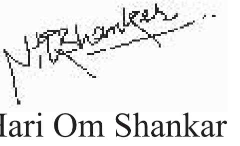
From the Desk of Editor

It gives me a great feeling of pleasure to release the 8th issue of National Research Journal of Humanities & social sciences July-Dec. 2016. It is a matter of pride that eminent researchers, academicians and scholars have contributed their papers with care and security.

One again this Journal incorporates the most original and thought provoking research papers in the field of humanities, Social sciences and Fine Arts. Researchers have made honest affort to examine and study the currently useful and relevant issues through a modern perspective and advanced research methodologies. There has been a conscious affort to ensure the authenticity and originality of the articles.

I take this opportunity to wish all our readers a very Happy New Year 2017. I wish to see more researchers and academicians getting associated with us next year. I firmly believe that research scholars and academicians will continue to explore new vistas of meaningful research with increasing social and practical use in diverse disciplines and contribute their original and weighty research ideas to this journal.

Regards and best wishes for the New Year.



Dr. Hari Om Shankar
Editor-in- Chief

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Evaluation of Challenges and Prospects of Indian Aviation Industry In Havoc Phase

Dr. K.R. Jain*, Dr. Sunil Kumar, Arihant Jain*****

ABSTRACT

Aviation is an important parameter of a nation's economic health. This research paper discusses and reviews the challenges and prospects faced by Indian Aviation Industries which include shortage of workers and professionals, fuel prices, local connectivity, infrastructure, airport charges, service tax, emergencies of substitutes, reserves routes, flight delays, stiff competition and technological advancements. Due to these factors aviation industry becomes unattractive and now it is very difficult to make profit in this industry. The combined effect of these factors is historically, the industry has never earned a rate of return above its investors' capital; in fact, it has destroyed more money than it has created. Missions like bringing low cost carriers for an average Indian who dreams to travel by air once in life and secondly building more runways, running airports more efficiently, and reigning in labor costs. The Government should also implement strong measures to reduce taxes and improve infrastructure. This paper deals with Indian Aviation Industry. This paper is a theoretical review.

Keywords: Evaluation, prospects, Indian aviation industry, challenges, commercial flights, infrastructure, service tax, Gross Domestic Product, Civil Aviation Policy

INTRODUCTION

Aviation Industry is an important measure for the growth of a nation's economic health. It contributes significantly to the Gross Domestic Product (GDP) and provides employment opportunities to the people. Indian Aviation Industry is one of the world's fastest industries. It promises huge growth potential due to large and middle growing population, favourable demographics, rapid economic growth, higher disposable incomes, rising aspirations of the middle class and overall low penetration levels (less than 3%). The Government has taken several measures over the years to offer an environment of growth to the industry players. The efforts of Indian Government were to transform the aviation industry into a more liberal and investment friendly industry. In April 1990, the government adopted open sky policy and allowed air taxi-operators to operate flights from any airport. In 1994, the Indian Government, as part of its open sky policy, ended the monopoly of Indian airline and Air India in the air transport services by repealing the Air Corporations Act of 1953 and replacing it with the Air corporations (Transfer of Undertaking and

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Repeal) Act, 1994. Apart from Government's efforts factors like:

- Increase in disposable income of the consumer
- Entry of low cost carriers
- Inflow of tourist in large number from all across the world
- Increase in air cargo movement and
- Changing Indian mindset towards air travel.

All the above factors have resulted in better opportunities for the aviation industry but the aviation industry is also facing other several challenges posing threat to the survival of air carriers. Although it's true that many entrants have joined the industry but a large number have also withdrawn themselves after bearing heavy losses while others are struggling hard to survive. Air India, Kingfisher airlines and Deccan Airways are good example of this crisis. Today, Indian Aviation Industry is dominated by private airlines and these include low cost carriers such as SpiceJet, Indigo, GoAir etc., who have made air travel affordable.

LITERATURE REVIEW

The purpose of this research paper is to study the evaluation of challenges and prospects of Indian Aviation industry and then find out the reason behind the losses. In this research paper few scholarly books, articles, journals and research papers have been reviewed which are relevant to the current study Evaluation of challenges and prospects of Indian Aviation Industry. During the literature survey several national and international journals were studied and an understanding made about the entrepreneurship skill related to aviation industry.

This research by Pangarkar (2008) opines that, "a large jet aircraft costs in excess of US $200 million, and its procurement typically involves significant lead time. Since an aircraft has an operating life span of 25 to 30 years and depending on the average age of the company's fleet, airline executives may be committing themselves to a time frame of decades, creates huge strategic commitments, when placing a new aircraft order." Existing assumption regarding the regulatory, economic or operating environments easily go away over such a long period of time, increasing the strategic risk for airlines.

According to Rajesh U. Kanthe, Bharti Vidhyapeeth Deemed University, IMRDA, SANGALI, India; the Indian airline was mainly deregulated in1990; plenty of rules and regulations has made it nearly impossible for carrier to be efficient. Many believe that restrictions on foreign ownership and labour laws have kept the industry away from innovating. So, instead of protective measures like, survival fund, bailouts, airlines need to work with government to tackle longer term problems. Missions like bringing low cost carrier for an average Indian who dreams to travel by air once in life and secondly building more runways, running airports more efficiently and reining in labour costs. This paper discusses and reviews the challenges faced by aviation companies which include shortage of workers and professionals, safety concerns, declining returns and the lack of accompanying capacity and infrastructure.

In the words of Dr. Chandrani Chattopadhyay, Aviation as an industry is structurally extremely unattractive. It is very difficult to make profit in this industry. The industry is weighed down by regulations, and influenced by several uncontrollable factors. The combined effect of these factors is historically the industry has never earned a rate of return above its investors' capital; in fact, it has destroyed more money than it has created. The main objective of the paper is to highlight the major characteristics of the industry. Factors such as cost of oil or security have direct impact on operational effectiveness and risk management of an airline company. Factors such as natural disasters and health emergencies and socio-political culture of a country too affect the financial health of the industry.

Rishikesha T. Krishnan (2008) have contributed to the literature survey through their research topic "The Indian Aviation Industry 2008", submitted to Indian Institute of Management, Bangalore. The focus of this paper is on the domestic airline industry in India, their operations and growth in next 5 years. This research paper gives details about the factors affecting the operational costs to survive. This study also gives information on per hour maintenance cost involved in flying of aircrafts and its impact on the overall cost of the airline. This research paper compares the airline industry with the aircraft manufacturers and the overall growth of this industry.

RESEARCH OBJECTIVE

The objective of this research paper is to evaluate and measure the Challenges and Opportunities of Indian Aviation Industry in havoc phase.

RESEARCH METHODOLOGY

To achieve the objective the main source of this research paper is based on the secondary data such as websites, bulletins and other published records of Airlines like annual reports, periodicals and newsletter etc.

INDIAN AVIATION INDUSTRY

Indian civil aviation industry was started in the year 1912; it was the year when the first air flight between Karachi and Delhi was started by the Indian State Air Services in association with the UK based Imperial Airways. JRD Tata founded the first Indian airline- Tata Airline in 1932. Nine air transport companies were carrying both air cargo and passengers at the time of independence namely Tata Airlines, Indian National Airways, Air service of India, Deccan Airways, Ambica Airways, Bharat Airways, Orient Airways and Misty Airways. Orient Airways shifted to Pakistan after partition.

By the year 1995, numerous private airlines had ventured into the aviation business and accounted for more than 10 percent of the domestic air traffic. These included Jet Airways, Sahara, NEPC Airlines, East West Airlines, ModiLuft Airlines, Jagsons Airlines, Continental Aviation, and Damania Airways. But only Jet Airways and Sahara managed to survive the competition. By this time, Indian Airlines began to lose market share to Jet Airways and Sahara. Today, Indian aviation industry is dominated by private airlines such as Indigo Airlines, GoAir, SpiceJet etc; these include low cost carriers who have made air travel affordable. But even today Airline industry is plagued with several other problems in India.

In 2003, for the first time, then civil aviation of Indian entered a new phase with low cost airlines in the civil aviation market. Air Deccan was the pioneer of no frills, low cost model of air travel in India and brought a new competitive spirit to India's civil aviation by challenging Jet Airways and Air Sahara duopoly. For everyone, this low cost model opened the doors of Indian civil Aviation. Over the past several years, the Indian Aviation Industry has been going through havoc phase like high Aviation Turbine Fuel (ATF) prices, high airport charges, service tax etc.

CIVIL AVIATION POLICY IN INDIA

In the context of a multiplicity of airlines, airport operators (including private sector), and the policy of oligopolistic practices, there is a need for an autonomous regulatory authority which could work as a watchdog, as well as a facilitator for the sector. India's civil aviation sector include a large number of consumers (passengers and cargo), a relatively small number of airlines with significant market share, significant cost barriers to market entry, differentiated services and competitive firms affecting each other's business decision.

Objectives of Civil Aviation:

1. To provide all players (airlines) a level-playing field.
2. To encourage trade, tourism and overall economic activity and growth
3. Private participation
4. Security of civil Aviation operations is ensured through appropriate systems, policies and practices.
5. Flexibility to adapt to changing needs.
6. Effective regulation of air transport in the country in the liberalized environment
7. Aviation's safety and security
8. Safe, efficient, reliable and widespread quality air transport services are provided at reasonable prices.

AIRLINE PLAYERS IN INDIAN SKY

Indian Airlines

Indian Airline was founded in 1953. Today, together with its fully owned subsidiary Alliance Air, it is one of the largest regional airline systems in Asia with a fleet of 62 aircraft (4 white bodied Airbus A300s, 41 fly-by-wire Airbus A320s, 11

Boeing 737s, 2 Dornier D-228 aircraft and 4 ATR-42). It has many firsts to its credit, including introduction of the white-bodied A300 aircraft on the domestic network, the fly-by-wire A320, Domestic Shuttle Service. The airlines network spans from Kuwait in the West to Singapore in the East and cover 75 destinations- 57 within India and 20 abroad. The Indian Airlines international network covers Kuwait, Oman, UAE, Qatar and Bahrain in West Asia, Thailand, Singapore, Yangon and Malaysia in South East Asia and Pakistan, Nepal, Bangladesh, Myanmar, Sri Lanka and Maldives in the South Asian sub-continent. Indian Airlines is presently fully owned by the government of India and has total staff strength of around 18562 employees. Its annual turnover, together with that of its subsidiary Alliance Air, is well over Rs. 4000 crore (around US$ 1 billion). Source: Capitaline, ICRA Research

JET AIRWAYS

In May 1974, Naresh Goyal founded Jet Air (Private) Limited with the objective of providing Sales and Marketing representation to foreign airlines in India. In 1991, as part of the ongoing diversification programme of his business activities, Naresh Goyal took advantage of the opening of the Indian economy and the enunciation of the Open Skies Policy by the Government of India, to set up Jet Airways (India) Private Limited, for the operation of scheduled air services on domestic sectors in India. Jet Airways has emerged as India's largest private domestic airline and has been acclaimed by frequent travellers as the most preferred carrier offering the highest quality of comfort, courtesy and standards of in-flight and ground service and reliability of operations. It currently has a market share of 46.7% and operates a fleet of Boeing and ATR72-500 turbo-prop aircraft.

AIR DECCAN: Captain Gopinath

Air Deccan formed in 1995 which is a unit of Deccan Aviation Private Limited and the largest private heli-charter company. The company had a modern fleet of ATR-42-320 aircraft, one of the finest and most efficient Turbo-Prop aircraft flying. ATR is a European joint venture between Alenia Aeronautica and EADS. The ATR 42 has become a reference aircraft amongst airlines around the world, by offering a safe, easy to maintain and comfortable aircraft operating on the regional market with the best economics on short haul sectors. ATR has sold over 650 aircraft to more than 100 operators in 73 countries all around the world. The company had adopted 'lean-and-mean' approach to staffing and aims at maintaining a low aircraft-to-employee ratio. Air Deccan finally ceased its operations on 29 August 2008. Source: Capitaline ICRA Research

KINGFISHER AIRLINES

Kingfisher Airlines Limited was an airline group based in India. Its head office was in Andheri (East), Mumbai and Registered Office in UB City, Bangalore. Kingfisher Airlines, through its parent company United Breweries Group, had a 50% stake in low-cost carrier Kingfisher Red. The Airlines had been facing financial issues for many years. Until December 2011, Kingfisher Airlines had the second largest share in the India's domestic air travel market. However, due to the severe financial crisis faced by the airline, it had the fifth largest market share, in comparison to GoAir. Bangalore, Dec 10: Kingfisher Airlines, which has been facing tremendous difficulties following the reports of successive days of flights cancellation, debt of Rs 7,500 crore and rising, a July-September quarter loss of Rs. 469 crore, delayed salaries, pilots quitting, may once again fly in full gear. Now, the Chairman, Vijay Mallya has given a personal guarantee of Rs.249 crore to save the sinking airlines. Kingfisher Airlines failed to understand the functioning of the airline in terms of key pressure points, both revenue and cost drivers, and more importantly, the need of capital to be able to withstand external shocks. This is true of Indian Aviation and not just one carrier, but the impact of a combination of all these hit Kingfisher more than the others," says a former Kingfisher executive. Today, Kingfisher Airlines owes banks around Rs.7000 crore.

CHALLENGES FOR AVIATION INDUSTRY

The industry observed a growth of 1.74% in the passenger traffic carried by scheduled domestic airlines for January-July 2012 over the same period in 2011 but still incurred heavy losses. The reasons behind these losses are:

a. High Aviation Turbine Fuel (ATF) prices: ATF is the major cost component in the airlines operations. The cost of fuel for Indian operators accounts for nearly 45% of the total operating costs which is around 34% for most operators in other parts of the world. One of the major reasons is the high sales tax levied on ATF by respective state governments. In different states of the country, the sales tax on ATF ranges as high as 25-30%. Moreover, the rising fuel prices have led to increase in the air fares.

b. Employee Shortage: There is clearly a shortage of trained and skilled manpower in the aviation sector as a consequence of which there is cut-throat competition for employees which, in turn, is driving wages to unsustainable levels. Moreover, the industry is unable to retain talented employees.

c. High Airport Charges: The airport charges are very high in India as compared to other countries. The Airports Economic Regulatory Authority (AERA) recently approved a massive 346% rise in Delhi's Indira Gandhi International Airport charges making it among the world's most expensive airports.

d. Local Connectivity: One of the biggest challenges facing the Aviation sector in India is to be able to provide regional connectivity. What is hampering the growth of regional connectivity is the lack of airports.

e. Service Tax: There is 12.36% of service tax on air tickets in India. The Aviation industry players frequently use third party services for ticketing, aircraft maintenance, ground handling and catering etc. which come under the regime of service tax leaving Indian operators into trouble in stiff competition. This service tax on air tickets and on the services purchased by Indian Airline operators further add to the operating costs.

f. Infrastructure: Airport and air traffic control (ATC) infrastructure is inadequate to support growth. While a start has been made to upgrade the infrastructure, the results will be visible only after 2-3 years.

g. Emergence of substitutes: Air travel in India is facing tough competition from railways. The railways were facing competition with the introduction of low cost air carriers; therefore, various steps were taken to improve the rail services in the country. Many new trains with improved service quality have been introduced offering passengers a good substitute comparing to air travel. Though there is an overall growth in air passenger traffic but this has affected the air traffic negatively.

h. Reserves routes: The costs of input in aviation industry are high due to withholding tax on interest repayments on foreign currency loans for aircraft acquisition.

i. Flight Delays: Flight delays are a common and everyday scene but they leave huge impact on operators as well as the economy. The delays result in money costs, time costs and cost of lost demand because it discourages many air passengers. A delay in flight negatively affects the aviation industry.

j. Stiff competition: Stiff competition in Aviation industry leaves the operators of the airlines helpless. In order to compete for market share, high operating costs with highly price sensitive consumer profile compel Indian operators to reduce passenger fares.

k. Technological Advancement: In the field of telecommunication, technological advancement has also replaced the need for air travel to a greater extent. The corporate sector is increasingly utilising the communication technology like video conferencing in order to save time and costs. In the international travels, virtual communication facilities have negatively affected the air passenger traffic.

OPPORTUNITIES FOR AVIATION INDUSTRY

India's civil aviation industry is on a high-growth trajectory. India's domestic and international growth accelerated in the Indian financial year (FY) 2015 (April 2014 to March 2015). The country's airports handled 190 million passengers in FY 2015, more than three times higher than the 59 million passengers handled just ten years earlier. Over the next five years, domestic and international passenger traffic are expected to increase at an annual average rate of 12% and 8%, respectively, while domestic and international cargo are estimated to rise at an annual average rate of 12% and 10%, respectively.

The growth in civil aviation inn India has thrown up many opportunities for foreign companies that are looking to sell their products and services in India. Some of the areas where foreign companies can look for business in India's aerospace are as follows:

- A draft civil aviation policy will be announced in November 2015. The final version of the policy, after feedback from industry, will be announced during the first quarter of 2016.
- The main objective of the new policy will be to give a boost to MRO facilities and aerospace manufacturing in India.
- India's MRO industry is currently $ 700 million and this is expected to grow to $ 1.2 billion in five years.
- The policy aims to make India the third largest civil aviation market in the world in five years' time.
- The new policy will also give emphasis to ground handling and skills up gradation.
- India's annual growth in air travel is currently 18.3% compared to the global growth of 5.7%.
- India will be needing 1740 new aircraft in 20 years.
- India will be spending $ 3.5 billion in 4 new Greenfield airports and also will be upgrading the airports in Chennai, Kolkata, Ahmedabad and Jaipur.
- The Airport Authority of India has already reduced the royalty charged from MRO companies from 36% to 13%. MRO companies are also allowed to access external commercial borrowing, which was not earlier allowed.

RECOMMENDATIONS

In low cost carrier, the aviation industry should use few types of aircraft, a strategy that cuts training and maintenance expenses. The big airlines have sent many of their flights through hub airports at peak business-travel hours. Since carriers typically charge heaps more for business fares, they can get more revenue per flight. However, these days with the internet allowing travellers to shop for the cheapest tickets easily, and low cost airlines offering uncomplicated set prices, traditional carrier have to follow suit or risk losing more and more passengers. Most of the industry's improvement efforts have focussed on whiting down costs. However, boosting revenues also needs to be a priority.

CONCLUSIONS

This study investigated the challenges and issues for Indian Aviation industry. To face these challenges there is a need to make joint efforts towards the growth of aviation industry rather than indulging in unhealthy competition and price wars. The Government should also implement strong measures to reduce taxes and improve infrastructure. Today because of internet purchase decisions or information flow has become very transparent. Internet has also helped the aviation industry to come out of its elite status and become more people oriented. Internet is used by the airline to improve the quality of its service.

LIMITATIONS

- Many routes of Aviation industry require development in terms of infrastructure. On many routes there exist restriction in terms of slot allocation and landing.
- Turmoil political condition is partially responsible for a protected aviation industry.
- It invites more income polarization which causes the exclusion of the poorer parts of the population from the industry.
- In comparison to other industry, the role played for air pollution by aviation industry is much lower, but it receives a disproportionate criticism and attention from activists.
- In the areas of high growth, where air travel demand is also growing fast, the profitability of the airline industry is weak or negative.

FUTURE RESEARCH

The future research may attempt to analyze the various factors or reasons behind the losses of the aviation industry like high fuel prices, employee shortage, local connectivity, infrastructure, service tax, reserve routes, etc. The future work can be improved by using the extended parametric tests or statistical tools.

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Latest Trends in Indian Tourism

Shashank Sharma*

With a fascinating kaleidoscope of races, languages, religions, customs and traditions, India is a world in itself. It offers enormous diversity in topography, natural resources and climate, thus making it a tourist destination for all travellers in all seasons. It won't be an overstatement if I say that India has the most diverse tourist attractions in the world. It is India's legendary diversity that provides travel agencies and tour operators with endless opportunities to sell its charms.

In the last few years, there has been an e-commerce boom in the country and the fascination of the modern day traveller with their digital devices is no mystery. There is now an increased use of the internet, particularly social media, and technology by consumers while taking decisions pertaining to their travel itinerary. With the growth of the online travel industry, in all its different guises, people now have a lot more information at their fingertips and the research process has become a larger and rather interesting part of holiday planning. In a survey by Google and Ipsos Media CT, 70% respondents claimed to begin researching online before deciding where or how they want to travel. More and more Indians are looking up to the internet to find new experiences to enjoy. As a result of this trend, travel industry providers have grown exponentially in India, thus visitors now have more options than ever. This in turn means that India has a task at hand to keep up with demand, and the demands.

In this paper I will discuss the interesting micro trends that can be observed in the evolving Indian travel landscape.

The Usher of the Hostel Era

Only until a few years back, the concept of hostels was totally unheard of in India. Though there were always other budget options available for backpackers, but in the last few years there has been a mushrooming of youth hostels across popular tourist circuits, especially in Delhi, Agra and tourist towns of Rajasthan.

Such hostels not only provide an affordable, safe and clean accommodation but have lot more to offer to the travel hungry and cost conscious modern youth. In the mad rush of Indian cities, these hostels make life a lot easier, and the country more accessible, for the low budget traveller. And these hostels aren't just catering to backpackers from abroad, but are also becoming increasingly popular with Indian youth who have a new found interest in the form of travel. So much so that Zostel, one of the pioneer hostel-chain in India has plans for a staggering 30 more properties by the end of the year.According to Pavan Nanda, a co-founder of Zostel, "Indian traveller's mind-set has evolved significantly over the past few years. Travel is now

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seen as a mode of self-realisation, exploration and experiencing different forms of lifestyles. Leisure travel is not a product of luxury but rather considered a necessity to consolidate one's energy."

In this paper I will further discuss the overwhelming change in the mind-set of modern Indian youth who have a different attitude to travel & tourism than the previous generations.

The Growth of Boutique Hotels

Boutique hotels are usually privately-run small hotels, and are being hailed as the new generation of hotels by experts in the tourism industry. For those tourists who yearn for luxury travel but don't have the budget, boutique hostels provide a great opportunity. They're authentic, full of personality and often locally or family-run. In the recent years, there has been a definite surge in the number of boutique hotels in the country, and they are particularly attracting foreign clientele especially those with deeper pockets. Experts advocate that boutique hotels should be a key element in India's plans to boost tourism, as they almost always present an opportunity for tourists to be more engaged with their surroundings (and not limiting them in a tourist 'bubble') while still having a certain level of comfort.

It is rather unfortunate that in the recent times the 'boutique' tag is severely abused and misused by the private, conventional and often state-supported corporate hoteliers. Though the quality of this form of accommodation will always be on the rise, but the absence of any consistent and trustworthy starring system remains an obstacle, and even acts as a deterrent for the customers to make a well-informed choice. Boutique hotels also face the unique challenge of meeting the needs and demands of a clientele that has a large disparity in their tastes and standards. The disparity becomes even more acute when foreign tourists are added to the mix.

New Destinations

Another emerging trend that is pretty much evident is the curiosity to explore new destinations, amongst both the well to do upper-middle-class of Indians and foreign tourists. States like Gujarat, 'heavenly' Kashmir, and the stunning North-East of India have witnessed lot of growth in tourism, both domestic and international, more so as the tourist infrastructure improves and as more service providers enter the online marketplace.

In a state like Rajasthan which is already on top of every foreign tourist's list of must visit places, lesser-known destinations like Bundi (nestled between Jaipur and Udaipur) are now becoming popular amongst international visitors. The prospect of such destinations gets a boost with improved connectivity as a result of laying of better highways and proximity to nearby tourist attractions.

Rajasthan, for that matter has no dearth of such new destinations that are gaining popularity amongst tourists. Some such towns in the state that havelately started to appeal tothe tourists are: Shekawati - best known for its majestic havelis that feature magnificent fresco paintings. Hadoti - home to some of the most majestic archaeological wonders. Bundi - home to a placid man-made lake as well as a fairy-tale palace that is located on the foothills of the mountain.

Adventure Sports Opportunities

It is a wonder in itself that with the length of India's coastline, the wildness of its interior and the staggering beauty of the Himalayas, it does not already feature on the adventure/extreme sports locations list. This is, of course, largely to do with the lack of infrastructure, but India is gradually emerging as a popular adventure sports destination. India has immense potential for adventure sports,right from mountaineering, trekking, paragliding and rafting to scuba diving; India promises to offer the discerning traveller an experience that will last a lifetime. If northern India offers wonderful opportunities for trekking, mountaineering, paragliding, skiing and river rafting, southern India is wonderful destination for water sports. For the lovers of scuba diving or snorkelling, Lakshadweep and Andaman islands are the places to visit.

But apart from these well-established activities, there are many other High-Octane adventure sports in India not many travellers know about and that are yet to gain popularity. Some of the notable mentions are Microlight Flying in Mysore, Heli Skiing in Auli, Scuba Diving in Netrani Island, Dune Bashing in Jaisalmer, Hot Air Ballooning in Ranthambore, Sky Diving in Mysore, Zip Lining at Neemrana Fort, Kite Surfing at Morjim Beach, Spelunking in Meghalaya, and Bunjee Jumping in Rishikesh among others. It is the diverse topography of India that varies from snow-capped mountains on one hand to dessert and sea on the other, making India an ideal adventure sports destination.

The Visa On Arrival Scheme

In order to boost tourism numbers, the Indian Government decided to implement a new visa policy, allowing visitors to obtain a visa on arrival at 16 designated international airports by obtaining an Electronic Travel Authorisation online before arrival without the need to visit an Indian consulate or visa centre. As a result of this, 56,477 tourists arrived on e-Tourist Visa during the month of October 2015, as compared to 2,705 during the month of October 2014, marking a growth of 1987.9%. During January October 2015 a total of 2,58,182 tourist arrived on e-Tourist Visa as compared to 21,995 during JanuaryOctober 2014 registering a growth of 1073.8%.

ETA is issued for tourism, visiting friends and family, short duration medical treatment and business visits. The scheme was renamed to e-Tourist Visa (eTV) on 15 April 2015. E-Tourist Visa allows arrival at 16 airports across the country. In January 2016 it was announced that the multiple entries will become available for eTourist Visa holders.The visa on arrival requires a tourist to apply online on a secure Government of India website, at least 4 to 30 days before the date of travel. If approved, the passenger must print and carry the approved visa with the travel documents. The visa allows holders of Electronic Travel Authorisation (ETA) to enter and stay anywhere in India for 30 days. The visa on arrival facility is expected to be expanded to about 180 countries over time.

On 30 November 2016 the Government of India approved further liberalization, simplification and rationalization of visa regime in India. In the visa free list will be added the following countries: Angola, Burundi, Cameroon, Cyprus, Mali, Niger, Rwanda, Sierra Leone.E-visa will have a validity of 60 days and can be applied for by foreign nationals up to four months ahead of the visit. Moreover, 5 seaports - Mumbai, Kochi, Chennai, Goa and Mangalore - will receive tourists coming with e-visa.

The New India

The last few years have seen a lot of budding start-ups providing travel services. Interestingly, more and more of these businesses are specialising in domestic tourism, which can mainly be attributed to the gap that exists between the supply and the demand that exists due to the expansion of the Indian middle class. Another positive thing that's taking place is that many of these ventures are being led by young generation of Indians who are known for their entrepreneurial spirit, and many of whom, unlike their parents, have now travelled and seen how things are done overseas, especially in European and South-East Asian nations.

The national capital, New Delhi, has promoted bed & breakfast and homestay accommodation, but the safety of foreign tourists in the city still remains a big reason to worry. The royal palaces and havelis of Rajasthan are being converted into heritage hotels, and the increase of B&Bs in Himachal Pradesh is noticeable. At the same time, the government should spare a thought for the owners of such properties, who are fed-up of red-tapism in government offices and the notorious tax framework that has plagued the country for decades. The hotel and restaurant businesses are now demanding the government for lesser formalities, less-complex paperwork and easier entry to the trade.

But one issue that has always been a bottleneck for Indian tourism, and still remains to be so is the lack of adequate infrastructure coupled by the acute deficit of tourism superstructure. The infrastructure no doubt is improving but that's happening at a snail's pace. The construction of metro rail networks, new highways & expressways and the recently opened swanky new airports in many major cities are big steps in the quest for foreign visitors. The Indian tourism industry has come a long way in the last decade or so, but the positive trend can continue only if the central and the state governments demonstrate willpower to do so. Even though it's a maddening place to holiday but the rewards of travel in India remain as rich as ever.

Roll of National Cadet Corps Cadets in Nation Building

Dr. Mukesh Kumar*

India is a big country with a large population. It is estimated that India's present youth population is about 65 crores. Those between the age of 15 to 35 form more than 55% of the total population. These comprise student, employees, workers, farmers and persons from various professions including the unemployed-educated or otherwise. These young people constitute a large force. They are energetic, enthusiastic and full of zeal. Unfortunately a large no. of them are without any direction. It is dangerous to allow them to remain idle; as it would increase their frustration is a result of their being without any worthwhile job. It is a great national wastage if these energetic hands and brains are not provided with some sort of work to meet the needs of the nation. No country the permit such wastage. What is needed is that they should be taken into confidence and given a direction- Some constructive work. This massive manpower can do wonders provided its enthusiasm is harnessed for development work. Indian youth have never lagged behind when called upon to meet a challenge. It is for the national leaders to play their part by mobilizing their abilities and providing them with a direction.

There is no doubt about their strength, power and capability. Their counterparts have changed the government in their own countries. It was the youth of Indonesia who overthrew president Soekarno. The massive youth movement in Czechoslovakia succeeded against the military invasion of their country. The recent history of Cambodia, Cuba and France provide evidences of their invincible force. Even in our country before partition the youth played a very inspiring role in the freedom movement. After independence too their power has changed the fate of several state governments in the recent pasts. The Gujarat and Bihar agitations are examples of the youth power.

If we exclude the youth, the rest of the population of India will comprise old people and children. They cannot be called the real manpower of the nation. So we may say that if the youth of the country are not enthused to devote their energies to the task of nation building, the whole manpower of the nation is being wasted.

The task of the nation building is enormous and can be divided in to many phases and compartments. It has some work for everybody. All the young people may be involved in this work. They may be assigned jobs according to their capacity and capability. First of all they should be made to understand a specific project and its importance to the society and also the part they are expected to play to make it a success. They are sure to work hard for its fulfillment. They have the resources, guts

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and imagination to explain it to the people in detail and make it a success. They will feel more than satisfied by realization that they have been assigned a role in the nation building efforts. This realization will encourage them to put their best.

There is another factor: whatever is done by the government for nation building affects the whole society- the young and the old alike. At least former think that they are being denied the right of participation in that task. It would be prudent to associate them with all such programs have succeeded in firing their imagination, more than enough resources of energy will be forth-coming to achieve the targets and once they are genuinely involved, and their interest in these programs is aroused, they would be prepared to give their best to their qui implementation.

The young people may be inspired and encouraged to adopt villages or other suitable units of operation, where they may concentrate on the improvement of physical and social environment. This will lead to socio-economic progress and help to channelize the energies, enthusiasm and idealism of the youth in the task of nation–building. It is certain that the youth will make full use of the diverse opportunities offered to them. It would make the task of nation-building easier and quicker.

The **NATIONAL CADET CORPS CADETS** also belong to this youth category of the citizens. They should be given such type of training so that their mind is directed towards constructive way. Their involvement in good work would generate a sense of pride and self confidence in them, provided it is accorded adequate appreciation. It would raise their morale as well. At the same time the sense of patriotism and of being useful to the society would inhibit them from going astray. It would also help in development a nationalist outlook in them. Such a step would speed up the process of socio-economic regeneration and democratic decentralization.[1]

"Over the past half a century and more, the National Cadet Corps has made important contributions of our country. It has been a powerful force for national unity and integration. It has made its mark in numerous social service and community development programmes. It has been active in relief and rehabilitation after natural calamities."(**Smt. Sonia Gandhi, then Chairperson of National Advisory Committee)**[2]

Current Aims of National Cadet Corps-

1. To develop character, comradeship, discipline, secular outlook, spirit of adventure and the ideals of selfless service among the youth.
2. To create a human resource of organised, trained and motivated youth, to provide leadership in all walks of life and be available for service of the nation.
3. To provide a suitable environment to motivate the youth to take up a career in the Forces.[3]

The youth in our country, as all over the world, are a great resource of the nation for the development, innovation and social change. Thus, there is a need to harness youth power for Indian building by making them good citizens who are committed to society and nationhood. This can best be done by inculcating patriotism, providing good education, empowerment and employment.

It would be wrong to say that a sense of patriotism is lacking in the county. On the other hand, whenever the nation faced a crisis, the people stood to face the challenge or crisis. We need to spread this motivation further and make it applicable in day-to-day affairs and ensure good citizenship even when there is no crisis. We, therefore, need to create a strong commitment in the people who display an innate sense of discipline, responsibility, good citizenship, patriotism, productivity and high effectiveness. Such commitments well spur the country to greater glory. It will from a new stage in development and be the basis for an abiding sense of national pride. Inculcating a sense of national pride will require public awareness and education campaigns. We must encourage youth to imbibe good citizenship and learn from examples of history.

NATIONALITY- It comprises of good conduct and behavior in the society. It encompasses concern and care for fellow citizens and activities, which uplift the society at both national and sub-national levels. In general, it covers all the aspects, which are essential for good of the society and the country. This also includes patriotism and nationalism.

The Oxford English Dictionary defines Nationalism as. People's sense of belonging together as a Nation. It also includes such feeling as loyalty to the nation, pride in its culture and history. Nationalism also gives people a sense of belonging, pride and willingness to make sacrifices for their country. They take greater interest in their nation's achievement. “A person who vigorously supports his country and is prepared to defend it”. It is the love the loyal support to one's country. It includes attachment to a country's land and people, admiration for its customs and tradition, pride in history and devotion to its welfare. The term suggests feeling of one- ness with the nation.

National Cadet Corps is a vital organization and apart from being a youth movement, it plays a crucial role as an interface organization between the educated youth of the country and the armed forces, the various facets of this organization and its functioning need to be understood, before the benefits of this organization can be optimized.

The fading years of the second decade of the twentieth century were turbulent times. World War I with its untold fears and uncertain future dominated every aspect of life. The youth were particularly bewildered and confused. Then in 1917, India joined the war. Everything changed overnight. The aspirations of the youth of India to take part in the affairs of the nation were rekindled, waves of spirited youth volunteered for service in the hope of promised freedom. The University Corps was created, as a wing of the Indian Defiance Forces in 1917. Stated objective of University Corps was to train potential manpower for use in WW I. It was perhaps, also to stem the nationalist subversive activities against the government by channelizing the energy of the youth into military activities. The University Corps experiment was a resounding success.

Encouraged by this, the University Training Corps was raised by the existing University Corps in 1921. The cadets of the University Training Corps had no commitment for war service and the whole scheme was voluntary. Successful volunteer cadets were granted King's Commissions with the same privileges as were available to the King's Commissioned Indian Officers.

In 1942, the status of the University Training Corps was further elevated, to make it more attractive. It name was once again changed to the University Officers' Training Corps and it was remodeled on the lines of the Officers Corps of the UK, In 1943, the Indian Air Training Corps (IATC) was formed, followed by the Sea Scouts Corps (SSC). A Women's Auxiliary Corps (India) WAC (I) was also set up in India on the pattern of WAC (UK).

1 July, 1944 UOTC Junior, Senior & other officers

Sectional Establishment. Officers senior - 276, Junior - 22 & other Ranks - 7,632
Enrolled Strength - Officers Senior - 106, Junior - 76 & Other Ranks - 5,776

Soon after World War II, the Government of India realized that the youth movement created during the war had not proved very useful. In 1946, it appointed a committee (called Kunzru Committee) to consider and make recommendations for the establishment of a cadet corps Organization on a nationwide basis, comprising students from both the schools and universities. Based on its report, the National Cadet Corps wash created. This was to be an Inter Services Organization under the Ministry of Defence, with responsibilities shared by the States and educational authorities. As a result, under an act of Parliament on 26 November 1948, the NCC was created as a youth movement with the purpose of developing qualities of leadership and stimulation of interest in the defence of the country among the students, with an additional aim of motivating them to join the Armed Forces. It further visualized that those NCC cadets who not join any of the three Services, will still be available to enable the Armed Forces to expand during war. State Government are also directly interested in its growth since the movement brings about better-disciplined students, and as such, participate in its functioning by sharing the cost of the Organization . The Universities have special responsibility towards the smooth functioning of the movement.

The Programmes of the National Cadet Corps, are so fully integrated with the educational requirements that those who are lucky to take part hold greater potential of emerging as open minded, self-confident a and progressive individuals.

Churchill once said, "I love to learn but I hate to be taught." Realizing that education is not merely academic advancement, NCC effectively does the yeoman job of making the youth learn without making it appear like teaching, by linking education and personality development through its co-curricular activities.

The NCC is a responsive, learning and continuously evolving organization. Its activity is guided by certain core values that we Endeavour to instill among all ranks of the NCC. These include : A sense of patriotic commitment to encourage cadets to contribute to national development, Respect for diversities in religion, language, culture, ethnicity, life style and habitat to instill a sense of National unity and social cohesion, Abiding commitment to learn and adhere to the norms and values enshrined in the Indian Constitution, Understanding the value of a just and impartial exercise of authority, Ability to participate in community development and other social programme, A healthy life style free of substance abuse and other unhealthy practices, Sensitivity to the needs of poor and socially disadvantaged fellow citizens, Inculcating habits of restraint and self-awareness, Understanding the values of honesty, truthfulness, self-sacrifice, perseverance and hard work, Respect for knowledge, wisdom and the power of ideas.

Origin of National Cadet corps Republic Day Camp and PMs Rally

On 26 January 1951, for the first time NCC contingent of four officers and 200 cadets of senior Division Army were invited to participate in the Republic Day Parade in Delhi. These officers and cadets were accommodated in the present location of DG NCC RD Camp, Delhi Cannt. Next day, on 27 Jan 1951 a Pagal Gymkhana and sports meet covering track and field events were held. Since then, the holding of NCC camp during the Republic Day celebrations in Delhi have become an annual feature, which is actually a climax of last one year's activities of the Corps. The activities in the camp have increased over the years. The holding of PMs Rally on 27 January every year started in 1953. A Banner for the Best Circle

Honourable Prime Minister of India Shri Narender Damodar Das Modi the Guard of Honour and salute by the marching contingents of the NCC, 28 January, 2015 at Garrison Amy Parade Ground, New Delhi (now called Directorate) Contingent was introduced in 1954. This banner is now called the Republic Day or PMs Banner. Every year the Prime Minister presides over this rally and he is given the Guard of Honour and salute by the marching contingents of the NCC.[5]

Director General NCC, Lt Gen Aniruddha Chakravarty, AVSM, VSM opened the NCC Republic Day Camp on 01 Jan 2016, attended by 2070 Cadets both boys and girls drawn from 17 Directorate from all nook and corners of the country. The camp was visited by VVIPs which included the Vice President, Prime Minister, Cabinet Ministers, Chief Minister and the three Chiefs of the Armed Forces. Cadets from friendly countries also joined the band wagon of National Cadet Corps, the world's largest voluntary uniformed youth organisation.[6]

Truly, National Cadet Corps is an awakening. It makes a young individual realize his own worth and potential. The NCC has come a long way since its Inception in 1948. This premier youth organization is working silently to make a difference in the lives of the youth who are fortunate to take advantage of it.

Today, the NCC armed with the Motto of “Unity and Discipline” is steadily marching forward to meet the challenges of the 21st century.

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Psychology of Diaspora : Naipaul Vis A- Vis Indian Authors

Dr. P.K. Sharma*

ABSTRACT

The Indian English writers, notably, Raja Rao became an expatriate even before the independence of the country; G.V. Desani was born in Kenya and lived in England, India and USA and Kamala Markandaya married an Englishman and lived in Britain.1Nirad C. Chaudhuri preferred the English shores because his views were not readily accepted in India. Salman Rushdie's imaginary homeland encompasses the world over. The Iranian 'fatwa" phase has added a new dimension to Rushdie's exilic condition.

Colonial and post colonial India are divisions that are now more relevant to a historian than a litterateur because Indian English Literature has transcended the barriers of petty classifications and has almost become part of mainstream English literature.

A major contribution in this regard has been that of the Indian writers, like Rushdie and Naipaul, who live as world citizens- a global manifestation of the exilic condition. Indian English writers like Anita Desai, Bharati Mukherjee, ShashiTharoor, AmitavGhosh, Vikram Seth Sunetra Gupta, RohintonMistry, JhumpaLahiri and HariKunzru have all made their names while residing aborad.

The non-resident Indian writers have explored their sense of displacement- a perennial theme in all exile literature. They have given more poignancy to the exploration by dealing not only with a geographical dislocation but also a socio cultural sense of displacement. Their concerns are global concerns as today's world is afflicted with the problems of immigrants refugees and all other exiles. These exilic states give birth to the sense of displacement and rootlessness.

The Indian diaspora has been formed by a scattering of population and not, in the Jewish sense, and exodus of population at a particulars point in time. This sporadic migration traces a steady pattern if a telescopic view is taken over a period of time: from the indentured labourers of the past to the IT technocrats of the present day.

It is interesting to note that the history of diasporic Indian writing is as old as the diaspora itself. In fact the first Indian writing in English is credited to Dean Mahomed, who was born in Patna, India and after working for fifteen years in the Bengal Army of the British East India Company, migrated to eighteenth century Ireland, and then to England in 1784. His book the Travels of Dean Mahomed was published in 1794.

It predated by about forty years the first English text written by an Indian residing in india, KylasChunderDutt's imaginary history A journal of Forty Eight

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Hours of the year 1945 published in 1835. The first Indian English novel, BankimchandraChatterjee'sRajmohan's Wife, to be published much later in 1864. It shows that the contribution of the Indian diaspora to Indian writing in English is not new. Also interestingly, the descendants of the Indian indentured labourers in the so called “girmit colonies” have predominantly favoured writing in English the lingua franca of the world. The likes of Seepersad Naipaul and later Shiva Naipaul, V.S. Naipaul, Cyril Dabydeen, David Dabydeen, Sam Selvon, M.G. Vassanji, Subramani, K.S. Maniam, ShaniMuthoo and Marina Budhos are significant contributors in that field.

V. S. Naipaul's characters, like MohumBiswas from a House for Mr. Biswas or Ganesh Ramsumair from The Mystic Masseur are examples of individuals who are generations away from their original homeland, India but their heritage give them a consciousness of their past. They become itinerant specimen of the outsider the unhoused, for the world to see. Their attempts at fixity are continuously challenged by the contingency of their restless existence- a condition grown out of their forefathers' migration, albeit within the Empire, from India to Trinidad.

Indian writes in the west are increasingly identifying themselves with the literary tradition of the migrant writers of the world. Rushdie says that:

“Swift, Conrad, Marx and even Melville, Hemingway, Bellow are as much our literary forbears as Tagore of Raja Ram Mohan Ray."2

The modern diasporic Indian writers can be grouped into two distinct classes. One class comprises those who have spend a part of their life in Indian and have carried the baggage of their native land offshore. The other class comprises those who have been bred since childhood outside India. They have had a view of their country only from the outside as an exotic place of their origin.

Bharati Mukherjee's novels like wife and Jasmine depict Indian in the US- the land of immigrants, both legal and illegal- before globalization got its impetus. Salman Rushdie in the novel The Satanic Verses approaches the allegory of migration by adopting the technique of magic realism. The physical transformtion of GibreelFarishta and Saladin Chamcha after their fall from the bursting jumbo jet on the English Channle is symbolic of the self fashioning that immigrants have to undergo in their adopted country. Chita Banerjee Divakaruni in her novel The Mistress of Spices depicts Tilo, the protagonist as an exotic character to bring out the migrant's angst. AmitavGhosh's novel The Shadow Lines has the character Ila whose father is a roaming diplomat and whose upbringing has been totally on foreign soils. She finds herself as much out of place in India as any foreigner. But when she conjures up the story of her doppelganger Magda being rescued by Nick Price from Denise, it shows the extent of her sense of rootlessness. AmitChaudhuri in his noval Afternoon Raag portrays the lives of Indian students in Oxford.

Similarly, Anita Desai in the second part of her novel Fasting, Feasting depicts Arun as a migrant student living in the suburbs of Massachusetts. The important point to note is that in a cosmopolitan world one cannot literally be a cultural and social outsider in a foreign land. There are advantages of living as a migrant the privilege of having a double perspective, of being able to experience diverse cultural mores, of getting the leverage provided by the networking within the diasporic community, and more. But it is often these advantages that make diasporic Indians, especially of the second generation, encounter the predicament of dual identities. Such ambivalence produces existential angst in their psychology. The world simply refuses to become less complex.

The diasporic Indian writes of the first generation have already established their credentials by winning numerous literary awards and honours. But recently the ranks of the second generation of Indian writers in the west have swelled enormously and many among them have won international recognition.

MeeraSyal who was born in England, has successfully represented the lives of first generation as well as second generation non resident Indians in the west in her novel Transmission Traces a part of the lives of three diverse characters LeelaZahir, an actress, Arjun Mehta, a computer expert and Guy Swift, a marketing executive- traversing through Bollywood the Silicon Valley and London.

Sunetra Gupta has shown with candor both the unpleasantness and the pleasantness of intercultural relationship through characters like Moni and Niharika from her novels Memories of Rain and A Sin of Colour. JhumpaLahiri's Book of short stories Interpreter of Maladies and her novel The Namesake convincingly illustrate the lives of both first generation and second generation Indian migrants in the US. This is possible because big issues like religious intolerance and racial discrimination are no longer the main concern of these writers. What matters now in the current world are the small things; little, unacknowledged things gain enormous importance in changed circumstances.

It is here that the differing reactions by Indian, Western and diasporic characters towards similar situations are found to differ only superficially. It demonstrates that the inner needs of all human beings are the same. Alienation is a part of the experience of the Indian diaspora and even if people are at home in any part of the world it does not mean that they will not become victims of the sense of alienation.

To conclude the paper, we may say that Naipaul brings out this alienation in Malaysia, in Indonesia, in Pakistan and in Iran. He tells us the schizophrenic mentality of the inhabitants of these places and analyzes the psychology behind it. Increasing acceptance into the host society does not indicate that the diasporic characters can feel at home. Social alienation is replaced by metaphysical alienation.

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Transmission Dynamics of HIV-TB Co-infection model

Dileep Sharma*

ABSTRACT

In this paper, we have proposed and analyzed a non linear mathematical model to study the transmission dynamics between HIV & TB in a population with variable size structure. In this model we have divided the population into five subclasses susceptibles, TB-infectives, HIV-infectives, TB-HIV infectives & AIDS patients. The model exhibits four eqilibria: a disease free equilibrium, a TB free equilibrium, a HIV free equilibrium and co-infection equilibrium. It is found that the infection is maintained in the population if the basic reproduction rate is greater than one otherwise infection become eradicated from the population. It is shown that co-infection equilibrium is locally asymptotically stable but it may become globally stable under certain conditions. Showing that the disease becomes endemic due to constant immigration of the population. The effect of various parameters on the spread of the disease has also been discussed.

Key wards: HIV- infectives, TB-infectives, TB-HIV infectives, Stability analysis

1. Introduction

The Human Immuno-deficiency Virus (HIV), which can lead to Acquired Immuno Deficiency Syndrome (AIDS), has become the most urgent problem of healthcare for the developed and developing countries. AIDS is a malady which is threatening the existence of the entire humanity. It causes destruction of million of people and expenditure of enormous amount of money in research and control the disease. Though, on the medical frontier there have been many advances, but there is still no vaccine for HIV & no cure for AIDS. Therefore, it has became a burning issue for the whole world. Globally, India has the second highest estimated number of HIV infected people in any single country after the South Africa. It is, therefore, essential that much attention must be paid to study the dynamics of this fatal disease to subsequently control the spread of the disease. Mathematical Models has been used to understand the transmission dynamics of HIV/AIDS and to control the mechanisms of HIV [1,2,3,5,6,9,10,12]. From initial models of May and Anderson [1,8] various refinements have been added into modeling frameworks, and specific issues have been addressed by researchers. In particular, Doyle et al. [19] developed a model for the spread of HIV in heterosexual population taking into account of the group contact tracing and carried out equilibrium analysis. Greenhalgh et al. [11] studied the impact of condom use on sexual transmission of HIV and AIDS amongst a homogeneously mixing male population. Ram Naresh et al. [13] developed a model for the transmission of AIDS in male population and carried out the equilibrium analysis. Rao. [15] Presented a theoretical framework for transmission of HIV/AIDS epidemic in India.

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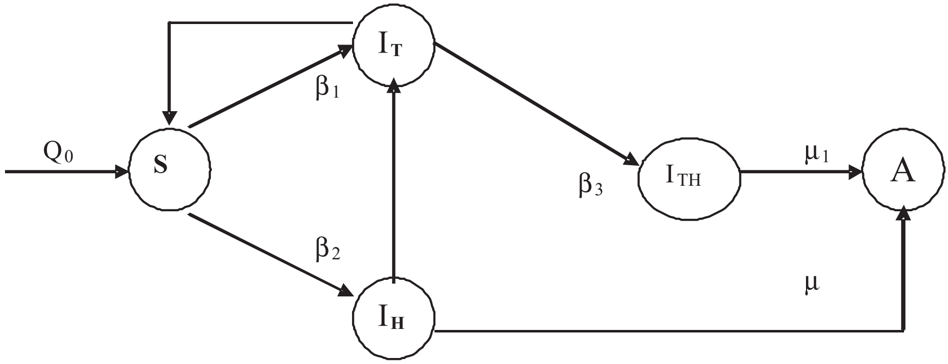
It is seen that TB is the most common infection among HIV-positive persons and is the first manifestation of AIDS in more than 50% cases in India. Amongst the AIDS cases reported so for, nearly 60% had TB. TB accelerates the progression of HIV. Therefore, it is essential adequate attention must be paid to study the transmission dynamics of HIV-TB co-infection in the population [14,16,17,18]. McLean and Nowak [4] have proposed within host models for the dynamics between HIV and activated CD4T cells specific to other pathogens. West and Thomson [18] developed models which reflect the transmission dynamics of both TB and HIV, and discussed the magnitude and duration of the effect that the HIV epidemic may have on TB. Mogadas and Gumel [7] developed a model for the transmission of AIDS and other competing pathogens within a given population and found that HIV eradication is feasible if an active anti-therapy can reduce the HIV transmission parameter below a certain threshold. Our study is focused on the design and analysis of a new population model for the transmission dynamics between HIV & TB in a population with variable size structure.

In this paper, we have proposed a non linear mathematical model to study the transmission dynamics between HIV & TB in a population with variable size structure. Qualitative and numerical analysis of the proposed model are carried out.

2. Mathematical Model

Consider a population of size N(t) at time t with constant immigration rate Q0. The population size N(t) is divided into five subclasses of susceptibles S(t), TB-infectives IT(t), HIV positives or infectives IH(t), TB-HIV co-infectives ITH(t) and AIDS patients A(t) with natural mortality rate d in all the classes. The susceptibles become TB-infectives via simple contact with TB-infectives and the susceptibles & TB-infectives become HIV-infectives via sexual contact with HIV-infectives. The interaction of susceptibles & TB-infectives, susceptibles & HIV-infectives TB & HIV-infectives is standard mass action type with contact rate 1, 2 & 3 respectively. It is assume that be the recruitment rate of TB-infectives, these recovered become again susceptible. It is also assumed that & 1 be the rate of HIV & TB-HIV-infectives to develop full blown AIDS as shown in the transform diagram below:



With these consideration, the spread of disease is assumed to be governed by the following system of differential equations:

$$\frac{dS}{dt} = Q_0 - dS - \left(\frac{\beta_1 I_T + \beta_2 I_H}{N}\right) S + \gamma I_T; \qquad S(0)=S_0 \tag{2.1}$$

$$\frac{dI_T}{dt} = \frac{\beta_1 I_T S}{N} - \frac{\beta_3 I_H I_T}{N} - (\gamma + d) I_T; \qquad I_T(0)=I_{T0} \tag{2.2}$$

$$\frac{dI_H}{dt} = \frac{\beta_2 I_H S}{N} - (\mu + d) I_H; \qquad I_H(0)=I_{H0} \tag{2.3}$$

$$\frac{dI_{TH}}{dt} = \frac{\beta_3 I_T I_H}{N} - (\mu_1 + d) I_{TH}; \qquad I_{TH}(0)=I_{TH0} \tag{2.4}$$

$$\frac{dA}{dt} = \mu I_H + \mu_1 I_{TH} - (\alpha + d) A; \qquad A(0)=A_0 \tag{2.5}$$

Where Q0 is immigration rate to the susceptibles class, d is the natural mortality rate constant, is the disease-induced death rate constant, & 1 is the rate of movements from infective classes to AIDS patients and 1, 2 & 3 is the transmission coefficient.

This model is proposed keeping Indian context in mind. Therefore, it is assumed in this model that the TB infective persons are generally exposed in the population but HIV positive people are not exposed due to various reasons and behavior of society. Therefore, HIV infectives continue to spread the infection in society. Therefore in this model interaction between HIV-TB is considered only in TB-infectives, they reduce from their own class and join the co-infection class.

Since N=S+IT+IH+ITH+A then the above equation can now be written as

$$\frac{dN}{dt} = Q_0 - dN - \alpha A; \quad N(0)=N_0 \tag{3.1}$$

$$\frac{dI_T}{dt} = \frac{\beta_1 I_T (N - I_T - I_H - I_{TH} - A)}{N} - \frac{\beta_3 I_T I_H}{N} - (\gamma + d) I_T; \; I_T(0)=I_{T0} \tag{3.2}$$

$$\frac{dI_H}{dt} = \frac{\beta_2 I_H (N - I_T - I_H - I_{TH} - A)}{N} - (\mu + d) I_H; \; I_H(0)=I_{H0} \tag{3.3}$$

$$\frac{dI_{TH}}{dt} = \frac{\beta_3 I_T I_H}{N} - (\mu_1 + d) I_{TH}; \; I_{TH}(0)=I_{TH0} \tag{3.4}$$

$$\frac{dA}{dt} = \mu I_H + \mu_1 I_{TH} - (\alpha + d) A; \; A(0)=A_0 \tag{3. 5}$$

Here it is noted that in the absence of both infections, the population size approaches the steady state value Q_0/d. During the early stage of epidemics, it is assumed that $S \cong N \cong Q_0/d$.

3.1. Equilibria of the model

The model (3.1)- (3.5) has four non-negative equilibria namely,

(i) $E1(Q_0/d,0,0,0,0)$ the disease free equilibrium

(ii) $E_2(\hat{N}, \hat{I}_T, 0, 0, 0)$ HIV free equilibrium

where,

$$\hat{N} = \frac{Q_0}{d}, \qquad \hat{I}_T = \frac{[R_1 - 1]Q_0}{R_1 d}$$

It is noted that E_2 will be positive only when

$$\beta_1 > (\gamma + d)$$

(iii) $E_3\left(\overline{N}, 0, \bar{I}_H, 0, \overline{A}\right)$, TB free equilibrium, where

$$\overline{N} = \frac{R_2 Q_0(\alpha + \mu + d)}{R_2 d(\alpha + \mu + d) + \mu\alpha[R_2 - 1]}, \qquad \overline{A} = \frac{Q_0 \mu[R_2 - 1]}{R_2 d(\alpha + \mu + d) + \mu\alpha[R_2 - 1]},$$

$$\overline{A} = \frac{Q_0(\alpha + d)[R_2 - 1]}{R_2 d(\alpha + \mu + d) + \mu\alpha[R_2 - 1]},$$

It is noted that E_3 will be positive only when

$$\beta_2 > (\mu + d)$$

(iv) $E_4\left(N^*, I_T^*, I_H^*, I_{TH}^*, A^*\right)$, the endemic equilibrium

where,

$$N^* = \frac{1}{d}\left(Q_0 - \frac{\alpha\mu I_H^* + \alpha\mu_1 I_{TH}^*}{\alpha + d}\right), \quad I_T^* = \frac{(\mu_1 + d)N^* I_{TH}^*}{\beta_3 I_H^*}, \quad A^* = \frac{\alpha\mu I_H^* + \alpha\mu_1 I_{TH}^*}{\alpha + d}$$

and we get two implicit equations between I_H^* and I_{TH}^*

$$aI_H^{*2} + bI_H^* I_{TH}^* + cI_{TH}^{*2} + eI_H^* - f I_{TH}^* = 0 \tag{3.6}$$

$$pI_H^{*2} + qI_H^* I_{TH}^* + rI_{TH}^{*2} + uI_H^* - v I_{TH}^* = 0 \tag{3.7}$$

where

$$a=\left[\frac{\alpha\mu(\gamma+d)}{d(\alpha+d)}-\beta_1\left(1+\frac{\mu}{d}\right)\right],\quad b=\left[\frac{\alpha\mu_1(\gamma+d)}{d(\alpha+d)}-\beta_1\left(1+\frac{\mu_1}{d}\right)-\beta_3\ +\frac{\beta_1\alpha\mu(\mu_1+d)}{\beta_3 d(\alpha+d)}\right]$$

$$c=\frac{\beta_1\alpha\mu_1(\mu_1+d)}{\beta_3 d(\alpha+d)},\qquad e=\frac{Q_0}{d}\{\beta_1-(\gamma+d)\},\qquad f=\frac{\beta_1 Q_0(\mu_1+d)}{\beta_3 d},$$

$$p=\left[\frac{\alpha\mu(\mu+d)}{d(\alpha+d)}-\beta_2\left(1+\frac{\mu}{d}\right)\right],\quad q=\left[\frac{\alpha\mu_1(\mu+d)}{d(\alpha+d)}-\beta_2\left(1+\frac{\mu_1}{d}\right)+\frac{\beta_2\alpha\mu(\mu_1+d)}{\beta_3 d(\alpha+d)}\right]$$

$$r=\frac{\beta_2\alpha\mu_1(\mu_1+d)}{\beta_3 d(\alpha+d)},\qquad u=\frac{Q_0}{d}\{\beta_2-(\gamma+d)\},\qquad v=\frac{\beta_2 Q_0(\mu_1+d)}{\beta_3 d}$$

The equations (3.6) and (3.7) are too complicated to solve analytically but numerically it can be solved easily and we can get positive equilibrium (see Fig. 3.1)

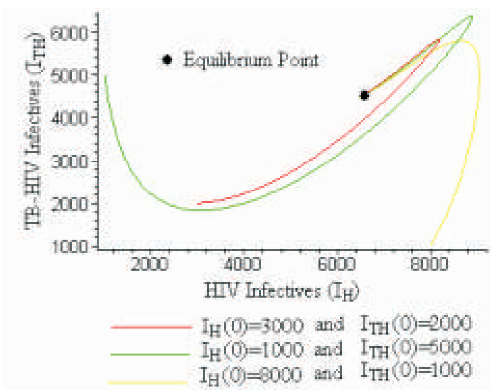


Figure 3.1 Existence of equilibrium with different initial values

3.2. Stability Analysis

To determine the local stability of E1, E2, E3 and E4, the following variational matrices are computed around E1, E2, E3 and E4;

$$M(E_1)=\begin{bmatrix}-d & 0 & 0 & 0 & -\alpha\\ 0 & \beta_1-(\gamma+d) & 0 & 0 & 0\\ 0 & 0 & \beta_2-(\mu+d) & 0 & 0\\ 0 & 0 & 0 & -(\mu_1+d) & 0\\ 0 & 0 & \mu & \mu_1 & -(\alpha+d)\end{bmatrix}$$

From M(E1), it is clear that E1 is locally asymptotically stable (LAS) provided $\frac{\beta_1}{(\gamma+d)}<1$ (sayR1,basic reproduction number associated with TB) & $\frac{\beta_2}{(\mu+d)}<1$ (sayR2, basic reproduction number associated with HIV), i.e., the disease die out but under this condition the other equilibriums does not exist. The basic reproduction number is given as R=min{R1,R2}. However, if R>1, then the equilibrium point E1 is saddle point. In such a case the other equilibriums exist in the population.

$$M(E_2)=\begin{bmatrix} -d & 0 & 0 & 0 & -\alpha \\ \frac{\beta_1 \hat{I}_T^{\,2}}{\hat{N}^2} & \frac{\beta_1(\hat{N}-2\hat{I}_T)}{\hat{N}}-(\gamma+d) & -\frac{(\beta_1+\beta_3)\hat{I}_T}{\hat{N}} & -\frac{\beta_1\hat{I}_T}{\hat{N}} & -\frac{\beta_1\hat{I}_T}{\hat{N}} \\ 0 & 0 & \beta_2-(\mu+d) & 0 & 0 \\ 0 & 0 & \frac{\beta_3\hat{I}_T}{\hat{N}} & -(\mu_1+d) & 0 \\ 0 & 0 & \mu & \mu_1 & -(\alpha+d) \end{bmatrix}$$

From M(E2), it is clear that E2 is locally asymptotically stable (LAS) provided β1> (+d) & β2<(+d), i.e., the HIV does not remain in the population but under this condition the other equilibriums do not exist in the population. However, if β1>(+d) & β2>(+d), then the equilibrium point E2 is saddle point. In such a case the other equilibriums exist in the population.

$$M(E_3)=\begin{bmatrix} -d & 0 & 0 & 0 & -\alpha \\ 0 & a_{22} & 0 & 0 & 0 \\ \frac{(\beta_2-(\mu+d))\bar{I}_H}{\bar{N}} & -\frac{\beta_2\bar{I}_H}{\bar{N}} & -\frac{\beta_2\bar{I}_H}{\bar{N}} & -\frac{\beta_2\bar{I}_H}{\bar{N}} & -\frac{\beta_2\bar{I}_H}{\bar{N}} \\ 0 & \frac{\beta_3\bar{I}_H}{\bar{N}} & 0 & -(\mu_1+d) & 0 \\ 0 & 0 & \mu & \mu_1 & -(\alpha+d) \end{bmatrix}$$

where, $$a_{22}=\frac{\beta_1(\bar{N}-\bar{I}_H-\bar{A})}{\bar{N}}-\frac{\beta_3\bar{I}_H}{\bar{N}}-(\gamma+d)$$

The characteristic polynomial corresponding to the above matrix is given by

$$\lambda^3+a_1\lambda^2+a_2\lambda+a_3=0 \qquad (3.8)$$

where,

$$a_1 = \alpha + d + \frac{\beta_2 \bar{I}_H}{\bar{N}}$$

$$a_2 = d(\alpha + d) + \frac{\beta_2 \bar{I}_H (\alpha + 2d)}{\bar{N}} + \frac{\beta_2 \bar{I}_H}{\bar{N}} \mu$$

$$a_3 = \frac{d(\alpha + d)\beta_2 \bar{I}_H}{\bar{N}} + \frac{d\mu\beta_2 \bar{I}_H}{\bar{N}} + \frac{\alpha\mu\{\beta_1 - (\mu + d)\}\bar{I}_H}{\bar{N}}$$

Thus by Routh Hurwitz criteria, E3 is locally asymptotically stable as it can be seen

$$a_1 > 0, a_2 > 0, a_3 > 0 \qquad \begin{vmatrix} a_1 & 1 \\ a_3 & a_2 \end{vmatrix} > 0$$

$$M(E_4) = \begin{bmatrix} -d & 0 & 0 & 0 & -\alpha \\ m_1 & -m_2 & -(m_2 + m_7) & -m_2 & -m_2 \\ m_3 & -m_4 & -m_4 & -m_4 & -m_4 \\ -m_5 & m_6 & m_7 & -(\mu_1 + d) & 0 \\ 0 & 0 & \mu & \mu_1 & -(\alpha + d) \end{bmatrix}$$

$$m_1 = \frac{(\beta_1 - (\gamma + d))I_T^*}{N^*}, \quad m_2 = \frac{\beta_1 I_T^*}{N^*}, \quad m_3 = \frac{(\beta_2 - (\mu + d))I_H^*}{N^*}, \quad m_4 = \frac{\beta_2 I_H^*}{N^*}$$

$$m_5 = \frac{(\mu_1 + d)I_{TH}^*}{N^*}, \quad m_6 = \frac{\beta_3 I_H^*}{N^*}, \quad m_7 = \frac{\beta_3 I_T^*}{N^*},$$

The characteristic polynomial corresponding to the above matrix is given by

$$\lambda^5 + a_1\lambda^4 + a_2\lambda^3 + a_3\lambda^2 + a_4\lambda + a_5 = 0$$

where,

$$a_1 = m_2 + m_4 + \mu_1 + \alpha + 3d,$$

$$a_2 = d(\alpha + d) + m_4(\mu_1 + d) + (m_2 + m_4 + \mu_1 + d)(\alpha + 2d) + m_7 m_2 + m_2\mu,$$

$$a_3 = d(\alpha + d)(m_2 + m_4 + \mu_1 + d) + \{(\mu_1 + d) + m_7\}m_4(\alpha + 2d) + m_7 m_4(m_2 + \mu_1) + m_2 m_6 \mu_1 + m_4(\mu_1 + 2d)\mu + m_2 m_4\{m_7 - (\mu + d)\} + (m_2 + m_7) m_4 m_6 + \alpha(\mu_1 m_5 - \mu m_1),$$

$$a_4 = m_4(\mu_1 + d)d(\mu + d) + m_2m_4m_7d + m_2m_4(\alpha + 2d)\{m_7 - (\mu_1 + d)\} + \mu_1 d(m_4m_7 - m_1m_6 + \mu_1\alpha(m_5m_2 + m_5m_4 - m_3m_7 - m_1m_6) + (\mu_1 + d)\{m_2m_4(m_6 + m_7) + m_4d\alpha - \mu\alpha m_3\} + m_2m_4(m_6 + m_7)(\alpha + d) + \mu_1 m_4(m_2m_7 - m_1m_6) + \mu\alpha(m_1m_4 + m_5m_4 - m_3m_2) + m_4m_7d(\alpha + d)$$

$$a_5 = d(\alpha + d)m_2m_4(2m_7 + m_6 - (\mu_1 + d)) + \mu\alpha(\mu_1 + d)(m_1m_4 - m_3m_2) + \mu\alpha m_3m_2m_6 + \mu_1\alpha(m_4m_5m_7 + m_2m_3m_6 + m_3m_6m_7 + m_1m_4m_7 - m_2m_3m_7 - m_1m_4m_6)$$

Thus by Routh Hurwitz criteria, E4 is locally asymptotically stable as it can be seen

$$a_1 > 0, a_2 > 0, a_3 > 0, a_4 > 0, a_5 > 0, \qquad \begin{vmatrix} a_1 & 1 \\ a_3 & a_2 \end{vmatrix} > 0$$

$$\begin{vmatrix} a_1 & 1 & 0 \\ a_3 & a_2 & a_1 \\ 0 & 0 & a_3 \end{vmatrix} > 0, \quad \begin{vmatrix} a_1 & 1 & 0 & 0 \\ a_3 & a_2 & a_1 & 1 \\ 0 & a_4 & a_3 & a_2 \\ 0 & 0 & 0 & a_4 \end{vmatrix} > 0, \quad \begin{vmatrix} a_1 & 1 & 0 & 0 & 0 \\ a_3 & a_2 & a_1 & 1 & 0 \\ a_5 & a_4 & a_3 & a_2 & a_1 \\ 0 & 0 & a_5 & a_4 & a_3 \\ 0 & 0 & 0 & 0 & a_5 \end{vmatrix} > 0,$$

Now to show that E4 is globally asymptotically stable, we first state a lemma.

Lemma. The region

$$\Omega = \{\{N, I_T, I_H, I_{TH}, A\}; 0 < N(t) \le N_{max}; 0 \le I_T + I_H \le I_{max}; 0 \le I_{TH} \le I_{TH\,max}; 0 \le A(t) \le A_{max}\} \tag{3.10}$$

is a region of attraction for the system (3.1-3.5)

where

$$I_{max} = \frac{Q_0(\beta - \omega_1)}{\beta d}, \qquad I_{TH\,max} = \frac{\beta_3 I_{max}^2 d}{4Q_0(\mu_1 + d)}, \qquad A_{max} = \frac{\mu I_{max} + \mu_1 I_{TH\,max}}{(\alpha + d)},$$

and $\beta = \max(\beta_1, \beta_2)$, $\beta' = \min(\beta_1, \beta_2)$, $\omega_1 = \min(\gamma + d, \mu + d)$

Proof.

$$\frac{dN}{dt} = Q_0 - dN - \alpha A\,,$$

$$\frac{dN}{dt} \le Q_0 - dN\,,$$

$$\mathrm{Lim}_{t\to\infty}\mathrm{Sup}N(t) \le \frac{Q_0}{d}\,,$$

$$\frac{dI_T}{dt} = \frac{\beta_1 I_T\left(N - I_T - I_H - I_{TH} - A\right)}{N} - \frac{\beta_3 I_T I_H}{N} - (\gamma + d)I_T$$

$$\frac{dI_H}{dt} = \frac{\beta_2 I_H\left(N - I_T - I_H - I_{TH} - A\right)}{N} - (\mu + d)I_H$$

On adding above two equation, we have

$$\frac{d\left(I_T + I_H\right)}{dt} = (\beta_1 I_T + \beta_2 I_H) - \frac{\beta_1 I_T\left(I_T + I_H + I_{TH} + A\right)}{N} - \frac{\beta_2 I_H\left(I_T + I_H + I_{TH} + A\right)}{N}$$

$$- \frac{\beta_3 I_T I_H}{N} - (\gamma + d)I_T - (\mu + d)I_H$$

Let $\quad \beta = \max(\beta_1, \beta_2), \qquad \beta^{'} = \min(\beta_1, \beta_2), \qquad \omega_1 = \min(\gamma + d, \mu + d)$

$$\frac{d\left(I_T + I_H\right)}{dt} \le \beta(I_T + I_H) - \frac{\beta^{'}}{N}(I_T + I_H)^2 - \omega_1(I_T + I_H)$$

Let $\quad (I_T + I_H) = I$

Thus

$$\frac{dI}{dt} \le \beta I - \frac{\beta^{'}}{N} I^2 - \omega_1 I, \qquad \frac{dI}{dt} \le (\beta - \omega_1)\left(1 - \frac{\beta^{'} I}{N(\beta - \omega_1)}\right)I,$$

$$\mathrm{Lim}_{t\to\infty}\mathrm{Sup}\frac{dI}{dt} \le I_{max}\,, \quad \text{where} \qquad I_{max} = \frac{Q_0(\beta - \omega_1)}{\beta^{'} d}\,,$$

$$\frac{dI_{TH}}{dt} = \frac{\beta_3 I_T I_H}{N} - (\mu_1 + d)I_{TH}$$

$$\frac{dI_{TH}}{dt} = \frac{\beta_3}{4N}\left\{(I_T + I_H)^2 - (I_T - I_H)^2\right\} - (\mu_1 + d)I_{TH}$$

$$\frac{dI_{TH}}{dt} \le \frac{\beta_3 I^2}{4N} - (\mu_1 + d)I_{TH}, \quad \text{where} \quad (I_T + I_H) = I$$

$$\mathrm{Lim}_{t\to\infty}\mathrm{Sup}\frac{dI_{TH}}{dt} \le I_{TH\max}, \quad \text{where} \quad I_{TH\max} = \frac{\beta_3 I_{\max}^2 d}{4Q_0(\mu_1 + d)},$$

$$\frac{dA}{dt} = \mu I_H + \mu_1 I_{TH} - (\alpha + d)A$$

$$\frac{dA}{dt} \le \mu I_{H\max} + \mu_1 I_{TH\max} - (\alpha + d)A$$

$$\mathrm{Lim}_{t\to\infty}\mathrm{Sup}\frac{dA}{dt} \le A_{\max}, \quad \text{where} \quad A_{\max} = \frac{\mu I_{\max} + \mu_1 I_{TH\max}}{(\alpha + d)},$$

Theorem 3.2. If the epidemic equilibrium E_4 exists, then it is globally asymptotically stable provided the following condition is satisfied in Ω;

max

$$\left[\frac{4\mu_1\beta_3 I_H^*}{\beta_1(\mu_1 + d)(\alpha + d)}, \frac{dN^* I_H^*}{64\beta_1 I_{\max}}, \frac{4\alpha^2\mu N^* I_H^*}{d(\alpha + d)\beta_1 I_{\max}}\right] < k_1 < \min\left[\frac{d\beta_1 N^*}{4(4\beta_1 + \beta_3)}, \frac{d(\mu_1 + d)N^{*2} I_H^*}{4\beta_1\beta_3 I_{\max}}\right]$$

$$4\mu I_H^* < (\alpha + d)I_{\max}, \qquad (\beta_2 k_2 + (\beta_1 + \beta_3)k_1) < \frac{\beta_2\beta_1 k_2 k_1}{4}, \tag{3.11}$$

Proof. Consider the following positive definite function about E_4

$$V = \frac{1}{2}(N - N^*)^2 + k_1\left(I_T - I_T^* - I_T^* \ln\left(\frac{I_T}{I_T^*}\right)\right) + k_2\left(I_H - I_H^* - I_H^* \ln\left(\frac{I_H}{I_H^*}\right)\right)$$
$$+ \frac{1}{2}k_3(I_{TH} - I_{TH}^*)^2 + \frac{1}{2}k_4(A - A^*)^2 \tag{3.12}$$

where the constants k1, k2, k3 and k4 can be chosen suitably.

we get

$$a_{11} = \frac{d}{2}, \qquad a_{22} = \frac{k_1\beta_1}{2N^*}, \qquad a_{33} = \frac{k_2\beta_2}{2N^*}, \qquad a_{44} = \frac{k_3(\mu + d)}{2},$$

$$a_{55} = \frac{k_4(\alpha + d)}{2}, \qquad a_{12} = \frac{k_1\beta_1(I_T + I_H + I_{TH} + A) + \beta_3 k_1 I_H}{NN^*},$$

$$a_{13} = \frac{k_2\beta_2(I_T + I_H + I_{TH} + A)}{NN^*}, \quad a_{14} = -\frac{\beta_3 k_3 I_H I_T}{NN^*}, \quad a_{15} = -\alpha,$$

$$a_{23} = -\frac{(k_1\beta_1 + k_2\beta_2 + k_1\beta_3)}{N^*}, \quad a_{24} = \frac{\beta_3 k_3 I_H^*}{N^*} - \frac{\beta_1 k_1}{N^*},$$

$$a_{25} = -\frac{\beta_1 k_1}{N^*}, \quad a_{34} = \frac{\beta_3 k_3 I_T}{N^*} - \frac{\beta_2 k_2}{N^*}, \qquad a_{35} = k_4\mu - \frac{\beta_2 k_2}{N^*},$$

$$a_{45} = k_4\mu_1,$$

Thus a sufficient condition for dV/dt to be negative definite that

$$\begin{aligned}
a_{12}^2 - a_{11}a_{22} &< 0, \\
a_{13}^2 - a_{11}a_{33} &< 0, \\
a_{14}^2 - a_{11}a_{44} &< 0, \\
a_{15}^2 - a_{11}a_{55} &< 0, \\
a_{23}^2 - a_{22}a_{33} &< 0, \\
a_{24}^2 - a_{22}a_{44} &< 0, \\
a_{25}^2 - a_{22}a_{55} &< 0, \\
a_{34}^2 - a_{33}a_{44} &< 0, \\
a_{35}^2 - a_{33}a_{55} &< 0, \\
a_{45}^2 - a_{44}a_{55} &< 0,
\end{aligned}$$

Now choosing

$$k_3 = \frac{k_1\beta_1}{\beta_3 I_H^*}, \qquad k_2 = \frac{k_1\beta_1 I_{max}}{\beta_2 I_H^*}, \qquad k_4 = \frac{k_1\beta_1 I_{max}}{\mu N^* I_H^*},$$

The conditions give

max

$$\left[\frac{4\mu_1\beta_3 I_H^*}{\beta_1(\mu_1+d)(\alpha+d)}, \frac{dN^* I_H^*}{64\beta_1 I_{max}}, \frac{4\alpha^2\mu N^* I_H^*}{d(\alpha+d)\beta_1 I_{max}}\right] < k_1 < \min\left[\frac{d\beta_1 N^*}{4(4\beta_1+\beta_2)}, \frac{d(\mu_1+d)N^{*2} I_H^*}{4\beta_1\beta_3 I_{max}}\right]$$

$$4\mu I_H^* < (\alpha+d)I_{max}\ , \qquad (\beta_2 k_2 + (\beta_1+\beta_3)k_1) < \frac{\beta_2\beta_1 k_2 k_1}{4},$$

Hence V is a Liapunov function with respect to E_4 whose domain contains Ω, proving the theorem.

4. Numerical Analysis and Discussion

To see the dynamical behavior of the model system, the system(3.1-3.5) is integrated numerically by forth order Runge-Kutta method using the following set values of various parameters: Q_0=2000, d=0.02, $ß_1$=.925, $ß_2$=.365, $ß_3$=1.15, μ=.1, μ1=.12 γ =.3 and α=1 with initial values N(0)=20000, I_T(0)=2000, I_H(0)=4000, I_{TH}(0)=3000 and A(0)=1000. The equilibrium vales are compared as,

N* = 23421.1181, I^*_T = 3104=184215, I^*_H = 6548.4333, I^*_{TH}= 4536.8292, A* =1531.5776

The results of numerical simulation are displayed graphically in Figs. (4.1-4.13). In Figs. (4.1-4.3), the variation of various infected population has been shown for different contact rate ß1. If the contact rate between susceptible and TB infectives will increase, the TB infected persons will increase while the HIV infected population will decrease. Consequently, TB-HIV infected population will increase. This shows the decrease in TB population will help in reducing the TB-HIV infected population. Figs. (4.4-4.7) shows the effect of contact rate ß2 on infected classes and on AIDS patients. If contact rate between susceptible and HIV infectives will increase, HIV infected population will increase and TB infected population will decrease due to decrease in TB infected population TB-HIV infectives will decrease. AIDS patients will increase due to increase in HIV infectives. In Figs. (4.8-4.11), the variation of various infected population has been shown for different contact rate ß3. From these figure it is clear that increase in contact rate 3 will increase in TB-HIV infectives and AIDS population while the TB and HIV infectives will decrease. Fig 4.12 & 4.13 shows that if the movement rate from different classes to AIDS population will increase, the AIDS patients will also increase.

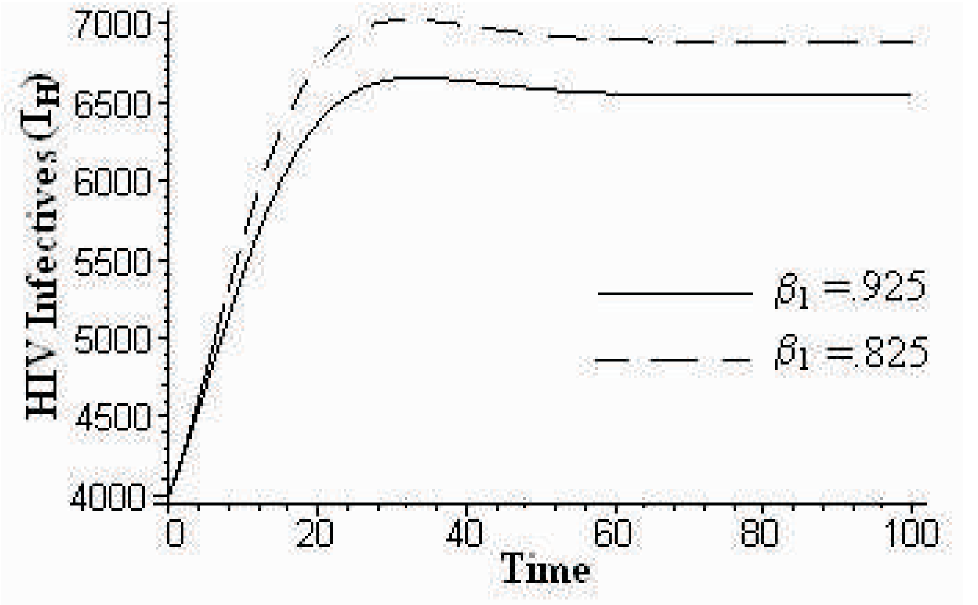


Fig. 4.1 Variation in HIV infectives for different values of β_1

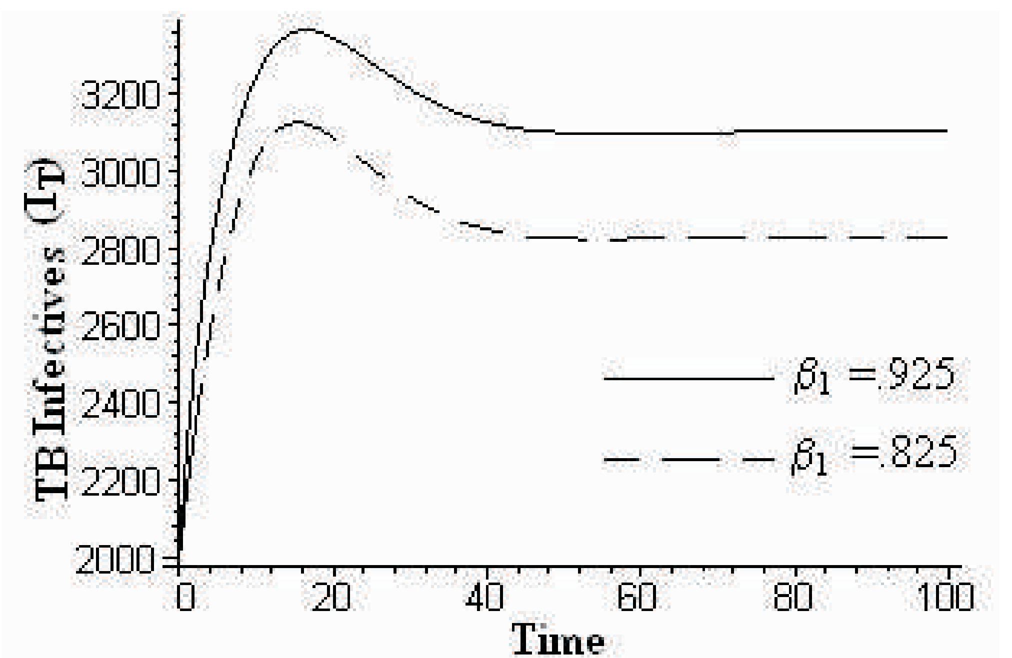


Fig. 4.2 Variation in TB infectives for different values of β_1

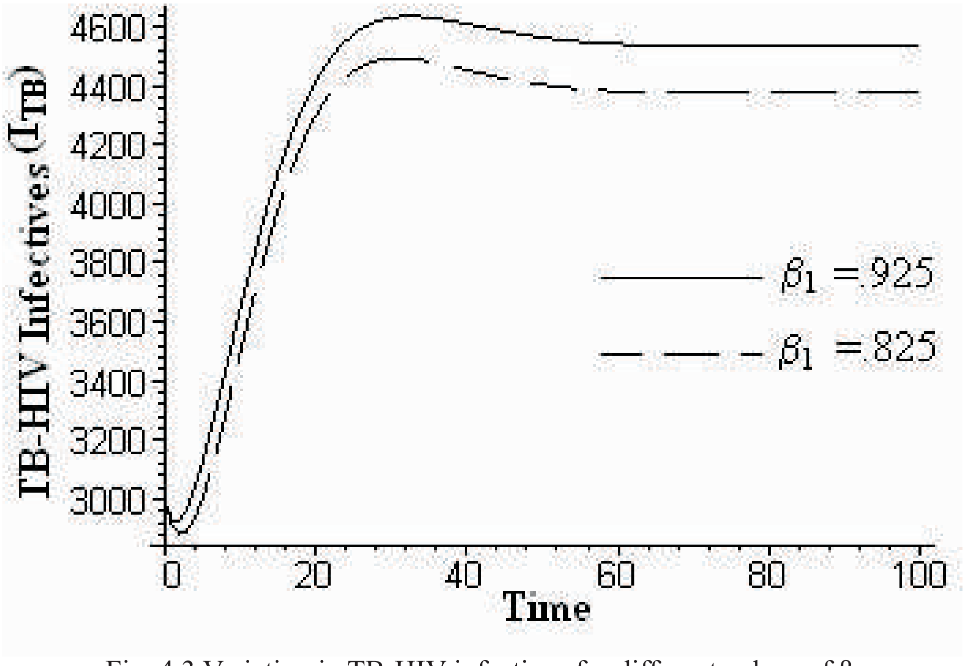


Fig. 4.3 Variation in TB-HIV infectives for different values of $ß_1$

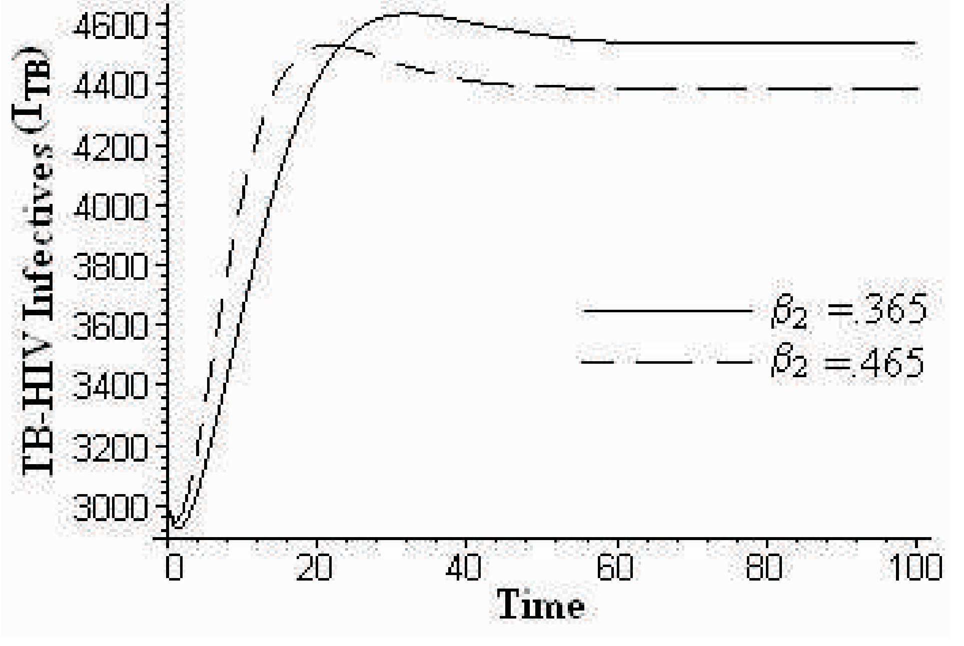


Fig. 4.4 Variation in TB-HIV infectives for different valueof $ß_2$

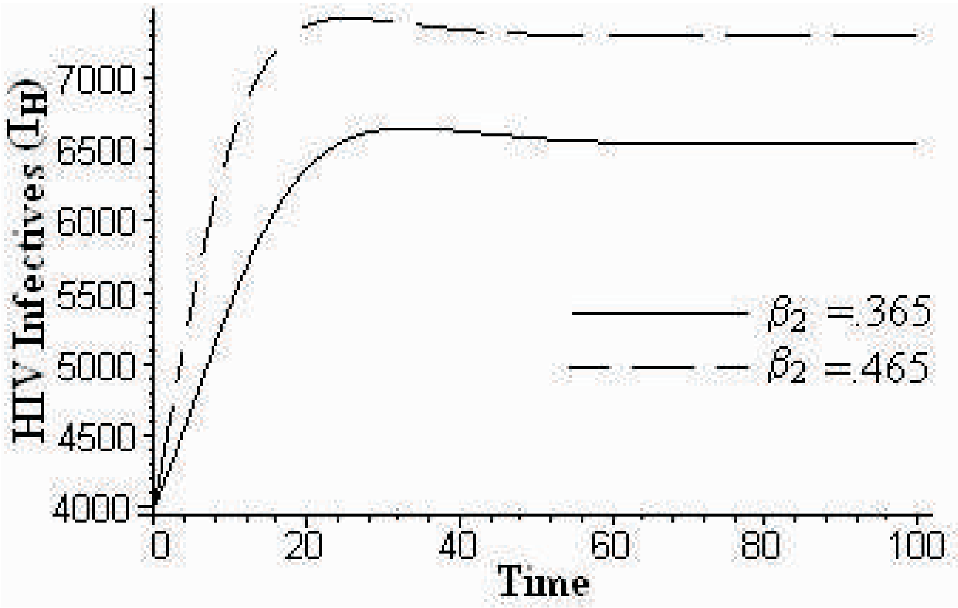


Fig. 4.5 Variation in HIV infectives for different valueof ß$_2$

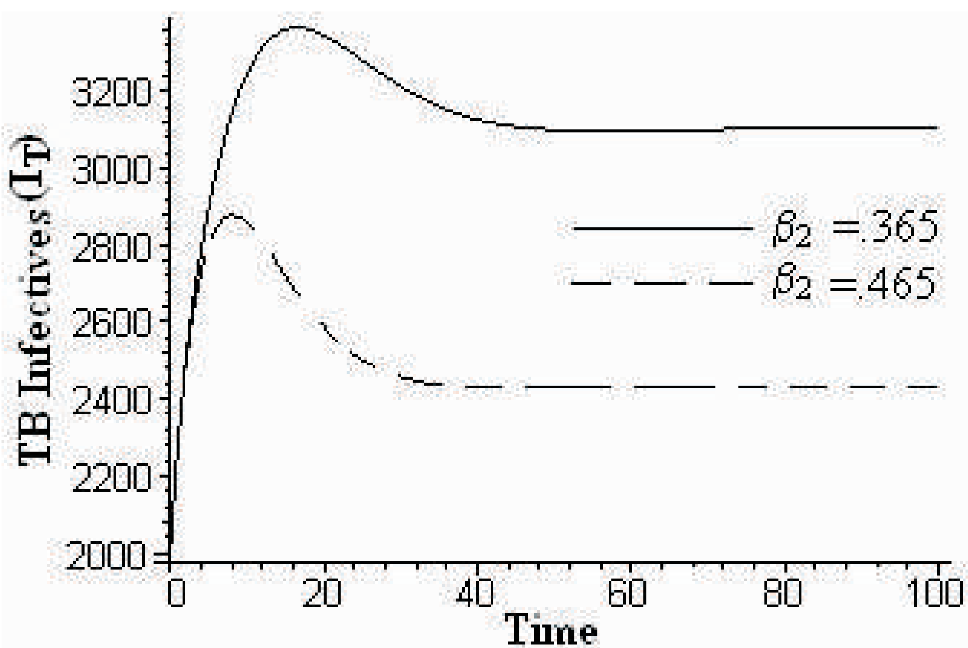


Fig. 4.6 Variation in TB infectives for different valueof ß$_2$

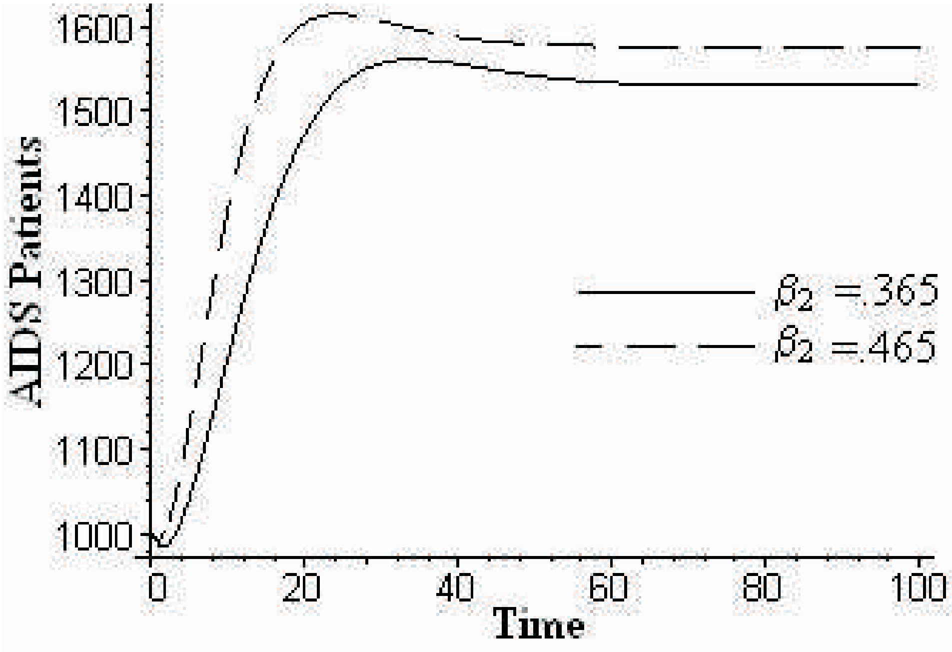


Fig. 4.7 Variation in AIDS patients for different values of $ß_2$

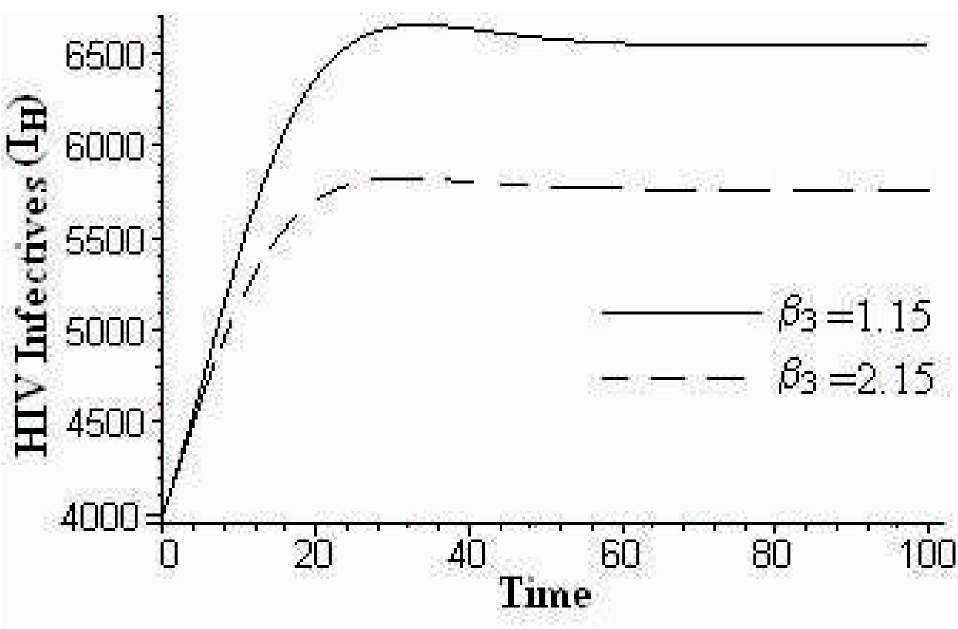


Fig. 4.8 Variation in HIV infectives for different values of $ß_3$

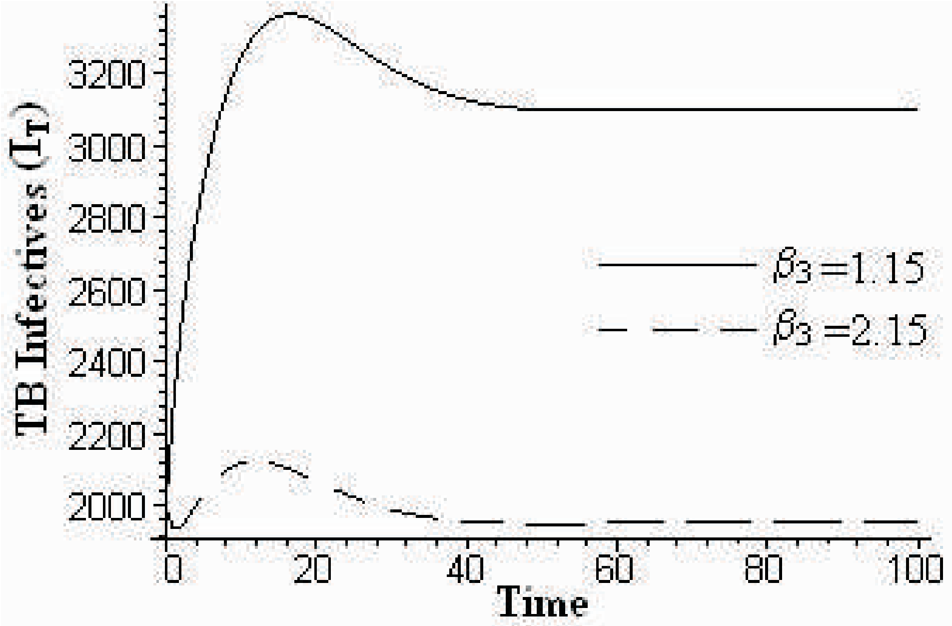


Fig. 4.9 Variation in TB infectives for different values of ß

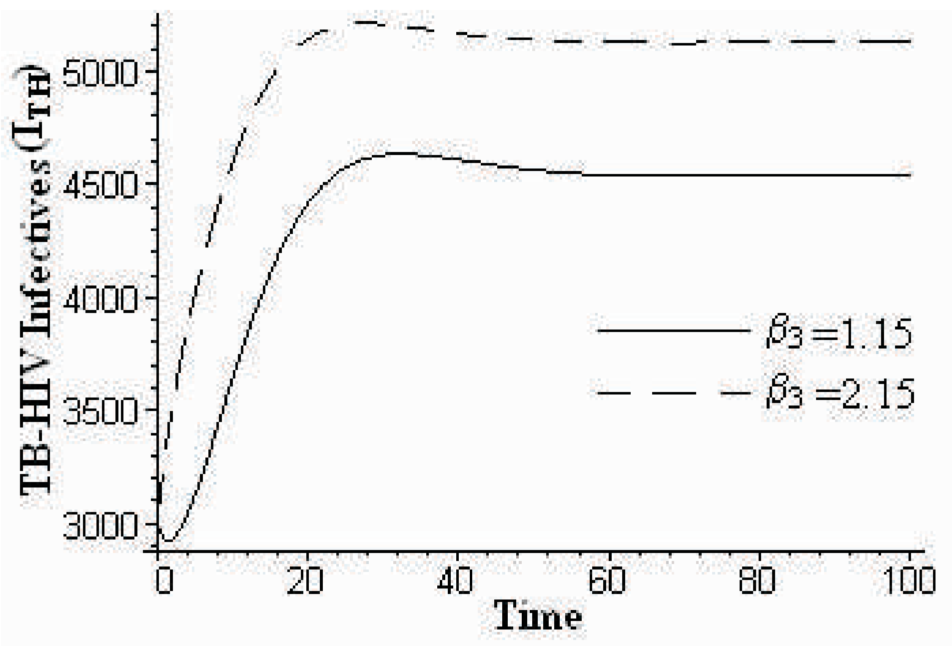


Fig. 4.10 Variation in TB-HIV infectives for different values of $ß_3$

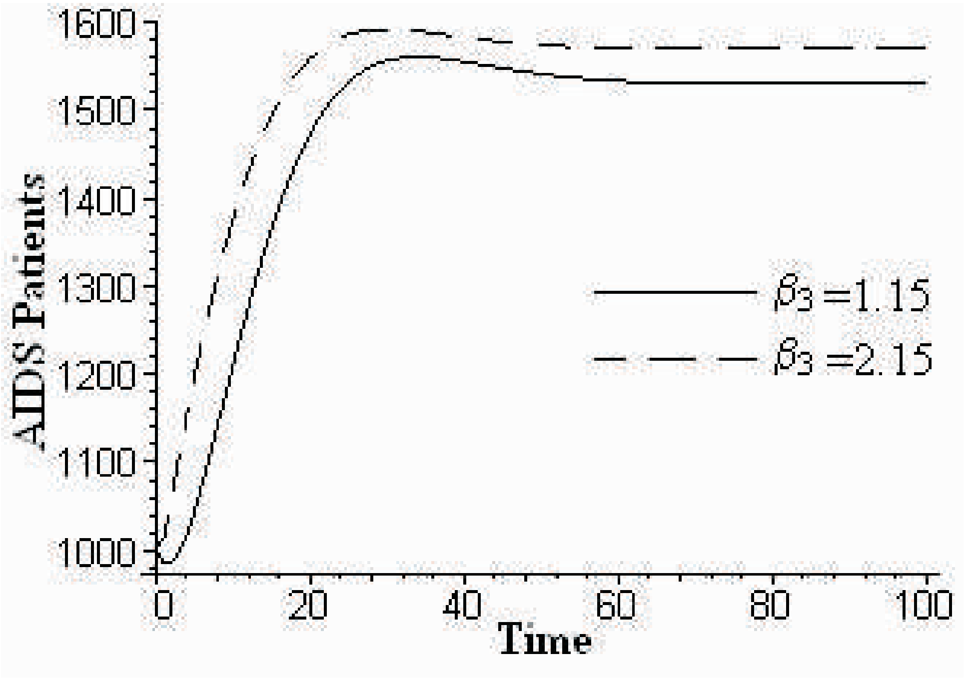


Fig. 4.11 Variation in AIDS population for different values of $ß_3$

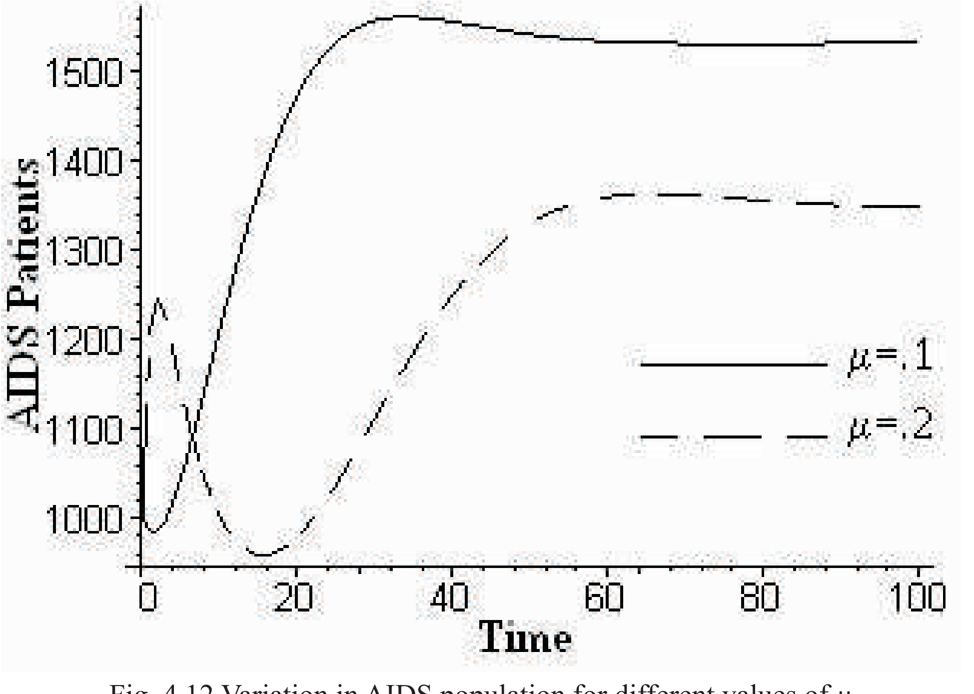


Fig. 4.12 Variation in AIDS population for different values of μ

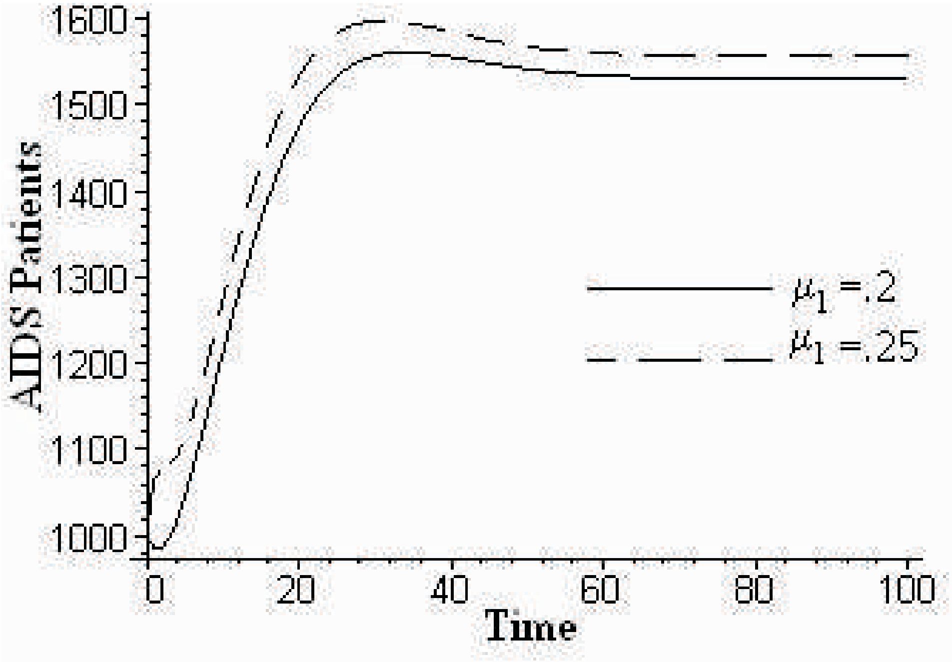


Fig. 4.13 Variation in AIDS population for different values of μ_1

5. Conclusion

In this paper, a nonlinear mathematical model is proposed and analyzed to study the transmission dynamics for the co-existence of HIV & TB in a population with variable size structure. It shown for the system(3.1)-(3.5) there exist a threshold parameter $R = \max(R_1, R_2)$ where $R_1 = \beta_1/(\gamma+d)$ and $R_2 = \beta_2/(\mu+d)$. If, $R<1$, then the diseases die out and when $R>1$,the diseases become endemic. The model has four non-negative equilibria namely $E_1(Q_0/d,0,0,0,0)$ the disease free equilibrium, $E_2(\hat{N},\hat{I}_T,0,0,0)$ the TB free equilibrium, $E_3\left(\overline{N},0,\bar{I}_H,0,\overline{A}\right)$ the HIV free equilibrium and E4 $\left(N^*,I_T^*,I_H^*,I_{TH}^*,A^*\right)$ the endemic equilibrium for $R>1$. It is found that the equilibrium E_1, corresponding to the disappearance of disease, is locally asymptotically stable if $R<1$ and for $R>1$ the diseases will be remain in the population. Further the endemic equilibrium E_4 which exist only when $R>1$ is always locally asymptotically stable. For this endemic equilibrium we have found a Liapunov function and shown that this equilibrium is globally asymptotically stable, if the condition (4) is satisfied. It is noted, when diseases remain endemic, the disease induced deaths reduce the equilibrium population size from Q_0/d to N^*. The effect of an increase in disease induced death rate is decrease the AIDS patients population. It is also noted that the increase in the number of sexual partners further reduces the total population by way of spreading the disease. Therefore, much attention should be paid to study the transmission dynamics of HIV-TB co-infection.

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Common Law Remedies and Water Protection

Razit Sharma*

I. INTRODUCTION

Common Law is a body of customary law of England based on judicial decisions. The term "common law" is derived from Latin phrase "lex communis". The present legal system in India is formed on the basis of the English Common Law brought into India by the British. From the eighteenth century, the British colonial rulers, who were eager to have a legal system that would maintain law and order and secure property rights, gradually imposed on India a general system of law.

Anglo Indian judicial system was laid by judicial plan of 1772 adopted by Warren Hastings on which later administrations built superstructures.The structures and the powers of the court, role of judges and lawyers, the adversarial system of trial, the reliance of judicial precedent and the shared funds of concepts and techniques brought the Indian Legal; system into the mainstream of the common law system.

It is said that common law in India, in the widest meaning of the expression, would include not only what in England is known strictly as common law but also its traditions and some of the principle underlying the English statute law. The common law originally introduced into India by the British, continues to apply here by virtue of Article 372(1) of the Indian Constitution unless it has been modified or changed by legislation in India.

II. Common Law and Water Protection

The Common Law remedies against environmental pollution in general and water pollution in particular are available under the Law of Torts. Tort is a civil wrong other than breach of trust or contract. The tortious action results in the violation of legal right. The affected person can claim damages, compensation or injunction or both.

While commenting on nature of wrong of pollution the Supreme Court in the case of M.C. Mehta v Kamal Nath and Others observed the following:

Pollution is a civil wrong. By its very nature, it is a Tort committed against the community as a whole. A person, therefore, who is guilty of causing pollution has to pay damages (compensation) for restoration of the environment and ecology. He has also to pay damages to those who have suffered loss on account of the act of the offender. The powers of this Court under Article 32 are not restricted and it can award damages in a PIL or a Writ Petition as has been held in a series of decisions. In addition to damages aforesaid, the person guilty of causing pollution can also be held liable to pay exemplary damages so that it may act as a deterrent for others not to cause pollution in any manner…The considerations for which "fine" can be

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imposed upon a person guilty of committing an offence are different from those on the basis of which exemplary damages can be awarded.

The India Judiciary has played a remarkable role in implementing the principles of tort law in environmental issues. The credit goes to the Supreme Court in interpreting the same old principles of tort with wider meaning to encompass wherever and whenever necessary, the Supreme Court has evolved new principles of tort and gave a new shape to tortious liability in environment protection.

The liability of polluter under the Law of Tort is one of the major and oldest legal remedies to abate the pollution. The most important tortious liabilities for environmental pollution or water pollution in particular are under the following heads:

1. Nuisance
2. Trespass
3. Negligence
4. Strict Liability

To these traditional categories, the Supreme Court has added a new class based on the principle of absolute liability.

1. NUISANCE

In tort law the act of polluting the water is termed as a nuisance. The civil wrong known as nuisance is incapable of precise definition. Nuisance can be described as unlawful interference with another's use and enjoyment of lands or of some right over or in connection with land. A nuisance may be caused by negligence. It is of two kinds: (a) Private nuisance and (b) Public nuisance.

Private nuisance is the using or authorising the use of one's property or anything under one's control so as to injuriously affect an owner or occupier of property by physically injuring his property or by interfering materially with his leisure, comfort or convenience.

Private nuisance affecting water rights includes acts leading to wrongful disturbance of easements for example, disturbance of right to water from a particular water channel or tank, wrongful escape of water into another's property etc. To be actionable an element of “unreasonableness” should be there in the conduct of the defendant. According to Pollock the nuisance is the wrong to a man unlawfully disturbing him (a) the enjoyment of his property, or, in some cases (b) in the exercise of a common right.

A nuisance would include offensive smell, noise, air pollution or water pollution. Thus escape of dirty water, poisonous or any hazardous or polluting substance, solid, liquid or gaseous or any other polluting substances into any water body may cause the ground for this action. Thus action for nuisance is a common remedy available apart from any action under any statute. The deepest doctrinal roots of modern environmental law are found in the Common Law concept of nuisance.

To be nuisance an act must satisfy certain conditions.

1. It must not arise on the premises of plaintiff's occupation.
2. It must take place outside the plaintiff's land and then proceed to affect that land or its use.
3. It must be long standing, not a trifling one i.e. a continuing wrong.

A single nuisance of deleterious affectation may be the evidence of continuous, unreasonable use of land or so serious engrave an occurrence in itself amounting to an act of nuisance. The damage suffer must be real or sensible. It can be measurable in some way.An action for private nuisance may seek injunctive relief as well as damages. The operation of nuisance in relation to pollution is quiet wide. It covers a wide range of inferences with the use and enjoyment of one's land or property coming from pollution of water, air, noise, smell etc. As regards water pollution injunctive and damages reliefs have been granted to prevent the pollution or compensate the plaintiff for injury suffered by him on account of pollution of surface, underground and tidal waters caused by the defendant.

Remedies for public nuisance are:

1. A criminal prosecution for the offence of causing public nuisance.
2. A criminal proceeding before a magistrate foe removing public nuisance.
3. A civil action by the advocate general or by two or more members of the public with permission of the court for a declaration, injunction or both.

The operation of nuisance in relation to water pollution may be illustrated by reference to a few English cases. In Pride of Derby and Derbyshire Angling Association Ltd. v British Celanese LD*,* the plaintiffs were the owners of a fishery in a river and the defendants were a local authority charged by the legislation with the duty of providing a sewerage system in the local area. The local authority was diverting the effluents of sewers, after treatment in the beds and tanks of their disposal works, into the river. The treatment was not successful in rendering the effluent harmless. It was still noxious. This was held to be a nuisance which could be prevented by an injunction restraining the local authority from polluting the river.

In Haignv. Deudraeth Rural District Council the plaintiff owned certain fields which were in part intersected, and in part bounded, by a stream. The crude sewage matter had been discharged into it in considerable quantities by the sewers owned by the local authority. It was held to be a nuisance and injunction was issued to restrain the local authority from discharging the sewage matter into the river.

About the pollution of underground water it has been stated that although there can be no property in percolating water, an action will lie against one who fouls the water supply existing in the underground strata, so that the water reaches the plaintiff in an impure condition.

Similarly with regard to tidal waters the provision in Common Law is as follows: The general rule that a riparian owner on the banks of natural stream is entitled to receive the flow of water in its natural state and unpolluted and that an infringement of this right gives him a right of action is also applicable to tidal waters.

2. **TRESPASS**

Trespass means direct interference, intentional or negligent with personal or proprietary rights without lawful excuse. The tort of trespass is actionable per se and there is no need to show damages as a result of trespass.

The Doctrine of trespass is closely related to nuisance but it is distinct and rarely invoked in the environmental cases. It requires an intentional invasion of the plaintiff's interest in the exclusive possession of the property. Invasion may be direct or through some tangible objects. According to Lord Pearson, trespassing is the form of misbehaviour, showing lack of considerations for the rights of others. It would be unfair if trespassers could by their misbehaviour impose onerous obligations to others. Thus deliberate placement of waste in such circumstances will carry it to the land of plaintiff by natural forces, emission of gas or invisible fumes constitute tort of trespass. Every invasion of property, be it ever so minute is a trespass. If the injury is direct, it is trespass and if it is consequential it is nuisance. It is difficult to prove direct interference in environmental disputes.

In ESSO Petroleum v. Southport Corporation when an oil tanker stranded and to try refloat, some oil drifted ashore and polluted the sea and claimant's foreshore, the claimant denuded the cost of cleaning. The action of trespass to discharge oil at sea which was then washed from foreshore was not brought. The two judges of House of Lords thought that it would have failed since pollution was not inevitable.

In Jones v Leanrwst Urban District Council when sewage was accidently released and polluted the river downstream, the interference was held to be direct considering the natural flow of river.

Because of the requirement of directness the action of trespass to a person has not been developed properly in the pollution cases. Court's tendency has been to give relief under this head of tort. In Martin v. Reynold Metal Company, the court modified the traditional definition of trespass to bring industrial pollution within the ambit of liability. It defines trespass as the invasion of landowner's right to exclusive possession, whether by visible or invisible substance and held that mere setting of fluoride deposits upon the plaintiff's was sufficient to constitute actionable trespass.

So far as water pollution is concerned, trespass is a unique action for remedy. Because the direct entry of pollutants into the defendants land or from other's land may be easy to establish except in case of air pollution. As the tort of trespass is little used with regard to environmental claim its scope is perhaps uncertain. However in M.C. Mehta v Union of India (Span Motel Case) though the ground of trespass was not raised but it fulfilled all the requirements for the action of trespass.

3. NEGLIGENCE

A Common Law action for negligence may be brought to prevent environmental pollution or water pollution in particular. In an action for negligence, the plaintiff must show the following:

a) The defendant was under a duty to take reasonable care to avoid the damage complained of;

b) There was a breach of this duty;

c) The breach of duty caused the damage.

The degree of care required in a particular case depends on the surrounding circumstances, and varies according to the risk involved and the magnitude of the prospective injury.

In order to succeed in action for negligence, it must be established that there was direct link between the negligence and harm caused. Further, it has to be proved that the person guilty of negligence has not taken due care which he was required to take under the law.There are following three main principles that govern the tort of negligence:

i. The defendant owes a duty to take care to the claimant;

ii. The defendant has breached that duty

iii. There has been foreseeable damage to the claimant resulting from the breach.

The plaintiff must prove the abovementioned three elements. Once the plaintiff has proved the existence of the above said facts a prima facie case of negligence is made out. There upon it becomes the duty of the defendant to come forward with evidence to show that the act was not negligent.

The Common Law action for negligence has been but with limited success invoked to get damages in water pollution cases.

The law of negligence requires that every act of an individual is subject to the "duty to take care" and "negligence" principles. Each principle is explained below.

An action for negligence may be the only remedy available to a person who otherwise cannot sue for nuisance or under the rule laid down in Rylands v. Fletcher because of technicalities. The greatest difficulty in negligence cases is the proof of defendant's fault. To prove breach of duty on part of defendant is by no means simple. Breach is considered to be an unreasonable failure to achieve the standard of care required by law or to conform to general and approved practices. Conformation with general policy and associated standards, generally accepted trade practices are the usual ways to defeat the allegations of negligence and are good defenses available to the defendants.

Another difficulty in negligence cases of pollution is that of establishing the causal connection between the negligent act and the plaintiff's injury or the negligence principle. In interpreting the "neighbor" principle observations made by Lord Atkin in the English case of Donoghue v Stevenson are of great importance. He states that the neighbours seem to be persons who are so closely and directly affected when I am directing my mind to the acts or omissions which are called in question. Thus, where there is a breach in a canal as a result of which water escapes and damages the property and enjoyment of virtually all the local people then all these people become the injured neighbors who are entitled to compensation in tort.

In Mukesh Textiles Mills (P) Ltd. V H.R. SubramaniaShastry the plaintiff suffered damage to their standing paddy and sugarcane crop in their fields from inundation of water, polluted with some 8000 tones molasses belonging to the defendants factory. Molasses were stored in earthen tank, which had become dilapidated having been dug into by rodents and as a result the embankment had collapsed and a large quantity of molasses overpowered land. The High Court of Karnataka held the defendant liable on the ground of foreseeability and strict liability.

In Srajn Prasad and Others v Mahadeo Prasad and Another the defendant dug a trench in his land but did not cover it properly. As a consequence of heavy rain water accumulated in the trench, percolated through the soil into his neighbour's ground thereby causing damage to the walls and floors of his house. The Allahabad High Court found that no precautions were taken by the defendant to prevent rain water from accumulating in the trench which showed an absence of duty of care towards his neighbors. The defendant was held liable for all the damages so caused.

4. STRICT LIABILITY

The rule of Strict Liability as enunciated in Rylands v. Fletcher is another form of private law action in respect of environmental hazards the rule made by Blackburn J. in the case is that the person who for his own purpose brings and collects and keeps there anything likely to do mischief if it escapes must keep it in at his peril. If he does not do so, he is prima facie answerable for all the damage which is the natural consequence of its escape.

The rule of Strict Liability is subject to the following exceptions:

1. An act of God
2. Act of third party
3. The plaintiff's own fault

4. The plaintiff's consent
5. The natural use of land by the defendant
6. Statutory authority

The rule of Strict Liability has been applied to a variety of circumstances wherein damage has resulted inter alia covering the water pollution. In India this rule has been applied in limited situations relating to escape of water causing damage.

There has been a remarkable judicial achievement in 1985. A more stringent rule called absolute liability was laid down by the Supreme Court in Case of M.C.Mehta v. Union of India.This case was related to harm caused by escape of oleum gas from one of the units of Shriram Foods and Fertiliser Industries in Delhi. The court evolved a new principle of liability for enterprises engaged in hazardous or inherently dangerous activities. Under this principle if any harm results from the hazardous activity the enterprise is absolutely liable to compensate for such harm. Such liability affords no exceptions as available under the rule in Rylands v. Fletcher. Such a rule ensures that hazardous industries should bear the burden of damage resulted from the escape of such substances. But its fairness particularly in such cases where the escape which may result from any natural calamity such as an earthquake or from an attack from enemy aircraft is subject to doubts.

III. CONCLUSION

The Common Law has been used by the Indian courts to provide relief in a number of cases relating to water pollution. The common law has an advantage over the statutory law as it provides a legal recourse that is not otherwise available, or because at times it provides remedies that are more desirable than those available under legislation. The common law remedies available for environmental pollution viz., nuisance, trespass, negligence and strict liability are in force in India under Article 372 of the Constitution of India. The judiciary has reinterpreted the fundamental rights, fundamental duties and directive principles of state policy to provide protection to environment. The persistent and increasing use of common law in addition to constitutional law has resulted in providing protection to environment particularly water.

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3. Supr note 1
4. *Ibid*
5. Article 372(1) of the Indian Constitution reads as under:

Notwithstanding the repeal by this Constitution of the enactments referred to in Article 395 but subject to the other provisions of this Constitution, all the laws in force in the territory of India immediately before the commencement of this Constitution, all the laws in force in the territory of India immediately before the commencement of this Constitution shall continue in force therein until altered or repealed or amended by a competent Legislature or other competent authority.

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34. The wide interpretation has been given by the courts to Article 21, 48A and 51A of the Constitution of India. The courts have made use of Article 32 and 226 for ensuring better environment.

A Study of Passengers' Perception of Service Quality and Financial Performance of Selected Airlines

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ABSTRACT

This study examines the underlying forces of service quality influences on passengers' perception and financial performance of selected airlines in India. The study also examines, which dimensions have a positive influence on service quality and which dimensions have the most and least important impact on service quality in national air travel, as perceived by airline passengers. The findings of this study are based on the analysis of a sample of 250 respondents each from Air India, SpiceJet Ltd. and Jet Airways and financial data from annual reports of the selected airlines. This study analysed the data from passengers of three classes - economic, business and premium. The results suggest that there are different factors of in-flight service quality that are important according to the passenger's seat class. The dimensionality of perceived service quality in national air travel was explored and three dimensions were identified. These dimensions include in-flight service, in-flight digital service and back-office operations. The findings reveal that these three dimensions are positively related to perceive service quality in both air travel and of these dimensions, Cuisines provided, seat comfort safety are the most important dimension in in-flight service quality. Personal entertainment is the most important dimension as perceived by airline passengers in In-flight digital service quality. Online ticket booking is another dimension in back-office operation. In addition, the findings indicate passengers' perception on different airline in India on the basis of the services delivered. . From the Income Statements of selected Airlines, it is observed that the profits during the last five years have been fluctuating of Spice Jet Ltd and Jet Airways in comparison to Air India. Air India has shown negative or slow progress.

KEYWORDS: Service Quality, Financial Performance, Passenger Perception, In-flight services, In-flight digital services, Back-office Operations, Class of Journey, Aviation Industry.

1. INTRODUCTION

According to International Air Transport Association (IATA), India witnessed the fastest domestic air passenger growth at 18.8% in 2016, way ahead of neighbouring China and the United States. Last year, airlines worldwide carried 3.6 billion passengers and 52.2 million tonnes of cargo worth USD 6 trillion. Among the world's largest domestic aviation markets, India had the fastest domestic passenger growth in 2015.

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In 2015, domestic airlines in India flew 81 million passengers, registering a 20% growth over 2014. Growth was driven by low fares and average domestic fares were 15-20% lower in 2015. With annual growth of 18.8% (in a market of 80 million domestic passengers), India's performance surpassed that of Russia (11.9% growth, in a market of 47 million domestic passengers), China (9.7% growth, in a market of 394 million domestic passengers) and the United States (5.4% growth, in a market of 708 million local fliers). Last year, carriers flew 3.6 billion passengers on scheduled services, an increase of 7.2% compared to 2014. SpiceJet is India's #2 budget airline that has made flight more affordable for more Indians than ever before. SpiceJet operates 298 daily flights to 45 destinations, including 39 domestics and 6 international ones. SpiceJet connects its network with a fleet of 28 Boeing 737NG and 14 Bombardier Q-400s. The majority of SpiceJet's fleet offers SpiceMAX, the most spacious economy class seating in India and perhaps the world, at an additional fee option.

In any business, satisfying the customer is the ultimate goal or objective of any marketer. Excellent passenger satisfaction is one of the greatest assets for aviation industry in today's competitive environment. Passengers' satisfaction towards service arises when a company can provide passengers with benefits that exceed passengers' expectation and this is considered value-added. If the customers are satisfied with the product or service which the company is providing then they will buy more, and do so more often. Passenger gratification is an essential goal for each airline providing passenger services. The on-board experience is still something special for the passenger. The passengers' have a wide choice to select the suitable airline product according to their requirements. Therefore Airline Companies are continuously working on competitors. There are many factors that can help an Airline company to build its customer base through which passenger service and satisfaction can be determined for the success of an entire operation.

2. CONCEPTUAL ANALYSIS OF PERCEPTION

Perception can be defined as our recognition and interpretation of sensory information and includes how we respond to the information. We can also say that perception is a process from which we get relevant information for the accomplishment of our goals. Through this research paper, we want to ascertain the passengers' perception towards service quality of selected airlines.

For aviation industry, Passengers' perception is one of the most important tools for the evaluation of their marketing activities. The airlines are keen on checking the passengers' perceptions towards service, perceptions towards products quality, pricing, packaging and the sales promotion activities. Perception is the sum total of the immediate response of the passengers' sensory receptors. In this competitive world each and every airline is competing for creating a good image in front of passengers. Until and unless a passenger should perceive that the product/service is good then only they can survive in the market. If we compare the transportation facilities of north eastern states with other states of India, the conditions in north eastern states is very poor. Roadways and the railways are not much developed and thus traveling is a big problem for the commuter in these states. Especially the states like Uttarakhand are the worst hit by poor transportation facilities. This is one reason due to which most of the middle class people are forced to avail air services especially in case of some emergency. Though the Uttarakhand state is very small, the aviation sector is prospering in this state.

Service quality is a focused evaluation that reflects the customer's perception of: reliability, assurance, responsiveness, empathy and tangibles. Every passenger has an ideal expectation of the service they want to receive when they use airline's services. Service quality measures how well a service is delivered compared to passenger expectations. Airline's that meet or exceed expectations are considered to have high service quality. There are four dimensions that passenger consider when assessing service quality. These are:

2.1. TANGIBLES

One dimension of service quality has to do with the tangibles of the service. Tangibles are the physical features of the service being provided, such as the comfortable seats in the cabin, Cleanliness of Flight cabins, Newspapers/Magazines, Quality of entertainment, quality of food, handling of luggage and neat appearance of cabin crew.

2.2. RELIABILITY

Reliability is the second dimensions of service quality. Reliability refers to the ability to provide the service as it was promised on a regular or earlier basis. It is very important that aviation industries are able to fulfil the service that they advertise and promise at the time of selling their tickets.

2.3. RESPONSIVENESS

Responding to a customer in a timely manner is third dimension that affects service quality. It is important that cabin crew members are prepared to respond to passengers quickly.

2.4. ASSURANCE

Fourth and last dimension of service quality is assurance that means the passengers have to be able to trust that service providers are knowledgeable about the service they are providing.

3. LITERATURE REVIEW

It is relevant to refer briefly to the previous studies and research in the related areas of the subject to find out and to fill up the research gaps, if any. Literature on service quality in aviation industry can generally be found in number of books, newspaper and internet. Passengers' perception in airline operations has become critically important. **Dennett, Ineson, Stone, and Colgate (2000)** suggest that as competition created by deregulation has become more intense, service quality in the aviation industry has also received more attention. Airline companies also attempted to differentiate their services through the use of computerised reservation systems which were also designed to create customer loyalty in the distribution channels (Lee and Cunningham, 1996). However, despite the airlines' efforts to differentiate their services, an extensive survey of frequent fliers conducted by Ott (1993) revealed that consumers did not perceive any difference from one carrier to another.

R. Archana and Dr. M.V. Subha studied the factors which influences on passenger satisfaction. They have identified that Cuisines provided, seat comfort and safety, these factors have an important role in customer satisfaction. They have also found that customer satisfaction depends on personal entertainment, which is an important factor in flying decisions of passenger. According to their study online seat booking, call centre facilities and reservation/cancellation is highest influencing factor in flying decisions of the passengers.

Passengers' perceptions of low cost airlines and full service carriers: A case study involving Ryanair, Aer Lingus, Air Asia and Malaysia Airlines: *O'Connell, John F. (2005)* Direct competition between full service airlines and no-frills carriers is intensifying across the world. U.S. and European full service airlines have lost a significant proportion of their passengers to low cost carriers, the experience now being repeated in the domestic markets of Asia. This paper attempts to provide answers to a number of critical questions: What are the key drivers of each type airline's business model? Is there a difference in passengers' perceptions between low cost carriers and full service incumbents in a mature European market and in a rapidly developing Asian economy? What are the principle reasons why a passenger chooses a particular airline model? How could a legacy carrier encourage passengers to return and so regain their domestic market share? These questions are addressed to use information obtained in passenger surveys that were recently conducted in Europe and Asia.

Perceived service quality with frill and no-frill airlines: an exploratory research among Indian passengers: Dr. Komal Nagar (2008)

Direct competition between full service airlines and no-frill carriers is intensifying across the globe. This paper contributes to literature by examining the consumer's perspective of the service component of the two carriers. Based on a survey of 180 passengers of both low cost carriers and full service carriers, this paper reveals differences in the perceived service quality of passengers of the two airlines. Results of the study reveal that although there have been significant changes in the aviation industry, which is currently in turmoil, yet the emergence of low fare carriers has been successful in making inroads in this sector. The findings provide evidence for the importance of service quality in both low cost and full cost airlines. Results show that passengers consider significant difference in the tangible features of full service carriers in that they consider it to be an important aspect of service quality. Whereas low cost carriers have become attractive given their low fares, passengers still consider tangibles to be an effective source of service quality perceptions.

Cartels in aviation industry: PREETI MECHAN (2011)

A study of different cases shows that there are potential areas of cartels in Airline Industry. Code sharing Agreement is not cartel per se but it can be an anti-competitive mechanism if left unchecked. A trend of cartels in Indian Airline Industry shows that there is need of hour to keep check on activities of airlines and air turbine fuel suppliers to avoid anti-competitive activities in airline industry. Leniency policy can be helpful in certain cartel cases. Competition laws all over the World and even that of India have a leniency policy for cartels as leniency policy can encourage member of cartels to furnish true information about cartel to avoid larger fines and punishments.

Passenger perceptions of the green image associated with airlines: GILLING WATER (2012)

Environmental issues in air transport have grown in importance in recent years, and in response some airlines have been proactive to demonstrate their 'green' credentials. The aim of this paper is to identify air traveller perceptions of different airlines with regard to green image, and how passengers perceive different measures that airlines can introduce their environmental impact. The research is based on a large quantitative survey, of over 600 travellers, conducted at Liverpool John Lennon Airport between April and July 2010. The data in this papers stems from a range of attitudinal statements on airlines, and measures that airlines could adopt to improve their environmental performance. When presented with a list of airlines, about half of respondents were able to differentiate between airlines based on environmental friendliness. The results show the low-cost airlines in general are not seen as more or less environmentally friendly than full service network airlines. Yet air travellers do indicate differences in the environmental image based on individual airlines. Furthermore, results vary depending on whether passengers had flown previously with a particular airline. Passengers also differentiate between measures that airlines can adopt to reduce the environmental impact on aviation. Using newer aircraft is seen as the most effective way to address the issue.

Indian aviation industry through turbulent times, fids relaxation alone not a game changer (2012)

The Indian Aviation Industry has been going through a turbulent phase over the past several years facing multiple headwinds- high oil prices and limited pricing power contributed by industry wide over capacity and periods of subdued demand growth. Over the near term, the challenges faced by the airline operators are related to high debt burden and liquidity constraints- most operators need significant equity infusion to effect a meaningful improvement in balance sheet. Improved financial profile would also allow these players to focus on steps to improve long term viability and brand building through differentiated customer service. Over the long term the operators need to focus on improving cost structure, through rationalization at all levels including mix of fleet and routes, aimed at cost efficiency. At the industry level, long term viability also requires return of pricing power through better alignment of capacity to the underlying demand growth.

A study on changing consumer preference and satisfaction levels towards the Budget Airline, Tiger Airways and Air Asia; Competitive prospective: Naganathan Venkates (2013)

In the international context, Air transport has played a pivotal role in global, social and economic growth. The entry of low-cost carriers (Budget Airlines) had made a revolution in the Airline Industry (AI), with a different ways of operations compare to the traditional airline. In today's competitive market scenario, organizations have to understand the importance of building and efficiently manage its customers; since customer's expectation are increasing due to many airlines competing with one another by giving better offers and services. Today's AI has to focus not only at delivery of the service to the customers, but should also focus on satisfying the customers with the quality service at competitive price. To keep the customer satisfaction the AI need to be more innovative and come up with the necessary changes on the basis of the customers perceptions. In this regard, the present study has been undertaken to find the passengers' customer satisfaction regarding the service quality in budget Airlines. This paper will focus on the Tiger Airways and Air Asia as the two key budget airlines.

Competitive assessment of co-operation in the civil aviation industry: VINITA SHARMA (2013)

The civil aviation industry follows cooperation as its preferred mode of operation. Models of cooperation vary from simple marketing cooperation models to just short of complete mergers or acquisitions. There are strong efficiency arguments supporting cooperation in the form of strategic alliances but there are potential anti-competitive effects also especially the overlapping routes. However, these anti-competitive effects can be dealt with robust regulatory regime and enforcement authority. In case of India, liberalization has followed a slow pace. But further liberalization at a faster pace is the need of the hour. As of now, there does not appear to be a strong case for potential anti-competitive effects outweighing the efficiency arguments in favour of alliance formation. The aviation industry requires a strong sectoral regulatory setup which is capable of regulating a constantly evolving aviation industry.

Indian aviation sector has potential to be number one globally by 2030: ficci-kpmg report

India has the potential to become the third largest aviation market by 2020 and the largest by 2030, says a recently released report on the Indian Aviation sector by the Federation of Indian Chambers of Commerce and Industry and kpmg. The Indian Civil Aviation Industry is on a high growth trajectory, albeit with minor hiccups, says the report, adding the industry has ushered in a new wave of expansion driven by Low Cost Carriers, modern airports, Foreign Direct Investments in domestic airlines, cutting edge Information Technology interventions and a growing emphasis on no-frills airports and regional connectivity. The Indian Civil Aviation industry is amongst the top 10 in the world with a size of around $16 billion. The report notes that the next generation of aviation growth in India will be triggered by regional airports. The initiatives include reduction in sales tax on Aviation Turbine Fuel, development of no-frills airports, promotion of aviation academies and supportive policies for airlines and tourism. The report stresses that a lot more needs to be done given that several tier two and tier three cities are still unconnected. It suggests measures such as relaxation on regulations, revising the security requirements, allowing domestic code sharing, providing free or discounted utilities and connecting infrastructure, seeking the immediate setting up of the proposed Essential Air Services Fund. The report concludes that in order to become one of the top aviation markets globally, India has to recognise the untapped potential of the sector and initiate measures for all round improvement, in airports, air navigation, cargo, general aviation and human resource development.

4. STATEMENT OF THE PROBLEM

Passengers' satisfaction is one of the greatest assets for aviation industry in today's competitive environment. This research paper is related to the service quality and passenger satisfaction in the airline because it is one of the best models for evaluating passengers' expectations and perceptions. Service quality can be defined as a consumers' overall impression of the relative efficiency of the organisation and its services. A number of studies have conducted in service quality related theories and methods in the aviation industry.

During the last few years a variety of in-flight product innovations have entered into the market which includes the aircraft seat on long haul flights, as an important product element which is continuously being improved and renewed according to its life cycle and changing customer requirements. Conversely, most previous airline service studies have relied mainly on passenger satisfaction and service quality to describe passenger evaluation of services and have focussed on the effect of airline service quality at the aggregate construct level. In this competitive age, the success of Airlines is very much dependent on the passenger service provided at all levels, after and during the journey to make their passenger satisfied. Although, examining the effect of individual dimensions of service attributes has potentially great utility for airline managers, the effects of individual dimensions of airline service quality has not been fully investigated in previous airline service studies. In addition, the findings would enhance the aviation industry to improve their customer relations management as well as their brand loyalty.

5. OBJECTIVES OF THE STUDY

- To investigate the passengers' satisfaction on service quality of selected airlines in India.
- To ascertain the relationship between fare and customer satisfaction.
- To explore the level of passengers' satisfaction with the service quality on Indian airlines in terms of three dimensions of service quality instrument i.e., in-flight services, in-flight digital services and back-office operations.
- To compare the financial performance of selected airlines.

6. HYPOTHESES

(A). H0: Service quality has no influence over the customers' decision regarding choosing the airlines to travel.

H1: Service quality has a positive influence over the customers' decision regarding choosing the airlines to travel.

(B). H0: Fare Price has no influence over the customer's decision regarding choosing the airline to travel.

H1: Fare Price has a positive influence over the customer's decision regarding choosing the airline to travel.

7. RESEARCH METHODOLOGY

7.1. Research Design- The research work is empirical in nature. This research design is going to be followed as plan or blueprint for the investigation.

7.2. Sources of Data- This research paper is based on both Secondary and Primary data.

7.2.1. Secondary data

For this purpose of analysis of Passengers' perception of service quality in selected airlines, secondary data has been analysed. The sources of such data are websites, bulletins and other published records of airlines like annual reports, periodicals & newsletters etc.

7.2.2. Primary data

Primary data has also been collected by selected respondents. A survey has been conducted through structured questionnaire, personal interviews and observations etc. from the randomly selected passengers of public as well as private sector Airlines.

7.3. Sample Size, Sample Area & Type- The universe for this study includes the passengers of Indian Airlines including both public as well as private sector Airlines but sampling frame for the study is within NCR and Non-NCR region. Convenience sampling has been used to collect information of the respondents and the sample size for this study is 750 i.e., 250 each from Air India, Spice Jet and Jet Airways respectively, but sample members have been selected on the basis of various categories such as Gender, Age, Area, Occupation and Average Monthly Income of target population.

7.4. Tools for Hypotheses testing- After giving interpretation of the data, Hypotheses has been tested through the use of various statistical tools and latest version of software of Statistical Package for Social Sciences (SPSS).

7.6. DATA ANALYSIS AND INTERPRETATION

7.6.1. For this study attributes for the demographic variables are classified as under:

Table.1. Showing General Profile of the Respondents

Particular	Classification	No. of Respondents	Percentage (%)
Gender	Male	430	59.72
	Female	290	40.28
	Total	720	100
Age	Less than 25 years	105	14.58
	26 - 50 years	291	40.42
	51 - 75 years	210	29.17
	Above 75 years	114	15.83
	Total	720	100
Area	NCR	405	56.25
	NON-NCR	315	43.75
	Total	720	100
Educational Qualification	Upto HSC	25	3.47
	Graduate	174	24.17
	Post Graduate	329	45.69
	Professional	192	26.67
	Total	720	100
Occupational Status	Salaried	108	15
	Self-employed	294	40.83
	Professional	207	28.75
	Anny Other	111	15.42
	Total	720	100
Monthly Income	Less than50000	93	12.92
	50001-100000	219	30.42
	100001-150000	275	38.19
	Above 150000	133	18.47
	Total	720	100

(**Source:** Collected from Primary Data)

Interpretation: Out of the 750 respondents taken for the study, from which only 720 respondents replied, 59.72% of the respondents are male, 40.42% of the respondents belong to the age-group of 26-50 years, and 56.25% belong to NCR. In educational qualification, 45.69% of the respondents are post graduate and 40.83% of the respondents are self-employed whose monthly income ranging between 100001-150000.

Table.2 ANOVA Showing Relationship Between The Personal Factors And Satisfaction Towards Services Provided By Selected Airlines

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	182.425	2	91.212	63.931	.000
Within Groups	1022.963	717	1.427		
Total	1205.388	719			

Interpretation: It is observed from the above table (2) that the calculated F-ratio value is 63.931 which are higher than the table value of **4.6052** at 1% level of significance. Since, the calculated value is higher than the table value, it is inferred that the satisfaction scores differ significantly among the frequency of travel. Hence, the null hypothesis is rejected.

7.6.2. DATA ANALYSIS OF INCOME AND FINANCIAL STATEMENTS

Table.3. Showing Income Statement Of Selected Airlines

(A) SpiceJet Ltd. **(Amount in 10 crore)**

Year	Total Revenue	Total Expenses	EBITDA	Profit/Loss for the Year
2010-11	29.64	28.16	(1.48)	1.01
2011-12	40.19	45.42	(5.23)	6.06
2012-13	57.62	57.97	(0.35)	1.91
2013-14	63.99	71.55	(7.57)	10.03
2014-15	53.82	58.60	(4.78)	6.87

(**Source:** Annual report of SpiceJet Ltd.)

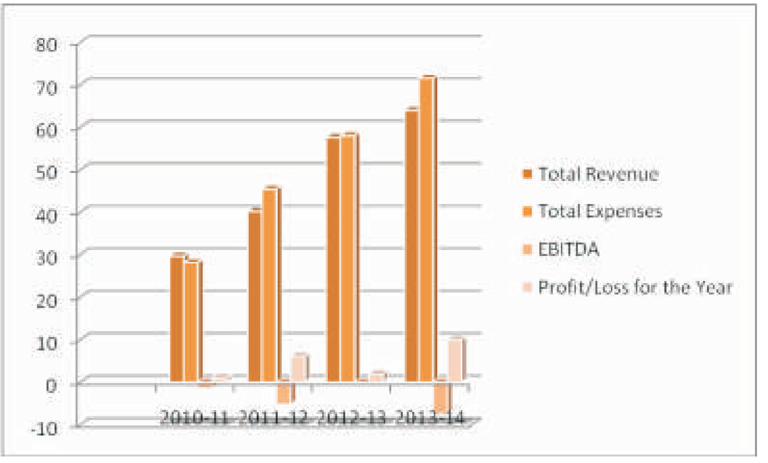

Fig.1

Interpretation: It is observed from the above table and figure that during last five years the income statement of SpiceJet Ltd is fluctuating.

(b) Air India **(Amount in 10 crore)**

Year	Total Revenue	Total Expenses	EBITDA	Profit/Loss for the Year
2010-11	1425.51	1799.59	-374.08	3.3
2011-12	29.52	40.99	-11.47	11.47
2012-13	28.11	40.45	-13.34	11.33
2013-14	10.18	9.93	0.25	0.25
2014-15	N/A	N/A	N/A	N/A

(**Source:** Annual report of Air India)

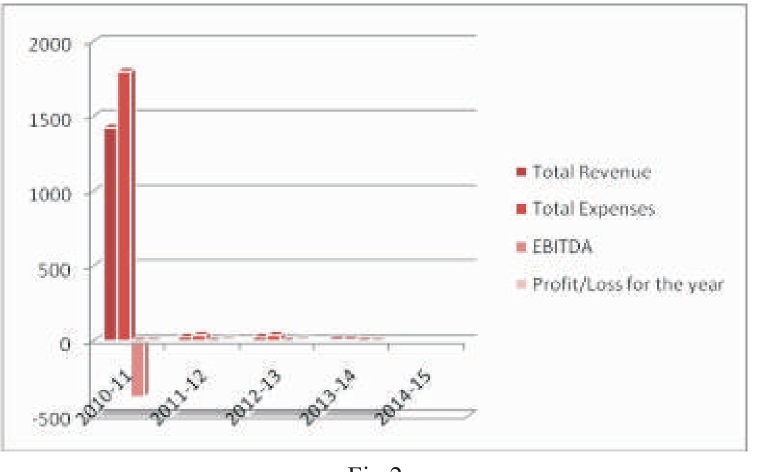

Fig.2

Interpretation: It is observed from the above table and figure that during last four years the income statement of Air India is fluctuating.

(c) Jet Airways **(Amount in 10 crore)**

Year	Total Revenue	Total Expenses	EBITDA	Profit/Loss for the Year
2010-11	1295.1	1307.48	-12.38	71.93
2011-12	1517.31	1650.16	-132.85	123.61
2012-13	57.62	57.97	-0.35	1.91
2013-14	63.99	71.55	-7.56	100.03
2014-15	2028.07	2133.59	-105.52	181.37

(**Source:** Annual report of Jet Airways)

Fig.3

Interpretation: It is observed from the above table and figure that during last four years the income statement of Jet Airways.

Table.4.Showing Abstract of Financial Performance of Selected Airlines

(a). SPICE JET LTD (i) Equity and Liabilities **(Amount in 10 crore)**

Year	Shareholders' Fund	Non-current Liabilities	Current Liabilities
2010-11	3.21	0.31	7.63
2011-12	1.53	7.44	13.74
2012-13	2.24	15.64	17.31
2013-14	99.44	1391.78	2549.71
2014-15	1264.52	1328.79	25.42

(**Source:** Annual report of SpiceJet Ltd.)

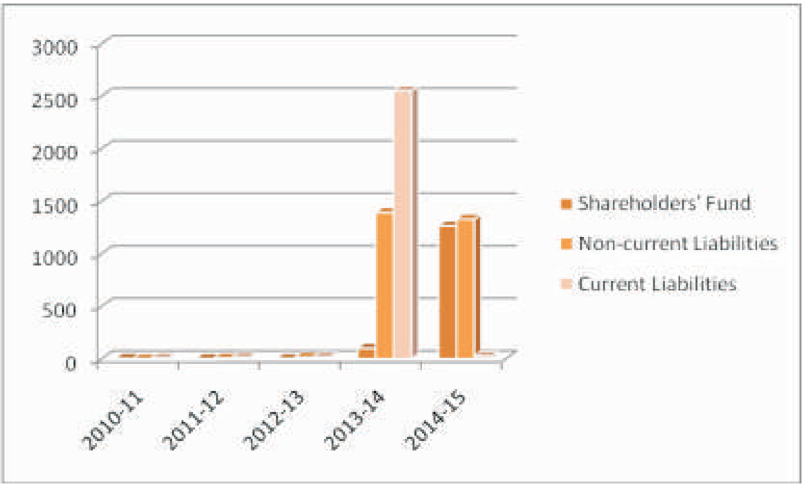

Fig.4

Interpretation: It is observed from the above table and figure that the equity and liabilities of Spice Jet Ltd. are fluctuating.

(ii) Assets **(Amount in 10 crore)**

Year	Fixed Assets (including non-current Assets)	Current Assets
2010-11	8.28	2.87
2011-12	15.36	7.35
2012-13	22.85	12.34
2013-14	2477.44	1563.49
2014-15	1979.71	639.02

(**Source:** Annual report of SpiceJet Ltd.)

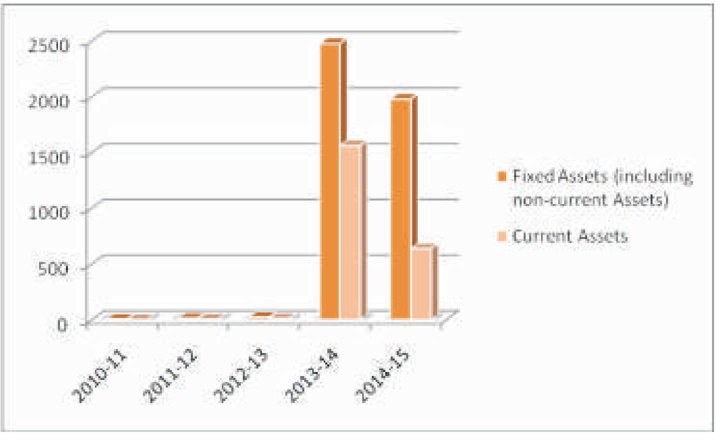

Fig.5

Interpretation: It is observed from the above table and figure that the Assets of Spice Jet Ltd. are fluctuating.

(b) AIR INDIA

(i) Equity and Liabilities **(Amount in 10 crore)**

Year	Shareholders' Fund	Non-current Liabilities	Current Liabilities
2010-11	20.22	1890.57	3212.43
2011-12	-69.54	8	71.35
2012-13	-82.88	7.36	86.7
2013-14	-0.02	0.19	1.75
2014-15	N/A	N/A	N/A

(**Source:** Annual report of Air India)

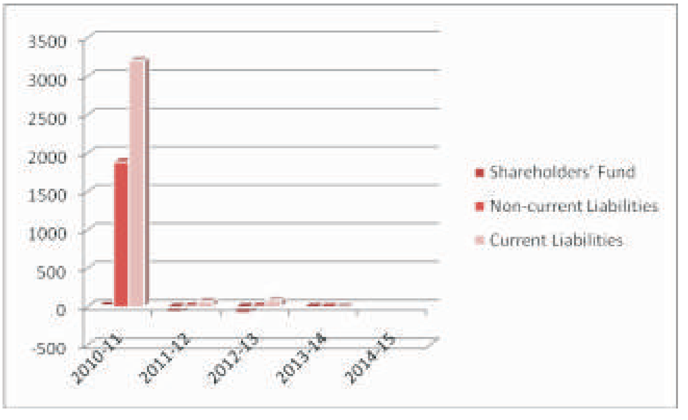

Fig.6

Interpretation: It is observed from the above table and figure that the equity and liabilities of Air India are fluctuating.

(ii) Assets **(Amount in 10 crore)**

Year	Fixed Assets (including non-current Assets)	Current Assets
2010-11	3279.06	1844.16
2011-12	0.11	9.7
2012-13	0.05	11.13
2013-14	0.001	1.919
2014-15	N/A	N/A

(**Source:** Annual report of SpiceJet Ltd.)

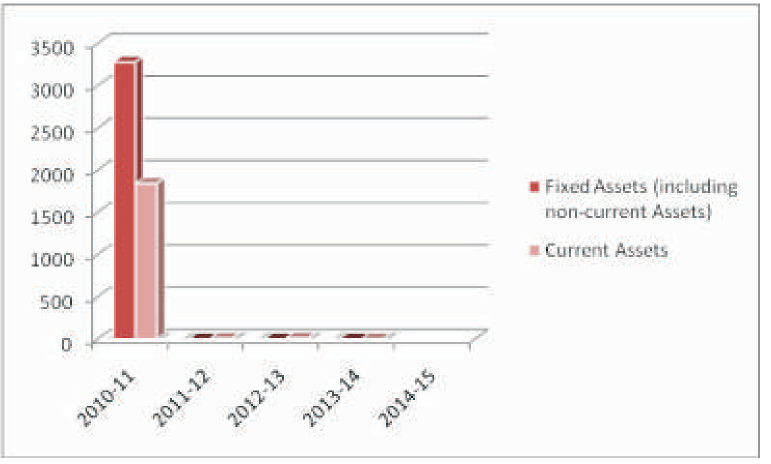

Fig.7

Interpretation: It is observed from the above table that and figure the Assets of Air India are fluctuating.

(c) JET AIRWAYS

(i) Equity and Liabilities **(Amount in 10 crore)**

Year	Shareholders' Fund	Non-current Liabilities	Current Liabilities
2010-11	260.43	920.8	887.5
2011-12	132.18	929.47	1040.36
2012-13	34.25	735.87	1173.83
2013-14	222.78	712.53	1347.16
2014-15	-404.03	800.36	1493.59

(**Source:** Annual report of Jet Airways)

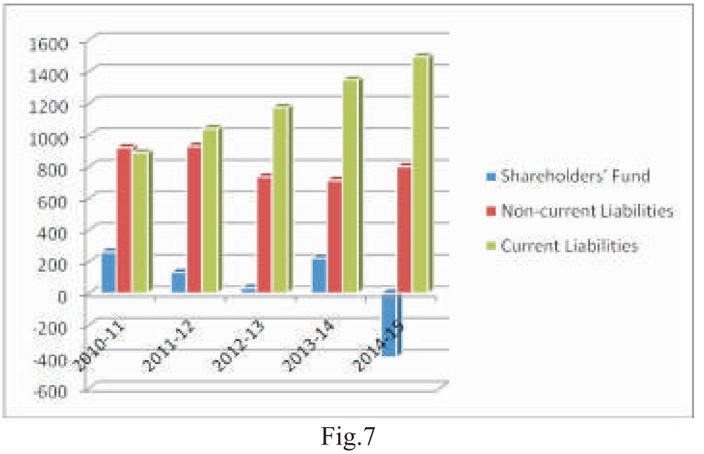

Fig.7

Interpretation: It is observed from the above table and figure that the equity and liabilities of Jet Airways are fluctuating.

(ii) Assets **(Amount in 10 crore)**

Year	Fixed Assets (including non-current Assets)	Current Assets
2010-11	387.64	1681.09
2011-12	382.51	1719.50
2012-13	392.38	1551.57
2013-14	473.96	1808.51
2014-15	414.57	1470.35

(**Source:** Annual report of Jet Airways)

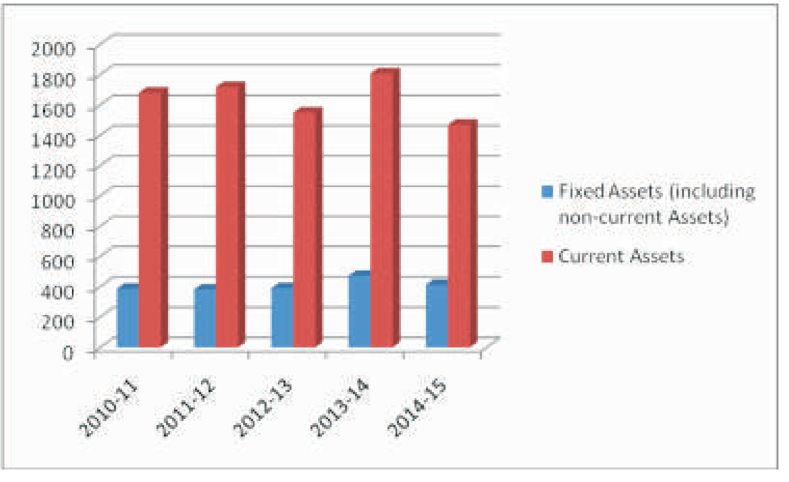

Fig.8

Interpretation: It is observed from the above table and figure that the Assets of Jet Airways are fluctuating.

7.7. FINDINGS

- The results from this research imply a need for airlines to develop passenger's focused services that raise the level of passenger satisfaction.
- This research also shows that passenger satisfaction and airline's image are each found to have a direct effect on passengers' behaviourial intention.
- The passengers always look for an airline which provides good and quality service.
- The passengers' opinion towards service quality factor such as tangibility, responsiveness, reliability, assurance and empathy, their mean rating lies

between agree and strongly disagree.

- The passengers' are highly satisfied with the service quality of Spice Jet Airlines.
- This research identified that price and service quality are the two important factors which have a great impact on passengers' satisfaction in aviation industry.
- This research also found that Spice Jet Ltd. has the best airlines quality service among the other airlines.

7.8. CONCLUSIONS

Satisfying passengers' is the main motto of aviation industry. Price and service quality affects the passengers' satisfaction. In this study, passengers are satisfied with the service quality delivered in-flight service, in-flight digital service and back-office operations. The purpose of this study was to investigate the impact of the in-flight service quality on passengers' satisfaction. According to their opinion towards service quality factors such as tangibility, responsiveness, reliability, assurance and empathy their mean rating lies between agree and strongly disagree. Likewise, satisfaction score high regards the service provided at the airport and in the cabin. From the Income Statements of selected Airlines, it is observed that the profits during the last five years have been fluctuating of Spice Jet Ltd and Jet Airways in comparison to Air India. Cash Flow from operating activities of Jet Airways has been increased in comparison to Spice and Air India but on the other hand Cash flow from investing activities of Spice Jet Ltd has been increased during 2014-15, in comparison to Air India and Jet Airways. Cash flow from Financing Activities of Spice Jet Ltd and Jet airways has been increased in comparison to Air India. Finally, the financial position of Spice Jet and Jet Airways is strong in comparison to Air India. It is observed as per press release dated 7 September, 2016 by Spice Jet, It reported a net profit of Rs. 149 Crore for Q1 in FY17 as against Rs. 73 crore for the same quarter last year, an improvement of 104%. Capacity deployed register a growth of 37% over the same quarter last year and operating revenue was Rs. 1522 crores, a growth of 37%. On an EBITDA basis, Spice Jet reported a profit of Rs. 215 crore at 14% EBITDA margin. On EBITDAR basis, the company reported a profit of Rs. 474 crore, a margin of 31%. Profits for the quarter were adversely by rupee depreciation, inflation and the presence of more extensive wet lease aircraft. However, profits outperformed capacity and revenue growth rates. This is the sixth consecutive profitable quarter for Spice Jet after the challenges faced by the Company in December, 2014 and the change in management and control. The airline recorded a passenger load factor of 92.5% in Q1, the highest in the industry. Passenger load factor has been in excess of 90% in every month since April 2015. Operating performance showed improvement with industry leading On Time Performance and low cancellation rates for Spice Jet flights.

7.9. LIMITATIONS

- There is no way to identify the target population in this study and hence scientifically random sample size has been taken.
- The sample size was of only 750 out of which only 720 respondents replied from the large population for the purpose of study, so there may be difference between results of sample from total population.
- Respondents may be reluctant to go in to details because of their busy schedule.
- Due to continuous change in environment, what is relevant today may be irrelevant tomorrow.
- Due to privacy maintenance of a customer, airlines are unable to provide the data.

In spite of the above limitations, a sincere effort has been made to minimize them so that the research study might be useful and effective.

7.10. FUTURE RESEARCH

The future research may attempt to study the various other variables such as service characteristics, level of service access, complaint handling, organizational culture, information technology and many more that were not included. The future work can be enhanced by using the extended parametric tests or statistical tools. Other national and international airlines may also be considered for further study. Lastly, an longitudinal study can be undertaken to discover more precise role of various dimensions in affecting service quality and financial performance of airlines.

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IMPACT OF IDEOLOGY OF SIKHISM ON ENVIRONMENT PROTECTION LAW IN INDIA

Dr. Gagandeep Kaur*

ABSTRACT

Vedas, Dharma-Shastra and Granths are universally acknowledged to be the most precious Indian heritage. The Vedic hymns, mantras, shlokas and shabads are full of virtue, ideas, nature-worship expressions, wisdom and spiritual cosmology. The Vedic views revolve around the blessings of God, praise of nature and beauty of cosmos. In the21st century environmental science, environment protection and ecology are disciplines of modern science under which study of the environment and its constituents is done with the assistance of novice equipment. However, the origin of the concept of conservation of nature can be seen long back in the Vedic and ancient Sanskrit literature. Any human soul can enter into the deep ocean of Dharma, Granths and Vedas to collect pearls. In this article environment issues are discussed from the perspective of Sikhism. The Sikh scripture, Shri Guru Granth Sahib Ji declares that the basic objective of mankind is to achieve a blissful state of soul and mind. This bliss can be attained when there is harmony with the earth and nature created by God. Sikh Gurus showed the world the way to live in harmony with nature. The importance of Air, Water, Earth and Greenery to life is very beautifully emphasised in Sikh Gurbani. It is clearly mentioned that Air, water earth and sky are God's home and temple - sacred places which need to be protected and looked after. The Sikh Gurus built many Gurudwaras surrounded by large pools which supported marine life, especially fish and decorated with trees. This is clearly a sign to live in harmony with nature in the lap of God's creation. This article is focused on two important issues namely: (a) the relevance of environment under Sikh scriptures; and (b) the recognition of Sikh ideology in the Indian legal jurisprudence for the protection of the environment.

Key Words: Sikhism, Environment Protection, Shri Guru Granth Sahib Ji

1. INTRODUCTION:

"God has, in fact, written two books, not just one. Of course, we are all familiar with the first book he wrote, namely Scripture. But he has written a second book called creation."

FRANCIS BACON

Man did not weave the web of life; he is merely a strand in it. Whatever he does to the web, he does to himself. The earth is comprised of interrelated

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[1]Justice T.S. Doabia, *Environmental and Pollution Laws in India*, Lexis Nexis Butterworths Wadhwa, Nagpur, New Delhi, 2010, pp. 1-10.

[2]Steven Ferrey, *Environmental Law*, Wolters Kluwer Law and Business, United States, 2013, p. 1.

ecosystems. The rationale for the environmental law is to restore, preserve, and protect natural systems working throughout the atmosphere, the hydrosphere and the lithosphere. There are related cycles involving solar radiation, water, carbon, oxygen, nitrogen, phosphorus, and Sulphur. Disturbance in any of these systems disturbs other parts of the cycle or other systems.Now a day, our environment is within the twin pressures of population and development, resulting in deterioration and depletion of the natural resources at an alarmingly fast rate. Besides the traditional pollutants, the strain of unchecked effluents and emission from hazardous industries has caused pollution to the environment and human health. The reckless industrial growth may lead to an over-exploitation and destruction of natural resources to such an extent that future generations may discover that life support system has been damaged beyond repair.E.F. Schumacher, the author of poem Small Is Beautiful, said, "We are at the war with nature and if by chance we win the war, we shall be the loser."The "need" for mankind is the sole criterion to safeguard the natural resources and to maintain the quality of life. The Stockholm Declaration of 1972, Rio Declaration of 1992, Johannesburg Declaration of 2002 and Rio Declaration of 2012focus on the "preservation of human being and environment surrounded by them". These international declarations have been accepted and followed by the courts in many landmark cases like M.C. Mehta v. Kamal Nath, Taj Trapezium Case, Vellore Citizens' Welfare Forum v. Union of India and Oleum Gas Leakage case etc. In these cases the Supreme Court has explained the anthropocentric approach. Anthropocentrism considers humans to be the most important factor and value in the universe and states that humans have greater intrinsic value than other species. The focus of this article is to highlight the fact that all these abovementioned International declarations, views of anthropocentric and dictum of judges are ajustreflection of everything mentioned in our Vedas-Granthas and Shastras. We, the human beings are away from our roots that are Dharma. The author portrays the ideology of Sikhism which clearly reflects the relevance of humanity, peace and preservation of nature in this universe.

2. SIKHISM ON THE ENVIRONMENT PROTECTION:

"What is environment"? The answer to this is to reformulate the question as to "What does not amount to the environment?" The Mother Earth on which we spend our life span and ultimately mingle with its dust, the water, which cleans everything including humans internally and externally, the air without which no life can survive are all elements, which fall within the term environment. Shri Guru

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[3]Dharmendra S. Sengar, *Environmental Law*, PHI Learning Private Limited, Delhi, 2007, Preface.

[4]A.R. Agwan, "Towards an Ecological Consciousness", ***American Journal of Islamic Social Sciences***, 10.2, [S]ummer, 1993, p. 238.

[5](1997) 1 SCC 388.

[6]M.C. Mehta (Taj Trapezium Matter) v. Union of India (1997) 2 SCC 353.

[7](1996) 5 SCC 647.

[8]AIR 1987 SC 1086.

[9]S.C. Shastri, *Environmental Law*, Eastern Book Company, Lucknow, 2015, p. 13.

Nanak Dev Ji, the founder of Sikh religion assigned divine attributes to nature. According to Sikhism people should respect God's creations and know the eternal truth regarding their place in the universe. The human race is an integral part of nature and linked to the rest of creation by indissoluble bonds. Shri Guru Granth Sahib Jipro claims the glory of God in nature and the environment. Sikhism believes that the universe is created by the Almighty God. A balance between all the elements of natureis necessary for the continuation of the universe. Any disruption in balance brings distress and disaster. Sikhism teaches that the natural environment and the survival of all life forms are closely linked in the rhythm of nature. The history of the gurus contains many stories of their love and special relationship with the natural environment, animals, birds, vegetation, earth, rivers, mountains and the sky. The glory of these natural assets is very beautifully highlighted in Sikh Gurbani as follows:

PAVAN GURU, PANI PITA, MATADHARATMAHAT

DIVAS RA-TDUIDA-I DA-YA,KHELAISAGALJAGAT…

"Air is our Guru, water our father, and great earth is our mother;Day and night are the male and female nurses, in whose lap the whole world plays…"

Growing up as a Sikh child, these were some of the first lines from Gurbani, Sikh sacred verse, which became familiar to me, signalling the close of 'Jap Ji Sahib', our early morning prayer. It expresses the state of being a child of the universe by representing nature and elements of nature as Guru or Father and Earth as a mother- all elements which nurse us in our infancy and nurture our growing bodies, minds and spirits. The quality of Air as Guru, Water and Earth, Father and Mother lies in the fact that these bring forth and sustain new life; the air too sustains us and transmits to us the Guru's sacred words, which are capable of transforming us. The focus is harmony with the eternal God.

In Sikh religion, according to the *Sri Guru Granth Ji*, the word-*Guru* (spiritual teacher) of the Sikhs, God resides in creation. The exact term used in the very first line of SGGJ is *Karta-Purukh* meaning that one God is the Creator of the Universe. Therefore, Sikhs believe that visible form of God is nature or the environment itself, similar to the concept of mind and matter. *Sarbat da Bhalla*[2] meaning 'prosperity and peace for everything in the world' is a statement that a Sikh utters at least two times a day, on completing the morning and evening prayers.[3] This "everything" includes all the living and non-living as well as visible and invisible

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[10]Retrieved fromhttp://shodhganga.inflibnet.ac.in/bitstream/10603/73994/11/11_chapter%204.pdf visited on 26 October, 2016.

[11]Gopinder Kaur, retrieved from:http://www.shapworkingparty.org.uk/journals/articles_0809/kaur.pdfvisited on 27 October, 2016.

[12]Retrieved from< http://www.sikhfoundation.org/featured/sustainable-development-of-environment-evidence-from-sikh-religion/Home, visited on 27 November 2016.

[13]Dr. Charan Singh, Sikh Research Journal, The online peer-reviewed Journal of Sikh Studies and Punjabi Language Studies, Vol. 1 , No. 4, Retrieved from:http://www.sikhfoundation.org/sikh-research-journal/ visited on 26 November, 2016.

things in the universe. In Sikh's Holy Scripture, Sri Guru Granth Sahib, panchtattva are named as ap (water), tej (fire), vaaye (air), pirthmi (earth) and akash (aether). Gurbani describes that all these elements were created from the primal void by the creator. All the creation (including ahuman being) is made up of these five basic elements. Upon death, the human body dissolves into these elements, balancing the cycle of nature.

In addition to the abovementioned one of the most remarkable reflections of praise of environment is portrayedfrom the Sikh Arti that is as follows:

Gaganmeinthaalravchanddeepak bane

Tarkamandaljanakmoti

Dhoopmalaanlopawanchavarokare

Sagalbanraiphoolantjyoti

Kaisiaarti hove bhavkhandnateriaarti….

The Sky is platter, the Sun and Moon is the 'Deepak' the lamps (lights), the Stars in the sky are the pearls, the 'Dhoop' (Incense) is the fragrance, that the wind propels, the whole forest is flowers. What a wonderful Arti this is in the praise of creation of this nature. The tenth Guru founded the Order of the Khalsa in 1699, which practice the spiritual discipline of Sikhism, and are committed to ensuring the preservation and prevalence of a world society. Over the last three centuries, the members of Khalsa order have stood up for the rights of the oppressed and the disenfranchised even at the cost of their own lives. The Khalsa vision of the World Society is:

"Henceforth such is the Will of God: No man shall coerce another; No person shall exploit another. Each individual has the inalienable birth-right to seek and pursue happiness and self-fulfillment. Love and persuasion is the only law of social coherence."(Guru Granth Sahib, page 74)The ideology of Sikhism is based upon mutual respect, co-operation and providing an optimal atmosphere for individuals to grow spiritually. Sikhism regards a co-operative society as the only truly religious society. As the Sikh view of life and society is grounded in the worth of every individual as a microcosm of God.

ACCORDING TO ANOTHER GURBANIVERSE:

Jo antar so baahardaykhhuavarnadoojaako-eejee-o: Sikhism believes that the material world and its phenomena (Nature), like all creation, is a manifestation of God. Every creature in this world, every plant, every form is a manifestation of the Creator. Each is part of God and God is within each element of creation. God is

[14]Retrieved from http://mothandtheflame.blogspot.in/2007/12/aarti-in-sikhism_03.html> visited on 27 November, 2016.

[15]Rajwant Singh, "Sikhism and Caring for the Environment in Practice, retrieved from http://www.ecosikh.org/wp-content/uploads/2011/09/Sikhism-and-Caring-for-the-Environment-in-Practice.pdf visited on 28 October, 2016.

the cause of all and He is the primary connection between all existences. In addition to the seabove-mentionedverses overall theme also revolves around humanity, peace and mutual respect of each other.

3. INDIAN JURISPRUDENCE ON ENVIRONMENT PROTECTION:

"The glories of the rising or setting sun, the magnificent spectacles of the boundless ocean, sometimes so grand in its peaceful tranquility, at others so majestic in its mighty power, the forests agitated by the storm or alive with the song of birds; the glaciers and mountains are events which cannot be forgotten. The love of nature is a great gift and if it is frozen or crushed out, the mankind can hardly fail to suffer the loss."**Sir John Lubbock**

The India Constitution, as adopted in 1950, did not deal with the subject of environment or prevention and control of pollution as such until 1976. The original text of the Constitution under Article 372(1) has incorporated the earlier existing laws into the present legal system and provides that notwithstanding the repeal by this Constitution of enactments referred to in Article 395, but subject to other provisions of the Constitution, all laws in force immediately before the commencement of the Constitution shall remain in force until altered, repealed or amended by a competent legislature or other competent authority. As a result, even after five decades of independence, the plethora of such laws is still in operation without any significant change in them. The post-independence era, until 1970, did not see much legislative activity in the fields of environmental protection. Some of there levant legislations are: The Factories Act of 1948 required all factories to make effective arrangements for waste disposal and empowered State Governments to frame rules implementing this directive. Under the River Boards Act of 1956, River Boards are empowered to prevent water pollution of inter-state rivers. To prevent cruelty to animals, the Prevention of Cruelty to Animals Act was framed in 1960. Some States took initiative in the fields of environmental protection, viz., Orissa River Pollution Prevention Act, 1953, and, Maharashtra Prevention of Water Pollution Act, 1969. While the Orissa Act was confined only to rivers, the Maharashtra Act extended to rivers, watercourses, whether flowing or for the time being dry, inland water both natural and artificial, and subterranean streams. Thus, there were scattered provisions for checking pollution of air, water, etc., but there was no unified effort in developing any policy concerning the pollution emanating from these areas. This position went up to the seventies. Meanwhile, concern arose over, inter-alia, population increase, greater pollution levels; human impact on animal populations and natural landscapes and other aspects of resource depletion. It was the Stockholm Declaration of 1972 which turned the attention of the Indian Government to the broarder perspective of environmental protection. The government made its stand well known through five-year plans as well as the

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[16]Sukanta K. Nanda, *Environmental Law*, Central Law Publications, Allahabad, 2009, p. 50-59.
[17]P. Leelakrishnan, *Environmental Law Case Book*, Lexis Nexis Butterworths, Nagpur, 2006, p. 246.

legislations enacted subsequently to curb and control environmental pollution. After 1970, comprehensive (special) environmental laws were enacted by the Central Government in India. The Wildlife (Protection) Act, 1972, aimed at rational and modern wild-life management. The Water (Prevention and Control of Pollution) Act, 1974, provides for the establishment of pollution control boards at Centre and States to act as watchdogs for prevention and control of pollution. The Forest(Conservation) Act, 1980 aimed to check deforestation, diversion of forest land for non-forestry purposes, and to promote social forestry. The Air(Prevention and Control of Pollution) Act 1981, aimed at checking air pollution via pollution control boards. The Environment (Protection) Act, 1986 is a landmark legislation which provides for single focus in the country for the protection of the environment and aims at plugging the loopholes in existing legislation. It provides mainly for pollution control, with stringent penalties for violations. The National Environment Tribunals Act, 1995, was formulated in view of the fact that civil courts litigations take a long time (as happened in Bhopal case). The Act provides for speedy disposal of environmental-related cases through environmental tribunals. The Biological Diversity Act, 2002, is a major legislation intervention affected in the name of the communities supposed to be involved in the protection of biodiversity around them. The Act intends to facilitate access to genetic materials while protecting the traditional knowledge associated with them.

In addition to legislations framework, the need to protectour environment has also been felt by the Supreme Court of India. The apex court interpreted Article 21 of the Constitution of India declaring that 'right to life' also includes the right to environment. The relevance of environment has been reflected in several legal texts. The Indian Constitution is amongst the few in the world that certain specific provisions on environment protection. The Directive Principles of State policy and the fundamental duties explicitly enunciate the national commitment to protect and improve the environment. To anecologist, a balance between laws and values is very important to ensure a stable relationship between humans and environment.

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[18]Under this Act, four benches of the tribunal will be set up in Delhi, Calcutta, Madras and Bombay and 8,000 of the most Hazardous industrial units in the country will be brought under its security. The National Environment Appellate Authority Act, 1997, provides for the established of a National Environment Appellant Authority to hear appeals with respect to restriction in areas in which any industries, operations or processes shall not be carried out or shall be carried out subject to certain safeguards under the Environment (Protection) Act, 1986.

[19]Retrieved from http://shodhganga.inflibnet.ac.in/bitstream/10603/6565/9/09_chapter%204.pdf visited on 25 October, 2016.

[20] P.B. Sahasranaman, *Handbook of Environmental Law*, Oxford University Press, New Delhi, 2012, p. 1.

21 Article 21 of the Constitution is a fundamental right which reads as follows:
"No person shall be deprived of his life or personal liberty except according to procedure established by law."

[22]The Directive Principles of State Policy are the guidelines or principles given to the central and state governments of India, to be kept in mind while framing laws and policies. These provisions, contained in Part IV of the Constitution of India, are not enforceable by any court, but the principles laid down therein are considered fundamental in the governance of the country, making it the duty of the State to apply these principles in making laws to establish a just society in the country. Article 48-A, which ensures Protection and improvement of environment and safeguarding of forests and wild life, was added by the 42nd Amendment Act, 1976.

[23]Environmental protection is a fundamental duty of every citizen of this country under Article 51-A (g) of our Constitution which reads as follows:"It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures."

4. CONCLUSION

Man's paradise is on earth. The living world is a beloved place of all. It has Blessings of nature's bounties, love in lovely spirit.

ATHARVA VEDA

It is observed by the author that Sikh philosophy emphasised on the protection of natural gift of God given to us, however, the earth has been over exploited by human beings. Water has been contaminated with all conceivable pollutants. Air has been fouled with visible and invisible gaseous substances and suspended particulates. The gifts of nature are meant for all of theuse under the concept of "Public trust". These gifts are meant not only for the present generations but are meant for future generation as the concept of "inter-generational equity" has been evolved. Human beings are at the centre of all developments but these developments should not be at the cost of environment. The concept of Sustainable development, Precautionary and Polluters pay principle has become part and parcel of Indian Jurisprudence. In India, a long list of legislations cannot make the dream of "Swatch Bharat a reality" because this dream can become a reality when we are sensitised with the relevance of environment. The man is both creator and moulder of his environment, which gives him physical sustenance and affords him the opportunity of intellectual, moral, social and spiritual growth.

In the long evolution of the human race on this planet, a stage has been reached when, through the rapid acceleration of science and technology, man has acquired the power to transform his environment. The time has come when indifference and ignorance regarding nature will disturb the harmony of mankind with the environment. Therefore, it must be remembered that the ground beneath our feet contains the ashes of our ancestors. Whatever befalls the earth befalls our children. This earth is precious. The earth does not belong to man; man belongs to the earth. If a man spits upon the earth, they spit upon themselves. This earth is precious to God and to harm the earth is to heap contempt on its creator…Contaminate your bed and you will one night suffocate in your own waste. Our forefathers were used to hearing the unfurling of leaves in spring or the rustle of an insect's wings. And what is there in life if a man cannot hear the lonely cry of the whippoorwill or the arguments of the frogs around a pond at night? Our ancestors preferred the soft sound of the wind darting over the face of a pond, and the smell of the wind itself, cleansed by a midday rain or scented with the pinion pine. The inner urge of the holy- scriptures to follow the set norms of the nature must motivate society to allow the natural objects to remain in the natural state. It is observed that Indian Environment Jurisprudence has well absorbed the preaching of Sikhism on environment protection.

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[24] S.C. Shastri, *Environmental Law*, Eastern Book Company, Lucknow, 2015, p. 1.

[25] Quoted in Sachidanand Pandey v. Sate of W.B. (1987) 2 SCC 295.

[26] Justice T.S. Doabia, Preface.

[27] Quoted in T.N. GodavarmanThirumalpad v. Union of India, (2002) 10 SCC 606.

LEADERSHIP STYLES IN ONGC

Rajesh Kumar*

INTRODUCTION

A management or the leadership is determined by the situation, the need and personality of his or her employees, and by the culture of the organization. Organization reconstructing and the accompanying cultural change has caused management style to come in and go out of fashion. There has been a more away from the authoritarian style of management in which control is a key of s concepts, to one that favors teamwork and empowerment. Management style that focus on managers as technical experts who directs and coordinate and control the work of the others have been replaced by those that focus on managers as coaches ,counselors ,facilitators and team leaders.

Successful management style involves building teams, networks of relationship and developing and motivating others,.There is a greater emphasis on participative management style and people management skills.

A consistent pattern of behavior, with quasi-constancy and predictability, can be called styles. Such a self consistency way of behaving has an underlying theory or inter connected networks of proportions explaining the pattern. It is well known that the success of any organization involved a rapid product realization depends on its management style- how to empower the PDT (Product Development Team) so that they are able to make good decisions appropriately and able to handle changes quickly (Hammer, 1990). Changes occur at all level in the organization , during people management (Stryer 1990 , Carroll,1997), product management (Gantenby and foo, 1990), process management (Schuster and carpenter et al, 1996) or during enterprise management (Garvin 1993).One or the greatest challenges in managing change in to figure out how to manage a PDT- get people to work with each other and as a part of concurrent team (hart shorn, 1997)for product development.

Many managers would like to swim through the current change, but they do not know what policy they need to follow to be successful .While others have realized that the currents are simply blowing too fast for any old style of management to withstand. Change are forcing companies to adapt to a more flexible management style and structures and empowerment and responsibilities are shifting from the usual vertical setting to the horizontal setting. The chain of command is shifting from tall silo structure (or Pyramid) to peer networks and cooperative teams. The three primary management style are (a) Directive management style (b) Supportive management style and (c) Constancy of purpose oriented management style. (Here the individual goals are targeted towards providing a constancy of purpose where goals are supportive of others goals.)s Management style and institutional dependency in sheltered care (article, 1979) was presented by S.P , Segal and E.W. Moyles two management style of management utilized by operators

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of california's alternative to the mental hospital the community based sheltered care facility have been identified. One study of management is characterized by a low structure laissez faire approach that places the responsibility for decision making with patient. The author examines patterns of client dependency in each type of facility.

An article by Phil Barmtt assesses that swedis management style over the last five and a half years . Eriksson has largely enjoyed an excellent rapport with his players. Some claim he has been too soft with the squad and has a tendency to pick the big name rather than the best player for the job.

Reconstructing the whole XI to accommodate both David beckham and S.W . Phillips, and also Sleven Gerrad and frank lampard are casesed in point. He reportedly sided with his players in the row following Rio Ferdinand"s drug test ban but commends he made to the 'Fake sheikh' about Ferdinand ,Owen, Beckham and Rooney threatened to damage relations, though the atmosphere in the training camp in Baden-Badan appeared to the convivial.

A research creates a question , how a management style a positive impact on performance productivity and profits ? In indicates that by using the most effective style for a particular situation or climate , a manager can improve employee moral and performance based on work begun at Harvard University by Psychologist Litwin and Stinger , they identified six management styles :

Coercive : emphasis on immediate compliance from employees .

Authoritative : emphasis on providing long term vision and leadership .

Affiliative: emphasis in creating harmony .

Democratic: emphasis on group consensus and generating new ideas.

Pacesetting: emphasis on accomplishing task to higher standards.

Coaching: emphasis on professional growth of employees.

Managers can and do draw on the six management style in their day to day interactions. Since a manager's behavior directly employee's motivation, it is essential that the manager understand the relationship between his /her style and work environment.

Analysis of management style as a governance mechanism in agency relationships when the lack of verifiable information restricts the contracting possibilities. Specifically, its investigates whether decision making should be supplemented by prior verification, and how these tasks should be organized, i.e. whether they should be delegated to an informed expert or not. The optimal organization designs to shown to depend no monotonically on the information technologies. More ever this study demonstrates how the nature of the expert's technological advantage influences the underlying tradeoff.

Oil and gas Corporation Limited (hereinafter referred to as "ONGC" or "the Company") is the leading Oil and Gas Company in hydrocarbons sector in India. It is engaged in the explorations and production of Oil, gas and other related petroleum products. The company was initially established as a commission in 1959 by an act of parliament with the objective of exploration, development, production and distribution of hydrocarbons in the country. ONGC came in existence in 1994 and all the assets and liabilities of the commission were transferred to the company. ONGC enjoys the status of Navratna PSU" meaning that the company has been granted autonomy in its decision making process.

The most important contribution of ONGC, however, is its self reliance and development of core competence in E&P activities at a global level.

Oil and Gas Corporation LTD (ONGC) is India's flagship synergy major. It is an Indian state enterprise integrating oil and gas production, refining ,power petrochemicals and new sources of energy .ONGC has scripted India's hydrocarbon saga by discovering six of the seven producing basins of India . Its vision is "To be a global leader integrated energy business through sustainable growth, knowledge excellence and exemplary governance practices."

In order to study the leadership style in ONGC a survey was conducted using a questionnaire developed by Sage Publication .The copies of questionnaire were given to 100 Executive Level employees at Tel Bhawan and 70 responses were received. The questionnaire is designed to measure three common styles of leadership Authoritarian, Democratic and Laissez faire, Out of eighteen items in questionnaire, six items each as explained below are aimed at judging the said three common styles of leadership. Items in Questionnaire for three common styles of leadership.

SCORING

Each item in questionnaire has 1 to 5 points on five point scale given below:

Strongly disagree	disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Scoring Interpretation

By comparing scores, it can be determined that which styles are most dominant and least dominant in one's styles of leadership are shown below :

Score 26-30 shows **Very High Range.**

Score 21-25 shows **High Range.**

Score 16-20 shows **Moderate Range.**

Score 11-15 shows **Low Range.**

Score 6-10 Shows **Very Low Range.**

FINDING OF SURVEY

The findings of survey are summarized in the table below.

LEADERSHIP STYLE

Type Range	Authoritarian Leadership	Democratic Leadership	Laissez-Faire Leadership
Very High	06(8.57)	12(17.14)	10(14.29)
High	06(8.57)	11(15.71)	08(11.43)
Moderate	14(20)	27(38.57)	10(14.28)
Low	18(25.71)	15(21.43)	21(30)
Very low	26(37.15)	05(7.15)	21(30)
Total	**70**	**70**	**70**

Note: Figures in parenthesis shows percentage in each category.

As evident in above table, the most dominant style found among employees of ONGC is 'Democratic Leadership' 71.42% (17.14 +15.71+38.57) employees are found to be in moderate and above category of Democratic style. The low and very low degree of Authoritarian style has been found in 62.86% (25.71+37.15) employees and similarly 60% (30+30) employees are found in the low and very low category of Laissez-faire Leadership. Thus "Democratic Leadership" is a dominant characteristic among the employees of ONGC.

CONCLUSION & SUGGESTIONS

The most dominate style found among employees of ONGC, as evident form table, is "Democratic Leadership" 71.42% employees are found to be in moderate and above category of Democratic Style. The low and very low degrees of Authoritarian Style has been found in 62.86% employees and similarly 60% employees are found in the low and very low category of Laissez faire Leadership. Thus, "Democratic Leadership" is a dominant characteristics among the employees of ONGC.

Thus the company is ready to touch new horizons of growth by resolutely focusing on its Oil and Gas Production Capabilities. It aims to explore newer avenues for a greener planet, excel in its exploratory endeavors and evolve into a complete energy solution provider. It is believed that the company will continue to achieve new horizons towards its strategic goals and objectives.

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AN INSIGHT INTO THE AVATARS OF LORD SHIVA

Dr. Nandini Singh*

INTRODUCTION

Lord Shiva and His avatars have always been revered by the Hindus, especially the Shaivites. In the Holy Trinity Lord Shiva, the Destroyer is the Great Balancer of the Universe. He has been portrayed in many forms and avatars.

Many paintings have been executed by innumerous painters with full sanctity and reverence even as many a times the avatars approach humans in different guise in order to test them out. Here are few names of the avatars of Lord Shiva.

AVATARS OF LORD SHIVA

- **HANUMAN AVATAR**: Lord Hanuman was born in the form of a monkey God to serve Lord Rama (Vishnu avatar) in His quest for the fight of Good over evil as He vanquished Ravana (EpicRamayan)
- **PIPLAD AVATAR**: has a very interesting legend, Lord Shiva as young Piplad was bornin the house of Sage Dadhichi. But as luck would have itDadhichi left home long before Piplad was born and it was believed that this happened under the influence of the curse of Shani dev. Piplad was angered and in turn cursed Shanidev, resulting Shanidev to fall from his celestial abode. After a lot of coaxing Piplad forgave Shanidevafter obtaining a promise from him that he would never trouble anyone before the age of sixteen and that is the reason people pray to the Piplad form of Lord Shiva as he helps rid Shani Dosh (curse due to planetary changes of Saturn).
- **NANDI AVATAR**: Nandi Baille is the vahan (mount) of Lord Shiva. The lord is also worshipped as Nandi in many parts of India, it is also believed that Lord Shiva is pleasedwhen before entering his shrine the devotees bow before Nandi who is the protector of herds. Depicted as bull headed with four hands. His two hands seen joined in namashkar while the other hold an axe and antelope.
- **VEERBHADRA AVATAR**: This is the fieriest form of Lord Shiva ever. Devi Sati self-immolatedafter her father Daksh disrespected her consort Lord Shiva, Shiva was livid with anger and danced the Tandava and while at it he plucked out a strand of his jata (hair) and dashed it to the ground that split into two, projecting Veerbhadra, the fierce avatar with allTrinetra (Three eyes) flaring in anger and Rudrakali.Veerbhadra is seen wearing a garland of skulls carrying cruel weapons. It was he who slashed off Dakksh's (father of Sati) head at the yagya ceremony.
- **ASHWATHAMA AVATAR**: during the churning of the ocean between the Devas and the Rakshas, Shiva had to consume the deadly poison as only He had the power to do so, but his 'Kanth' throat started burning and turned blue, just then a 'Vish (poison) purush' ejected from His throat. The Lord blessed him,

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granting the vishpurush a boon to be born to Acharya Drona and kill all the oppressive Kshatritas (Epic: Mahabharta) thus Vishpursha was born as Ashwathama.

- **SHARABHA AVATAR**: This avatar of Lord Shiva was born to tame the fierceNarasimbha avatar of Lord Vishnu. Sharabha avatar was half bird and half lion.
- **BHAIRAV AVATAR**: At a fight for supremacy Lord Shiva gave a task to Lord Brahma and Lord Vishnu to find the end of the stambh (pillar) that shot out fromthe earth. Lord Vishnu sped downwards towards the core of the earth whereas Lord Brahma surged upwards thousands of years passed to no result so Lord Brahma decided to lie about his success and asked the Ketki flower (earlier always used for religious purposes, also called the 'Temple Flower') to be his alibi, to which Ketki complied. Lord Shiva was livid with anger and took an avatar of Bhairav and severed the fifth head of Brahma and expelled Ketki from all religious ceremonies, never ever to be used as an offering. Later as a repentance for 'BrahaminHatya' (killing of a Brahmin) Shiva as Bhikshatana had to carry the skull of Brahma for twelve years, guarding all Shaktipeeths.
- **GRIHAPATI AVATAR**: Lord Shiva was born to a Brahmin called Vishwanar who named Him Grihapati. Saint Narada prophesied that the child who was then nine years of age would die soon so Grihapati went on a pilgrimage to Kashi to conquer His death going through a tough penance. Lord Shiva was pleased and was blessed by the Lord with a long life.
- **DURVASA:**The sage known for his being highly temperamental and quick to flare in an unabated wrath. This avatar of Lord Shiva was born to discipline the Universe.
- **RISHABH AVATAR**: Once Lord Vishnu went to the underworld of PatalLok (abode of the demons) and was attracted by many beautiful maidens there. During these romantic liaisons He fathered many demon sons, who tormented all the Gods and humans, it was then that Rishabh avatar was born as an ox to kill all the demon sons of Lord Vishnu. Lord Vishnu confronted the ox but when He realized that it was Lord Shiva's avatar He retreated.
- **YATINATH AVATAR**: A tribal named Ahuk and his wife were ardent devotees of Lord Shiva, who decided to visit them as Yatinath. Their hut was very small that could accommodate only two people so Ahuk offered to sleep outside, but as luck would have it Ahuk was devoured by a beast. Ahuk's wife wailed and lamenting her loss decided to kill herself, Lord Shiva came to His real form and blessed her with the boon that Ahuk and she would be reborn as Nala and Damayanti in their next life and would be reunited.
- **BHIKSHUVARYA AVATAR**: praying to the Bhikshuvaryaavatar of Lord Shiva protects all from calamities and dangers.
- **KRISHNA DARSHAN AVATAR**: This avatar was taken by Lord Shiva to

realize the importance of the yagya ceremonies and rituals in the life of a human, when a person attains the honor of being graced by Lord Krishna's appearance before him/her.

- **SURESHWAR AVATAR**: Lord Shiva once took the form of Lord Indra to test the devotion of one of his bhaktas and hence came to be known as Sureshwara.
- **KEERAT AVATAR:**an incident in the tale of Mahabharata, KauravaDuryodhan sent a demon Mooka in the form of a boar to kill Arjuna. Mooka attacked Arjuna while he was deep in meditation. Lord Shiva in the form of Keerat (huntsman) appeared at the spot when realizing the demon's presence Arjuna jumped to action and shot the boar at the same time Keerat shot his arrow. A huntsman never shares his kill so a fight for the acquisition of the trophy occurred between the two marksmen. Lord Shiva pleased with the valor of Arjuna gifted him his Pashupata.
- **BRAHAMCHARI AVATAR**: This avatar was taken by Lord Shiva to test the Paravati who was deep in meditation desiring Lord Shiva as her consort. On a light note Shiva as Brahamchari avatar called Shiva (Himself) hurtful names, to which Parvati was quick to anger. Later Shiva smilingly appeared in His true form.
- **SUNTANTARKA AVATAR**: Lord Shiva took this form to ask for the hand of Goddess Parvati in matrimony from Her father raja Himawat of the Himalayas.
- **YAKSHESHWAR AVATAR**: Often the Gods and demi Gods in their acquisition for supremacy developed the sense of competition, Yaksheshwar avatar was taken by Lord Shiva to take away the false ego from their person.
- **AVADHUT AVATAR**: Lord Shiva took this avatar to vanquish the arrogance of Lord Indra. This happened when Lord Indra along with his pantheon moved towards Mount Kailash to pay respects to Lord Shiva, Lord Shiva decided to test them blocked their path. Lord Indra quick to anger at the hindrance prepared to attack him with his Vajra and as he did so his arm stopped in midair as he recognized the Lord and begged His forgiveness, to which the Lord complied smilingly.

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SWOT ANALYSIS OF GLOBALIZATION

Dr. Puneet Saxena*

SWOT Analysis is one of the effective analytical tools to evaluate a situation. The situation may be strategic related or capabilities related. SWOT Analysis is often used along with Strategic planning and it forms one of the key critical success factors in a Strategic Planning Process. Market globalization is the decline in barriers to selling in countries other than the home country. This change will make it easier for your company to begin selling products internationally, since lower tariffs keep consumer prices lower and fewer restrictions when crossing borders makes it easier for a company to enter a foreign market. Globalization is the hunt for markets to sell products and services at the highest prices and the hunt for procuring products and services at the lowest prices. A healthy economy then is one where both exports and imports are growing, since this typically indicates economic strength and a sustainable trade surplus or deficit. If exports are growing nicely but imports have declined significantly, it may indicate that the rest of the world is in better shape than the domestic economy. Conversely, if exports fall sharply but imports surge, this may indicate that the domestic economy is faring better than overseas markets. Imports and exports exert a major influence on the consumer and the economy directly as well as through their impact on the domestic currency level, which is one of the biggest determinants of a nation's economic performance.

INTRODUCTION

Globalization refers to the changes in the world where we are moving away from self-contained countries and toward a more integrated world. Globalization of business is the change in a business from a company associated with a single country to one that operates in multiple countries. Globalization of business is bringing in seasoned competitors from the developed countries into the growing markets of the Third World. Consequently the survival of local enterprises and entrepreneurs is being threatened. Third World managers need to develop a global mindset in order to take advantage of the changed new world order in business. Today, the business fraternity believes that globalization is the main equity that any modern day industry can have. The developed world industry has already equipped themselves with the relevant technology and techniques required to practice globalization along with sustainable development.

SWOT Analysis is instrumental in strategy formulation and selection. It is a strong tool, but it involves a great subjective element. It is best when used as a guide, and not as a prescription. Successful businesses build on their strengths, correct their weakness and protect against internal weaknesses and external threats. They also keep a watch on their overall business environment and recognize and exploit new opportunities faster than its competitors. Strengths are the beneficial aspects of the

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organization or the capabilities of an organization, which includes human competencies, process capabilities, financial resources, products and services, customer goodwill and brand loyalty. Weaknesses are the qualities that prevent us from accomplishing our mission and achieving our full potential. These weaknesses deteriorate influences on the organizational success and growth. Weaknesses are the factors which do not meet the standards we feel they should meet. Opportunities are presented by the environment within which our organization operates. These arise when an organization can take benefit of conditions in its environment to plan and execute strategies that enable it to become more profitable. Organizations can gain competitive advantage by making use of opportunities. Threats arise when conditions in external environment jeopardize the reliability and profitability of the organization's business. They compound the vulnerability when they relate to the weaknesses. Threats are uncontrollable. When a threat comes, the stability and survival can be at stake. SWOT Analysis is one of the effective analytical tools to evaluate a situation. The situation may be strategic related or capabilities related. SWOT Analysis is often used along with Strategic planning and it forms one of the key critical success factors in a Strategic Planning Process.

OBJECTIVE OF STUDY

In the light of the above statement the present research paper aims at following points:-

- Globalization and its impact on Indian Economy.
- Demographic, societal and work-force trends.
- Existing distribution and sales networks.
- Factors producing changes in business environment.

ANALYSIS OF STUDY

Globalization and its impact in Indian Economy:

Globalization is an attitude of mind it is a mind-set which views the entire world as a single market so that the corporate strategy is based on the dynamics of the global business environment. The IMF defines globalization as the growing economic interdependence of countries worldwide through increasing volume and variety of cross border transactions in goods and services and of international capital flows, and also through the more rapid and widespread diffusion of technology. India's economic integration with the rest of the world was very limited because of the restrictive economic policies followed until 1991. In the 1990s due to change in world economic order and due to heavy pressures from rich countries like USA, Japan, European countries dominating the WTO (World Trade Organisation having 135 members, established in 1995) and IMF (International Monetary Fund) and World Bank engaged in development financing activities, the developing and the poor countries all over the world were forced to open their trade and market and allow foreigners to share their major chunk of a business. Thus, India first started the process of globalisation and liberalisation in 1991 under the Union Finance Minister, Shri Manmohan Singh. Indian firms confined themselves by and large to the home market. Foreign investment by Indian firms was very insignificant. With the new economic policy ushered in 1991, there has, however, been a change.

Globalization has in fact become a buzz-word with Indian firms now, and many are expanding their overseas business by different strategies. Human resources Apart from the low cost of labour, there are several other aspects of human resources to India's favour. India has one of the largest pool of scientific and technical manpower. The number of management graduates is also surging. It is widely recognised that given the right environment, Indian scientists and technical personnel can do excellently. Similarly, although the labour productivity in India is generally low, given the right environment it will be good. While several countries are facing labour shortage and may face diminishing labour supply, India presents the opposite picture. Cheap labour has particular attraction for several industries. Transnationalisation of the world economy. i.e., the integration of the national economies into a single world economy as evinced by the growing interdependence and globalization of markets is an external factor encouraging globalization of India Business.

Globalization should not be considered in isolation, but should be considered in totality with liberalization of the industrial policy towards lifting of trade control and restrictions, influence of trade block and simultaneous privatization. Global market treats the world as a single market. With the advent of information technology and its strategic application, the world is focussed as a global village and all traders are therefore globalised. The employment scenario in India is probably the worst in recent years due to globalization. The first 5 years in globalization did not yield appreciable results. The coming of Multinational cold drinks manufacturers like Coke, Pepsi, and others like Mc. Donald, KFC, Boomer Chewing gums, Uncle Chips, Cornflakes only dominated the show. Due to further liberalization of trade and the privatization, the late 1990s showed the effect to globalization by the coming of giant car manufacturers like Daewoo Motors, Ford, Honda, Hyundai which resulted in availability of varieties of cars and reduction of domestic car prices. Electronic giants like IBM and world leaders in the telecommunication sector like Ericsson, Nokia, Aiwa etc., delivered wide range of quality products at affordable prices and brought a major revolution in Indian electronic industries. In the power sector Enron, AES-CESCO are dominating the show. The resultant effects were tremendous boost to industrial sector economy. The price level came down due to cut throat competition and Indian consumers are so far happy.

Demographic, societal and work-force trends:

Demographic change is the main reason organizations need to adapt their practices in order to respond to increasing diversity within labor markets. Diversity alters pools of potential employees, and the needs of employees, as well as influencing broader business objectives like service provision. In addition, the constantly changing demographic profile of the broader population means that organizations need to develop strategies that will meet the needs and desires of the country's citizens. In most countries there will be stakeholder groups interested in workplace issues that include diversity. These include government agencies interested in work, immigration, government employment bodies, industry groups, human rights groups, trade unions, specialized stakeholder agencies, and so on. the development of economically beneficial partnerships, new markets, legal compliance, products and services that are culturally sensitive and appropriate; people who are adept at social networking and team-work, social and environmental responsibility, a diverse workforce brings its own rewards in terms of increasing cultural awareness, sensitivity and awareness in individuals and firms.

If business refuses to adapt to changing social preferences, its sales will drop, and it will fail. Sometimes the change in social preferences may be so large that a business simply can't adapt. For example, a social movement led to the outlawing of alcohol in the early 20th century, which was known as Prohibition. During Prohibition, it was illegal to sell alcohol. Distilleries were put out of business until Prohibition was repealed. While there are risks with social change, there are also opportunities. Businesses often try to influence social values through the use of marketing, advertising and targeted public relations strategies. Marketing campaigns are used in an attempt to create trends. The fashion industry is a prime example. Public relation campaigns are often used to build up or repair a business' image. Broader social values will also affect the success of a business. A society that values higher education will provide a better workforce that will lead to more productivity and innovation. Likewise, a society that supports investment in public infrastructure will have access to good transportation and communication systems. And if the social values of a community include a hard work ethic, a business will have access to productive workers and a population that has money to spend on goods and services.

Demographic characteristics are quantitative variables that describe your target market by descriptors such as age, gender, household income, marital status, employment status, education attainment, ethnicity and religious affiliation. Other variables used to define your target market are geographic, psychographic and behavioral characteristics. When the four variables are combined, marketers can construct a fairly comprehensive picture of target markets by geographic location, household status by education and income attainment, lifestyles based on attitudes and values, and consumption behavior based on usage patterns. PESTLE analysis is commonly used in opportunity and threat assessments for international marketing strategies and plans. It adds more flexibility to classifying categories for opportunity and threat assessments. Thus, it may be useful in helping to expand your thinking about the broad range of external factors where opportunities and threats can occur. PESTLE stands for economic, social, technological factors. Economic factors include inflation and economic growth rates. Social factors include the demographic factors used for market segmentation. Technological factors include societal access to technology such as Internet usage.

Existing distribution and sales networks:

Every small business wants to sell more. Rather than simply thinking of ways to get more customers into your store, start thinking of ways to get your products or services out to more consumers. One of the best ways to gain more buyers and increase revenues is to sell through additional venues. Expanding your distribution channels can be an effective tool to increase your business. Advantages to broader distribution channels include:

- Retail take advantage of the marketing and advertising power of existing retailers by placing your product with them. Depending on your product, the best option for this type of distribution channel may be specialty stores or department stores.
- Wholesale if you manufacture your own products, wholesalers may be an ideal choice to broaden your product base. The advantages of this distribution method are many: wholesalers buy in bulk, which increases your bottom line and reduces your storage needs, and they often have transportation networks in place which alleviates you of the cost and hassles of moving your products.
- Sales reps consider hiring sales reps to widen your reach. By choosing reps who work independently, you can avoid the costs associated with opening additional offices in targeted areas.
- Direct marketing this can open up your products and services to a local, regional, national or even global audience. Sending out flyers, brochures or postcards are common tools used to open up direct mail channels.

Telemarketing opening up a telemarketing distribution channel can give you access to consumers nationwide without having the expense of opening retail locations. Telemarketing does require trained staff, however, which can raise costs. Internet E-commerce is growing all the time. Look at selling through well-known marketplaces and up-and-coming comparison shopping sites. International markets can offer higher profit margins and big growth. However, international markets can come with significant cultural barriers and bureaucratic hassles. There's no magical solution. The best channels for your company hinge on your market, your product and what your competitors are doing. Automate more channels mean more administrative details to juggle, so ease the load by automating processes as much as possible. Consider cultural issues when going overseas. China and India are high-growth markets, but they also come with obstacles. Pick and pack services offer end-to-end product fulfillment - selecting items (from stock or a warehouse) for each order, packaging them and shipping them to customers. Pick and pack services are ideal for companies with packaging needs that vary from one order to the next. Companies often turn to an outside pick and pack service when their order volume grows to the point where employees have to work overtime to get orders out the door.

Factors producing changes in business environmen Government Policies: Governments establish many rules and regulations that guide businesses. Businesses will normally change the way they operate when government changes these rules and regulations. Government economic policy and market regulations have an influence on the competitiveness and profitability of businesses. Business owners must comply with regulations established by federal, state and local governments. The government can implement a policy that changes the social behavior in the business environment. For example, the government can levy taxes on the use of carbon-based fuels and grant subsidies for businesses that use renewable energy. The government can underwrite the development of new technology that will bring the necessary change. Imposing on a particular sector more taxes or duties than are necessary will make the investors lose interest in that sector. Similarly, tax and duty exemptions on a particular sector trigger investment in it and may generate growth.

Governments create the rules and frameworks in which businesses are able to compete against each other. From time to time the government will change these rules and frameworks forcing businesses to change the way they operate. Business is thus keenly affected by government policy. government economic policy is the role that the government gives to the state in the economy. Between 1945 and 1979 the government increasingly interfered in the economy by creating state run industries which usually took the form of public corporations. However, from 1979 onwards we saw an era of privatization in which industries were sold off to private shareholders to create a more competitive business environment. Taxation policy affects business costs. For example, a rise in corporation tax (on business profits) has the same effect as an increase in costs. Businesses can pass some of this tax on to consumers in higher prices, but it will also affect the bottom line. Other business taxes are environmental taxes (e.g. landfill tax), and VAT (value added tax). VAT is actually passed down the line to the final consumer but the administration of the VAT system is a cost for business. Another area of economic policy relates to interest rates. In this country the level of interest rates is determined by a government appointed group - the Monetary Policy Committee which meets every month. A rise in interest rates raises the costs to business of borrowing money, and also causes consumers to reduce expenditure (leading to a fall in business sales). Government spending policy also affects business. For example, if the government spends more on schools, this will increase the income of businesses that supply schools with books, equipment etc. Government also provides subsidies for some business activity e.g. an employment subsidy to take on the long-term unemployed.

Legal changes: The government of the day regularly changes laws in line with its political policies. As a result businesses are continually having to respond to changes in the legal framework. The creation of a National Minimum Wage which has recently been extended to under-18's. The requirement for businesses to cater for disabled people, by building ramps into offices, shops etc. Providing increasingly tighter protection for consumers to protect them against unscrupulous business practice. Creating tighter rules on what constitutes fair competition between businesses.

Imports And Exports changes: Positive net exports contribute to economic growth something that is intuitively easy to understand. More exports mean more output from factories and industrial facilities, as well as a greater number of people employed to keep these factories running. The receipt of export proceeds also represents an inflow of funds into the country, which stimulates consumer spending and contributes to economic growth. Conversely imports are considered to be a drag on the economy, as can be gauged from the GDP equation. Imports represent an outflow of funds from a country, since they are payments made by local companies (the importers) to overseas entities (the exporters). However imports per se are not necessarily detrimental to economic performance and in fact, are a vital component of the economy. A high level of imports indicates robust domestic demand and a growing economy. It's even better if these imports are mainly of productive assets like machinery and equipment since they will improve productivity over the long run. A healthy economy then is one where both exports and imports are growing, since this typically indicates economic strength and a sustainable trade surplus or deficit. If exports are growing nicely but imports have declined significantly, it may indicate that the rest of the world is in better shape than the domestic economy. Conversely if exports fall sharply but imports surge, this may indicate that the domestic economy is faring better than overseas markets. The inter-relationship between a nation's imports and exports, and its exchange rate, is a complicated one because of the feedback loop between them. The exchange rate has an effect on the trade surplus (or deficit), which in turn affects the exchange rate, and so on. In general, however, a weaker domestic currency stimulates exports and makes imports more expensive. Conversely, a strong domestic currency hampers exports and makes imports cheaper.

CONCLUSION AND SUGGESTION

Imports and exports exert a major influence on the consumer and the economy directly, as well as through their impact on the domestic currency level, which is one of the biggest determinants of a nation's economic performance. SWOT Analysis is not free from its limitations. It may cause organizations to view circumstances as very simple because of which the organizations might overlook certain key strategic contact which may occur. Moreover, categorizing aspects as strengths, weaknesses, opportunities and threats might be very subjective as there is great degree of uncertainty in market. SWOT Analysis does stress upon the significance of these four aspects, but it does not tell how an organization can identify these aspects for itself. Today's marketplace demands an increasingly accelerated pace of development to keep up with the competition. Firms must now rely on their organizations and processes to access specialized talent and expertise in multiple locations and on a global basis simultaneously. The key to juggle these demands is the ability to access manufacturing, supply chain, technology and business process resources seamlessly on a global basis to decrease cost and improve delivery capabilities. Global implements methodology and approach to efficiently transfer this type of work to an offshore development location or to temporarily transition global resources to the client site for project work; this can be in India, China. A key component of our organization is the ability to provide offshore technical and business process services that help you leverage significant cost savings.

From detailed inconcluded to some suggestions which are as follows:

We might also look at three types of currently successful global strategies - adaptation, aggregation and arbitrage (AAA) – as well as a framework for implementing them. This process was developed by world renowned global strategist:

Adaptation – adjusting to differences by maximizing a firm’s local relevance through a national focus, and thus boosting revenues and market share.

Aggregation – overcoming differences by standardizing products or services and grouping together development and production processes, and thus achieving scale and scope economies.

Arbitrage – exploiting differences between national or regional markets to achieve absolute economies through international specialization.

Today's marketplace demands an increasingly accelerated pace of development to keep up with the competition. Firms must now rely on their organizations and processes to access specialized talent and expertise in multiple locations and on a global basis simultaneously. The key to juggle these demands is the ability to access manufacturing, supply chain, technology and business process resources seamlessly on a global basis to decrease cost and improve delivery capabilities.

Global capabilities and industry experience with a strong alliance portfolio to help you:

- Address supply chain and manufacturing constraints.
- Address IT and business process budget constraints.
- Gain seamless access to experienced, competitively priced global

resources.

- Increase supply chain, manufacturing, IT and BPO delivery capabilities.
- Assess and estimate ROI for globalizing all applications.
- Provide road map for selection, transition, and delivery of all applications.

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TECHNOLOGICAL INNOVATIONS OF INDIAN BANKING SECTOR

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RESEARCH PAPER

ABSTRACT

Technology has been one of the most important factors for the development. Information and communication technology is the major advent in the field of technology which is used for access, process, storage and dissemination of information electronically. Indian banking industry is fast growing with the use of technology in the form of ATMs, on-line banking, Telephone banking, Mobile banking etc., plastic card is one of the banking products that cater to the needs of retail segment has seen its number grow in geometric progression in recent years. This growth has been strongly supported by the development of in the field of technology. The Paper is concerned with the Comparative study of the Profitability of the Indian Banking Sector and the impact of Technological Investment on the Profitability of the Public and Private Sector Banks for three financial years i.e. 2011, 2012 and 2013. The information processed and analyzed is based upon the Various Reports of the Indian Banking Association (IBA).

INTRODUCTION :

The banking sector in India has a long way to go to match up with its peers in the international market with respect to technology and therefore most banks are still looking at investing in IT. PricewaterhouseCoopers (PwC) in its recent report has revealed that most banks in India have expressed it is the right time to invest in technology. Almost 55% of the banks PwC spoke to, feel that it is the right time to invest in technology while 27% want to wait till the downturn and 18% felt technology warrants investments irrespective of downturn.

The banking sector in India is spending about 46% of its technology budgets on business continuity. While 32% are being allocated to adding new products, product functionality or new features and 22% is being spent on new technology that will change business process. According to the report, the core issues being faced by the banking sector are identifying and retaining good clients, managing customer services expectations, optimizing operational costs and beating competition. The PwC report suggests that banks should take up automation that will have a combination of centralized networks, operations and a core banking application and will enable banks to offer 24X7 services using lesser manpower. Moreover, the banks need to look at business intelligence (BI), business process re-engineering and customer relationship management (CRM) that caters to operational and analytical

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businesses.

N Chandrashekaran, Chairman, CII Banking Tech Summit 2009 and COO & ED at Tata Consultancy Services said, "It is important for the banks to adapt new technologies that can brings down the cost of transactions and at the same time bring business continuity.

In the world of banking and finance nothing stands still. Apart from traditional business, banks nowadays provide a wide range of services to satisfy the financial and non financial needs of all types of customers from the smallest account holder to the largest company and in some cases of non customers.

CHANGING FACE OF BANKING SERVICES

Liberalization brought several changes to Indian service industry. Probably Indian banking industry learnt a tremendous lesson. Pre-liberalization, all we did at a bank was deposit and withdraw money. Service standards were pathetic, but all we could do was grin and bear it. Post-liberalization, the tables have turned. It's a consumer oriented market there. Technology is revolutionizing every field of human endeavor and activity. One of them is introduction of information technology into capital market. The internet banking is changing the banking industry and is having the major effects on banking relationship. Web is more important for retail financial services than for many other industries.

Retail baking in India is maturing with time, several products, which further could be customized. Interest rates are coming down and market has seen some innovative products as well. Other retail banking products are personal loan, education loan and vehicles loan.

FINANCIAL INNOVATION

Financial innovation is key to survival of banks in contemporary banking environment. The importance of financial innovation is widely recognized. Many leading scholars, including Miller (1986) and Merton (1992), have highlighted the importance of products and services in the financial arena. Innovative ideas are manifest in diverse industries and in different forms. For example innovation in product development is one of the forms of innovation that has been used by banks. Right from the beginning stage of financial modernization innovations have been playing major roles in curtailing financial exclusions and improving the ways banking services are rendered to people. Financial innovation is one of the commonly used banking terminologies. It has been used to describe any change in the scale, scope and delivery of financial services.

The deregulation of financial service industry and increased competition with in investment banking undoubtedly led to increased emphasis on the ability to design new products, develop better process, and implement more effective solution for increasingly complex financial problems. These financial innovations are a result of number of Government regulations, tax policies, globalization, liberalization, privatization, integration with the international financial market and increasing risk in the domestic financial market.

REVIEW OF LITERATURE

Banking industry in India has also achieved a new height with the changing times. Customer services and customer satisfaction are prime responsibilities of banks now days. Information technology has given rise to new innovations in the product designing and their delivery in the banking and finance industries. Technology offers a chance for banks to build new systems that address a wide range of customer needs including many that may not be imaginable today. Banking through internet has emerged as a strategic resource for achieving higher efficiency, control of operations and reduction of cost by replacing paper based and labor intensive methods with automated process thus leading to higher productivity and profitability. Financial innovation associated with technological change totally changed the banking philosophy and that is further turned by the competition in the banking industry. Challenging business environment within the banking system create more innovation in the fields of product, process and market.

From the above reviews it is observed that the banking industries itself adopted various innovative schemes for furtherance of their business and to attract more and more customers. These has resulted their sustainability and keep their brand image even in the competitive environment. Further, technology is one of the important segments where maximum stresses are provided for dissemination of innovative ideas and it is observed that major innovation took place in this field in recent years.

CHALLENGES AHEAD FOR BANKING SECTOR

Technological changes in Indian banking system presents unique opportunities and challenges for the banking industry. Developing or acquiring the right technology, deploying it optimally and then leveraging it to the maximum extent is essential to achieve and maintain high service and efficiency standards while remaining cost effective and delivering sustainable return to shareholders. Managing technology is therefore, a key challenge for the Indian banking sector.

CONCLUSION

India is one of the top 10 economies in the world, where the banking sector has tremendous potential to grow. The number of ATMs has doubled over the past few years, with more than 100,000 in the country at present (70 per cent in urban areas). They are estimated to further double by 2016, with over 50 per cent expected to be set up in small towns. Also, the scope for mobile and internet banking is big. At the start of 2013, only 2 per cent of banking payments went through the electronic system in the country. The Indian Banking Industry in Technological advancement is still in gestation phase. However the Private Sector Banks Outperform the Public Sector Banks in some fields. Nationalized banks are performing well as indicated by the various positive figures in case of Net Profit, Profit Per Employee and Business Per Employee. But still RBI has to take various steps so that the Public Sector Banks (Nationalized and SBI & its Associates) becomes able to manage their profitability by striking the balance between technological Investments (Expenditures) and Incomes.

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