged in terms of outcomes. A bank operative, for instance, may employ a prodigious deal of exertion while formulating for the MBA-IIM(A) examination but executives to

obtain a poor grade. In this instance the exertion extended is extraordinary but performance is stumpy.[1-3]
Performance Assessment is a means of gauging the conduct of workers in the toil spot, generally incorporating both the measureablefacets of job performance. It is a regular and unprejudiced method of assessing both work-related conduct and potential of workers. It is a course that includes defining and communicating to an operative how he or she is accomplishing the work and preferably, founding a design of development.[4-5]

When to Appraise?
Casual assessments are steered whenever the administrator or personnel managers sense it is required. Nevertheless, organized assessments are steered on a consistent basis, say, for instance, every six months or yearly. One study of 244 organizations traced out that assessments were most frequently piloted once a year. As per another Indian study, establishments evaluated their managerial staff at their centenary date of union. Latest research recommends, nevertheless, that more recurrent response correlates definitely with enhanced enactment.[6-8] Research has also shown that assessments for expansion end should be disconnected from those for compensation management. [9-10]

Objectives
Assessment of operatives serves several essential ends-

1. To study compensation decisions
2. To assess promotion decisions
3. To understand Training and Development programmers
4. To take feedback
5. To carry out personal development

Research Methodology
The investigation is regarding delineating PMS. It is a grave for talent management. It is staid in solidification of owner anticipations. Investigation being ended to diagnose how durable PMS sways strategic HR progressions viz. reimbursement and profits, training and enlargement, staffing and selection. The present investigation will be prepared at L&T. Model shall be taken out from all the branches. It would necessitate initial data and ancillary data. Data collection shall be concluded by scheming apposite survey and steering semi-structured discussions.

Data Collection
Through Simple Random Sampling, the investigation shall be carried out.
Primary Data:
-Survey,
-Discussions with operatives.
Secondary Data:

- Periodicals
- Industrial Papers
- Portals ofIndustry
Population: - 70
Sample Size: - 55

Findings

1. 39 percent operatives' estimation pertaining to P.A.S are steer edmerely for salary administration and returns.
2. 29 percent operatives standardly gratified with P.A.S.
3. 29 percent operatives' are unidentified pertaining to the ends of P.A.S.
4. Prejudices come into being in P.M.S. &P.A.
5. 95 percent operatives assert that they aren't rendered prospects to assess their explicit enactment.

Challenges for the Management

1. To build a philosophy of excellence that encourages workers at all capacities.
2. To contest organizational purposes with individual goals.
3. To arm individuals with obligatory skills to carry out their responsibilities well.
4. To render fresh challenges to revitalize flattening corners.
5. To boost coordination and team spirit and uncluttered communiqué.

Recommendations

The following should be the tentative recommendations taking into consideration the existing study-

1. The establishment should fix the applicable targets of P.A.
2. The outfit should espouse a new modus operandi as well as outmoded approaches of P.A.
3. The establishment should be upholding the limpidity in P.A.
4. They are recommended to form more faith therein.

Conclusion

Engineering major L&T has established a proficiency matrix which lists 73 competencies- that vary across executive levels- to gauge enactment and evaluate growth requirements of its workers. Each listed aptitude has connected SKAs. The outfit evaluates individual workers in the enumerated competencies, and focuses on the practical, administrative, and behavioral repertoire breaches. Successively, tailored corroboration is rendered. Further, as the matrix is concomitant to business strategy on the one end and training prerequisites on the other, strategic requirements drive the outfit's growth policies, making the procedure of relearning and re-skilling cozy, and more engrossed.

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Corporate Social Responsibility (CSR) Activities in Mobile Telecommunication Industry: Case of MTN and Etisalat Afghanistan

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Abstract
There were no telecommunication services in Afghanistan before year 2002. Due to decades war, the country left behind from international communications and relations. After the fall of Taliban regime 2001, the US-Led forces came in to Afghanistan and thus rebuilding of telecom services started in April 2002 when first GSM Company "Afghan Wireless Communication Company-AWCC" was established and start their services in the country and then later on other private or semi-private GSM companies got their GSM licenses for providing telecommunication services. Currently there are all six telecom companies i.e. AWCC, Roshan, Etisalat, MTN, Afghan Telecom and Wasel Telecom. Telecom is known as one of the biggest profit making sector of the Afghanistan. These companies play a vital role in generating new jobs to the market and created an estimate of 110,000 jobs around the country.
In this paper the researcher explained the Corporates Social Responsibility practices of Afghan mobile telecom sector, the role and benefits of CSR within the sector. CSR plays vital role both in community development and the betterment of the company to increase its sales and revenue. The main goal of this paper is to study the CSR practices of MTN and Etisalat telecom companies.

Keywords : CSR, Mobile Telecom Sector, MTN, Etisalat.

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Introduction

Any individual, business entity either public or private cannot live without telecommunications thus it became the important part of everyone's in the society. Telecommunication plays unavoidable role in each economic level of the society. Due to decades war in Afghanistan it last the country very far from international relations.The telecom industry in Afghanistan is currently going through intense

competition as several communication companies (AWCC, ROSHAN, MTN, ETISALAT, AFGHAN TELECOM AND WASEL TELECOM). Afghanistan telecom sector has shown tremendous growth over the last decades as economy and brought revenue to the government inform of tax payments, job creations, social development and many more.[1-3]

Due to high competition in the market, now a days every organization either private or public entity should not only concern about the profit but norms, values, legal obligations and take care of their business operations in the community where they operate. Here by they should keep a win-win balanced situation among their stake holders. This is where the issue of Corporate Social Responsibility comes in to play. The concept of CSR has been defined in different ways differently by scholars. There is neither universally accepted definition nor established guidelines or mandatory rules for CSR activities of a firm. Definition and activities of CSR have been defined and categorized from various points of view. "Social responsibility is the responsibility of an organization for the effect of its decisions and actions on society and the environment".[4-7]

As this paper focus on two private companies of telecom sector, below is the brief discussion about MTN and Etisalat.

MTN

The third GSM license was awarded to Areeba (Lebanese firm) in September 2005, they started their official operations in Afghanistan in 2006 and then it was acquired by a South-African company called Mobile Telephone Network (MTN) in 2007.This multinational firm is operating almost in many African, European and Middle Eastern countries.[8] MTN Afghanistan has 5.3 million active subscribers to the present and it has presence in all 34 provinces of the county. MTN plays an important role in country development created more than 35,000 direct and indirect jobs. It has many community developmental programs.

Etisalat

After MTN in the telecommunication market, Etisalat was the fourth GSM firm who got their license from the Ministry of Telecommunication in May 2006 and began their operations in the market August 2007. Etisalat is a United Arab Emirates (UAE) based telecom company and it's operating in Asia, Middle -East and Africa. Etisalat Afghanistan has 5 million users as of 2018. It has coverage in all 34 provinces of Afghanistan and internet facility almost in big cities i.e. Kabul, Jalalabad, Mazar, Herat, Kunduz, Gardez ,Khost, Baghlan and many more. The firm provided 1000 direct and an estimate of 25,000 additional indirect jobs around the country. Etisalat has Mobile money facility called M-Hawala.

CSR initiatives of Afghan Telecom companies

Below initiatives are claimed by two private telecom companies in Afghanistan.

MTN CSR Activities

MTN supports health sector and built MTN Support community health care centers, support "Gynecology" hospitals, Emergency Response Services during (earth quakes, severe flooding, epidemic outbreaks etc.), Blood donations base on necessity. It has MTN Mobile Clinic for the implementation of health sector.[9] MTN has "MTN Foundation" where MTN offer free education opportunities for Afghan male and female students in various subjects, provide books stationery, computer trainings, painting of class rooms and they perform cleaning of schools and institutions by MTN employees voluntary

MTN helped in providing clothing to local schools, designed web computer labs named "MTN computer lab" with combination of AASRA orphanage (Mr. MujeebLehaz). They assist community support programs by reconstructing broken bridges and digging water wells for people and also help those who are affected in war and displaced from their own homes in provinces.

ETISALAT CSR Activities

Etisalat provides Blood Donation Campaign every year periodically. Community Development: Reconstruction of Masjids- Annual Holy Quran Award. They distribute food\IfftarActivities;organize Hajj Events and Loyalty Program for Charity.

Eitsalat provides education facilities; they are having Graduate Trainee (GTs) Induction Program, builtcomputer labs with internet facility, always do distribution of schools bags, stationary items and gifts. Etisalat sponsor sports and Social Development: Afghanistan Cricket Board (ACB) Sponsorship, Afghanistan National Volleyball Federation Sponsorship, Buzkashi ('goat grabbing') Sponsorship, Reconstruction of Masjids, Annual Holy Quran Awards, Etisalat Supports Google Startup Grind.

Literature Review

The term CSR came in to common use in the late 1960s and early 1970s. CSR is considered to be a good business practice and it should be included in a company's core objectives. As In recent years, the research has revealed the importance of CSR and its significant impact on stake holders.

Being socially responsible means not only fulfilling legal expectations, but also going beyond compliance and investing "more" in to human capital, the environment and the relations with stakeholders.[10-11] After US-led international coalition for Afghanistan 2001, the emergence market perceives foreign investors, international NGOs, development organizations, media and relations over the time. The reconstruction of Afghanistan has begun after decades of conflict. Afghan telecom sector during the rebuilding of the country developed April 2002; The Government makes around $139.6 million from telecom sector every year which present 12% of the total country revenues.

In Afghanistan, a least developed country, the telecom sectors are control by powerful government organization, ATRA, which is the solely responsible authority to supervise and regulate issues related to Telecom sector in the country as per provisions of the Telecomm Services Regulation Law, has been continuously carrying out its functions in order to ensure Telecom services status in the country. Along with that, in Afghanistan all telecom companies especially private ones. AWCC, ETISALAT, MTN and ROSHAN are more competitive among each other in the market, therefore, issues of customer service and satisfaction is of great importance. Thus, in decision making processes, companies try to avoid actions that may breach any regulation or negatively impact their reputation in order to avoid consumer dissatisfaction.

CSR is also the continuing commitments by any business organization whereby they emphasize the ethical elements in their management and overall organizational structure (Richardson et. al, 1999).

At the same time, companies are responsible for national economic development by improving the quality of life of the whole workforce and their families as well (Abbott &Monsen, 1979).

Sen et al. (2001) opined that the benefits of CSR for companies which includes increased profits, customer loyalty, trust, positive brand attitude and combating negative publicity, are well-documented.

Statement of Problem

Based on these conflict findings, this study seeks to verify the value and importance of CSR of firms in the Telecommunication industry in Afghanistan.

Just as the global economy and market is experiencing intense competition, and high customer demands for better services, so is the mobile telecom industry in Afghanistan. Major mobile telecom providers in Afghanistan include AWCC, ETISALAT, MTN and ROSHAN. Together, these telecom service providers provide traditional telecommunications, IP services, Wireless service, Mobile markets and technologies, broadband markets and technologies. They also provide mobile services with an increasing number of value added services such as Short Message Service (SMS), Wireless Application Protocol, Subscription services, General Packet Radio Services, and Third Generation services and few of them recently start providing 4G services too.

Objectives of the study

The main objective of the study is to study and evaluate the CSR activities of the cellular phone companies in Afghanistan. More specifically the objectives are i.e.

1. To identify the areas of CSR practices of Afghan private telecom companies.
2. To Study the importance of CSR activities of selected companies.

Methodology

There are six telecom companies in Afghanistan AWCC, ROSHAN, Etisalat, MTN, Afghan Telecom and Wasel Telecomwhere only MTN and Etisalat institute the population of this study.

As the study was exploratory in nature, this research has been conducted from secondary resources only based on available data in firm's annual reports, websites, published articles, books, magazines and Social Medias at selected firms in Afghanistan. This focus of research was keen to study the CSR practices and importance of CSR activates in Afghanistan telecom industry.

1. **Study region :** This study wastaken in Afghanistan private telecom industry-two firms MTN and Etisalat.
2. **Research Design / Type :** The research design was Exploratory in nature.
3. **Data collection :** There are several ways to collect data, but appropriate data collection will keep the researcher on the right track. Secondary data was gathered from different resources for the particular descriptive research, i.e. published CSR articles, books, magazines, private telecom companies CSR data etc. which was used by the researcher for the explorative purpose.

Research Gap

It can be taken from the review of literature that there are none or fewer researches that study the current practices of CSR in Afghanistan. This paper aims to studythe current and updated nature of the CSR activities in private telecom Afghanistan. As there is lack of understanding CSR so this paper urges furtherdepth study research on the samerelated topic, CSR and its importance with regard to the telecommunication industry in order to givebroad study.

Results and Discussions

The research paper was held on CSR activities in Afghanistan telecom industry within two private companies, (a) MTN (b) Etisalat.

In this paper the researcher elaborate the Corporates Social Responsibility activities of Afghan mobile telecom sector, the role of the sector and benefits of CSR practices. CSR has vibrant role in many developmental activities such as employee's carrier and personal development, environmental development, community development and of course for the betterment of the company to increase its sales and revenue.

It has been concluded from finding and the review of literature, that CSR should be incorporated as integral part of firm's objectives. The main stakeholders included investors- Long term investors like to know that they have invested in the companies which will benefit from the goodwill of the society at large, employees-they would feel motivated to work for social responsible company, customers, government, suppliers and society in general will be benefited and would be in win-win position. CSR can be a good marketing tool for the organization business profit making purpose where they operate and will enhance their financial position better than previews. Profit is important for any private firm but it should not be only and sole aim for firms, there should be CSR activities and initiatives which would aimgiving back to the society in the community they operate.

There is a need for understanding on CSR and engagement of firms in social activities which would play an extensive developmental role in the society at

large.Awareness of CSR and, clarity of its meaning are both important for the managers and all employees to understand its implications.

The study concluded that there should be clear understanding of corporate social responsibility to every stakeholder in the market and threatens to be essential tool for everyprofit making firm. CSR should be incorporated in every firm's objectives.

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Characterization Techniques for Plasma Ion Nitrided Alloys

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Abstract
Various studies have shown that, the plasma nitrided materials are the most promising materials for modern development of science and technology. Characterization techniques play a significant role in the study of nitrided materials and helps for the further improvement in the process parameters to achieve the desired results. In this work introduction of some techniques which have been used by the authors has been presented. Attention will be focused on introduction to plasma nitriding, its experimental setup and some characterization techniques which have been used for characterization of nitrided materials.

Introduction
Plasma nitriding is a thermo-chemical process and it is also known as ion nitriding and glow discharge plasma ion nitriding (GDPIN) process. In plasma nitriding, nitrogen-hydrogen plasma supplies ions, excited atoms and molecules as well as radicals for nitrogen incorporation into surface of different alloys.[1-4] Various grades of steels have been plasma nitrided using this technology and characterized. In the plasma nitriding process, parameters such as process time, gas ratio etc. affect the properties of nitrided species. The effect of the various process parameters on surface properties of some different grades of steel (stainless steel) along with the spectroscopic work to understand the plasma nitriding mechanism has been intensely investigated by many researchers.[5] Further, the characterization techniques play a significant role to explore the micro and nano scale phenomenon of plasma nitrided samples. The gathered information through characterization techniques helps to improve the parametric variation to achieve the desired results and it also improves the understanding of the process.
Therefore, the characterization tools such as; Vicker Micro-hardness tester, Optical Microscope, X-Ray Diffraction (XRD), Scanning Electron Microscope (SEM) and Pin on Disk Tribometer which are frequently used to characterize the plasma nitrided components have been discussed in the present work.

Experimental Set-up
A schematic diagram of the standard plasma nitriding experimental setup has been shown in Figure 1. The cylindrical shaped vacuum chamber whose dimensions are

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0.8 m diameter and 1.0 m height is equipped with various components such as; vacuum pumps, different gauges, mass flow controllers, gas mixing chamber, program logarithmic controlled (PLC) and pulsed DC power supply. The details about the system.[6]

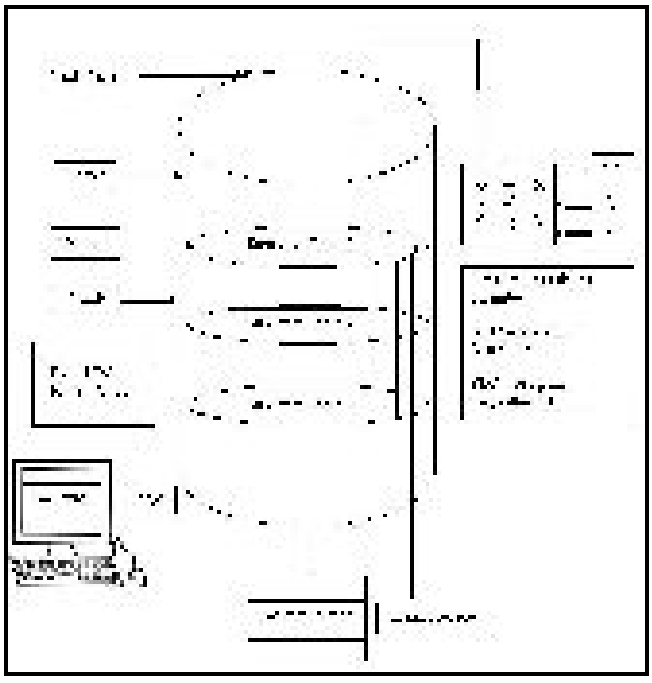

Figure 1: Schematic diagram of the plasma nitriding experimental set-up. [6]

Characterization Techniques

Frequently used various characterization techniques such as Vicker Micro-hardness tester, Optical Microscope, X-Ray Diffraction (XRD), Scanning Electron Microscope (SEM) and Pin on Disk Tribometer used to study the plasma nitrided samples with detailed description are given below. Results of our studies using the instruments have been also been shown. [8-9]

Vickers Micro-Hardness Tester

Vickers Micro-Hardness tester (Shimadzu, HMV-2T-E) is used to measure surface micro-hardness of plasma nitrided samples as shown in Figure 2 (A). In this technique a square base pyramid shaped diamond indenter has been used for testing. In the micro-hardness testing applied load on the indenter varies from a few grams to one kilogram. The value of the Vickers micro-hardness (VHN or VPN) was calculated by the following relation as given in Equation (1).[7]

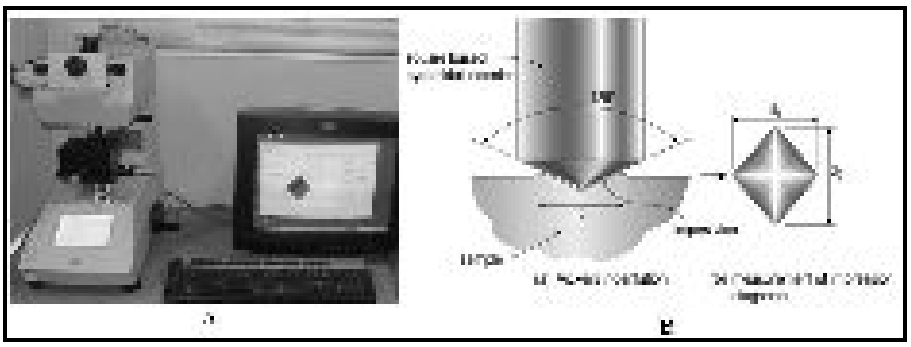

Figure 2: (A) Vicker's micro-hardness tester, (B) Measurement of diagonals in impression image.

$$VHN = 2P\,Sin(\theta/2)/d^2 \quad (1)$$

Where; P is the applied load in kg, d is the average length of the diagonals = $(d_1+d_2)/2$ in mm and θ is the angle between the opposite faces of the diamond. The value of $\theta = 136^o$ is fixed for all the instruments. The representation of fixed angle θ and the measurement of the values of diagonals in the impression images are shown in the Figure 2 (B).

Optical Microscope

Optical Microscope was used for microstructure analysis and diffusion depth measurements. The actual picture of optical microscope is shown in Figure 3 (A). To study the microstructure of plasma nitrided samples a cross-section of the plasma nitrided sample was taken out with the help of sample cutting machine. The cut pieces of the samples have been mirror polished by sample polishing machine. After sufficient polishing, samples were etched with 2% Nital solution to see the exact micro-structural changes. An actual image of the plasma nitrided steel samples is shown in Figure 3 (B).

X-ray Diffraction

Figure 4 (A) shows the Seifert made XRD-3000 PTS and Panalytical X Pert Pro instrument which were used to analyze the plasma nitrided samples. The basic principle involved in the XRD measurements is the diffraction phenomenon from an atomic plane. A diffraction peak will occur during the XRD measurement for such atomic planes, where Bragg's condition will be satisfied. The necessary Bragg's condition in the X-ray diffraction phenomenon is given by Equation (2).

$$2d\,Sin\theta = n\lambda \quad (2)$$

Where; d is the inter-planner distance, θ is the angle between plane and incident X-ray, n is the order of reflection and λ is the wavelength of X-rays. Cu anode X-ray

was used for producing Cu K radiation (ι.=1.5418 Å) for the analysis of untreated and plasma nitrided samples. A diffraction pattern observed in the untreated and plasma nitrided sample is shown in Figure 4 (B).

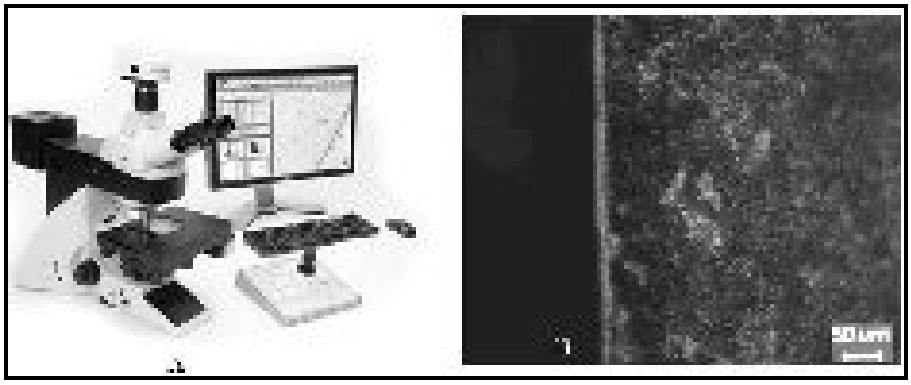

Figure 3: (A) Optical microscope, (B) Microstructure of plasma nitrided AISI 52100 steel [8]

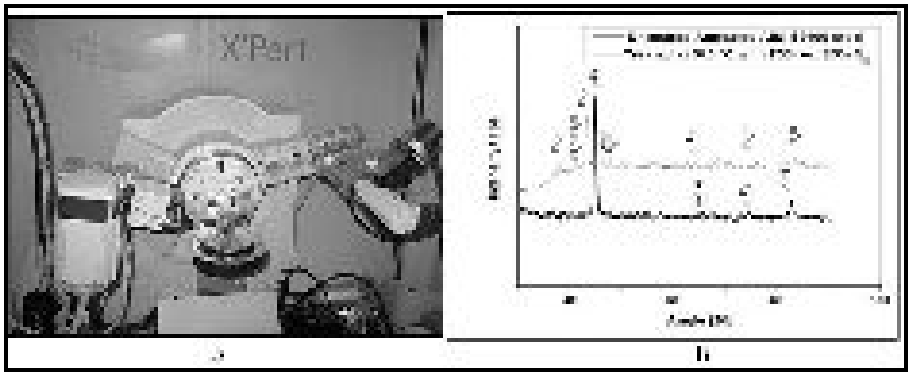

Figure 4: (A) X-Ray diffraction (XRD) unit, (B) X-ray diffraction patterns of untreated and plasma nitrided samples. [8]

Scanning Electron Microscope (SEM)

Figure 5 (A) shows the Scanning Electron Microscope (SEM) with EDX (Nova NanoSEM 450). It was used for morphological study of samples after plasma nitriding process. Figure 5 (B) shows the essential parts of a scanning electron microscope. In an electron microscope, electrons are emitted from a hot filament and accelerated upto ~30 keV that provides the resolution of ~3-5 nm. In electron microscopes, electron beam can be focused to a very small spot size using electrostatic or magnetic lenses. The fine electron beam scans the sample surface using the scan generator and backscattered or secondary electrons are collected by

an appropriate detector. The detected signal of secondary electrons is amplified with an amplifier and seen on the computer screen. A typical SEM morphological image of plasma nitrided samples is shown in Figure 6.

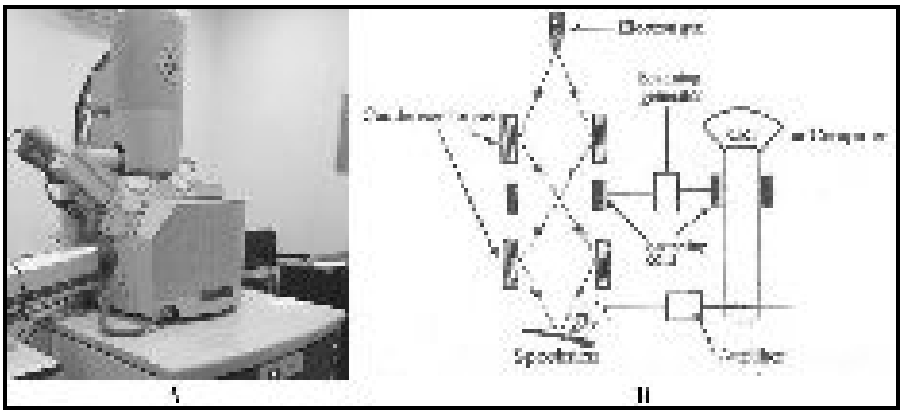

Figure 5: (A) Scanning electron microscope (SEM), (B) Schematic of SEM with essential parts.

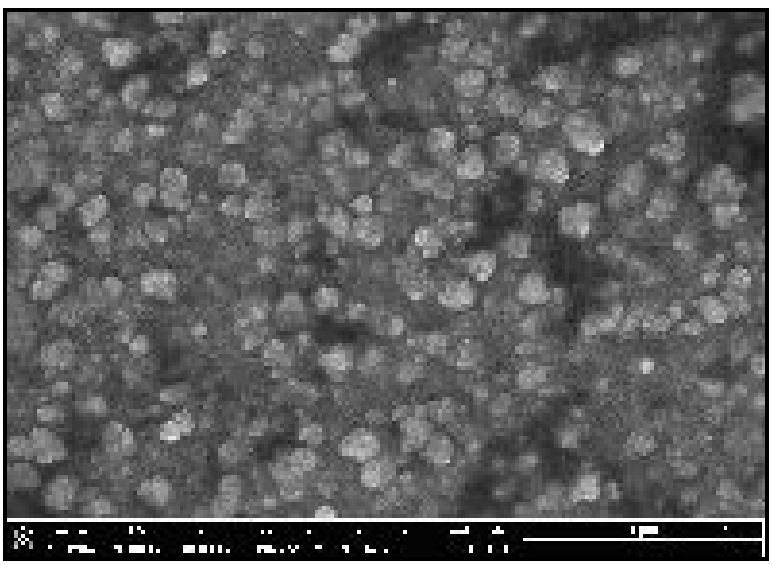

Figure 6: SEM morphological image of plasma nitrided sample. [9]

Wear Testing Machine (Pin on Disk Tribometer)

Figure 7 (A) shows the pin on disk tribometer CM 9112. It has been used for the analysis of wear properties of untreated and plasma nitrided samples.

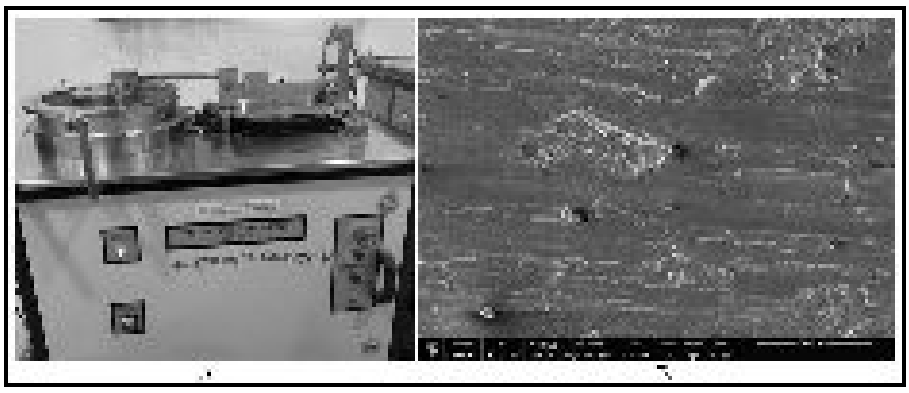

Figure 7: (A) Pin on disk tribometer (CM 9112), (B) SEM image of plasma nitrided sample after wear test.[9]

Wear test was can be performed in the dry or lubricated conditions with the variation of applied load and sliding distance. Weight of the samples must be carefully measured before and after the wear test using at least three digit balancing machine. A SEM image of plasma nitrided sample after wear test is shown in figure 7 (B).

Conclusion

On the basis of this study it is concluded that, the characterization techniques provide the informations about changes occured on the material's surface after plasma nitriding. These observed information helps to understand the basic phenomenon ocurred during the process and plays a cursial role in improving the process parametres.

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Analysis of Traffic Sent and Received Through Various Algorithms For 20,40,60 Nodes MANET Network Using OPNET Moduler

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Abstract

In the field of communication many changes in way of communication are occurring day by day. Wireless local area network is based on IEEE 802.11 standard and can be solution for above needs. If we talk about without base station connection then an ad hoc network is the solution. Mobile ad hoc networks have a routable networking environment on top of a Link Layer. Here a temporary network is formed by nodes without using any existing network infrastructure or centralized administration

A routing protocol is one which finds out the routes among various mobile nodes for providing best communication in the network. There can be different Routing protocols for MANETs based on its application and network architecture. Route needs to be discovered and maintained with a minimum of delay and efficient throughput which is challenge for MANETs. There are different routing algorithms (protocols) available like AODV, DSR, OLSR, GRP and TORA for providing efficient routes between mobile nodes, but it is difficult to identify which algorithm performs best at different traffic conditions. To resolve this problem we have analyzed these algorithms in different situations of traffic OPNET IT Guru Simulator 14.5 (Academic edition) was used to simulate the entire network.

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Introduction

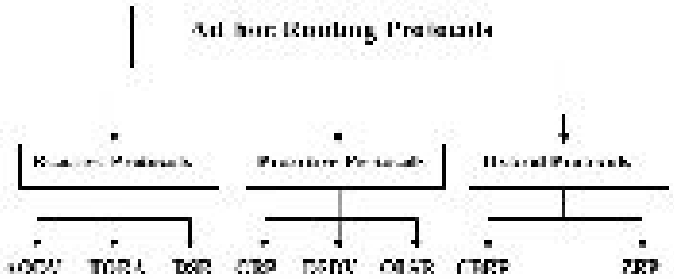
MANETs have various properties like it can be set up anywhere, nodes can be used as both routers and hosts, multi-hop radio relaying, operating without a central coordinator, autonomous, no infrastructure needed and Instant deployment. We use Routing protocols for finding out the possible routes between mobile nodes. But due to some shortcomings like topology changes, bandwidth constraint and power constraint MANETs gives delay in particular network communication and sometimes it is difficult to find routes.[1-3] Therefore, effective communication is

needed to find out worthy algorithm in MANET area so they can provide less delay and high throughput. So this work with the optimization techniques based on the advanced network simulator, OPNET. The OPNET (Optimized Network Engineering Tool) can be best described as a set of decision support tools, providing a comprehensive development environment for the specification, simulation and performance analysis of communication networks, computer systems, and applications and distributed systems. In ad hoc networks, each node follows a routing protocol and maintains its routing tables in memory to ensure the delivery of a packet from sender to receiver.

Routing protocol analysis depends on the conditions that given in the simulation environment. Before analysis of different routing protocols it is needed to know about different parameters that will contribute in result analysis.[4-5] These parameter will be the base for evaluate the best protocol in the MANET. Each parameter has its significance in analysis so to know about why that particular parameter selected it is needed to know about basic of that parameter and role in analysis.[6]

Routing Algorithms

In ad hoc networks, each node follows a routing protocol and maintains its routing tables in memory to ensure the delivery of a packet from sender to receiver. We can classify the routing protocols into the following categories:



DIFFERENCE BETWEEN DIFFERENT ROUTING PROTOCOLS

PROTOCOL PROPERTY	REACTIVE	PROACTIVE	HYBRID
Routing Scheme	On Demand	Table Driven	Combination of Both
Routing Philosophy	Flat	Flat/Hierarchal	Flat/Hierarchal
Unidirectional link support	Yes	NO	NO
Communication Overhead	High	Low	Medium
Route latency	Always Present	When Needed	Both
Scalability	Small N/W	Low	Large N/W
Storage Capacity	Low	High	Zone Dependent

Topology Dissemination	Periodic	On Demand	Both

Results And Discussion

Routing protocol analysis depends on the conditions that given in the simulation environment in above chapter. Before analysis of different routing protocols it is needed to know about different parameters that will contribute in result analysis. These parameter will be the base for evaluate the best protocol in the MANET. Each parameter has its significance in analysis so to know about why that particular parameter selected it is needed to know about basic of that parameter and role in analysis. So these different parameters are described here with their role and units of measurement these are as follows:

- Traffic Sent - Data bits sent to receiver or average bits per second forwarded to transport layers by http/ftp application in the network. This parameter measured in bits per second (bits/sec) unit. This parameter measures which routing protocol will transmit maximum number of bits per second over the network without any loss. This parameter value will base on other parameter for final result for best routing protocol.
- Traffic Received - Data bits received from the source or average bits per second forwarded to the HTTP/FTP applications by the transport layers in the network. This parameter measured in bits per second (bits/sec) unit. This parameter measures which routing protocol will receive maximum number of bits per second over the network without any loss. This parameter value will base on other parameter for final result for best routing protocol.

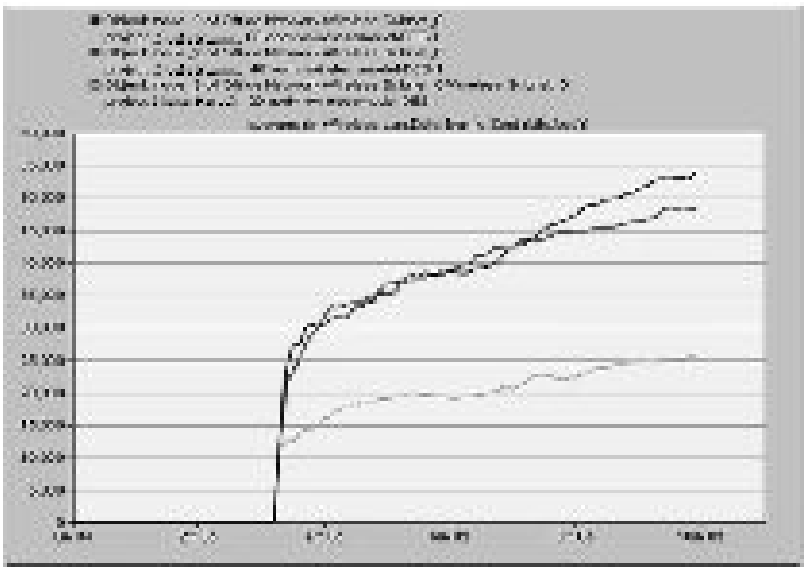


Fig.1.Comparison Graph of Traffic Sent for AODV (20, 40, 60)

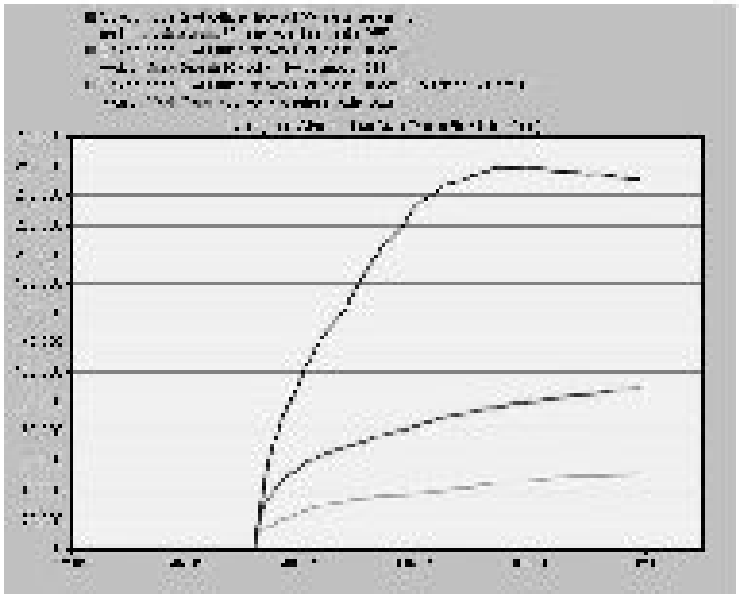


Fig.2.Comparison Graph of Traffic Receive for AODV (20, 40, 60)

In this simulation, routing protocol AODV is applied simultaneously to the 20, 40 and 60 MANET mobile station nodes and traffic sent parameters are analyzed. Simulation shows that as the no. of mobile nodes increase traffic also increases as shown in graph1. For individual 20, 40 and 60 nodes the traffic sent parameter increases initially very fast and then becomes constant.

Analysis shows the result for AODV traffic sent for 20 nodes - 25000bits/sec, for 40 nodes -48000bits/sec, for 60 nodes – 54000bits/sec approx.

In this simulation, routing protocol AODV is applied simultaneously to the 20, 40 and 60 MANET mobile station nodes and traffic receive parameter analyzed. Simulation shows that as the mobile nodes increase, traffic also increases, this is shown in graph2. For individual 20, 40 and 60 nodes the traffic received parameter increases initially very fast and then becomes constant.

Analysis shows the result for AODV traffic received for 20 nodes - 38000bits/sec, for 40 nodes -100000bits/sec, for 60 nodes – 235000bits/sec approx.

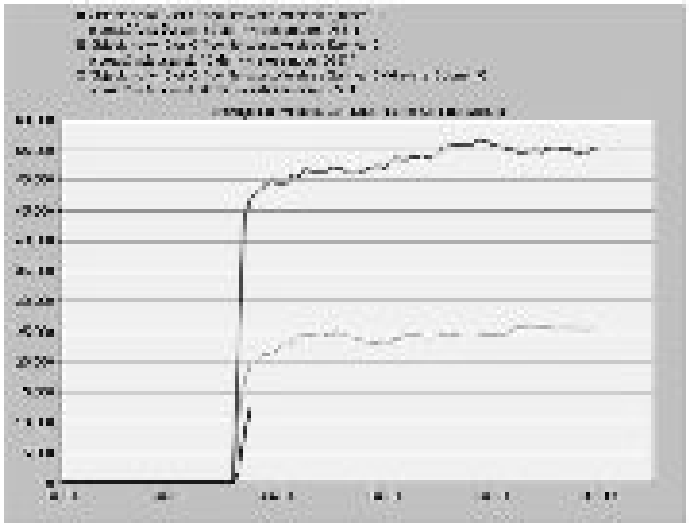


Fig.3.Comparison Graph of Traffic Sent for DSR (20, 40, 60)

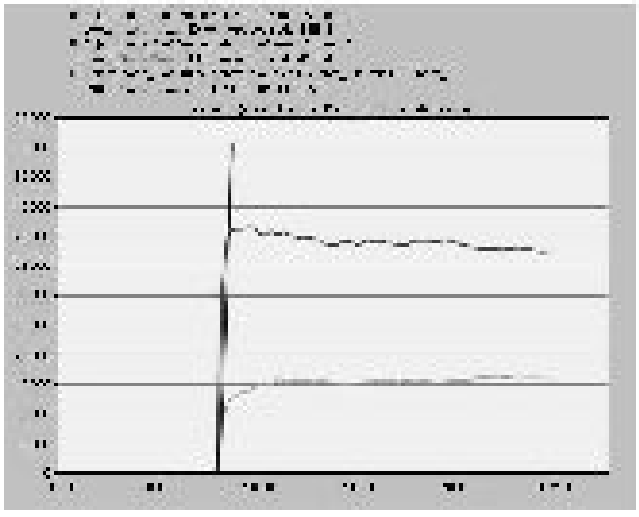


Fig.4.Comparison Graph of Traffic Receive for DSR (20, 40, 60)

In this simulation, routing protocol DSR is applied simultaneously to the 20, 40 and 60 MANET mobile station nodes and traffic sent parameters are analyzed. Simulation shows that as the mobile nodes increase, traffic also increases but at very high traffic DSR response starts disappearing as shown in above graph3.
Analysis shows the result for DSR traffic transmit for 20 nodes – 25000bits/sec, for 40 nodes -55000bits/sec, for 60 nodes – increases continuously approx.

In this simulation, routing protocol DSR is applied simultaneously to the 20, 40 and 60 MANET mobile station nodes and traffic receive parameters are analyzed. Simulation shows that as the mobile nodes increase, traffic also increases but at very high traffic DSR response starts disappearing as shown in result graph4. Analysis shows the result for DSR traffic received for 20 nodes – 15000bits/sec, for 40 nodes -41000bits/sec, for 60 nodes – increases continuously approx.

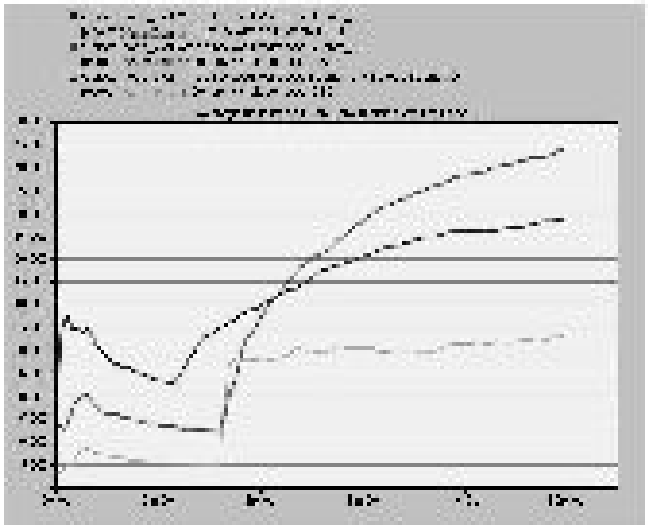


Fig.5.Comparison Graph of Traffic Sent for TORA (20, 40, 60)

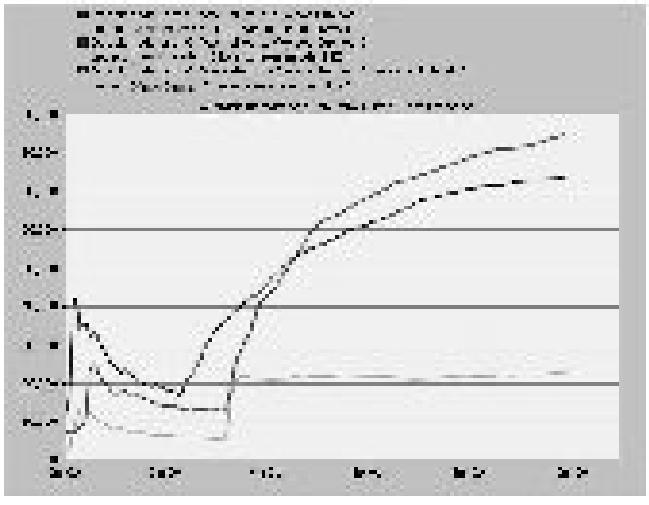


Fig.6.Comparison Graph of Traffic Receive for TORA (20, 40, 60)

Above figure 5 and 6 shows the TORA analysis of traffic sent and received. In this simulation, routing protocol TORA is applied simultaneously to the 20, 40 and 60 MANET mobile station nodes and traffic sent parameters are analyzed. Simulation shows that as the mobile nodes increase, traffic also increases as shown in graph above figure5. Analysis shows the result for TORA traffic transmit for 20 nodes – 32000bits/sec, for 40 nodes -59000bits/sec, for 60 nodes – 64000bits/sec approx.

In this simulation, routing protocol TORA is applied simultaneously to the 20, 40 and 60 MANET mobile station nodes and traffic received parameters are analyzed. Simulation shows that as the mobile nodes increase, traffic also increases as shown in graph6. Analysis shows the result for TORA traffic received for 20 nodes – 22000bits/sec, for 40 nodes -72000bits/sec, for 60 nodes – 80000bits/sec approx.

Conclusion

This Paper focuses on the designing of MANET for different different nodes. It was found that the main challenges of such type of network are Traffic managements load increases on the network. Whole analysis shows different routing algorithms have their different features some are applicable where as others are not possible. Analysis of different routing algorithms can be possible by designing a mobile ad-hoc network basis on as described in previous chapters. Different parameters as traffic load which tell us about the no. of packets which can transmitted and received simultaneously and the delay tells the time required sending the data from transmitter to receiver and vice-versa, estimates the routing algorithm.

The whole simulation is composed on constant bit rate 36 Mbps and power of 0.005W. The simulation concludes high traffic efficient load characteristic can be provided by only AODV in comparison of DSR and TORA. Overall performance for 20, 40 and 60 node AODV can be perform better for high traffic rather than DSR and TORA.

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Para-diplomacy in Federal Polities: Sub-national Governments as International Actors in Brazil and India

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Abstract
The impact of economic globalization and regionalisation has made it possible for constituent units of both Brazil and India to interact with their respective investors in foreign countries *in de facto* sense if not *in de jure* sense. Compared to Brazil para-diplomacy in India is still at the incipient stage. However, para-diplomatic initiatives by states, of late, have begun gathering momentum. The paper makes a comparative study of states' para-diplomacy in Brazil and India.

Keywords : Para-diplomacy, Federalism, Foreign Policy, India, Brazil

Introduction
Broadly speaking the term 'para-diplomacy', i.e., 'parallel diplomacy' is used for the involvement of sub-national governments in foreign affairs with a view to promote their own interests.[1] Both Brazil and India are federal political systems where states enjoy considerable autonomy. The impact of economic globalization and regionalisation has made it possible for constituent units of both Brazil and India to interact with their respective investors in foreign countries *in de facto* sense if not *in de jure* sense. In Brazil, regional trading bloc such as MECOSUR has played an important role in integrating Brazil's sub-national governments internationally. For instance, some Brazilian states today can inter-relate themselves with the Argentinean states. Federal/central government has also assisted its constituent units in their para-diplomatic efforts by setting up coordinating institution. It has now realised that subnational para-diplomacy can be used as national development strategy. Compared to Brazil para-diplomacy in India is still at the incipient stage. However, para-diplomatic initiatives by states, of late, have begun gathering momentum. It is evident from the states' high profile investment-promotion activities abroad. Such activities have helped some states in their economic development and reduced their economic dependency on central government. The paper makes a comparative analysis of para-diplomacy in Brazil and India. It underlines the factors responsible for the development of para-

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diplomacy in Brazil and India. Further, the study examines how do Brazil and India differ in terms of the institutionalisation of para-diplomacy?

Federalism and Para-diplomacy

Does being part of federal system help the sub-national governments to engage in para-diplomacy? In other word, does federalism help sub-national in their quest for para-diplomacy? Indeed federalism helps because it constitutionally divides power between central government and its constituent units. But not necessarily subnational governments only in federal country participate in foreign policy.[2] Even in federal countries, foreign policy is normally one of very few areas, along with defence and monetary/fiscal policy that does not come under the jurisdiction of sub-national governments. However exception does exist such as Argentina, Spain among others. In federal system state enjoys autonomy in several areas well-protected by the constitution. Thus, federalism as factor may influence the constituent units of a country to influence/participate in foreign economic policy. Constitutionally speaking, however, states and local governments are not legitimate international actors.

The existing division of responsibility giving the federal government sole jurisdiction over international matters, but leaving important elements of implementation to the provinces, is increasingly a source of conflict in most of the federal systems in the world. Economic liberalisation has thus occasioned the greater sub-national governments' involvement in foreign policy than they enjoyed before.

In both Brazil and India, as per the constitutional distribution of subjects in their Constitutions, most of the sectors that are important for liberalisation process fall within the jurisdiction of subnational governments. They include industrial infrastructure, power, development, agriculture and irrigation and social sector like education and health. However, since federal/central government in the two countries have primary role for the formulation of liberalisation policy, relations/cooperation between federal/central government and state therefore are of crucial importance for the liberalisation policy to be successful. In Brazil states have come to occupy an important say in country's foreign affairs. Despite the adoption of India's new economic policy (NEP) in 1990s with some state governments playing important role in the making of India foreign economic policy, however, states' role appears to be quite limited compared to Brazil.[3]

Development of Para-diplomacy in Brazil

The processes of redemocratisation of the 1980s, accompanied by processes of political decentralization, created a positive milieu for the development of para-diplomacy in Brazil. Some scholars believe that decentralised federal system under the 1988 constitution pushed the subnational government to enter into a forbidden area of international relations. This however does not appear to be true; in fact sub-national governments in Brazil were involved in acts of para-diplomacy even before the 1988 Constitution. However, the autonomy and responsibilities granted by the Constitution to the federated entities, in a way, intensified the states' activism in international affairs.

Jha, PC

The interest of Brazilian states in para-diplomacy goes back to the creation of the Latin American Free Trade Association – LAFTA (*Associação Latino-Americana de Livre-Comércio - ALALC*), in 1960. On that occasion, then governor of the State of Rio Grande do Sul (southern Brazil), Leonel de Moura Brizola, declared that agreement (Montevideo Treaty, 1960) would endanger the federate state, and thus claimed the state government's right to "examine and make itself heard during the drawing up of the Montevideo Treaty". Brizola conveyed this message through a telegram to then President of the Republic, Juscelino Kubitschek. It is Brizola who created the first federate state office of foreign relations (headed by political scientist Clóvis Brigagão, peace and security specialist), and established his own international agenda. Then there was another Governor, André Franco Montoro of São Paulo who promoted the ideology of Latin-American integration that ultimately resulted in the establishment of PARLATINO (the Latin-American Parliament) in São Paulo.[4]

Governors of some states especially from the South and Southeast regions of Brazil considered Argentina's re-democratization as a yardstick and set up direct dialogue with the central and provincial Argentine authorities. It appeared that it would provoke the military government of President João Batista Figueiredo (1979-1985). Nevertheless this fact was not seen by the Ministry of Foreign Affairs (Itamaraty) as a threat or deviation, but rather as a factor capable of actually easing the country's return to democracy. The process of Argentine-Brazilian integration gained added status with José Sarney's rise to the presidency (1985-1990). This new status was materialized in the Iguaçu Declaration of 30 January 1985, held to be the cornerstone of integration between the two countries. In short, subnational para-diplomacy helps in integrations of Argentina and Brazil.[5]

Due to the growing economic integration of Argentina and Brazil, the most important case of inter-regional cooperation in Latin America has been the so called Crecenea-Codesul. Crecenea is the North-eastern Argentine Regional Commission of Foreign Trade, and includes the provinces of Chaco, Corrientes, Entre Ríos, Formosa, Misiones and Santa Fé. It was created in 1984 in order to promote economic development and foreign trade, but in 1990 a Federal Pact, signed between the central government and the corresponding provinces, recognized openly its international relevance in the promotion of foreign trade as well as its role in the fulfilment of Mercosur objectives. Codesul is the Council for the Economic Development of the Southern Brazil, which is formed by Mato Grosso do Sul, Rio Grande do Sul, Paraná and Santa Catarina. The Crecenea-Codesul cooperation scheme has achieved an appreciable economic success, and has certainly empowered the subnational governments.[6]

It was the state of Rio Grande do Sul--that had claimed its right to a voice in LAFTA negotiations--led by then elected Governor Pedro Simon (1987-1990), which had created the Special Secretariat for International Affairs, the first of its kind in any Brazilian state, headed by Professor Ricardo Seitenfus, a international relations specialist. Thus the state set an example for beginning negotiation for greater participation in the then incipient integration process.

The result of these sub-national manoeuvres, which also included the Uruguayan government, resulted in approval of *Border Protocol N. 23*, the first international document to include sub-national border governments in the Southern Cone integration process. As foreseen in the Protocol, Border Committees were created, with a hybrid structure involving national and local authorities, opening up actual spaces for decentralized bilateral international cooperation. The Southern Cone border territory was consolidated as a pilot-space for the first institutional acts of sub-national international cooperation.[7]

Since the early nineties different Brazilian regions have been involved in numerous cross-border integration projects. For instances, the one that links the Bolivian departments of Pando y Beni with the states of Mato Grosso, Acre y Rondonia, or the various existing between the north-eastern states of Acre, Amazonas, Roraima with their corresponding Peruvian, Colombian or Venezuelan subnational counterparts. Brazilian governors, particularly those from the coastal states of Bahia, Espirito Santo, Rio de Janeiro and Sao Paulo, are also accustomed to receiving international missions from European regions.

The historically peripheral region such as Northeast states have, in recent years, increased their ability to mobilize resources for international trade. The State of Bahia took the initiative in enhancing cooperation with countries as diverse as Chile, USA, Italy, Argentina, South Korea and Poutugal after having included Asian countries such as Malaysia and Indonesia in agro-forest cooperation. The Bahia International Business Centre (PROMO) has developed as a key player in the effort to promote relations abroad.

The State of Pernambuco includes the North-eastern Agency of Itamaraty Representative office in Recife. The agency focuses mainly on expanding trade with Netherlands, France and Germany. However, the most dynamic federative unit in the Brazilian Northeast is State of Ceara. Initiatives taken by its advisory body on International Affairs have been remarkable. It has diversified its trade involving countries in Portugal, Italy, France, Germany, Russia etc. in Europe; in Lain America particularly Argentina, Cuba, Mexico and Chile and USA. The diversification of trade is now seen as hallmark and legacy of Ceara. Thus para-diplomacy has helped Ceara's economy to grow at faster rate making the state's traditional isolation a thing of past.[8]

Institutionalisation of Para-diplomacy in Brazil

In Brazil, the former President Fernando Henrique Cardoso dealt with adjusting to this new reality and created the Federative Relations Advisory Board (*Assessoria de Relações Federativas* - ARF) in 1997 – subordinate to the Minister of Foreign Relations (Itamaraty) – an entity that came to play the role of interface between the chancellery and the international demands of Brazilian states and municipalities. The administration of former President Lula altered the ARF, transforming it into the Special Advisory Board for Federative and Parliamentary Affairs (*Assessoria Especial de Assuntos Federativos e Parlamentares* – AFEPA). However, the most relevant fact was the creation of the Secretariat for Federative Affairs (*Subchefia de*

Assuntos Federativos – SAF) in 2003 linked to the Presidential Office.[1] Since then SAF has been playing a significant coordinating role between Itamaraty and subnational governments. Thus in Brazil, federal government has realised that para-diplomacy process cannot be reversed and given the huge gains not only in economic sphere but in political, social, educational, cultural and tourism, it is desirable to legitimise it by creating coordinating institutions and consider it as strategy for national development. Indeed, between 2003 and 2004, the federal government established a series of services within Itamaraty and the President's Secretariat (*Secretária da Presidência da República*) in order to deal with municipalities, federate-states and their para-diplomatic activities, particularly within the Mercosur integration process. Many municipalities also confirm that the creation of a formal structure gives visibility to the city nationally and abroad, an important factor for attracting technical assistance, investments and trade. National associations such as the National Confederation of Municipalities (*Confederação Nacional de Municípios* (CNM) and the National Front of Mayors (*Frente Nacional de Prefeitos*) recognize and steer the international action of Brazilian cities; they organize seminars, training courses, and publish guides for the development of international projects.[9]

Mercosur

The Creation of MERCOSUR has also intensified the process of para-diplomacy and vice-versa. After the creation of the MERCOSUR Parliament, in December 2006 came into existence MERCOSUR Committee of Municipalities, States, Provinces and Departments, in January 2007. And creation of the MERCOCITIES Network (Rede Mercocidades) in 1995 signalled structural changes in domestic and international policy of the MERCOSUR integration process. MERCOSUR has an important role in integrating Brazil's subnational governments internationally. States in Brazil have begun to inter-relate themselves with their Argentinean counterpart in some cases systematically. State consultancy agencies or secretariats for international affairs and integration have been set up. Same goes for some municipalities also.[10]

In the case of municipalities is existence MERCOCITIES Network responsible for bringing about more than one hundred municipalities from the four countries that form the bloc including Chile and Bolivia. Thus integration not only at the state level but also at local level has been achieved.

Para-diplomacy and Brazilian Municipalities

Milani and Ribeiro have empirically analyzed the multiple ways through which municipalities across Brazil developed para-diplomatic activities. They in their research selected seventy-two municipalities for survey, twenty of them situated in the North and North-East of Brazil (less developed socio-economically), and another fifty-two in the South, Southeast and Central West (more developed). Among which 51 (70.8 per cent) exercise some form of para-diplomatic activity;

however, only 29 of them (40.2 per cent) have already set up a international structure (IR) which is responsible for the management of the city's international relations. The study confirms that the richest regions in the country also concentrate the majority of municipalities with para-diplomatic activities are concentrated in the richest regions such as South and Southeast. They correspond to almost 76 percent of the total of 51 municipalities. Sao Paulo, Rio de Janeiro and Porto Alegre are emblematic examples of municipal para-diplomacy in Brazil.[11]

Research further shows that municipalities participate in para-diplomatic activities such as international missions, participation in fairs and international events, technical cooperation schemes, exchange of best practices, and agreements setting up twin cities. One case that deserves to be mentioned is Macapá (capital of the federate-state of Amapa), which signed a series of bilateral cooperation projects with Cayenne in French Guiana in 1990. Another two cities that should be mentioned are Uberlandia and Olinda, for their relationships with the American Chamber of Commerce and UNESCO's cultural programmes, respectively. The main countries having established partnerships with these twenty-two municipalities are France, Spain, Portugal and Italy, but also China and Japan.[12]

Regional integration is usually an important incentive to the development of para-diplomatic activities. On the one hand, this is so because with the weakening of borders, cooperation between participating subnational governments is made easier; on the other, because regional integration processes create important incentives to forming subnational government lobbies that defend their interests as subnational governments before central governments and/or supranational bodies.

Gains from Para-diplomacy

Para-diplomacy has the following gains as the experience of Brazil shows: In the economic sphere, it had led to international funding, as well as foreign investments and increased exports of locally produced goods. In the political sphere, agreements are made to empower local public policies and disseminate best practices as well as carry the needs of sub-national governments to the international system – through networks of cities and bilateral agreements, for example. In the cultural sphere, subnational governments seek agreements that deal with migratory flows and which allow greater visibility to increase tourism.

Joana Setzer analyses the factors shaping climate policies in the state and city of São Paulo, Brazil. Setzer argues that participation in trans-national subnational governance (TNSG) is playing a noticeable role in promoting such actions. In São Paulo, the state and city policies and programmes have exceeded federal initiatives, and their representatives are participating in the international debate, 'bypassing' the national level.[13]

To sum up para-diplomacy in Brazil is pioneered by the states of Rio de Janeiro and Rio Grande do Sul in the late 1980s followed by São Paulo and later spread to other states. Today all states are involved in so called para-diplomacy. The federal government has recognised and to some extent favoured this increasing international activism of sub-national governments (states and municipalities) and tried to set up a coordination mechanism. This can be seen as an act of

legitimisation of para-diplomacy by the central government. The federal government also realised that sub-national activism in form of para-diplomacy cannot be stopped and given the important gains from, it responded by creating coordinating institutions.

Para-diplomacy in India

Two factors can be attributed to the rise of para-diplomacy in India. First once coalition governments became dominant at the central level in India, the influence of the states in national politics became pronounced. Secondly, adoption of economic liberalisation in the early 1990s has given the Indian states unforeseen opportunities for para-diplomacy.[14] The quest for trade and investment has made them to look for external market. This enhanced role for the states has transformed the power equation between the centre and the states as the latter has become more assertive. Liberalization thus provided an environment that enabled the states to begin playing a key part in foreign economic policy, particularly in regard to seeking foreign direct investment and the promotion of foreign trade. Regional leaders and regional parties have become important national players and the central leadership can no longer take them for granted. Increasingly, the regional parties can be seen making a bid to assert themselves nationally. Leaders openly admit that "regional parties are not only looking after the problems of their respective regions, they are also involved in deciding the national problems".

Defining Moment in Para-diplomacy

The defining moment in para-diplomacy occurred in 1993 when the government of India's most industrialized state Maharashtra entered into negotiations with Enron, Texas energy giant. It signed the largest contract in history with the company on a Power Purchase Agreement. Here central government played a supportive role; supportive role because it was compelled by Maharashtra to provide sovereign counter-guarantee against its own better judgment. This episode was a watershed in which the lead player was the state rather than the centre, and this was a result of the opening up of the Indian economy, which enabled the state to exercise considerable control over the issue. This is, however, not to say that the decision was a rational one.[15]

In India today, there is a growing tendency to involve relevant state governments in diplomatic discussions, which were previously conducted mostly between the central government and the country in question. There is awareness now that regional leaders help to provide greater understanding because of common cultural ties between their province and the people across the border.

CM as Salesmen

Under the present globalised and liberalized regime the states in India like Brazil are not solely dependent on the central government for the generating capital to achieve their developmental goals. They are, therefore, looking for external sources to meet their needs. Massive infrastructure spending is required to reap the benefits of the market economy, and there are limits to how much revenue they can raise given that they do not have independent borrowing powers. They are therefore

forced to look for foreign investment. This has turned most state Chief Ministers into salesmen who advertise their state's unique endowments to their foreign audience.

Some state governments have also signed memoranda of understanding with external agencies. Some states have gone to the extent of inviting foreign companies to take over and run some municipal services. Andhra Pradesh and Tamil Nadu are cases in point. Some states have also been exploring the possibility of boosting tourism related business with foreign countries. For instance, Kerala tourism officials have finalized plans with Singapore Airlines subsidiary Silk Air to bring tourists from the Australasian region to India. Today Gujarat has joined Southern states such as Andhra Pradesh and Karnataka which have been showcasing their state capitals as being high-tech. Kipa Sridhran states:

While visiting dignitaries would previously flock to cities such as Agra to see the Taj Mahal, cities like Hyderabad and Bangalore are now making waves and attracting important world leaders. Most foreign dignitaries now begin their tours from these state capitals and visit New Delhi on their way out.[16]

State Leaders at International Forum

The developments taking place in some reform-oriented states are being brought to the attention of international audiences through the participation of state-level leaders in international economic gatherings such as those held annually in Davos, Switzerland. Together these developments indicate the multi-layered nature of diplomacy, in which states have become additional players in a sphere that is usually the preserve of the central government in a federal system.

One major area of contention between the two levels of government has been the signing of the multilateral trade agreement that led to the establishment of the World Trade Organisation (WTO). The Indian states felt that the agreement was signed by the central government without adequate consultation with the states, even though many of its provisions have a direct bearing on them. The Centre has been effectively persuaded by the states to be more transparent and inclusive in its deliberations with external entities; in this sense, the states have served notice on the Centre's monopolistic behaviour.

Foreign Trade Offices in India

Various state capitals have witnessed opening of number of foreign trade offices that have opened in various state capitals. Increasingly, the feeling is that the states are becoming relatively autonomous players in crafting foreign economic policies suited to their own needs, and that the old way of approaching the central government to pursue commercial relations at the state level can prove unproductive.

Para-diplomacy and Economic Development in India

The states are negotiating with multilateral institutions for loans to improve their physical and social infrastructure. The Central government has conceded that "in the wake of liberalization the role of external assistance has gained (further)

significance in view of the large gap in funding requirements for social and infrastructure sectors in order to acquire competitive strength under the globalised economic framework". The Department of Economic Affairs within the Ministry of Finance is now encouraging the states to take the initiative in accessing external assistance. In their negotiations with the external agencies the presence of the Finance Ministry official is not seen as overbearing, as was once the case.

Para-diplomacy has huge potential to address some of the long-standing problems from water sharing to terrorism, and illegal migration to environmental protection that exist between India and its neighbours such as Afghanistan, Pakistan, Sri Lanka, Bangladesh, Myanmar and China. Central government in India must get its chief ministers involved more actively in the pursuit of foreign policy interests. Some chief ministers of states bordering sensitive neighbours have already acquired an indirect role in the shaping of India's regional policy. Instead of treating this as an exception to the rule Central government should consider it as an opportunity to make India's regional policy more effective.

In short, states in India are involved in foreign economic policy, particularly in regard to seeking foreign direct investment and the promotion of foreign trade. Under the previous command economy model this had been forbidden territory for them. The relationship between the Centre and the states, notwithstanding the dominant position enjoyed constitutionally by the Centre, has not been openly confrontational, but neither can it be considered cooperative. Regional leaders and regional parties have become important national players and the Central leadership can no longer take it for granted that they will toe the line. Para-diplomacy can be used to address many trans-boundary problems as many state governments have acquired big stakes in the negotiations between India and its neighbours. Sometimes the central political leadership has deferred to the concerns of the states in dealing with the neighbours.[17]

Towards an Institutional Mechanism

Ministry of External Affairs (MEA) has created a States Division in 2014 to coordinate with States and Union Territories for further facilitation of their efforts to promote their exports and tourism and attract more overseas investments and expertise. Indian Foreign Service (IFS) officers have been asked to choose a state each to understand its special requirements and to advise them. State division has managed to bring about a great deal of enthusiasm in engaging and partnering with states to reach out to foreign countries by promoting trade and investment.

In its Annual Report for 2015-16, the MEA recognized the fact that the states have a critical role to play, particularly in the success of commercial and cultural diplomacy. The States Division is helping states identify target countries and regions for commercial, cultural, academic, tourism and diaspora outreach, and in having appropriate strategies for maximising the gains from international interaction (The Ministry of External Affairs, Annual Report 2015-16).[18-19]

According to MEA’s annual report, one of the major achievements of the States Division was to launch the India China State/ Provincial Leaders Forum during the visit of the Prime Minister Narendra Modi to China in May, 2015. During the visit

of Modi to China, the States Division coordinated signing of a sister state agreement between Karnataka-ichuan, signing of three sister-city agreements, between Chennai-Chongqing, Hyderabad-Qingdao, Aurangabad-Dunhuang. During Modi's visit to Japan, the States Division facilitated the signing of Kyoto-Varanasi Partner City Agreement (The Ministry of External Affairs, Annual Report 2015-16).

Concluding Observations

Subnational para-diplomacy in wake of globalisation and regionalisation, it appears, has become worldwide phenomenon no longer confined to the developed countries irrespective of existence of federal or unitary structure. However, as a matter of fact subnational governments in federal countries have potential to play far more important role than those of unitary countries.

In Brazil, Rio de Janeiro and Rio Grande do Sul were the first states which are said to have started para-diplomacy. It is important to specify, however, that a great part of the activities that are today considered para-diplomaticy, such as promotion of commerce or city twinnings, had been developed for decades, albeit in a scattered and uncoordinated fashion, and particularly without being integrated into a wider foreign strategy. The number of states and municipalities with international relations (IR) structures increased over the years, with the majority of subnational governments with some kind of international relations structure concentrated in the country's South-Southeast region. At local level, also co-ordinating institution such as Municipal secretariat has been created. The city councils with greater international activity all possess a structure geared towards international relations, although much like Ministries of Foreign Affairs, foreign economic policy is managed quite independently. Federal government provided assistance to states and municipalities in their international relations.

Compared to Brazil, states' para-diplomacy in India is at the nascent stage. Para-diplomacy has made some states especially developed states economically more independent. Huge gains have been registered with the flow of FDIs. Some CMs in India have become very popular with overseas investors and international agencies. Para-diplomacy in India, however, takes place in unplanned and scatted form without central government coordinating with states in systematic manner. In recent times, however, central government in India has created 'states division' in order to help states in their para-diplomatic pursuits.

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An Overview on CZTS and CZTSE Thin Film as an Absorber Layer in Solar Cell

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Abstract
$Cu_2ZnSn(S,Se_4)$ have becomea promising candidate due to outstanding performance as an absorber layer as it possess direct band gap in between 1.0 to1.5eV. It consists earth abundant and non-toxic materials and suitable for photovoltaic. A variety of fabrication methods of thin films are available like thermal evaporation method, RF-DC Sputtering method, Electro deposition etc. For the development of solar cell, the variation of the composition of this compound and the effect of annealing temperature has been explored on its band gap in this paper.

Keywords : Fabrication Method, Structure of CZTSe thin film

Introduction

Thin film solar cell technology has drawn too much attention towards the absorber material which exhibits the non-toxic, earth-abundant and inexpensive characteristics in conjunction with the band gap around 1.3-1.5 eV. Exhibiting the properties of suitable absorber layer CZT(S, Se) thin films have been emerged as an emerging candidate for thin film solar cell technology. Maximum efficiency of thin film solar cell has been achieved of 11.6 %.[1-3] Despite these present scenario there is still a big challenge to apply this technology in commercially way. Many vacuum and non-vacuum techniques like RF-DC sputtering method, electrochemical deposition, thermal evaporation, pulsed layer deposition method etc. have been employed for its fabrication.[4-6] The foremost hindrance for formation of pure CZT(S, Se) compound is the formation of detrimental secondary phases like Cu_2SnSe_3 and ZnSe. Fabrication method, thickness of metallic precursor layer and annealing temperature affects its electrical and optical properties.Vivid research efforts has been set off, to develop alternative thin film solar cell absorber materials constituting of earth-abundant, low-cost, and non-toxic elements to increase the efficiency of solar cell.

Discussion

Agawane et al approached cost effective chemical methodto fabricate CZTS thin films. They concluded thatthe films sulfurized at 500┓C showed kesterite phase with an optical bad gap of 1.47eV. The solar cell exhibitedhighest short circuit

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current density of 8.27 mA/cm^2.‾ Araki *et al* deposited CZTS thin filmson Mo-coated glass substrates by electroplating using copper sulfate for Cu plating, tin sulfate for Sn plating and zinc sulfate for Zn plating and then sulfurized as deposited thin film. The sulfurisation process was done by annealing with sulphur at different temperatures in an N_2 gas atmosphere concluding that solar cell with CZTS as an absorber layer exhibited a short-circuit current of 9.85 mA/cm^2 and 262 mV as open circuit voltage indicating all photovoltaic parameters were significantly improved.Babu*et al*preparedCZTSe thin films with Cu/(Zn+Sn) ratio varying in the range of 0.85 to 1.15 using thermal co evaporation method for Cu, Zn, Sn and Se metallic precursors. Annealing process was done in selenium atmosphere for 1 hour. They concluded that thin films having Cu/(Zn+Sn) ratio of0.90-1.10 exhibited single phase and polycrystalline structure while thin films containing Cu/(Zn+Sn) ratio of 0.85 contained secondary phase of ZnSe. Further it was also disclosed that thin films of Cu/(Zn+Sn) ratio of .85 contained $Cu_{2-x}S$ secondary phase. Decreasing the ratio of Cu/(Zn+Sn) ratio lead to increasing the band gap with depending the resistivity on Cu/(Zn+Sn) ratio. They indicated the co-existence of secondary phases causing for band fluctuation which will be detrimental for the device performance.Beattie *et al* fabricated $Cu_2ZnSnSe_4$ thin films, on molybdenum coated glass substrates using RF-DC magnetron sputtering method and selenisation. Thereason for existence of high-quality $Cu_2ZnSnSe_4$ thin films were mentioned due to occurrence of an excitonic peak as its acceptor and donor ionisation energies were 27 and 7 meVrespectively.

The band gap can be improved by modifying the ratio of the Sn/Cu other than modifying the (Cu+Zn)/Sn ratio of CZTSe thin films.DLópez┐Mariño *et al* investigated the kesterrite Structure of CZTSe thin film deposited by e-beam evaporation method. They concluded that the Zn content did not influence the band gap but E_g increased with the ratio of Sn/Cu in the steps of 150 MeV from 1.48 to 1.63eV. Brammertz*et al* deposited CZTSe thin film as an absorber layer employing two steps method including sputtering deposition of Cu, Zn and Sn and post selenizaton of CZT precursor concluding the effect of potential barrier on the performance of solar cell, as there was an exponential increase of the series resistance at low temperatures while its effect remained relatively small at room temperature CZTSe thin filmswere fabricated by Dale *et al* employing sputtering and selenization process. They deposited precursors in sequence of cooper, zinc, tin and selenized these as deposited thin films to obtain CZTSe. The P-type absorber layer were found with electronic band gap of.9eV and lattice parameter a┐=┐5·684┐Å and c┐=┐11·353┐Å. [7] Da Cunha, et al deposited single phase crystalline CZTSe thin films in order to achieve the band gap within the range of visible spectra concluding thatloss of Sn could be reached to rock-bottom by increasing the pressure during the growth process of CZTSe thin films.[8]

Besides, to improve the efficiency of solar cell, Da Cunha *et al*introduced the characteristics of the CZTS thin films prepared by sulfurization of RF-DC sputtered precursors layer of Cu-Zn-Sn. Analysis of Raman spectra affirmed the presence of SnS with characteristic modes at 160 cm^{-1}, 190 cm^{-1}and 220 cm^{-1}. It was concluded that increasing the sulfurisation temperature upto 525┐C corrected the chemical

composition of CZTS thin films but sulfurisation process caused a little deprivation in Zn content.[9] Djemour *et al*used thermal co-evaporation method accompanied by high temperature annealing process to deposit $Cu_2ZnSnSe_4$ (CZTSe) thin films. In order to improve the device performance by reducing the Sn loss, $SnSe_2$ layer was evaporated on the absorber CZTSe layer resulting in the reduction of decomposition of CZTSe thin film. A solar cell with efficiency of 5.1% was designed.[10]

Raman scattering measurements assured the presence of secondary phases of ZnSe accumulating towards the absorber surface with the abundance of Zn. It was concluded that increasing the annealing temperature lead to the diffusion of ZnSe towards the back absorber region more strongly, due to the formation of back voids in the absorber layer. Therefore, the avoidance of the formation of secondary phases could be controlled by composition, and the removal of secondary phases are crucial for high efficient CZTS(e) solar cells.[11] To further improve the performance of solar cellFukano *et al* soaked CZTS thin films prepared by using co-sputtering method in deionised water as soaking in it eliminated metal oxide particles from the layer. [12]

Katagiri, *et al* prepared CZTS thin film by using two step method. Firstly they thermally co-evaporated cooper, zinc, tinand thensulfurised as deposited thin films. They fabricated a solar cell Al/ZnO:Al/CdS/CZTS/Mo-SLG consisting CZTS as an absorber layer with a band gap lying in between as 1.45–1.6 eV. They obtained a conversion efficiency of 2.62% with a open circuit voltage of 735mV. [13] Kim *et al* prepared CZTSe thin films employing single step method. Targets with various chalcogenide mole ratios were sputtered through RF-DC magnetron to prepare thin films in stoichiometry ratio. It was concluded that Stannite and p-type CZTSe thin film were obtained with a high absorption coefficient of $104cm^{-1}$ and band gap of 1.56 eV suggesting that control of target compositions is crucial to obtain single phase and stoichiometric quaternary CZTSe films .[14]

To promote the performance of device and suppress the decomposition,Moriya *et al* employed pulse layer deposition method to prepare CZTS thin film with controlled energy density as an absorber layer for solar cell. It was concluded that precursors prepared with low energy density has better quality than the precursors prepared at higher density. Annealing of deposited precursors in N_2+H_2S (5%) atmosphere resulted in decrease of the compositional ratio of sulfur and improved stoichiometric. Direct band gap of thin film annealed at 500 ℃ was measured about 1.5eV. [15] Secondary phases affect the CZTS absorber layer performance in solar celland can be responsible for high series resistance. Raman spectroscopy is a powerful technique to identify the secondary phases which will be helpful to provide essential information tooptimizethe parameters. Newman et al compared the Raman results of as grown and etched in Na_2S solution concluding that etching in Na_2S solution reduced the secondary phases of SnS.[16]

Conclusion

An overview on fabrication method and structure of CZTs and CZTSe thin films gives us a clear view about the many strategies and efforts done for the improvement of efficiency of thin film solar cell which are continuing to develop

more efficient and eco friendly solar cell indicating that there is much scope of research in this field. Tunable band gap of CZTSe and CZTSe thin film has obtained by varying its component ratio which is really very initiative approach in this field as well as demanding much more attention towards its other perspectives also.

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Some Possible Self-Management Lessons from the Bhagwad-Gita

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This paper is a simple attempt at understanding the teachings of Bhagwad-Gita and relating and comparing them with the concept of self-management, a very important part of emotional intelligence as it applies to business management. It is well understood that there are basic and fundamental differences between the philosophies, assumptions, aims, and contexts of the Gita and modern business and business management. Secondly, the inadequacy and inconclusiveness of scientific and empirical research of the teachings of Gita and shallow comparisons of the Gita with modern psychology are fraught with danger. Therefore much deeper, greater and many sided research on Gita and its relations with modern psychology and emotional intelligence and self-management needs to be done and their affect and influence on business management are required to be searched for and proved before anything academically certain and conclusive can be claimed.

Keywords : Self-management, Self-awareness, Self-regulation, Self-motivation, Emotional Intelligence, Bhagavad-Gita

There are serious philosophical and scientific debates on what comprises of the self of a human being, its characteristics, manifestations, workings and mechanisms. But understood in a simple and a generally accepted way, the self of a human being would include self-consciousness, his subjectivity, personal identity, the individual's mind and its manifestations in ideas, thoughts, emotions, expression, words, behaviour and actions. It would include consciousness, thoughts, feelings, his personality, behaviour, attitudes and its reflection in actions and work. The self would be both - an individual's personal self and his social self.

The word/term self-management can be said to be derived from studies, theories and research in the fields of psychology and emotional intelligence. Self-management would refer to an individual's self-awareness, self-regulation, self-motivation and self-development. At this juncture it would be fair to say that the very concepts of emotional intelligence and self-management are being researched and studied by psychologists, cognitive scientists, philosophers and artificial intelligence experts and there many debates, differences of opinion and doubts regarding them. But there is some degree of consensus to make some general claims.

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According to Cronin and Mandich(2009)
Self-management skills refer to, skills, and strategies by which individuals can effectively direct their own activities toward the achievement of objectives and includes goal setting, decision making, focusing, planning, scheduling, time management, task tracking, self-evaluation, self-intervention and self-development.[1]

Emotional intelligence comprises of the following elements (Goleman 1995) –
1. Self-awareness
2. Self-regulation
3. Social skills
4. Empathy and
5. Self-motivation

Although there are a few other models of emotional intelligence with somewhat different (and at times pretty different) approaches and structures but Daniel Goleman's model remains popular and simple to understand and few other models seem to be influenced by it. In this paper we are going to stick to Goleman's model.
Emotional intelligence has a role to play in business management and leadership. Latest studies have concluded that emotional intelligence or emotional quotient may be as important, if not more, than intelligence quotient or IQ (Mayer 2008 and Goleman 1996). According to an article written by Brian Tracy in the Forbes magazine, leaders with high emotional intelligence may be more effective and successful in general and perhaps also in specific situations and circumstances (Tracy 2017). Although we need much more decisive research and justified conclusions on emotional intelligence itself, its relations with human abilities and the role of emotional intelligence and human abilities on business and management performance and results.
Although studies and researches on emotional intelligence are being conducted and empirical evidence is being gathered, yet to some extent certain claims about the value and utility of emotional intelligence can be made. Emotional intelligence affects our attitude and outlook on life. The concept of mental an emotional health may be related to emotional intelligence and studies have shown that through higher emotional intelligence one can achieve better mental health can also help to alleviate anxiety and avoid depression and mood swings (Branscum 2014 and Gill Gobender 2018). A high level of emotional intelligence may contribute to a more positive attitude in life including improving human relations and helping in resolution of conflicts along with contributing to greater success (Gupta and Kumar 2010).But we need more definite conclusions on relation between emotional intelligence and mental health, especially the beneficial effects of a higher emotional intelligence on mental and emotional health.
Let us look at the important aspects of self-management in greater detail. According to the Stanford Encyclopaedia of Philosophy:
In philosophy, "self-knowledge" standardly refers to knowledge of one's own sensations, thoughts, beliefs, and other mental states (Gertler 2017).[2]
But self-awareness in context of emotional intelligence refers to not only consciousness and knowledge for one's own states of consciousness, emotions,

sensations andideas but also reactions, strengths, weaknesses likes and dislikes along with what motivates and demotivates us. It goes beyond consciousness to clear knowledge of such mental states. It includes knowing one's emotions strengths, weaknesses, values and goals – and their impacts on others.[3]
Self-regulation consists of a strong will which can control and manage one's thoughts, reactions, emotions, negativities, attachment and detachment. According to the HBR Guide to Emotional Intelligence:It is controlling and redirecting disruptive emotions and impulses.[4]

According to Psychology Today
Research consistently shows that self-regulation skill is necessary for reliable emotional well-being. Behaviourally, self-regulation is the ability to act in your long-term best interest, consistent with your deepest values. (Violation of one's deepest values causes guilt, shame, and anxiety, which undermine well-being.) Emotionally, self-regulation is the ability to calm yourself down when you're upset and cheer yourself up when you're down.[5]
Self-motivation means that a person is able to motivate and encourage oneself in normal and exceptional circumstances to do or not do what he thinks right. It is being driven to achieve for the sake of achievement.[6]
Self-development means identifying and nurturing self-potential, achieving excellence and exceeding our limitations. All these aspects combine to comprise self-management. Therefore, self-management and its aspects have the central role to play in emotional intelligence.
Improved self-management may lead to increased concentration, greater will power, increased discipline, greater control over emotions and decrease in dissipation of energies and resultant increase in focus, energy and efficiency. When one is able to manage his/herself better,it may lead to better understanding of others, their nature and problems. It also might help to inculcateattitudes of brotherhood, cooperation and teamwork in contrast to self-centeredness and excessive selfishness.
Managerial efficiency is achieved when managers get maximum results out of minimum efforts. Managerial effectiveness according to Peter Drucker is the ability to do the right things.Managerial success is measured in terms achievement of objectives. Better self-management can possibly lead to development of positive and helpful qualities and traits and weakening of negative qualities and traits in a business manager which can lead to increased managerial efficiency, success and effectiveness resulting in business success and achievement of strategic goals.Thus, it is possible that better self-management results in better management.

Bhagwad-Gita or the Divine Song
The Bhagwad-Gita or Gita, as it is more commonly and simply known, is one of the most important spiritual and philosophical scriptures of the Indian philosophy, spirituality and tradition and it gives important insights into human nature and self-management and control. The Gita is not a religious work; it transcends narrow sectarianism and is a guide to the science and art of life. It is a work synthesizing both the worldly life with the spiritual life and the various paths of

spirituality:*Karma* (the spiritual path of works), *Jnana* (the spiritual path of knowledge) and *Bhakti* (the spiritual path of love and devotion).It is a guide to understanding human nature and is a prescription for solving spiritual as well as worldly problems (at least to some degree). It gives us insights and waysto the eternal, supreme path and destination of spiritual liberation and self-realization and surrender to the Supreme Divine.

Views of great personalities on the Bhagwad- Gita

In point of popularity the Gita is second to no other work in Indian thought. It has been read, understood and commented upon by many great spiritual and worldly personalities.

When doubts haunt me, when disappointments stare me in the face, and I see not one ray of hope on the horizon, I turn to *Bhagavad-Gita* and find a verse to comfort me; and I immediately begin to smile in the midst of overwhelming sorrow. Those who meditate on the *Gita* will derive fresh joy and new meanings from it every day.[7]

Mahatma Gandhi

In the morning I bathe my intellect in the stupendous and cosmogonal philosophy of the Bhagavad-Gita, in comparison with which our modern world and its literature seem puny and trivial.[8]

Henry David Thoreau

The *Bhagavad-Gita* deals essentially with the spiritual foundation of human existence. It is a call of action to meet the obligations and duties of life; yet keeping in view the spiritual nature and grander purpose of the universe.[9]

Pandit Jawaharlal Nehru

I owed a magnificent day to the *Bhagavad-Gita.* It was the first of books; it was as if an empire spoke to us, nothing small or unworthy, but large, serene, consistent, the voice of an old intelligence which in another age and climate had pondered and thus disposed of the same questions which exercise us.[10]

Ralph Waldo Emerson

The Bhagavad-Gita is the most systematic statement of spiritual evolution of endowing value to mankind. It is one of the most clear and comprehensive summaries of perennial philosophy ever revealed; hence its enduring value is subject not only to India but to all of humanity.[11]

Aldous Huxley

Yoga has two different meanings - a general meaning and a technical meaning. The general meaning is the joining together or union of any two or more things. The technical meaning is “a state of stability and peace and the means or practices which lead to that state." The Bhagavad Gita uses the word with both meanings. Lord Krishna is real Yogi who can maintain a peaceful mind in the midst of any crisis.[12]

Mata Amritanandamayi Devi
The Bhagavad Gita is a message addressed to each and every human individual to help him or her to solve the vexing problem of overcoming the present and progressing towards a bright future.[13]

Swami Shivananda
Swami Vivekananda's love and reverence for the Gita is not hidden from anyone. According to him Gita teaches us detachment and unselfishness in works. It lays stress not on the rejection of works, weaknesses, feeble-heartedness, and lethargy, but courage, strength, incessant activity and hard work, but by concentrating as much on the means as on ends and not for one's selfish ends, but for the Divine and Dharma. The control of the mind, balance and calmness of the mind are amongst the central teachings of the Gita. For Swamiji Gita represents a synthesis of different paths of Indian spirituality.

According to Sri Aurobindo:
The argument of the Gita resolves itself into three great steps by which action rises out of the human into the divine plane leaving the bondage of the lower for the liberty of a higher law. First, by the renunciation of desire and a perfect equality works have to be done as a sacrifice by man as the doer, a sacrifice to a deity who is the supreme and only Self though by him not yet realised in his own being. This is the initial step. Secondly, not only the desire of the fruit, but the claim to be the doer of works has to be renounced in the realisation of the Self as the equal, the inactive, the immutable principle and of all works as simply the operation of universal Force, of the Nature-Soul, Prakriti, the unequal, active, mutable power. Lastly, the supreme Self has to be seen as the supreme Purusha governing this Prakriti, of whom the soul in Nature is a partial manifestation, by whom all works are directed, in a perfect transcendence, through Nature. To him love and adoration and the sacrifice of works have to be offered; the whole being has to be surrendered to Him and the whole consciousness raised up to dwell in this divine consciousness so that the human soul may share in His divine transcendence of Nature and of His works and act in a perfect spiritual liberty.[14]

Ideas of Self-Management in the Gita
Even if we leave aside the theistic or monotheistic ideas expressed in the Gita and considering Lord Krishna as the Supreme Divine, there is enough in the Gita to give us good advice and insights into self-management. But why should we leave aside the spiritual and the Divine aspect of Gita aside. Why can we not in our lives and it our societies attempt to synthesize, harmonize and blend spirituality with worldly life as advocated by Gita? If the taste of the pudding lies in eating it, why can we not attempt to try and live by the ideals of Gita as an experiment to improve and better our lives even if the experiment ends in a failure as have to many (more worldly) other experiments.
The context of the Gita is a mighty and fierce battle between the forces of spiritual righteousness and Dharma on one side and the Anti-Divine forces on the other. The

hero, Arjuna is filled with attachment, self-doubt, resignation and weakness on the eve of the battle and the incarnation of the supreme Divine, Lord Krishna, gives him spiritual instruction, advise and a command to not only fulfil his spiritual duty and destiny, but also to fulfil his worldly duty of fighting the forces of evil and establishing the rule of Dharma. The Gita does not at all distinguish between worldly life and duties from the spiritual and establishes a synthesis between the two.[15] There is no other place than a battle where tremendous self-management and self-control are needed.

The Gita not only concerns itself with the problems of conduct whose solution is a pressing need for man if he is to live without that inner discord which arises from consciousness of the ideal unaccompanied by mastery over self.[16]

The Gita teaches us the values of balance, detachment, spiritual faith, the ultimate truth as the atman or the self, disinterested and detached performance of duties (*Nishkama Karma*) self-control and perseverance. It focusses on following the ideals of Dharma, equality, equanimity, balance, devotion and faith, perfection in action and developing superior human traits, the ideals of spirituality and spiritual life, different types of human nature, the importance of following the Divine command, social and individual duty, delivering and maintaining social justice, victory of good over evil and similar other moral, spiritual and elevating ideas.

Very often in modern business management lack of self-management, results in mistakes, inefficiencies, ineffectiveness, tension, and conflicts. Not only managers and employees, but the business organization as a whole suffers a lot due these problems. Many methods of self-management have been tried. These methods have not always been successful. The very context of Gita brings out a situation which is a dilemma which most individuals face at some or the other points in their lives. Life is a battle and Arjuna's dilemma, his depression, vacillation about the result and his attachment is the context. Modern managers often face such situations.

According to Sri Aurobindo

The first step is Karmayoga, the selfless sacrifice of works, and here the Gita's insistence is on action. The second is Jnanayoga, the self-realisation and knowledge of the true nature of the self and the world; and here the insistence is on knowledge; but the sacrifice of works continues and the path of Works becomes one with but does not disappear into the path of Knowledge. The last step is Bhaktiyoga, adoration and seeking of the supreme Self as the Divine Being, and here the insistence is on devotion; but the knowledge is not subordinated, only raised, vitalised and fulfilled, and still the sacrifice of works continues; the double path becomes the triune way of knowledge, works and devotion. And the fruit of the sacrifice, the one fruit still placed before the seeker, is attained, union with the divine Being and oneness with the supreme divine nature.[17]

Here we must fundamentally understand that all prescriptions of the Gita are in context of the Divine will and command. Understanding and applying Gita to human affairs and to worldly contexts may be inappropriate and improper. This should not be taken to imply that the Gita is unfit to be applied to the affairs of the world, but that all battles are not the Mahabharata, all duties are not divine duties,

all advice and instruction is not from Lord Krishna and all followers and students are not Arjuna. Therefore, we must carefully establish certain standards and limits to applying the teachings of the Gita to the worldly, business and managerial standards, aims and contexts. One of the basic differences that can be seen between the Gita and the aims and objectives of businesses is that businesses are guided primarily by ends of shareholder wealth maximization and the Gita guided by the Divine command. The Gita stresses on detachment and disinterested action whereas businesses and managers are more that interested in ends and attached to the fruits of their efforts. Secondly, there is a fundamental difference in the way the self is understood in modern (western psychology, cognitive science and philosophy and the concept of the self in Gita. The self in the former sense refers to the mind and the commonly experienced outer self and the self in the sense of the Gita is the Atman, the highest innermost reality, truth and being which is the same as the al pervading and all transcending supreme Brahman. The Gita stresses self-management (in the final analysis) by controlling the lower planes and parts of the being/self/consciousness by the higher/inner (or by surrender to the supreme Divine). In modern (western) psychology and philosophy, this responsibility is of our rational faculty and ego. But the Gita also advocates the control of the mind through the rational faculty or the Buddhi and the enlightened will (if not in the final analysis, but surely for the beginner and one at an intermediate level) to an important degree and there we can find some reconciliation between the Gita and modern psychology. Another reconciliation that we can bring between the teachings of the Gita and business and management would be to stress that managers and businesspersons must have ethical objectives, should care for corporate social responsibility, corporate governance and abstain from excessive greed and focus on ends only. The means for achieving ends must be given more importance and the ends themselves should be less selfish and more collective. Secondly, managers and business personnel can develop more positive and superior personality traits and qualities and can focus on, even if partially, rejection or at least control of negative and inferior personality traits, for their own personal benefit, if not anything else.

The Gita teaches us self-awareness. It teaches us todistinguish the senses and the mind from our will and intelligence and controlling the mind and the senses with will and intelligence.

The senses are said to be greater than the body; but greater than the senses is the mind. Greater than the mind is the intellect; and what is greater than the intellect is He, the Self.

(Gita Chapter 3,Verse 42)

On the other hand, he who controlling the organs of sense and action by the power of his will, and remaining unattached, undertakes the Yoga of selfless action through those organs, Arjuna, he excels.

(Gita Chapter 3,Verse 7)

Self-awareness in the context of emotional intelligence can be compared to these teachings of the Gita to some extent and managers and business persons need to be first self-aware of their mental states and movements. The second step would be to,

guide their mind through their will and intelligence towards actions that fulfil organizational goals.

The Gita stresses self-control, courage and determination to succeed as essential to Dharma. Shri Krishna stresses on strength and decisive action in following one's duty or Dharma and says that:-

"O son of Prtha (Arjuna), do not yield to this degrading impotence. It does not become you. Give up such petty weakness of heart and arise, O chastiser of enemy" (Gita Chapter 2,Verse 3)

Thus the Gita, in this verse says that one should cast off weakness of heart in performing duties. Managers who are mentally weak cannot attain the organizational visions and missions. The mind of the manager must be firm in driving the organizational resources towards goals, objectives, vision and mission.

Management development programs in organizations should focus in creating and developing managers and organizational members to be strong and be mentally determined and fearless. A weak and unstable mind may make it lose initiative, will and effortas a result even a small obstacle difficulty, something unfavourable or problem. Through the ideas, lessons and prescriptions in the Gita we can learn to make our minds strong, but at the same time pure, to face and fight with difficulties and problems in life and in business situations. Management development programs can take some help and advice from Gita to educate, teach and train managers to be mentally strong.

Sri Krishna also mentioned that for one who has conquered the mind, the mind is the best of friends, but for one who has failed to control their mind, the mind will be the greatest enemy (See Gita. Chapter 6,Verse 6).

It may however be added here is that the aims and objectives of managers and business-persons must be commensurate with ethical standards if not the standards of spiritual Dharma and being fearless and determined for immoral and unethical aims and ends would defeat the very purpose of the teachings of the Gita. A fearless and determined person who wishes to pursue negative, immoral, selfish and destructive aims and objectives would be a much greater threat to humanity and our societies that anyone else.

Therefore purification of the mind, development of God-like virtues and rejection and elimination of demonic and anti-divine traits and qualities is another very important teaching of the Gita (See Chapter 16 of the Gita).The whole of the 16th Chapter of Gita is devoted to Lord Krishna praising God-like and Divine virtues like courage, truthfulness, purity, altruism, discipline, non-violence, peace, benevolence, forgiveness and criticizing anti-Divine and demonic traits like excessive desires, greed, anger, egoism, falsity, selfishness etc. Here we can also introduce the concept of virtue ethics. In the words of Rosalind Hursthouse, the well-known philosopher from New Zealand it may, initially, be identified as the approach in normative ethics that emphasizes the virtues, or moral character (Rosalind Hursthouse,2016). According to her-

A virtue is an excellent trait of character. It is a disposition, well entrenched in its possessor—something that, as we say, goes all the way down, unlike a habit such as

being a tea-drinker—to notice, expect, value, feel, desire, choose, act, and react in certain characteristic ways (ibid).

The words of Sri Krishna in Chapter 16 may be regarded as an extension or as an invitation to following virtue ethics in ones life.

Another relation that can may be identified between the teachings of the Gita and theories of modern business management and organisational behaviour is the relation between such virtues and qualities and the Trait Theory of Leadership. Although this theory may not have many followers but it has found some renewed research interest in its original or different forms in recent times and there seems to be a rough relation between leadership traits, the virtues espoused by Sri Krishna in the Gita and Self-Management. In any case we can definitely find some common traits between successful leaders and people who are able to successfully self-manage themselves. But there needs to be more research on all these possible relations.

The meaning of Dharma in context of Gita must be understood. According to Sri Aurobindo:

……..in its fullest, deepest and largest conception, as the inner and the outer law by which the divine Will and Wisdom work out the spiritual evolution of mankind and its circumstances and results in the life of the race." And further, "In its primary sense it means a fundamental law of our nature which secretly conditions all our activities, and in this sense each being, type, species, individual, group has its own Dharma. Secondly, there is the divine nature which has to develop and manifest in us, and in this sense Dharma is the law of the inner workings by which that rows in our being. Thirdly, there is the law by which we govern our outgoing thought and action and our relations with each other so as to help best both our own growth and that of the human race towards the divine ideal. **18**

Thus, Dharma should not only be considered from a spiritual perspective or only as something akin to spirituality only, it is as much outer, worldly, social, ethical (in the social sense) and material as it is spiritual and that is a very important lesson and synthesis of the Gita, that our outer, worldly life is a counterparty or even an extension of our inner spiritual life. The Dharma of fighting a war for the forces of righteousness, truth and good (the duty or Arjuna as advocated by Sri Krishna) is as much his worldly duty and Dharma as it is spiritual. And it is only by performing ones worldly duties in the best way that one can attain the spiritual ideal of Moksha and not by shunning them.

Again Shri Krishna in the Gita stresses the importance of balance saying that:

Arjuna, the Vedas thus deal with the three *Gunas* (modes of Nature or *Prakrti*), viz., worldly enjoyments and the means of attaining such enjoyments; be thou indifferent to these enjoyments and their means, rising above pairs of opposites like pleasure and pain etc., established in the Eternal Existence (God), absolutely unconcerned about the fulfilment of wants and the preservation of what has been already attained, and self-controlled.

(Gita Chapter 2,Verse 45)

Arjuna, this Yoga is neither for him who overeats, nor for him who observes complete fast; it is neither for him who is given to too much sleep, nor even for him who is ceaselessly awake.
(Gita Chapter 6,Verse 16)

Thus, the Gita also and very importantly advocates balance. It is the lack of balance that makes us either too attached to a thing or person or leads to aversion, dislike or jealousy. When we are balanced with equanimity we look upon others and deal with others with dispassion and do not allow personal preferences or aversions to interfere with work or organizational tasks. This would also take care of nepotism and favouritism in business organizations and lead to greater objectivity and unbiased dealings and interactions among business personnel.
The excellent philosophy of *Nishkama Karma* (disinterested divinely ordained duty) is emphasized as:-
Your right is to work only and never to the fruit thereof. Do not be the cause of the fruit of action; nor let your attachment be to inaction.
(Gita Chapter 2,Verse 47)
Gita says that*NishkamaKarma* or fulfilling one's duty without attachment is the key to fulfilling one's individual duties, social duties and progressing on the spiritual path at the same time. In fact, whenever we are doing something it is the craving for the result or the perceived difficulty of achieving the result that either makes us too eager or wavers our concentration making us lethargic or incapable of trying. Therefore,*Nishkama Karma* is the sure remedy for this. It allows us to concentrate at the task at hand and does not make us give up even before trying.
Some of the problems of self-management and management in general are lack of discipline, lack of dispassion or inability to disassociate oneself from emotions and passions, lack of strong will and a resultant weakness, too much craving for the result, lack of sincerity and dedication, jealousy, anger, envy, fear and other similar negative emotions.
Shri Bhagavan said:
Arjuna, when one thoroughly casts off all cravings of the mind, and is satisfied in the Self through the joy of the Self, he is then called stable of mind.
(Gita Chapter 2,Verse 55)
All these qualities and values are important prescription and pointers to self-management. The Gita makes it very clear that an important cause of poor self-management is attachment. We can very well see that if we are attached to our likes and dislikes we cannot be impersonal or sincere. Also our concentration will waver resulting in poor performance. Therefore, detachment is necessary.
Therefore, go on efficiently doing your duty at all times without attachment. Doing work without attachment man attains the Supreme.
(Gita Chapter 3,Verse 19)
He who looks upon well-wishers and neutrals as well as mediators, friends and foes, relatives and inimicals, the virtuous and the sinful with equanimity, stands supreme.
(Gita Chapter 6,Verse 9)

He who neither rejoices nor hates, nor grieves, nor desires, and who renounces both good and evil actions and is full of devotion, is dear to Me.
(Gita Chapter 12,Verse 17)
In similar light the Gita recommends getting rid of or controlling other human vices like lust, fear, greed, anger, lethargy, etc. It advocates the spiritual aim of human life by integrating social and individual duties and not rejecting them.
The Gita puts *Dharma* or spiritual law and duty before personal likes and dislikes. The Gita recommends getting rid or getting control over these negativities by developing balance, strong will and purity, through self-effort, *Nishkama Karma*, faith, meditation, continuous practice, perseverance and dispassion. Above all, it recommends action and not sitting idle. It advocates detachment in action. It lays emphasis on action according to one's duty and *Dharma* and efficiency and skill in works (*Karmasu Kaushlam*).
Endowed with equanimity, one sheds in this life both good and evil. Therefore, strive for the practice of this Yoga of equanimity. Skill in action lies in the practice of this Yoga.
(Gita Chapter 2,Verse 50)
Shri Bhagavan said:
The mind is restless no doubt, and difficult to curb, Arjuna; but it can be brought under control by repeated practice (of meditation) and by the exercise of dispassion, O son of Kunti Yoga is difficult of achievement by one whose mind is not subdued by him; however, who has the mind under control, and is ceaselessly striving, it can be easily attained through practice. Such is my conviction.
(Gita Chapter 6,Verses 35,36)

It is very interesting to note that many Indian and western business corporations from Apple to Nike, HBO, Yahoo, Google and many others are actively involved to making their employees follow and practice various types of meditations (like mindfulness meditations taught by Buddhist schools), even if they are not exact prescriptions from the Gita, to decrease work stress and tension and increase organizational effectiveness. Some important American universities, experts in various fields and other well-known personalities are realizing the wisdom, value and greatness of traditional Indian philosophies, scriptures and practices including the Gita.
The Gita stresses strong will power along with purification of the heart. It would be dangerous for a person with strong self-management ability to turn his will to negativities, immorality and wrong things. The Gita says that the will must be turned towards *Sattwic or Satvic* or pure, positive superior ideas, ideals and acts. In fact, the Gita believes that true self-management can only be achieved when we move from *Tamas* (inertia, darkness, lower nature, negativity, lethargy, dullness, slowness. delusion, crudeness or ignorance, destruction) to *Rajas* (change, movement or dynamism, passion, energy, ambition, power, bravery) and from *Rajas* to *Sattwa* (balance, order, purity, higher virtues, perfection, goodness, compassion, illumination, higher knowledge).

Of these *Sattva*, being immaculate, is illuminating and flawless, Arjuna; it binds through attachment to happiness and knowledge.
Arjuna, know the quality of Rajas, which is of the nature of passion, as born of desire and attachment. It binds the soul through attachment to actions and their fruit.
And know Tamas, the deluder of all those who look upon the body as their own self, as born of ignorance. It binds the soul through error, sloth and sleep, Arjuna.
(Gita chapter 14,Verses 6,7,8)
The lord clearly distinguishes higher nature and positive virtues from lower demonic qualities and says that:-
Reason, right knowledge, unclouded understanding, forbearance, veracity, control over the senses and mind, joy and sorrow, evolution and dissolution, fear and fearlessness, non-violence, equanimity, contentment, austerity, charity, fame and obloquy these diverse traits of creatures emanate from Me alone.
(Gita Chapter 10,Verses 4,5)
Cherishing insatiable desires and embracing false doctrines through ignorance, these men (of demonic nature) of impure conduct move in this world, full of hypocrisy, pride and arrogance.
(Gita chapter 16,Verse 10)
Lust, anger and greed these triple gates of hell, bring about the downfall of the soul. Therefore, one should shun all these three.
(Gita chapter 16,Verse 21)

Lord Krishna makesit clear again and again that true renunciation is not renunciation of action but the fruits of action and the ego of the doer.
He who has neither aversion for action which is leading to bondage nor attachment to that which is conducive to blessedness imbued with the quality of goodness, he has all his doubts resolved, is intelligent and a man of true renunciation.
(Gita Chapter 18,Verse 10)
It would be futile to expect business persons and managers to tread on the path of spiritual Dharma, but it can be expected from them to follow the principles of ethical business, ethical management, to stress on corporate social responsibility, to follow the principles of corporate governance, to be more holistic in approach, to follow new leadership theories like servant leadership to some degree, to satisfy and care for the different stakeholders' interests (and follow stakeholder capitalism) and to care for the environment and ecology. We can see this that the Gita's prescriptions to some extent, at least, apply to all personnel within the business organization from the worker to the CEO. Its message transcends time and applies to all humans in all ages. A serious thought must be given to these recommendations and steps must be taken to learn from this great ancient wisdom. Even if the progress is slow and partial, it would be better to slowly and partially progress that to reject in entirety the teachings of the Gita.
It would be foolish and difficult to imagine that businesspersons and managers would suddenly be fulfilling and acting according to the highest prescriptions of the Gita and doing their duty in accordance with the Divine will and without attachment, but it can surely be imagined that they can be less selfish, more caring,

less greedy and more accommodative, giving and forgiving and can slowly and steadily develop business organizations and systems based on greater common good, lessor inequalities, sustainability of all sorts and fulfilment of collective aspirations.

One change that we are only beginning to see in modern day business management, in Indian business particularly (but also in many western corporations and MNCs), even if to a small extant, is the increasing role of spiritual ideas, philosophies and even practices. The Gita is one important spiritual and moral prescriptions to mankind in general. In the modern times of change in business and management, the ideas and ideals of the Bhagwad-Gita can help and transform the way we manage ourselves, our organizations and societies. But we would again reiterate that much deeper, greater and many sided research on Gita and its relations with modern psychology and emotional intelligence and self-management needs to be done and their affect and influence on business management is required to be searched for and proved before anything academically certain and conclusive can be claimed.

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Broadband Planar Antenna for Wireless Communication Using EBG Structure

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Abstract
U-shaped patch antenna with EBG structure ground plane was fabricated on FR4 substrate. In this paper, we have study the effect of different shaped parasitic element on return loss S11 parameter of antenna. The experimental results observed from fabricated antenna using vector network analyzer have been compared with simulated results taken from HFSS. It has been observed that experimental results show similar trend as from simulated. The use of parasitic element improved the performance of antenna with better S11 and bandwidth. Although the use of parasitic element improve the patch antenna performance as compare to without parasitic element but triangular shaped parasitic element gives the best result out of the studied shaped. For triangle parasitic element the experimentally observed resonant frequency was 4.42 GHz, which is greater than the resonant frequency observed from simulation. i.e. 4.11 GHz. The bandwidth and S11 parameters for this structure were found about 5.83 GHz and -40 dB, respectively.

Keywords : HFSS, Vector Network Analyzer, Patch Antenna, Parasitic Element, UWB

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Introduction

Ultra-wideband techniques used for wireless communication are attracted a global interest in research in past few years in frequency range 3.1-10.6Ghz for short range wireless mobile system.[1] In spark discharge experiment ultra-wideband transmission wave techniques which were employed since it gives more occupied radio spectrum. This concept was brought from subsystem, public domain to become commerciallyavailable. [2] It is one of the most tremendous technologies in wireless communication systems after permission granted by federal communication due to its attractive merit and easy fabrication.These antennas suffer a limited narrowband technique. [3] Antenna plays a different role in wireless system and broadband antennas.Different communication techniques exploring broadband

antennas.For performance enhancement it requires high bandwidth between mobile communication equipment so that in future generation it integrates with antenna system to provide high performance over multiband and wideband. [4-5] Many techniques which are capable of obtaining broadband techniques of antenna are slot loaded patch[6], multilayer broadband micro strip antenna[7], multilayer structure[8,] Multibanding techniques[9] ,Defected ground plane structure[10] ,Split ring resonator[11] ,Multiple slot patch[12] . Meander Antenna[13,] L-shaped line feed[14]; miniaturize patch[15], circular ring patch[16] .Electromagnetic structures which significantly proposed for increase the mutual coupling for wireless device. It is used in planar antennas to reduce the efficiency and gain of the antennas. It acts like artificial conductor for reducing side lobes and back lobes. These are realized by arrangement of metallic conductors[17-18]. Defected ground structure has etching with ground plane and has attained to extremely research field which includes antenna performance, size and multiband operations It is an etched lattice shape which is located on back side metallic ground plane [19-21].

Antenna Fabrication and Measurements Details

Spin coating technique is used to deposit the thin layer of negative photo resist on copper surface. The mask of the designed antenna is placed onto the photo resist and it was exposed by UV radiations. The exposed portions of photo resist layer become harden when it was treated with developer solution. The substrate is then dipped into blue dye solution to view the hardened photo resist portions on the copper coating. The substrate is then washed in water. After the development of pattern of the designed antenna, the undesirable portions of copper are etched off using $FeCl_3$ (Ferric Chloride) solution to get the required antenna geometry on the substrate. $FeCl_3$dissolves the copper parts except underneath the hardened photo resist layer after few minutes. The etched board is rinsed in running water to remove any etchant. The laminate is then cleaned carefully to remove the hardened photo resist using acetone solution. The measurements of radiation characteristics of the antennas were carried out using Network analyzers HP 8510C VNA and Agilent 8362B PNA.

Results and Discussion

The basic idea of designing is consisting comparative modifications to the rectangular patch over a finite ground structure with an easily available glass epoxy (FR4) substrate of permittivity 4.4, loss tangent 0.025and thickness 1.6 mm. The antenna is modified on both side of 18 x 21 mm^2 sheet of FR4. The designing of antenna was started with U shaped geometry with partial ground plane. Initially, the ground is rectified in view of suppression scattered radiation in unwanted bend of frequency, keeping dimensions restricted to be 7x14 mm^2. Then EBG (electromagnetic band gap) structure in ground plane was used to improve the several parameters simultaneously. The dimension of EBG structure was kept 1mm x 1mm. Further, the different patch structure was analyzed in order to see the effect on the performance parameters of antenna. At the upper layer, the patch is derived to U-shape geometry in addition with slotted strip line for impedance matching.

Different parasiticelementsare introduced between the limbs of U- structure. The overall structure is modeled and simulated for various dimensional proportions on High Frequency Structure Simulator (HFSS) as shown in table1.

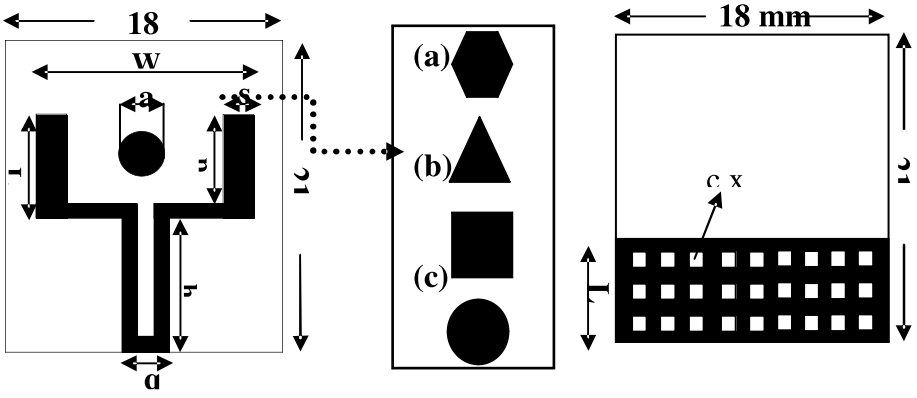

Fig.1: Design of antenna (a) Hexagonal Patch (b) Triangular Patch (c) Rectangular Patch (d) Circular Patch Antenna and (e) EBG Structured Ground Plane

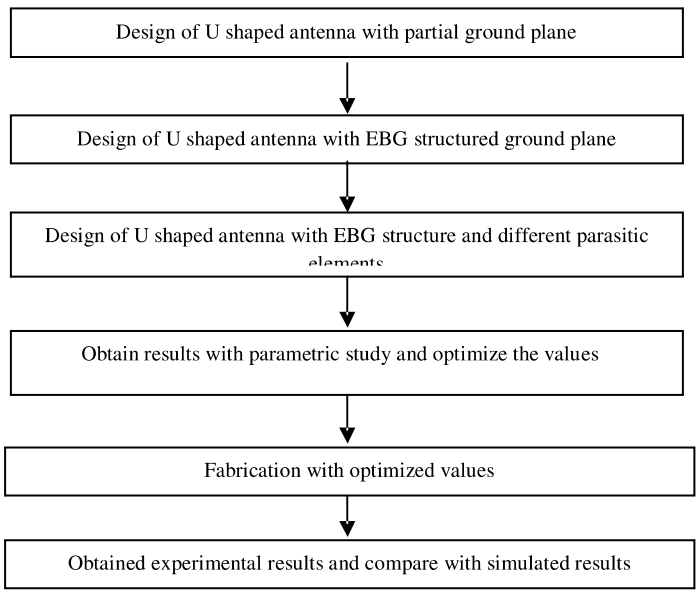

Fig. 2: Flow diagram of Antenna simulation and experimental results

Table 1: Various design parameters of Antenna [22]

Parameters	Parasitic Element			
	Hexagonal	Triangular	Rectangular	Circular
L	9.0 mm	9.0 mm	9.0 mm	9.0 mm
W	14 mm	14 mm	14 mm	14 mm
q	3 mm	3 mm	3 mm	3 mm
s	2 mm	2 mm	2 mm	2 mm
h	8 mm	8 mm	8 mm	8 mm
p	6.5 mm	6.5 mm	6.5 mm	6.5 mm
c	1.0 mm	1.0 mm	1.0 mm	1.0 mm
L_g	7 mm	7 mm	7 mm	7 mm
Number of segment	6	3	4	0

Patch dimension significantly affects the performance and characteristics of the designed antenna. The hexagonal patch has one parameter which requires study. Parametric was applied for a=0.2 mm to a=2.0 mm. It has been observed that for a=1.2 mm, designed antenna gives best results with return loss -56 dB at resonant frequency 4.10 GHz. The bandwidth for this parameter was found to be about (8.31-2.84=5.47 GHz). For this structure other band with resonant frequency 10.1 GHz and band width about 1.8 GHz was also observed. These results clearly indicate that designed antenna can be used for wireless communication application with better performance.These study further proceeds to study the effect of shape of the patch between the limbs of U- structure. For this purpose, we have designed rectangular, triangular and circular patch and their parametric study was performed. For triangular patch the parametric was applied for a=0.2 mm to a=2.0 mm. For this structure, the resonant frequency was observed at 4.11 GHz with band width (8.97-2.85=6.12 GHz). The return loss at resonant frequency is also higher as compare to other patch structure i.e. about -62 dB. Here Experimental results are analyzed from Vector Network Analyzer.It is observed that it offers UWB characteristics ie.2-12GHz [22]

A prototype antenna is fabricated. Simulated results are in fairly good agreement. A comparative data is reported in table 2.It has been achieved wider bandwidth with smaller size.

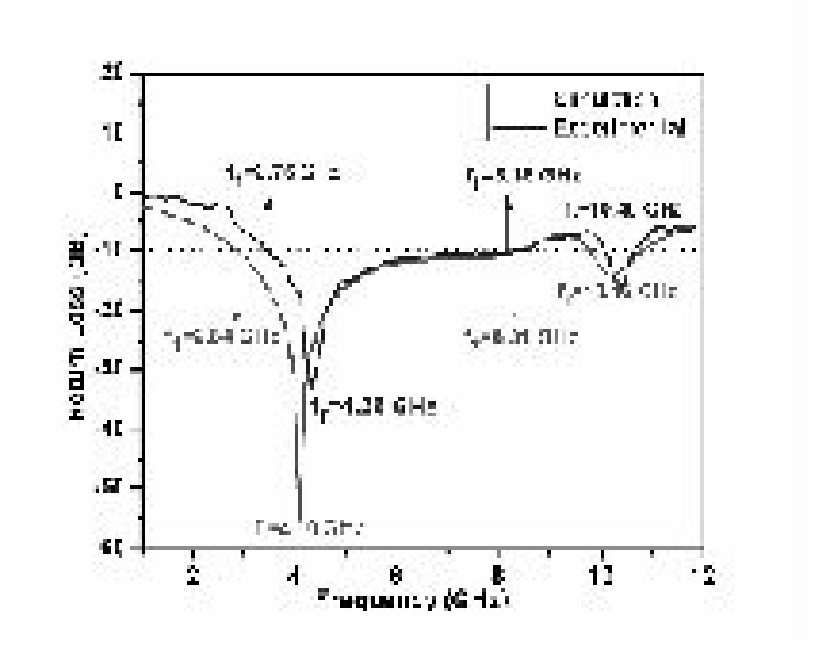

Fig. 3(a): Comparison of simulated and experimental results of Hexagonal parasitic element

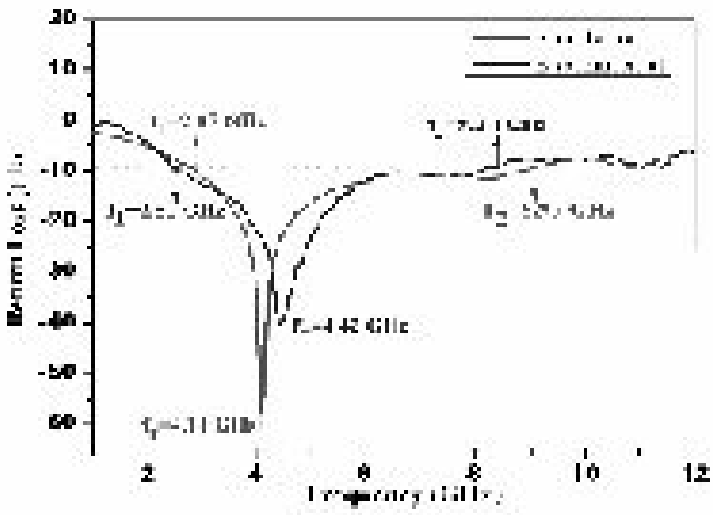

Fig. 3(b): Comparison of simulated and experimental results of Triangular parasitic element

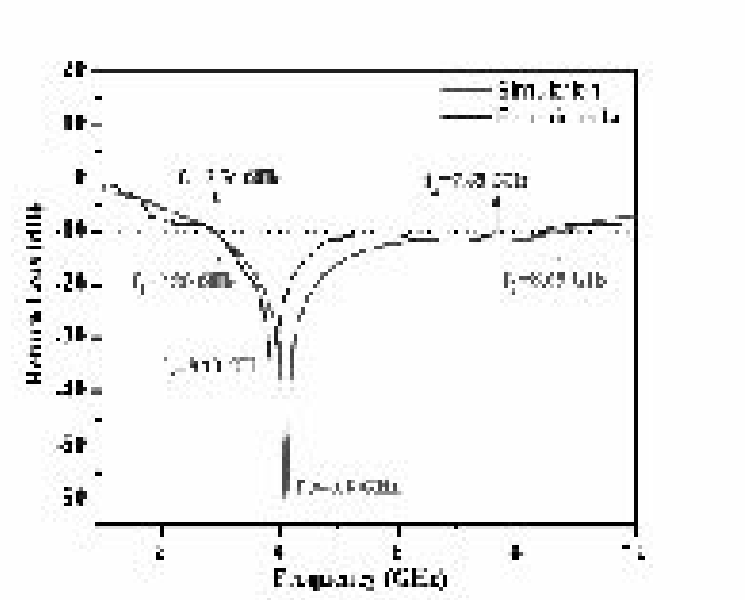

Fig. 3(c): Comparison of simulated and experimental results of circular parasitic element

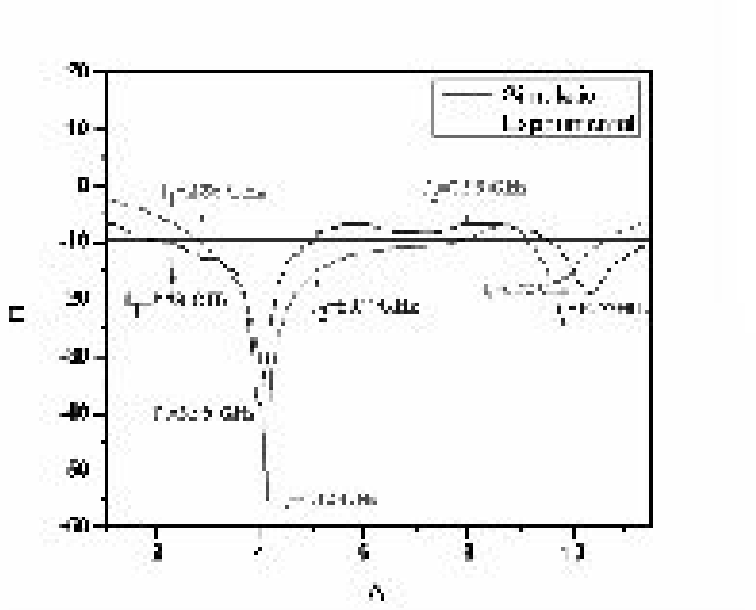

Fig. 3(d): Comparison of simulated and experimental results of rectangular parasitic element

Fig. 4: Top view of the fabricated antennas

Table 2: Comparative study of experimental and simulation results

Shape of Parasitic Element	Simulation Results		Experimental Results	
	First Band	Second Band	First Band	Second Band
Hexagonal	f_1=2.84GHz	f_1=9.1GHz	f_1=3.76GHz	f_1=9.8GHz
	f_2=8.31GHz	f_2=10.67GHz	f_2=8.18GHz	f_2=10.47GHz
	f_r=4.10GHz	f_r=10.16GHz	f_r=4.26GHz	f_r=10.40GHz
Triangular	f_1=2.85GHz	Only first band observed	f_1=2.51GHz	Only first band observed
	f_2=8.97GHz		f_2=8.34GHz	
	f_r=4.11GHz		f_r=4.42GHz	
Circular	f_1=2.80GHz	Only first band observed	f_1=2.76GHz	Only first band observed
	f_2=8.69GHz		f_2=7.65GHz	
	f_r=4.08GHz		f_r=3.90GHz	
Rectangular	f_1= 2.85 GHz	f_1=9.16 GHz	f_1=2.29 GHz	f_1=9.58 GHz
	f_2=7.95 GHz	f_2=10.57 GHz	f_2=5.07 GHz	f_2=11.40 GHz
	f_r= 4.12 GHz	f_r=9.72 GHz	f_r=3.99 GHz	f_r=10.33 GHz

Conclusion

A new proposed parasitic element of U-shape antenna is presented. These antennas is fabricated and experimentally investigated. Experimental results are performed by Vector Network Analyzer.Comparative analysis describes simulation and experimental results with good agreements. These proposed antennas would be applicable for wireless application.Such types of Antenna are used for 4G,5G,Radar and wireless applications.

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Transforming E-Learning through Cloud-Based Interactive Multimedia Authoring Solutions

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Abstract
With the advent of multimedia in education sector, there is a big paradigm shift in teaching and learning scenario. The revolutionary approach of technology-based and technology-enhanced learning mechanisms have taken the teaching and learning practices to a new horizon. Most of the higher educational organizations have already adapted this shift keeping the rapid growth in the field of education technology and they have even setup dedicated departments to support e-learning by means of various support systems, then whether its related to the hardware or software related support or it is related to the support provided for academic practices by means of various orientation and regular training sessions for the staff members. Various tools and techniques are available to assist teachers for varied level of studies, for the course as well their respective assessments. But deploying these tools and techniques are not always very comfortable with some level of customization and thus there are certain authoring tools which provide very easy to implement solutions to the teachers. Along with the Virtual Learning Environment (VLE), implementation of various online tools has equipped every community of learners with plenty of options to learn and implement to enhance the learning experience. These days, most of these VLEs are implemented on the cloud due to the constraint of storage at the organization level. And hence, various cloud-based authoring tools are developed to support the community of learners, which includes both educators as well as students. This paper highlights few of such implementations and their impact on the overall teaching and learning process. The paper finally recommends a framework, which can be implemented along with various cloud-based authoring solutions.

Keywords : Multimedia authoring, eLearning, Cloud-based tools for eLearning, Education technology

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Introduction

These days, Education organizations have witnessed the technological change in several aspects of teaching and learning. Hence with the change in technologies, every moment the education sector is moving one step ahead in adapting them to cater the need of stakeholders. The students of present days are learning faster with various innovative techniques implemented in the classrooms, by the teachers. And hence the educators

need to start thinking of various solutions, which are innovative and effective to implement at the same time in order to increase the performance of the students, with better teaching and learning environment. Many of these tools and techniques could not be implemented as such in the classroom since the implementation totally depends upon the learning outcomes of the session. Moreover, not every subject will have similar kind of assessments, and hence in order to provide a better learning environment, various tools need to be authored, but authoring of new educational tool needs lots of experience and skillsets. If the faculty is having some IT related background, its easier for him/her, but on the other hand, if the faculty does not possess any knowledge in the field of software application development, then there must be some easy application which can be customized with least efforts and with a very basic knowledge of computers. Some cloud-based authoring tools provide the best solutions in these cases.[1]

Moodle is one of the examples of virtual learning tools which can also be termed as learning management system. This can be easily customized by the IT specialist with a background on Linux programming. But still having things customized on Moodle requires a lot of expertise and end-users can just have basic options for the changes such as assignment configurations, feedback, grading etc. When it comes to the addition of a completely new feature, it requires a considerable amount of coding, time and man-hours. Most of the institutions have their dedicated department of education technology to do this task, but sometimes, due to a large number of parallel requests from different faculty members for different purposes, and different nature of module, it becomes difficult for the education technology unit to handle the request. In such case, orientation could be provided to the staff members for developing some ad-on toolsets on cloud and use them in their class. Later assessments could be routed through the VLE (Moodle) in order to assess the learning of the students.

Related Work

In order to do a literature review, many research papers related to this research area were reviewed and analyzed. The key papers which provided the major breakthrough at this initial stage of research were taken from Elsevier. The first paper titled “Results of Enhanced Learning with the Edutainment Format” [2] and the second paper titled “The Model for Introduction of Gamification into E-learning in Higher Education”. As per the first paper, the author is showing the importance of one of the application areas of multimedia, which is edutainment (education + entertainment). It is evident that the author has done a good background analysis on the practical implementations of this research area. The author has provided a clear idea about various findings in this research area. The scope of this research is well defined on a global level. The Development of Edutainment will study from both printed document and electronic document to analyze the principles relate to education form, which provides the knowledge with entertainment. [2]

The boundaries were:

* Study idea of Edutainment both local and foreign countries.
* Analysis and synthesis the Edutainment Concepts and inquire opinions from specialists of entertainment. It will be a frame to specify the scope, direction and guidance to confirm the development.

As we can see from the above scope, which is defined in this research paper, the author is able to make the scope wider on a global level but is unable to specify very clearly the actual area of its future development and its impact.

On the other hand, the 2nd research paper presents the model for the introduction of gamification into the field of e-learning in higher education. Concepts and differences between techniques and methods of game mechanics and game dynamics are explained. With proper integration of gamification in the field of e-learning into higher education, a positive impact on the learning process can be achieved, such as higher satisfaction, motivation and greater engagement of students. [3]

The importance of clearly defined objectives, rules, techniques and mechanisms of gamification that affect the dynamics of the students is shown. The paper presents a comprehensive view of the gamification concept in higher education. The advantages and disadvantages of introducing gamification in e-learning are described. The paper combines the characteristics of gamification with E-learning and shows the possibilities of use in practice. The scope of this research work is defined well but it is not subject specific. The different subject area might have different requirements. But the authors have tried their best to keep the problem area very specific, but it again speaks in general and thus as per this paper, the scope of this research can be defined as open one and can be enlarged to any extent as per the demand of teaching and learning environment and the available platforms.

Authoring Solutions

There are various eLearning authoring solutions available, from which some are freeware, some are free-mium (Free to use with limited features, Pay to use with full features) and there are many tools which are completely free and open source, and hence provides flexibility to the developer to customize as per their preferences. Many free and open source authoring tools work on the principle of What You See is What You Get (WYSIWYG), which means the user can customize and author the application without any complexity of learning to code. One such example is H5P, which is basically an HTML5 based cloud-based authoring solution.[4] Hence, the user doesn't need to install any heavy program to develop any tool. They can follow certain wizards and author a tool online itself. This kind of flexibility provides the educators with a big push towards developing various eLearning content by themselves for their students as per the learning outcomes and the requirements of the class. Users can download this as a plugin for their existing learning management system, such as Moodle, and work in order to develop some new and innovative learning materials for the students.

Similar tools include LAMS, which is meant for designing online based collaborative learning activities which can be completely designed on cloud and

need not be installed on the laptop. The student activities also could be conducted online. These collaborative activities are really helpful for the group based tasks. Especially when the group members are unable to collaborate by being in the same place physically, they can work together virtually from their places, online. [5]

Apart from these various other tools are available which could be utilized after a certain level of customization and authoring in order to cater the needs of students of these days, who loves to use the technology as an aid for their assistance. Although technology is being used in the classrooms for an increased level of understanding, the faculty must not forget about the learning outcomes of the course. And hence, before deciding on the authoring tool to be implemented, course learning outcomes must be clearly analyzed. [6]

Keeping these authored solutions on the cloud gives flexibility of implementation and use. Although these solutions depend on internet connectivity, their implementation could be done globally. [7-8] Hence this could possibly provide the Colleges and Universities with a chance to launch their own MOOCs on the cloud, which is nothing but the Massive Online Open Courses. Students from various parts of the world can register in the same and hence, this provides an opportunity for an organization to expand its operations on a global level.

Proposed Framework

Cloud-based authoring solutions involve multiple stages which are illustrated in the Fig.1.

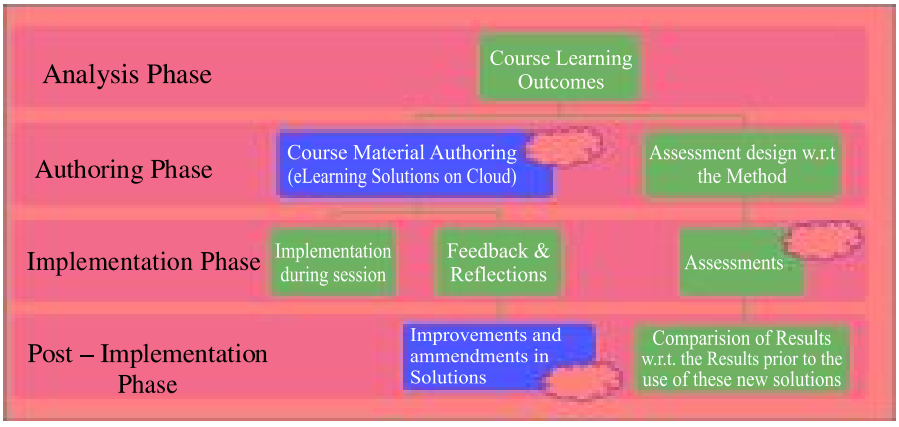

Fig 1. Proposed framework

a. Analysis Phase

The analysis phase is the first most phase in which the learning outcomes of the course are analyzed and it has to be found about whether the entire course needs to be taught using e-learning based solution, or a certain part of it needs such implementation. For example, in certain courses that involve mathematical explanation, faculty's intervention would be required and hence in such case, this method will be avoided. Once the learning outcomes are identified and analyzed,

the type of e-learning solution is also decided at this stage. Whether its e-book based implementation or design of an interactive quiz etc. Meanwhile, the assessment strategies are also studied and finalized to assess the learning outcomes by the end of the course.

b. Authoring Phase

This phase involves two tasks, authoring of necessary solutions in the form of toolsets to be implemented in the classroom and design of the respective assessment with respect to the nature of the subject/course. The eLearning solutions could be designed using any of the available online based authoring tools. H5P is one of the best solutions with various options for the developers and it just needs basic knowledge of the computers.

At the same time, respective assessment is designed to assess student learning by the end of the session or the course. This assessment should be designed in such a way that it synchronizes with the teaching and learning methodology adapted in the classroom. For example, if the faculty has used activity-based learning during the sessions, then assessments should also be designed in such a way that it doesn't involve lots of writing. It could involve some online activity based assessment methods.

c. Implementation Phase

At this phase, the solutions designed in the previous phase is implemented in the classroom. These solutions are then monitored for their effective implementation. Prior to the implementation faculty could perform a test of these newly developed solutions for their functionalities. During and after the class, it is really important to ensure the amount of participation of students. And hence, its important to collect their feedback and recommendations for further modifications and improvements.

On the other hand, respective assessment needs to be conducted during this phase to ensure that learning outcomes are met and the students and all the students have taken part in this new approach of the activity.

Faculty can also share the link of these online activities and eLearning content through LMS, such as Moodle so that it will be useful for the students at a later stage for a revision of the topics and prepare for the exams or assessment. Moreover, it will also benefit the students who have missed the classes due to certain reasons.

d. Post – Implementation Phase

This final phase is really important since it defines the next version of authoring. Based on the feedback and reflections received, further improvements in the tools could be done. Not only this but also based on the comparison of results from previous time with this time, the improvements could be incorporated in the future

of this solution. Later the system could be further improved based on recommendations and problems identified in the previous implementation of these solutions.

Conclusion

Interactive multimedia based authoring framework is just an attempt to suggest a cloud-based implementation of those solutions, which can be accessed globally. This opens new ways of learning which can also be termed as distance learning or virtual learning environment (VLE). The level of authoring solely depends on the subject and nature of module. The faculty must wisely decide on the part of learning outcomes which needs to be covered with this method. This is because, still for certain subject areas, the traditional way of teaching is essential. Many students move one step ahead of the teachers, but with such authoring tools, teachers can model their own and exclusive content which can be also an intellectual property of that institution. Cloud-based repositories could be further implemented in order to take all these interactive content for risk-free backup. WYSIWYG based interface gives freedom to design different types of content by the faculty of any specialization to take interest and work to develop his own exclusive learning materials. Although the implementation of this framework needs some considerable level of capital investment it will surely bring the returns in terms of increased students' performance. Moreover, the teaching and learning environment of the campus can be surely enriched by the implementation of this framework.

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Attrition Issues and Retention Challenges of Employees

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Abstract
Employee attrition is a major issue in any organization. While there are opportunities aplenty in the market, youngsters are more impatient and want to become managers quickly employee absenteeism is another major problem for the industry. This is a chronic issue that impacts productivity and efficiency of an organization depending on the scale of attrition. Attrition is a serious issue that most organizations face during their growing years and one of the main reasons is an unhealthy work culture that leaves your organization with unproductive and demotivated workforce. Retention plays the most vital role in the success of any company; means less attrition is equal to more success.

Introduction
Companies in India and other countries face a major problem with the struggle of attrition in their company. Every company invests a huge amount in their manpower, but due to increasing attrition rate companies are facing lots of challenges.[1]
Attrition is also called total return or depletion rate-

1. **Positive attrition –** Less output and workforce leaving
2. **Negative attrition –** High achiever parting
3. **Market determined attrition –** Prejudiced by market alteration
4. **Pressure driven –** Low performance by the employees
5. **Practice driven –** Managerial process

In today's scenario, there is rise in the total attrition level which means there is declinement the job satisfaction level of the employees. We can easily compare from the past few years facts and figures that there has been a drastic increase in the attrition level in the organization s of the Asia.[2]

Attrition issues
We can define attrition as stable decline in association or human resources as through departure, resignation or demise. In other words, attrition can be distinct as the number of workers leaving the association which includes both intentional and unintentional division.

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1. Attrition is mainly cause due to following reasons as-
2. Salary Issue
3. No scope of the future growth
4. Lack in employee supervision
5. No liberty of speech and expression in the company.
6. Lack of Appreciation

Thus, this leads to the -increase in the percentage of attrition and decrease percentage of the job satisfaction.

Attrition is affected by the following factors

1. More and more financial need and requirements
2. No match of skills of the work force and the demand of their job role
3. Not having proper future growth prospect
4. Not having Rewards and recognition
5. Having non cooperative workforce and collogues
6. Health Affect due to long working hours
7. Age factor
8. Not being able to manage work pressure
9. Willing to pursue further education
10. Conflict with co workers
11. Personal reasons
12. Not being able to see future growth
13. Issue due to gender biasness

Impact due to attrition on organization

Induction training, Recruitment cost: When an employee's join any organization initially the company has to bear all the cost of joining, training and total introduction programme, etc. first and foremost the new worker takes some time to blend in the organization, it takes lot of time and money to achieve the efficiency of new employee to the association.[3] The organization faces lot of loss , when any new recruit leaves the company in the initial period of before six month tenure as, company has invested a lot in the name of training, refreshment, induction process, knowledge and moreover with company's intakes.

Organization faces a lot due to the early stage attrition .as when any employee leaves the organization, company has to hire someone else to take that employees place, hence company has to bear double expenditure.

Loss of competence: the productivity of any organization declines due to the loss of the employee.

Loss of companies data, knowledge: company has already invested a lot in preparing the recruit to the level of the companies requirement, and once that employee is fully trained ,and he resign from the job, organization not only bear the loss of the employee but also the amount of time , knowledge and data been shared

to that employee. This affects the efficiency, originality, quality production of organization.

Loss of Human assets: Losing the recruit means losing the most valuable assets to any organization.

Organizational disparity: Organizational process is imbalanced due to sudden Attrition .It conflicts the balance within the organization.

Conflict on the competition between the competitors, shareholders: there is a loss in the value of shareholders and in image between the competitors due to sudden attrition bear by the organization.

Retention challenges

Whether the organization is running on the small or the large scale the foremost challenge for any organization is to keep retaining their human resources. As key to any successful company leads from the employee retention.

Employee retention remuneration

1. If a worker is happy with the organization than automatically he will be more loyal and trustworthy towards the company. It promotes efficiency. Happy and satisfied worker will give their extra effort to make a better organization. High earnings have the conflicting effect on morale.
2. Satisfied employee will sustain longer for the betterment of his company. Also, a long term employee will have a better industry outlook, it encourages competent operation.
3. Retaining workers can reduce a high cost, as it will reduce many cost link with the turnover overall. It's cost efficient.

What is an employee retention strategy?

1. Encouraging employees, providing their requirement with RnR is proving the job satisfaction.
2. It's largely an amalgamation of respectful treatment, providing better facilities in terms of proving fair compensation, security, and proper utilization of the resources.
3. Organization should let it employees to speak their mind, organization should respect one's view point.
4. Organization should always encourage the team spirit and focus on the enhancement of the Team work, So that it will provide more and more work commitment.
5. Organization should encourage the employees for their active participation in not only achieving the employee's goal but also to focus on the organizational goals. And rejoice victories as a team, whether industry goals or individual successes.

6. Organization should provide proper guidance to the new recruits with the mentorship programme, this will not only benefit the new recruit but also will encourage the older employee as it will provide the sense of superiority to the older worker.[4]
7. Support a strong work-life balance. Unhappy employees are less creative, and more likely to result in turnover.
8. Always keep in mind the need of the human resources and making their work life smooth.

Organizations can control attrition through the following retention strategies

1. Working atmosphere: This is the foremost point and step one should take and keep maintain, the atmosphere where employees give their maximum time of life, their workplace. This is the main strategy, organizations should keep proper harmony, always encourage employees, make the workplace where every employees would love to come with a zeal and excitement to work. Every workplace should be a happy place to work at.

2. **Improvise and fulfill the Requirement through Track retention:** Organization should always work on the need of the employees; organization should always keep a check on the employees' improvisation and should take action accordingly. They should check all the levels and segment which may require improvisation and then plan accordingly through proper trainings and guidance.

3. **Train the supervisor properly** : He will train the rest: Steve Miranda, who is an expert, says, "Employees don't quite jobs. They quit managers." This is correctly said by her, as managers are the first level of interaction to the employees, they not only represent themselves but they do represent the organization, so if employee is satisfied by the company they will be satisfied by the organization itself.

4. **Right Hiring is must :** Interviews are moreover focused on the personal questions as the first most and most common question is "tell me about yourself?" question should not focus just on individuality but rather more on his skills and occupational qualification. If we will hire an expert in the required operation this will lead to the both side satisfaction employee and employer both, which means longer stability in the organization.

5. **Positive image of the organization :** Always create the positive image of the employer in the mindset of the employee.

6. **Continuous Training :** Yes, Training should never stop at any stage, whether it is for the first level employer for the one who is working as CEO, should be for every level. It is must for the new recruits but should be for every employee time to time as it will not only refresh the employees but also would keep them updating with the new outlooks .

7. **Employee Commitment :** Organization should always try keep employee committed and engaged as he will be aware of all the ongoing activity and will be full recharged with the required information's.

8. **Depart Interviews :** Organization should always focus on the depart interviews of the employees who are willing to leave the organization. This will help in two main important things:-
a- these interviews might help to retain the employee.
b- Organization will be aware of the proper reason why the employee is leaving and can further improve.

9. **Time Bond at the time of agreement of recruitment :** Now a day's many organizations are asking the new recruits to sign the bond of some minimum time period tenure, which not only give a proper time to the organization but also commit the employee for their services else they can be charged with the penalty.

Some recommendations for effective retention

1. **ESOP**

ESOP means- Employee stock option plans
This is the valuable option given to the employees for the betterment of their future security as in ESOP it offers the employees the benefit or right where they can purchase or been offered the securities for the future subscribed date at predicated price.
It is a perfect tool been used by the organizations, It is harmonized by the SEBI (securities exchange board of India)

2. **SARS**

This is yes an important tool for any organization, for the cashless contract with any employee. In SARS company provides the selected number of shares to the recruit, and after a lock period of time that recruit is free to work his option accordingly and can cash the shares with its appreciated amount of value at that time of period.

3. **Sweat equity**

Sweat equity is the shares which are issued by the organization to the Employees or the directors at the concession rate or for deliberation other than cash, with the available rights and the value additions.

4. **Different bonus schemes**

Bonus, name itself give a sight of the excitement which leads to the satisfaction/ It is a form of incentive provided to the employee for the betterment of the both employee ad the employee.
It should be formed while keeping in mind the employee and the employer .so that it can provide both the required satisfaction level.

Conclusion

Organizations should always keep their eyes open to every aspect and every angle related to the company. Organization should always keep prepared for the future opportunities and outcomes which can lead to the attrition and can provide the opportunity to retain the employee. Company should always keep in mind that they should keep on applying the strategies to provide and the employee satisfaction and keep on retaining the employees. To restrain this attrition, it is really important to know the actual reason and cause or the factor that can have an effect on attrition. When these factors are known and get evaluate, the company can apply and format the policies to counter the impact of these factors ensuing into reduced attrition. Organization should always work on the need of the employees; organization should always keep a check on the employees' improvisation and should take action accordingly. They should check all the levels and segment which may require improvisation and then plan accordingly through proper trainings and guidance. Interview question should not focus just on individuality but rather more on his skills and occupational qualification. Training should never stop at any stage, whether it is for the first level employer for the one who is working as CEO, should be for every level. Organization should always plan and identify the strategies to provide the jab satisfaction which can lead to the longer stability of the employee, means better outcome for any company. Organizations should keep proper harmony, always encourage employees, and make the workplace where every employee would love to come with a zeal and excitement to work. Every workplace should be a happy place to work at.

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Suggestion for Amendment in 'Dispute Resolution Procedure' in Model Concession Agreement Based Contracts for Highway Construction Projects in India

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Abstract
Model Concession Agreement (MCA) based contracts are the most common forms of the contracts being used in India for highway development projects. This article deals with understanding the dispute resolution mechanism in MCA based contracts and suggesting suitable amendments to clauses in the Article on Dispute Resolution.

Keywords : Model Concession Agreement (MCA), Dispute Resolution, Highway Projects, Article, Clauses, Amendments, Independent Engineer, Authority's Engineer

Introduction

Model Concession Agreement (MCA) prepared by the Planning Commission, Government of India, forms the principal of public private partnership (PPP) projects. It provides a framework for execution of highway projects on PPP form of Contract by clearly defining roles and obligations of the two parties namely, the Concessionaire/Contractor and the Road Authority. [1] MCA based Contracts are the most commonly used forms of Contracts in Highway development projects in India, be it a PPP or EPC (Engineer, Procure and Construct) type of a project. The major road Authorities like National Highways Authority of India (NHAI), Ministry of Road Transport and Highways (MORTH) and State Public Works Departments consistently use MCA based contracts. The variant of MCA based contracts in use on PPP and EPC Contracts are as under.

1. BOT (Toll), both Grant and Premium projects
2. BOT (Annuity)
3. OMT
4. BOT (HAM), hybrid annuity model
5. EPC

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Dispute Resolution Mechanism in MCA based Contracts

During the course of execution of any project, there is always a possibility of occurrence of a dispute between the parties, arising under or out of or in relation to the agreement they sign. A good contract document invariably has a provision to deal with such situations. Model Concession Agreement based contracts also have an exclusive article on dispute resolution[2]. While the content and heading of this article remains same for all forms of MCA based Contracts, their numbers change based on type of Contract.

For BOT (Toll) and BOT (Annuity) projects, 'Dispute Resolution' is covered under Article 44, for BOT (HAM), it is Article 38 and for EPC Contracts, it is under Article 26. The Article for 'Dispute Resolution' in all the cases comprises of three sub-clauses. The first sub-clause defines dispute and mentions the requirement of notifying the dispute by one party to the other[3]. The second sub-clause is on 'Conciliation' and the third one deals with 'Arbitration'.

The procedure specified under the corresponding article follows steps given hereunder for resolution of the dispute.

Step-1: The party which intends to raise a dispute needs to notify the dispute in writing to the other party.

Step-2: Either Party may call upon the Independent Engineer (IE) / Authority's Engineer (AE) to mediate and assist the Parties in arriving at an amicable settlement thereof.

Step-3: Failing mediation by the IE / AE or without the intervention of the IE / AE, either party may require such Dispute to be referred to the Chairman of the Authority and the Chairman of the Board of Directors of the Concessionaire / Contractor for amicable settlement, and upon such reference, the said persons shall meet no later than 7 (seven) days from the date of reference to discuss and attempt to amicably resolve the Dispute. If such meeting does not take place within the 7 (seven) days period or the Dispute is not amicably settled within 15 (fifteen) days of the meeting or the Dispute is not resolved as evidenced by the signing of written terms of settlement within 30 (thirty) days of the notice in writing or such longer period as may be mutually agreed by the parties, either Party may refer the Dispute to arbitration.

Step-4: Any Dispute which is not resolved amicably by conciliation, as provided above, shall be finally decided by reference to arbitration by an arbitral tribunal. Such arbitration shall be held in accordance with the Rules of Society for Affordable Redressal of Disputes ("SAROD"), New Delhi (the "Rules"), or such other rules as may be mutually agreed by the Parties, and shall be subject to the provisions of the Arbitration and Conciliation Act, 1996.

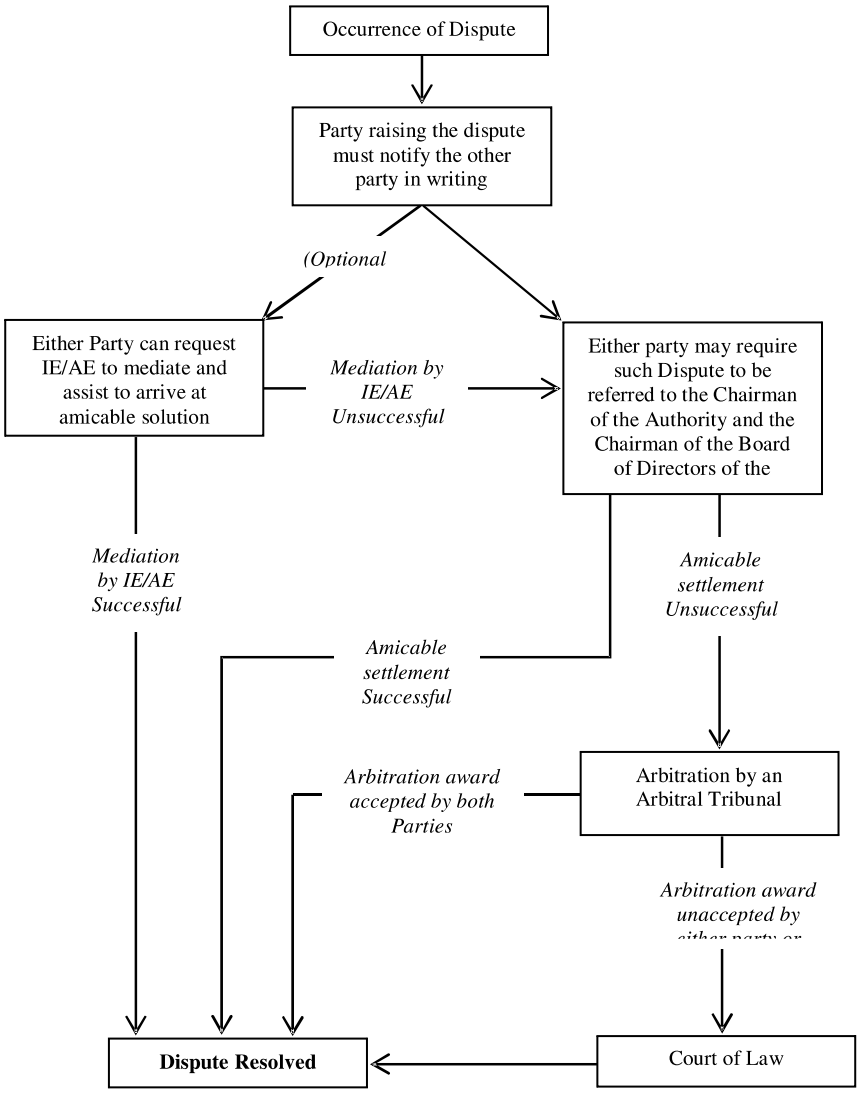

Fig. 1 – Dispute Resolution Mechanism in MCA Based Contracts.

Gaps in the existing Dispute Resolution Mechanism:

There are two major gaps observed in the existing mechanism of 'Dispute Resolution' in MCA based contracts as detailed below.

1. The first part of the Article on Dispute Resolution in all MCA based contract defines 'Dispute' as dispute between two parties entering into the Contract, which means the owner of the road (Road Authority) and the Concessionaire / Contractor. The first part of the said clause is reproduced below for ready reference.

"Any dispute, difference or controversy of whatever nature howsoever arising under or out of or in relation to this Agreement (including its interpretation) between the Parties, and so notified in writing by either Party to the other Party (the "Dispute") shall, in the first instance, be attempted to be resolved amicably in accordance with the conciliation procedure set forth in Clause[4]*"*

However, the dispute in first place occurs when either of the parties disagrees with the opinion, instruction, assessment or decision of the IE / AE. Procedurally, there is no provision in the Contract wherein, the parties have opportunity to disagree directly with each other.

For example, if the concessionaire puts a financial claim to the IE and the concessionaire disagrees with assessment of IE, as per the existing mechanism of dispute resolution, concessionaire has to notify the disagreement to the Road Authority (the other party) as a 'Dispute'[5]. Whereas, the Concessionaire/Contractor is unaware of Road Authority's stand on that particular issue when it is already identifying the issue as dispute. In a way, such 'Dispute' is not disagreement between two parties but disagreement between IE and Concessionaire (one of the parties to the Contract).

Hence, the present 'Dispute Resolution' mechanism deals with an issue in a project as 'Dispute 'well before it qualifies as dispute / disagreement between the two prime parties to the Contract.

2. The second sub-clause of the Article on 'Dispute Resolution' in all the MCA based Contracts desires the IE / AE to mediate and assist in resolving the dispute amicably. The first part of the said clause is reproduced below for ready reference.
"In the event of any Dispute between the Parties, either Party may call upon the IE/AE to mediate and assist the Parties in arriving at an amicable settlement thereof…"
The above provision of the MCA Contract is not mandatory and is an optional one. However, there exists a bit of a contradiction on the role of IE / AE to mediate between two parties on a dispute which has occurred essentially due to the opinion, instruction, assessment or decision of the IE/AE itself. And therefore, the natural tendency of the IE/AE would be to toe the line which has already been taken by it. Hence such mediation will bound to remain unsuccessful. This is also validated by the fact that hardly any dispute reaches on amicable solution when IE/AE mediates it.

Suggested Remedial Measure
While there could be various opinions on modifying or amending the Article on 'Dispute Resolution' in MCA based contracts to address the two identified gaps, the following suggestions appears to be more obvious and practical. The suggested amendments for the above discussed gaps are given below.

1. In case of dispute to become a dispute, there should be disagreement, difference or controversy between the two parties (Road Authority and Concessionaire/Contractor) and not between IE/AE and one of the parties. Therefore an opportunity be provided in the Article wherein the party not agreeing with the opinion, instruction, assessment or decision of the Independent Engineer (IE) / Authority's Engineer (AE) approaches the other party to understand its stand to concluded if there exists a dispute between two prime parties or not. Following sub-clause can be added ahead of the first sub-clause of the existing Article to address this deficiency.

In the event of disagreement by any of the parties on the opinion, instruction, assessment or decision of the IE/AE, the concerned party may notify the other party and seek its opinion on the issue to concluded if there exists 'Dispute 'between the two parties to the contract. The other party may clarify its stand in writing within 14 days of receipt of notification from the party notifying disagreement. In case of no response from the other party within 14 days, it will be assumed that the other party agrees with the IE/AE and hence the issue becomes a 'Dispute'.

2. On the issue of involving the IE/AE to mediate and assist to resolve the issue amicably, it is suggested that this provision be taken out of the respective Article. This provision, anyways, is optional and has not shown any positive outcome thus far. This will not only save the time by eliminating one step from the dispute resolution mechanism, but also take care of the contradictory roles being played by the IE/AE. This omission is in no way affecting the attempts to solve the disputes amicably because the second option, which is more effective, of involving heads of both parties remains intact.

Conclusion

MCA based contracts are newest forms of the contracts being used in India. It has gone through many amendments based on experiences gained during the course of its evolution. The suggested amendments to the 'Dispute Resolution' Article of the MCA contracts certainly seem essential. It is positively expected to enhance the dispute resolution mechanism and will be a step further towards making this expedient document more comprehensive.

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Evaluation of Software cost & effort estimation in agile Software Development in India

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Abstract
In India Current scenario of software shows that cost estimation plays a vital role in the whole cycle of software development. Software development process involves various techniques and skills which helps in accurate estimation, overall charges, delivery date, required effort and assurance of project acceptance or denial. This paper presents current scenario of knowledge in the field of software development methodologies and a systematic survey of cost estimation in Agile Software Development, which will be useful to understand current trends in cost estimation in ASD Development stages. Stages are building blocks of any software development methodology which are presented graphically. Software development methodologies are compared by highlighting strengths and weaknesses from the stakeholder's point of view. This research is related to software cost and effort estimation in agile software development.

Keywords: Effort, Cost, Estimation, Software, Agile Technology, Survey, Analyze

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Introduction

This research is related to software cost and effort estimation in agile software development. The research was done at Accenture, Honeywell Hyderabad, Tata Consultancy Services, Bangalore, EICE Noida, Macquarie Gurugram, FIPL Vadodara, Orange curves Jaipur. Research inspired from the bad estimation accuracy found in area of software development. The main motive of this research is to present current scenario and evaluation of cost-effort estimation in perspective of software, survey in team members working on various companies. According to literature review Machine Learning, Algorithmic Models and Expert estimation three kinds of techniques available for cost-effort estimation but all are inaccurate because Algorithmic and Machine learning technique require lot of research and data so company avoid these techniques and largely use expert estimation which based on past experiences and thoughts of experts. Current scenario of various company shows that team members believed on expert estimation method and reason is toughest task to collecting data and flexibility of user requirements.

Current studies found by conducting questionnaire surveys. Questionnaire based on past literature studies.

The goal of research is to reduce estimation inaccuracy and loopholes as well as improving suggestions on expert estimation. Research Topics:-

1. Analyzing various Software cost effort estimation in software development.
2. Current Indian scenario of Cost-effort estimation in Software companies.
3. How much inconsistencies in effort estimation effect on estimation?
4. How could improve the estimation method in various software companies?

Accurate estimation is toughest task in presence of inaccurate information, Different time period, user behavior etc. Survey conducted on 132 peoples working in these companies and output shows that members believed in Expert Estimation. After Analyzing survey and literature review some improvements and suggestions were found. Main findings of survey—

1. Remove irrelevant information otherwise expert judgment estimation affects the estimates.
2. To reduce inconsistency in expert judgment estimation training is important.
3. Clients plays vital role in the estimation process.
4. Estimation terminology is not well defined.
5. Late delivery is major weak point of software development.

Hence to reduce the problem arising in effort estimation in software engineering researchers require applying methods from various research disciplines.

Effort Estimation Process

The meaning of Software development effort estimation is the method of predicting most accurate amount of person working hour or required for software development.

The process of Effort estimation is step by step method to find out the estimates for any software. Absence of process the result must be inaccurate.[1]

Estimation= Duration of task completion + task completion Cost

Effort estimation is a way in which inputs which it takes and output which it produces. During this process some resources are adopted with estimation methods. Quantitative and expertise both data are used for estimation. Quantity and Quality of data are two major factors for estimation.[2]

Normally estimation done by previous or past projects but if quality data in perspective of current scenario is not available then estimators have to do new effort estimates instead of taking past historical data.

Effort Estimation Methods

According to literature review three main effort estimation methods were found—

1) Algorithmic Estimation- These methods are based on mathematical models which produce function of a number of variables-

Effort = f (x1, x2..xn)

where x1 , x2 , , xn denote the cost factors i.e. software metrics.[3]
Ex: COCOMO, Puntametc
2) Expertise Estimation- These Methods are used when there is complexity to collecting data and requirements. There is no evidences but situations where we can expect expert estimates to be more accurate than other estimation models.
Ex: Delphi, Rule based etc
3) Learning Oriented- These methods are advance version of algorithmic and expertise estimation where conclusion obtained by previous projects, examples and current knowledge.
Ex: Neural and Analogy.[4]
4) Price to Win- Estimates according to budget of the software.
5) Bottom-up- Estimate and test each components of the system.
6) Top-Down- Estimate and test entire system
In this research various estimation techniques Machine Learning, algorithmic models, Function Point, Top Down, Bottom up and Expert estimation are explored. Planning Poker, COCOMO and neural networks are widely using in present world.

Expert Judgment Method
In this method opinions, experiences, consult with software cost-effort estimation experts. If opinions are different then wideband Delhi and planning poker technique used.[5]

Estimation Methods Analysis

Table 1: Comparative Analysis of Estimation Methods

Method	Type	Advantages	Disadvantages
Analogy	Non-algorithmic	• Require past Experiences. • No need of new resources	• Required large amount of data. • Sometimes similar problem pattern not available
Expert based	Non-Algorithmic	Due to expert experiences fast process	Chances of biased decisions
Bottom-Up	Non-Algorithmic	• Stable as the estimation errors in the various components might balance out.	• Time • Inaccurate data • Require lot of data

Top-Down	Non-Algorithmic	• Faster and Easier • Low level costs	• Justifies decisions are less • less stability
COCOMO	Algorithmic	• Repeatable results can be generated • Easily modifying input data • Easy filtered formula • Clear results	• Inaccurate cost estimate • Size uncertainty • Require huge data • Practically not good
Function Point	Algorithmic	• Estimation based on requirements designs • Specifications • Tool independent	Not considered good enough
Neural Network	Machine learning	• Superior cost estimate • Consistent estimate	• Training data required • No standard guidelines

Factors for choosing estimation techniques

Conclusion of literature review is that there is no single method available which estimates accurate than others. Each method affects different factors--

1. Is model having understandable structure and Process?
2. Is method is less expensive, easier to use and clear?
3. Does model considering uncertainty?
4. How model consider uncertainty?
5. Is estimation result accurate or not?
6. Is method using agile methods or not?
7. Is method dynamic or not?
8. Is method produce accurate output if requirement changes during development?
9. Is model less time consuming?
10. Does model fit in current situation?
11. Does model produce trustworthy results?

Estimation principles

According to Joderson it is not enough to select estimation method. He presented twelve expert estimation principles based on empirical evidence, which are presented in table 2.

Table 2. Expert estimation principles as reported by Jørgensen (2004)[6]

1.	Evaluate estimation accuracy, but avoid high evaluation pressure
2.	Avoid conflicting estimation goals
3.	Ask estimators to justify and criticize their estimates
4.	Avoid irrelevant and unreliable estimation information
5.	Use documented data from previous development tasks
6.	Find estimation experts with relevant domain background and good estimation records
7.	Estimate top-down and bottom-up, independently of each other
8.	Use estimation checklists
9.	Combine estimates from different experts and estimation strategies
10.	Assess the uncertainty of the estimate
11.	Provide feedback on estimation accuracy and task relations
12.	Provide estimation training opportunities

Pilot Testing of Questionnaire

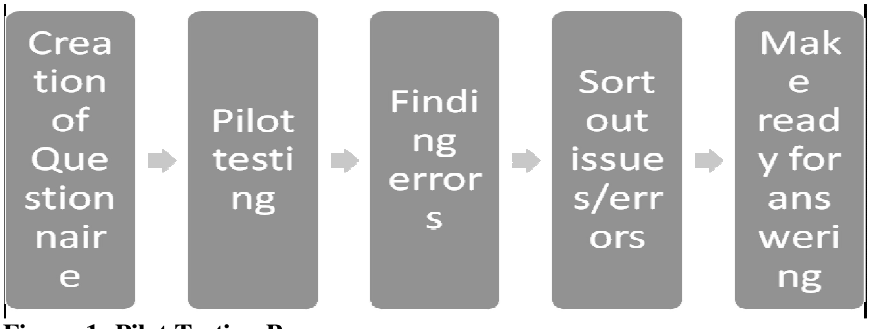

Figure 1- Pilot Testing Process

A pilot study is a small scale pre study to find issues and error related to study and improve upon the study design prior to performance of a full-scale research project.[7]

Analyzing questionnaire

After conducting the survey collection of questionnaire process become start. Frequencies for all different questions calculated by SPSS Software. T-test was used to compare Likert scale answers to previous studies that did not report the exact answers they had received, but instead reported the means and standard deviation of their answers[8]. Coding used for labeling answers.If P-value is greater than 0.05 then concluded that there is no difference between mean and statistically considered.[9,10]

Current Scenario of Cost-Effort estimation in India

Pilot Study result

1) No data are provided for urgent and unplanned tasks
2) No effort data is provided for tasks such as calls, meetings, and e-mail traffic
3) Employees are less knowledge about this topic.
4) Employees provide effort data about tasks expected from them, as well as ones they already perform.

Comparison Studies

Respondents of the survey reported six different roles, of which software developer was the most common. Only four respondents reported working in testing. These testers work on higher level testing, as unit testing and acceptance tests are done by the developers working on a feature.[11-14] Seven of the respondents were Scrum masters. Scrum masters also work in normal development tasks in their teams.

Methods	**JuhoLeinonen (2016)**	**Anooja (2018)**
Planning Poker	22	81
Expert judgment	25	77
Analogy (analogy- and case-based reasoning e.g., analogy with different projects)	8	2
Work breakdown (WBS-based and other activity decomposition-based methods)	3	16
Function Point (methods based on function points, feature points, or use case points)	2	12
Guessing	2	7
None	1	2
Neural Network (methods based on artificial neural networks)	1	--
Regression (regression based methods, including most algorithmic models e.g., COCOMO)	2	--
Bayesian (Bayesian or Markov-based estimation models)	--	--
Informal discussion within team Simulation (simulation-based/derived models e.g., Monte Carlo Simulation)	1	14
Theory (theory derived models e.g., SLIM)	--	--
Top Down	--	--
Bottom Up	--	--
Price to win	--	1

Expert Judgment and Planning Poker methods widely used in Indian companies like other countries.

Information Type	JuhoLeinonen (2016)	Anooja (2018)
Previous development experiences	7	17
Feature analysis	6	56
Feature specifications	6	12
Codebase	5	11
Existing tests and need for new tests	4	23
Discussion with specification makers	3	11
General knowledge about the system	3	12
Resources available	--	10
Base product/source code	--	05
History data	3	16
All kinds	1	03
Deadlines	1	02
Experience of the person designated for the task	1	03
Individual estimates from team members	1	01
Inheriting Ability	--	01
Team velocity	1	09
Life Expires	--	10

Feature analysis and existing tests type information widely using in India.

Suggestions and Improvements

In this Paper suggestions and improvements will be described. These suggestions are come due to literature review and survey conducted for this research.
Suggestions:

Make Risk under control

a) Earlier find out and predict errors or failures may occur in future.
b) Week to week feedback taken by team.

Reality

a) Be sure requirements given by customer is practically possible to complete.
b) Do you have experts staff and technologies to reach final goal.

Training

a) Train your team very well to take challenges as well as sort out the issues.
b) Train your team with latest technologies.

Scheduling

a) Before starting a project team manager have to plan and decide a rough schedule of working on project.

b) Decide rough estimates of each step. Calculate rough date to completion of small tasks.

Don't pressurize team members-

a) Don't pressurize but keep eye on their work because they aware you are watching them.
b) Be strict on goals.

Conclusion

This research explores an overview of effort estimation in software development as well as the current scenario of effort estimation in Software companies of India. According to literature three categories of effort estimation techniques—expert estimation methods, algorithmic models and machine learning.

The survey is conducted to find previous survey studies. For pilot testing questionnaire distributed to 10 persons for primary testing. After successful completion questionnaire distributed to Software companies of India.

According to need of Indian perspective some questions were added by me 132 people participated in survey out of 146 peoples. Planning poker and expert judgment most common method used by almost companies for estimation. In previous research survey performed in a single company and only 61 people participated out of 100 which may be biased and may not be widely generalizable.

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A CROSS-SECTIONAL ANALYSIS OF INDEX FUTURES AS A HEDGING TOOL AND ITS RELATIONSHIP WITH BETA AND RETURNS OF UNHEDGED PORTFOLIO

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Abstract

The emergence of the market for derivatives contracts originates from the desire of risk-averse economic agents to guard themselves against uncertainties arising out of fluctuations in asset prices. Financial derivatives have crept into the world's popular economic vocabulary on a wave of recent publicity about serious financial losses suffered by a large number of organizations. Derivative instruments can be used to minimize risk, to separate the risks and transfer them to parties willing to bear these risks. The most important types of derivative instruments are future, options forwards and swaps. Hedging is the prime reason which led to emergence of derivatives. Through this paper an attempt has been made to test hedging long term investment of investors in stock market through financial derivatives. It may be noted that hedging only makes an outcome more certain, it does not necessarily lead to an improved outcome. An important property of hedging transactions is offsetting of risks or reducing the risk exposure.[1] This study moves ahead to discover the effectiveness of hedging for risk-averse investors.

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Terms used in the analysis:

The following terms have been used in this analysis.

1) Hedging- Hedging is the process of reducing exposure to risk. Thus, a hedge is any act that reduces the price risk of a certain position in the cash market.

2) Stock index future- Stock index future is a financial future contract where the underlying asset is the stock index, which the trader promises to buy and deliver.

3) Beta (β)- The degree of movement in the price of a share of stock with respect to movements in the market, that is, stock price index, is measured in terms of beta.

4) No. of contracts(N) to sell- The number of future contracts to trade in order to completely hedge the portfolio i.e. 100% hedging.

5) Initial Margin- It is the amount deposited with the stock exchange by the parties in the contract to make sure that each party to a contract performs its part. It is taken as 35%of the value of the future contracts

Objectives
The following objectives have been set out for this:

General objectives
The study seeks to understand the meaning, aspects, factors affecting financial derivatives, and also understanding the market mechanism of financial derivatives with special reference to trading with index futures in Indian stock exchanges.

Specific objectives
1. To evaluate the hedging effectiveness of index futures against fluctuating returns from Indian stock market.
2. To identify the factors which carry an impact on the hedging effectiveness of financial derivatives.
3. To examine the nature wise- classification of derivatives.

Review of Literature
Keeping in view of the importance of derivatives in financial markets and in growth and economic development of a country, large number of studies has been carried out by academicians, professionals both in India and abroad on the concept, types, impact, reasons, importance, efficiency, emerging trends, development, etc. of financial derivatives.

Specifically talking about effectiveness of hedging through stock index futures, and whether the optimum hedge ratio is stationary, there have been various studies conducted

The most important issue concerns the degree of risk reduction obtained through the optimum hedge. Jing Chi, Martin Young (2005)[1]examined the importance to China of developing a fully integrated financial derivatives market from both the economic and financial market perspectives and examined the best way forward for derivative trading, both market based and over-the-counter, and the types of products best suited to both, given the current state of the Chinese financial markets. **Vipul (2006)**[2] found that derivatives led to a fall in volatility through reduced persistence of the previous day's volatility, for the six shares; and that long-term persistence and the volatility trend have also reduced. He noted an opposite effect on the Nifty index, which suffered from bundling and arbitrage.
Andreas A. Jobst (2008)[2] reported that the supervision of emerging derivative markets depends on the expedient and tractable resolution of challenges arising from consistent risk management, risk mutualization, and prudential standards that

guarantee market stability in crisis situations. **Liu S (2008)[3]** observed that returns to Nikkei 225 stocks become more random and unpredictable, after the introduction of futures contracts also noted that volumes of sales increased after introduction.**Harvey Arbelaez, E.K. Gatzonas (2009)[4]** using the 2007 BIS Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity Report showed a substantial increase in turnover in foreign exchange **M, Brown G W, Fehle F R (2009)[5-7]** examined in detail what motivates the use of financial derivatives by corporations and stated that the use of derivatives is significantly related to factors like leverage, debt maturity, holdings of liquid assets, dividend policy, and operational hedges.

Keeping above evidences in mind, this study is conducted adjusting the hedge ratio with time, so that a complete hedge is possible with the use of adjusted beta value.

Research Gap

From the above mentioned studies conducted by various academicians, a large number of investors, market participants, traders etc., have been benefited while trading or using derivatives. Still it is a point of concern for investors that how far the hedging instruments are effective and beneficial to not only short term investors but also to long term investors. The investors should also be aware of various parameters while selecting securities which can contribute in reducing the effect of volatility. Moreover hedgers, especially long term, are concerned with the cost involved during the period of holding the securities.

Thus in the current market scenario a need arises to study the mechanism of derivatives instruments, specifically index futures, so that hedgers can use them carefully with proper understanding of operations in the derivative market.

These studies lack the use of rolling forward of hedge, with adjusting hedge ratio, which can also be a technique to hedge fixed portfolios against uncertain market movements. To overcome this lacuna hedge is rolled forward for a long term so that a considerable amount of variations can be incorporated in this study. Since while rolling forward the hedge for a long time, the cost of carry forward cannot be ignored, it is required here to take an account of it also.

Hypotheses

To meet the above objectives concerned with the use of stock index future as hedging instrument and its effect on investors, various hypotheses are framed which are as under:

i. The variation in returns of unhedged portfolio is equal to the variation in returns of hedged portfolio;

H_{01} : $\sigma^2_{S1} = \sigma^2_{S2}$ (Null) Not significant

H_{a1} : $\sigma^2_{S1} > \sigma^2_{S2}$ (Alternate)

ii. There is no significant difference in the losses of unhedged and hedged portfolio;

H_{02} : $\mu_1 = \mu_2$ (Null) Not significant
H_{a2} : $\mu_1 > \mu_2$ (Alternate)

iii. The correlation coefficient between Weighted beta of the portfolio (W_i) and range of fluctuation in returns of portfolio is not significant;

H_{03} : $\mu_1 = \mu_2$ (Null) Not significant
H_{a3}: $\mu_1 > \mu_2$ (Alternate)

The methodology adopted for this study is as follows:

At first, **top-80 stocks** are picked from **A and B group** companies in individual portfolio, with **Beta value** ranging from a lower range of 0.6 to an upper range of 1.2 - 1.3

Secondly, **40 portfolios** were constructed with the value of investment in each portfolio approximately **Rs. 10, 00,000** through a mix of 4 to 6 stocks in every such portfolio.

After the construction of portfolios, the current market price of each individual stock as on 27th March 2006 were taken along with their respective beta values and beta of the portfolio is arrived at.

When an investor wants to go for hedging, he has to take an equal and opposite position in the future market through future contracts. Therefore **No. of future contracts** to be sold (N), while entering a hedge contract, is determined.

Then **Profit/Loss (P/L) in future** is calculated where all the three different possible scenarios i.e. decline in market, rise in market and no change in the market are taken into account.

Thereafter **P/L of unhedged portfolio** is ascertained by calculating the difference of portfolio values of two consecutive months.

Finally **P/L in hedged portfolio** is calculated, adjusting the cost of carry forward incurred every month, as hedging is rolled forward for 5 years.

These calculations are run for a period of **63 months**, using **1 month future** contract, where contracts is renewed every month.

The behavior of returns of hedged and unhedged portfolio are studied and compared along the time period and are represented using graphs, which depict the nature of outcomes and help in making comparisons.

These portfolios are hedged using **index future i.e. S&P CNX NIFTY future.** Variation of returns in hedged portfolio is compared with that of unhedged portfolio for a span of nearly 5 years (2006 – 2011) and various interpretations are made.

Various tests applied in the analysis and interpretations of data are:

!. F-test
2. T-test
3.Z-test

Portfolios with their worksheets and graphs

Construction of the Portfolio and calculation of W_i

Portfolio with respective worksheet and graph is shown for the reference Portfolio

Name of the co.	CMP as on 27/03/06 (in Rs.)	QTY.	Value	Weight (w)	Beta Value(β)	Wβ
1	2	3	4	5	6	7
J K Lakshmi Cem.	115	500	57500	0.06	1.3	0.07
KEC Infrastructure	38.1	1000	38100	0.04	0.3	0.01
ONGC	1257	400	502800	0.50	0.9	0.45
PNB	476	500	238000	0.24	1	0.24
Zee Telefilms	237	300	71100	0.07	0.9	0.06
Torrent Power	327	300	98100	0.10	1	0.10
Total value of holdings			**1005600**			**0.84**

Construction of the Worksheet

maturity date of future	Nifty value	%change	% change in portfolio	current port. Value	1 month future	N	p/l in future	p/l in unhedged portfolio	p/l in hedged portfolio	initial margin	cost of carry forward
1	2	3	4	5	6	7	8	9	10	11	12
27-Mar-06	3321	NA	NA	1005600	3566	5	58034.91	NA	NA	295646.4	5490.58
27-Apr-06	3508	5.63	4.73	1053164	3408	5	-25958.26	47563.88	15855		5750.27
25-May-06	3177	-9.44	-7.93	969691	3565	5	88651.28	-83472.54	-116		5294.51
29-Jun-06	2998	-5.63	-4.73	923798	3094	5	24077.27	-45893.23	-26860		5043.94
27-Jul-06	3156	5.27	4.43	964694	3129	5	-6992.41	40896.09	28636		5267.23
31-Aug-06	3413	8.14	6.84	1030682	3098	6	-88030.51	65988.02	-27670		5627.52
28-Sep-06	3572	4.66	3.91	1071016	3441	5	-34250.09	40333.41	236		5847.75
26-Oct-06	3677	2.94	2.47	1097461	3592	5	-21814.79	26445.57	-1361		5992.14
30-Nov-06	3954	7.53	6.33	1166908	3764	5	-49478.90	69447.18	13597		6371.32
28-Dec-06	3970	0.40	0.34	1170875	4014	5	10781.15	3966.43	8355		6392.98
25-Jan-07	4148	4.48	3.77	1214973	3977	5	-43882.00	44098.04	-6418		6633.75
22-Feb-07	4040	-2.60	-2.19	1188400	4075	5	8573.98	-26572.40	-24487		6488.67
29-Mar-07	3798	-5.99	-5.03	1128604	3700	5	-25109.91	-59796.54	-91069		6162.18
26-Apr-07	4178	10.01	8.40	1223457	3732	6	-122817.73	94852.65	-34645		6680.07
31-May-07	4296	2.82	2.37	1252482	4125	5	-43613.71	29025.61	-21427		6838.55

28-Jun-07	4282	-0.33	-0.27	1249054	4298	5	3905.84	-3428.58	-6343		6819.83
26-Jul-07	4620	7.89	6.63	1331873	4297	5	-84096.74	82819.08	-8550		7272.02
30-Aug-07	4412	-4.50	-3.78	1281504	4461	5	11823.96	-50369.00	-45542		6997.01
27-Sep-07	5000	13.33	11.19	1424967	4435	5	-152489.14	143463.34	-16806		7780.32
25-Oct-07	5569	11.38	9.56	1561182	5060	5	-131916.83	136215.44	-4225		8524.06
29-Nov-07	5634	1.17	0.98	1576489	5990	4	78703.37	15306.26	85402		8607.63
27-Dec-07	6081	7.93	6.66	1681554	5825	5	-62077.50	105065.67	33807		9181.29
31-Jan-08	5137	-15.52	-13.04	1462280	6150	4	202322.53	-219274.02	-24936		7984.05
28-Feb-08	5285	2.88	2.42	1497669	5419	5	31108.62	35388.49	58320		8177.27
27-Mar-08	4830	-8.61	-7.23	1389361	5012	5	42379.38	-108308.24	-73515		7585.91
24-Apr-08	4999	3.50	2.94	1430196	4766	5	-58732.25	40835.12	-25706		7808.87
29-May-08	4835	-3.28	-2.76	1390783	5249	4	92143.02	-39412.63	45137		7593.68
26-Jun-08	4315	-10.75	-9.03	1265138	4878	4	122654.58	-125645.10	-9898		6907.65
31-Jul-08	4333	0.42	0.35	1269571	3977	5	-95462.04	4433.11	-97961		6931.86
28-Aug-08	4214	-2.75	-2.31	1240283	4270	5	13663.44	-29288.33	-22397		6771.94
25-Sep-08	4110	-2.47	-2.07	1214571	4311	5	47568.57	-25712.17	15225		6631.56
30-Oct-08	2885	-29.81	-25.04	910485	3939	4	204647.55	-304085.92	-104410		4971.25
26-Nov-08	2752	-4.61	-3.87	875227	3018	5	64798.09	-35258.01	24761		4778.74
24-Dec-08	2916	5.96	5.01	919039	2796	6	-33132.73	43812.22	5662		5017.95
29-Jan-09	2832	-2.88	-2.42	896800	2989	5	39568.43	-22238.47	12433		4896.53
26-Feb-09	2785	-1.66	-1.39	884298	2835	5	13100.72	-12502.01	-4230		4828.27
26-Mar-09	3082	10.66	8.96	963514	2665	6	-126641.50	79215.36	-52687		5260.79
29-Apr-09	3473	12.69	10.66	1066193	3015	6	-136048.31	102678.93	-39191		5821.41
28-May-09	4337	24.88	20.90	1288997	3621	6	-214099.55	222804.49	1667		7037.921
25-Jun-09	4242	-2.19	-1.84	1265280	4511	5	63378.99	-23717.31	32753		6908.43
30-Jul-09	4571	7.76	6.98	1353599	4310	6	-73772.71	88319.04	6628		7918.55
27-Aug-09	4688	2.56	2.30	1384781	4685	5	-798.06	31182.23	22283		8100.97
24-Sep-09	4986	6.36	5.72	1464004	4691	6	-82859.34	79223.19	-12201		8564.43
29-Oct-09	4750	-4.73	-4.26	1401639	5065	5	78453.03	-62365.53	7888		8199.59
26-Nov-09	5005	5.37	4.83	1469360	4654	6	-99735.89	67721.29	-40610		8595.76
31-Dec-09	5201	3.92	3.52	1521147	5046	5	-42053.12	51787.24	835		8898.71
28-Jan-10	4867	-6.42	-5.78	1433230	5225	5	88380.24	-87917.11	-7921		8384.40
25-Feb-10	4859	-0.16	-0.15	1431110	4847	5	-3188.77	-2120.25	-13681		8371.99
25-Mar-10	5260	8.25	7.43	1537405	4980	6	-77796.40	106295.04	19505		8993.82
29-Apr-10	5254	-0.11	-0.10	1535827	5286	5	8367.73	-1578.32	-2195		8984.59
27-May-10	5003	-4.78	-4.30	1469793	5235	5	58623.24	-66034.12	-16009		8598.29
24-Jun-10	5320	6.34	5.70	1553609	5045	6	-76217.67	83816.07	-1490		9088.61
29-Jul-10	5409	1.67	1.51	1577000	5270	5	-37435.06	23391.74	-23269		9225.45
26-Aug-10	5478	1.28	1.15	1595106	5408	5	-18582.04	18105.33	-9808		9331.37
30-Sep-10	6030	10.08	9.07	1739766	5420	6	-176223.52	144660.19	-41741		10177.63
28-Oct-10	5988	-0.70	-0.63	1728860	6214	5	56589.97	-10906.00	35570		10113.83
25-Nov-10	5800	-3.14	-2.83	1680008	6105	5	75538.46	-48851.55	16859		9828.05
30-Dec-10	6102	5.21	4.69	1758737	5890	5	-56972.33	78728.67	11468		10288.61
27-Jan-11	5604	-8.16	-7.35	1629555	6202	5	141410.31	-129181.57	2696		9532.90
24-Feb-11	5262	-6.10	-5.49	1540052	5542	5	70027.63	-89503.42	-28485		9009.30
31-Mar-11	5833	10.85	9.77	1690457	5375	6	-129638.42	150405.31	10878		9889.18
28-Apr-11	5785	-0.82	-0.74	1677938	5874	5	22880.97	-12519.76	545		9815.93
26-May-11	5412	-6.45	-5.80	1580568	5769	5	88028.51	-97369.69	-18588		9246.32
30-Jun-11	5517	1.94	1.75	1608166	5556	5	10159.58	27598.61	28350		9407.77

Compiled analytical worksheet

S. No.	(1) portfolio no.	(2) WB	(3) Avg. cost of carry forward	(4) range(I)	(5) range(J)	(6) corr(c,i)	(7) corr(c,j)	(8) std.dev.(i)	(9) std.dev.(j)	(10) risk red.(%)	(11) corr(2,3)	(12) corr.(2,4)	(13) corr.(2,5)	(14) % red. in range after hedging	(15) corr.(2,10)
1.	Portfolio 28	0.61	5041	372540.8	121979.88	0.953	0.422	68600	27011	60.63	0.997	1.000	0.992	32.74	-0.209
2.	Portfolio 14	0.65	5420	399299.1	132078.61	0.961	0.402	71834	27574	61.61				33.08	
3.	Portfolio 4	0.67	5592	411271.4	136741.76	0.964	0.391	73231	27855	61.96				33.25	
4.	Portfolio 11	0.7	5935	435412	145903.93	0.969	0.374	76457	28808	62.32				33.51	
5.	Portfolio 2	0.71	5831	435254.8	146234.92	0.989	0.243	69839	26504	62.05				33.60	
6.	Portfolio 16	0.71	6007	440325.5	147938.58	0.970	0.368	76990	28948	62.40				33.60	
7.	Portfolio 17	0.71	5999	439745.1	147743.56	0.970	0.368	76889	28910	62.40				33.60	
8.	Portfolio 24	0.73	6184	452588.1	152864.76	0.972	0.356	78503	29439	62.50				33.78	
9.	Portfolio 32	0.76	6456	471354	160942.39	0.975	0.337	80880	30315	62.52				34.14	
10.	Portfolio 23	0.77	6572	479374.9	164792.61	0.976	0.331	81986	30751	62.49				34.38	
11.	Portfolio 19	0.82	7026	510388.2	181439.63	0.980	0.300	86042	32559	62.16				35.55	
12.	Portfolio 10	0.83	7054	512023.2	183235.88	0.980	0.294	86102	32670	62.06				35.79	
13.	Portfolio 1	0.84	7492	526890.4	189811.62	0.981	0.248	88392	33684	61.89				36.02	
14.	Portfolio 12	0.84	7256	526222.4	189570.95	0.981	0.289	88280	33596	61.94				36.02	
15.	Portfolio 25	0.84	7241	530958.9	194072.74	0.981	0.310	88873	33866	61.89				36.55	
16.	Portfolio 33	0.84	7231	524414.7	188919.75	0.981	0.289	87977	33481	61.94				36.02	
17.	Portfolio 38	0.84	7250	525800.6	189419.01	0.981	0.289	88209	33569	61.94				36.02	
18.	Portfolio 7	0.85	7321	530558.4	192402	0.984	0.252	87175	33690	61.35				36.26	
19.	Portfolio 34	0.85	7323	530624.7	192426.05	0.981	0.283	88817	33910	61.82				36.26	
20.	Portfolio 20	0.86	7447	539172.2	196820.46	0.982	0.277	90054	34501	61.69				36.50	
21.	Portfolio 31	0.86	7414	538876.7	196712.62	0.984	0.252	88697	34326	61.30				36.50	
22.	Portfolio 39	0.87	7511	543384.4	199668.22	0.982	0.271	90573	34827	61.55				36.75	
23.	Portfolio 37	0.9	7847	566287.3	212213.12	0.983	0.255	93874	36535	61.08				37.47	
24.	Portfolio 40	0.9	7817	564083.9	211387.42	0.983	0.255	93509	36393	61.08				37.47	
25.	Portfolio 15	0.91	7912	570470.6	215178.7	0.983	0.250	94414	36905	60.91				37.72	
26.	Portfolio 6	0.92	7700	573906.4	217886.77	0.983	0.245	94837	37236	60.74				37.97	
27.	Portfolio 8	0.93	8033	586509.3	224120.62	0.983	0.240	96780	38174	60.56				38.21	
28.	Portfolio 5	0.94	8276	595231.9	228930.51	0.983	0.235	98086	38871	60.37				38.46	
29.	Portfolio 21	0.94	8251	593467	228251.68	0.983	0.235	97795	38756	60.37				38.46	
30.	Portfolio 26	0.95	8290	595705.7	230596.84	0.983	0.230	98040	39039	60.18				38.71	
31.	Portfolio 29	0.96	8176	603573.9	235152.63	0.983	0.225	99219	39701	59.99				38.96	
32.	Portfolio 27	0.98	8625	618308	244006.53	0.983	0.216	101427	40990	59.59				39.46	
33.	Portfolio 36	1	8781	628404.7	251182.44	0.983	0.208	102900	42009	59.18				39.97	

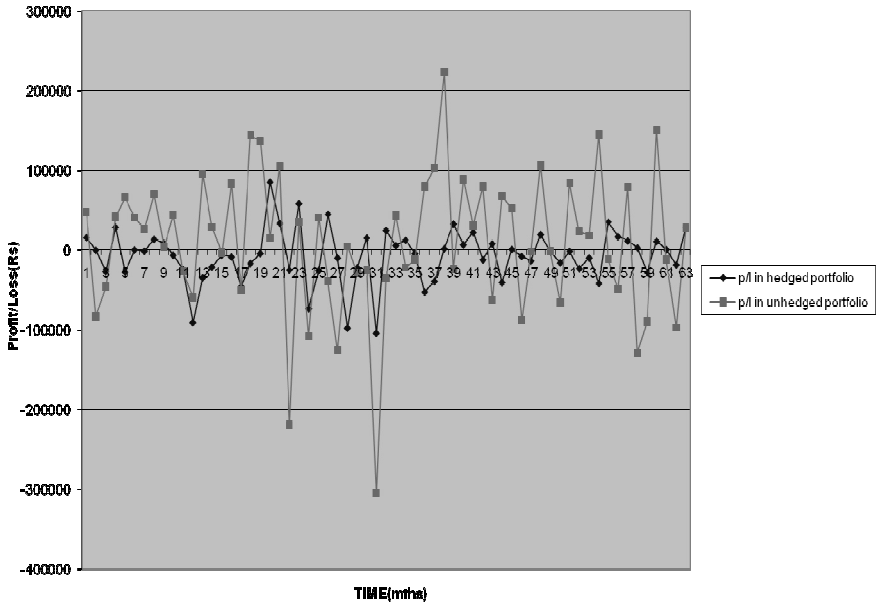
34.	Portfolio 22	1.04	9316	655765.9	268866.77	0.977	0.264	97795	38756	60.37				41.00	
35.	Portfolio 30	1.05	9476	665844.2	274730.57	0.977	0.265	113494	45179	60.19				41.26	
36.	Portfolio 13	1.1	9809	696072	296375.65	0.979	0.172	113464	48773	57.02				42.58	
37.	Portfolio 3	1.13	10204	706892.6	306673.95	0.973	0.263	122387	49985	59.16				43.38	
38.	Portfolio 18	1.13	10103	715082	310226.77	0.978	0.164	116553	50868	56.36				43.38	
39.	Portfolio 35	1.16	10380	732859.3	323921.13	0.976	0.156	119505	52939	55.70				44.20	
40.	Portfolio 9	1.37	13021	865303.1	434855.54	0.962	0.287	157524	66217	57.96				50.25	

Construction of Graph

From the formulation of the worksheet, two most important parameters are generated i.e. returns in unhedged portfolio and returns in hedged portfolio. Since, the basic purpose of hedging being reduction in fluctuation of returns, a graph can

be generated to observe the movement of returns during the period of study and can be compared using the two parameters.

Graph- Comparison of unhedged and hedged portfolio 1



The graph clearly depicts ECG report of two persons.
Pink line depicts ECG of a Heart patient
The Blue line depicts ECG of a healthy person
The effect will be shown respectively in the portfolios.

Testing of Hypothesis

Keeping the specific objectives of this study in mind, certain hypotheses were framed so as to test various aspects of hedging through the use of Stock Index Futures. These hypotheses were tested using various parametric tests to arrive at the result.

I. The variation in returns of unhedged portfolio is equal to the variation in returns of hedged portfolio;

H_{01} : $\sigma^2_{S1} = \sigma^2_{S2}$ (Null) Not significant
H_{a1} : $\sigma^2_{S1} > \sigma^2_{S2}$ (Alternate)

Under this hypothesis, test of variance of two normal populations is to be conducted; therefore F- test is applied.

Data Collection

To test this hypothesis data is taken from the worksheets of all the portfolios. Profit and Loss in unhedged portfolio (Col. No. 9) is compared with profit and loss in hedged portfolio (Col. No. 10), which were calculated for 60 consecutive months, by using F- test and the value of F is determined.
This process is repeated for all the 40 portfolios and average observed value of F is determined and compared with the table value of F.

Analysis and interpretation

Since the average observed value of F obtained is 6.61 which is greater than the table value, which is 1.39, the F ratio is significant at 5% level of confidence. Accordingly H_{01}, i.e. the variation in returns of unhedged portfolio is equal to the variation in returns of hedged portfolio, is rejected. Thus H_{a1} is accepted and concluded that variation in returns of unhedged portfolio is greater than variation in returns of hedged portfolio.
Therefore from the view point of a risk-averse investor, hedging should be preferred as it results into reduction in fluctuation of returns as compared to cash market fluctuations. In simple language, in a volatile market, where the returns are unpredictable and the range of fluctuation is very high, if hedging is done the variations in returns reduces to a great extent. Reduction is observed both in positive as well as negative inflows.

II. There is no significant difference in the losses of unhedged and hedged portfolio;

H_{02} : $\mu_1 = \mu_2$ (Null) Not significant
H_{a2} : $\mu_1 > \mu_2$ (Alternate)

Under this hypothesis, one tailed test can be applied. In such a situation paired *t*- test is used, as population is normal and finite and sample size is also small.

Data Collection

To test this hypothesis the negative returns i.e. the losses of unhedged portfolio are compared with that of hedged portfolio. Thus from a worksheet only the negative values of unhedged and hedged portfolio's returns (Col. No. 9 & 10) are picked and test is conducted and value of *t* is arrived at. The process is repeated for all the 40 portfolios and average observed value of *t* is determined. This value is then compared with the table value of *t*. (See Table: Values of *t*-Test)

Analysis & Interpretation

The observed value of *t* obtained is 5.95 which is higher than the table value of *t,* 2.06. Thus the H_{02}, i.e. there is no significant difference in the losses of unhedged and hedged portfolio, is rejected. Consequently, it is accepted that losses in unhedged portfolio are greater than the losses in hedged portfolio.

By testing this hypothesis, it is made clear that in bearish market conditions hedging provide a safeguard against heavy losses by minimising them to a great extent. Thus hedging is a preferable option for those investors who foresee a downfall in future.

III.The correlation coefficient between weighted beta (W_i) of the portfolio and range of fluctuation in returns of portfolio is not significant;

H_{03} : $\rho_1 = \rho_2$

H_{a3}: $\rho_1 > \rho_2$

Here *t*-test for simple correlation is used to calculate the test statistic.

Data collection

For the testing of this hypothesis, data has been taken from the table of compiled analytical worksheet. Weighted beta (W_i) [Col.(2)] is regressed with Range of p/l in unhedged portfolio [Col. (4)] and with Range of p/l in hedged portfolio. [Col.(5)] and value of *t* for simple correlation is arrived at. This value is then compared with the table value of *t* for simple correlation. (See Table: Values of *z*-Test)

Reason for the application of Z-test table after using t-test for simple correlation

Since the degree of freedom is more than 30 in this test the values are observed from the table of Z for area under normal curve.

Analysis and interpretation

The average observed value of *z* obtained is 48.55 which is higher than the table value of *z*, The value of *z* from the table of area under normal curve for 5% level of significance and for 1-tail test is 1.645. Since the calculated value is much higher than the table value, the difference is highly significant, and therefore we conclude that the correlation coefficient between W_i is highly significant. So H_{03} is rejected at 5% level of significance.

A high correlation between W; and range of returns in portfolios depicts that if the beta of a portfolio is high, the variation in returns from that portfolio will be high i.e. in bullish market, the portfolio will generate higher returns and in bearish market that portfolio may result into heavy losses, as the portfolio is very sensitive towards market movement.

At the same time, if the investor selects a portfolio with lower beta, no matter the profits may be low in bullish market, but at the same time he may hedge himself from heavy losses in the bearish market.

Thus a risk-averse investor should choose a portfolio with lower beta to hedge against negative returns.

Analysis and Suggestions

This study is conducted keeping in mind above features of stock index futures. For this purpose various portfolios are constructed using a mix of few scripts in each one in such a way so as to provide a well diversified feature to each portfolio. Securities which were selected were from various sectors and having a wide range of beta (:) values. These portfolios are hedged using index future i.e. S&P CNX NIFTY future. Variation of returns in hedged portfolio is compared with that of unhedged portfolio for a span of nearly 5 years and various interpretations are made.

Thus, an effort has been made to build a suggestive model for risk-averse investors to hedge their funds for a long term using index futures. Stock index futures are powerful tools, whether one intends to risk his/her own capital for investment gains or want to insulate the investments from risk for a short term. But as far as hedging for a long term is concerned, it may result into a costly affair because of the accumulation of cost of carry forward, which in turn can be reduced by using various strategies. Various suggestions made are as under;

1. While constructing a portfolio to be hedged for a long term, investor should try to minimize the :, as higher : may result into accumulation of higher cost of carry forward of future contracts. But since the transaction cost is very high as compared to cost of carry forward, hedging is always preferable by risk-averse investors.
2. Another benefit of lower : is that it reduces the range of fluctuations in returns of the portfolio, which means that returns will show less variation.
3. Hedging is more effective in portfolios with lower : i.e. the risk reduction is to a greater extent.
4. In uncertain and bearish market conditions, hedging is advisable as it results into more certain outcomes and reduce the losses.
5. Maintaining discipline is the game winning principal of trading in market. If an investor is planning for a long term, he should not break in between.
6. From the view point of a risk-averse investor, hedging should be preferred as it results into reduction in fluctuation of returns as compared to cash market fluctuations.

- A high correlation between W-; and range of returns in portfolios depicts that if the beta of a portfolio is high, the variation in returns from that portfolio will be high i.e. in bullish market, the portfolio will generate higher returns and in bearish market that portfolio may result into heavy losses, as the portfolio is very sensitive towards market movement.
- Very strict regulatory norms should be discouraged as they may effectively become entry barriers.

Some limitations of the study

Although a great effort has been made to conduct this study and all the facts and figures are been presented with utmost care and accuracy, it was not possible to keep a track of prices of all the securities under the coverage of study, every month, for a period of nearly 5 years and keep changing the values of all the 40 portfolios (which is only available in the software provided to the terminal holders). To overcome this problem portfolio values are calculated using beta. This method has been suggested by leading share brokers.

For the same reason beta of securities are also assumed to be constant. To overrule this problem a great range of beta has been taken in the study so that the result due to variation in the beta can be observed on different portfolios.

Thus there is a great scope of such researches in futures and options, not only in stock index futures but also in interest rate futures, currency futures, forwards and swaps.

Conclusion

With the integration of the financial markets and free mobility of capital, risks also multiplied. For instance, when countries adopt floating exchange rates, they have to face risks due to fluctuations in the exchange rates. Deregulation of interest rate cause interest risks. Again, securitization has brought with it the risk of default or counter party risk. Apart from it, every asset, whether commodity or metal or share or currency, is subject to depreciation in its value. It may be due to certain inherent factors and external factors like the market condition, Government's policy, economic and political condition prevailing in the country and so on.

In this context, derivatives occupy an important place as risk reducing machinery. Derivatives are useful to reduce many of the risks discussed above. In fact, the financial service companies can play a very dynamic role in dealing with such risks. They can ensure that the above risks are hedged by using derivatives like forwards, future, options, swaps etc. Derivatives, thus, enable the clients to transfer their financial risks to the financial service companies. This really protects the clients from unforeseen risks and helps them to get their due operating profits or to keep the project well within the budget costs. To hedge the various risks that one faces in the financial market today, derivatives are absolutely essential.

Till recently, it may not have been possible for companies to hedge their long term risk, say 10-15 year risk. But with the rapid development of the derivative markets, now, it is possible to cover such risks through derivative instruments like swap.

Thus, the availability of advanced derivatives market enables companies to concentrate on those management decisions other than funding decisions.
They are recognized as the best and most cost-efficient way of meeting the felt need for risk hedging in certain types of commercial and financial operations. Countries not providing such globally accepted risk hedging facilities are disadvantaged in today's rapidly integrating global economy. The liberalization and opening up of the Indian economy has precipitated the process of integration of India's financial market with the international financial markets.

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