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A STUDY ON TELECOM SERVICE IN INDIA

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Abstract

Telecom services in India began with the introduction of the telegraph. The Indian postal and telecom sectors are one of the world's oldest services. India's Telecom network is the second largest in the world by number of telephone users with 1109.67 million subscribers as on 31 December 2017. In this paper, the researcher deals with progress of Telecom service and Telecoms service providers in India.

Keywords: *Subscribers, Network, Service Providers, Telecom*

Introduction

Telecommunication is the transmission of signs, signals, messages, words, writings, images and sounds or information of any nature by wire, radio, optical or other electromagnetic systems. Telecom occurs when the exchange of information between communication participants includes the use of technology. The Telecommunication service includes the sector of information and communication technology. It is made up of all Telecommunications/ telephone companies and internet service providers and plays the crucial role in the evolution of mobile communications and the information society.

Telecom service in India began with the introduction of the telegraph. The Indian postal and telecom sectors are one of the world's oldest services. India's Telecom network is the second largest in the world by number of telephone users with 1109.67 million subscribers as on 31 December 2017.

Objectives

- Study the progress of Telecom service in India
- List out the Telecom services providers in India

Research Methodology

The research is based on descriptive and analytical study. The data collected for this study from books and websites

Tool for analysis: Percentage

Progress Of Telecom Service In India

India's Telecom network is the second largest in the world by number of telephone users (both wired and wireless). Major sectors of the Indian Telecom industry are telephone, internet and television broadcast Industry in the country which is in an ongoing process of transforming into next generation network, employs an extensive system of modern network elements such as digital telephone exchanges,

mobile switching centers, media gateways and signaling gateways at the core, interconnected by a wide variety of transmission systems using fibre-optics or Microwave radio relay networks. The access network, which connects the subscriber to the core, is highly diversified with different copper-pair, optic-fibre and wireless technologies. DTH, a relatively new broadcasting technology has attained significant popularity in the Television segment. The introduction of private FM has given a fillip to the radio broadcasting in India. Telecom in India has greatly been supported by the INSAT system of the country, one of the largest domestic satellite systems in the world. India possesses a diversified communications system, which links all parts of the country by telephone, Internet, radio, television and satellite. Indian telecom industry underwent a high pace of market liberalization and growth since the 1990s and now has become the world's most competitive and one of the fastest growing telecom markets.

Significant Progress of Telecom

Year	Mile Stones
1850	Electric telegraph line between Calcutta and Diamond Harbour
1882	Central telephone exchange started with 93 subscribers at Calcutta
1902	First wireless telegraph station established between Sagor Island and Sandhead.
1907	First Central Battery of telephones introduced in Kanpur.
1913 - 1914	First Automatic Exchange installed in Shimla.
1927	Radio-telegraph system between the UK and India, with Imperial Wireless Chain beam stations at Khadki and Dand. Inaugurated by Lord Irwin on 23 July by exchanging greetings with King George V.
1933	Radiotelephone system inaugurated between the UK and India.
1953	12 channel carrier system introduced.
1960	First subscriber trunk diallink route commissioned between Lucknow and Kanpur.
1975	First PCM system commissioned between Mumbai City and Andher telephone exchanges.
1976	First digital microwave junction.
1979	First optical fibre system for local junction commissioned at Pune.
1980	First satellite earth station for domestic communications established at Sikandarabad, U.P.
1983	First analogue Stored Programme Control exchange for trunk lines commissioned at Mumbai.
1984	C-DOT established for indigenous development and production of digital exchanges.
1995	First mobile telephone service started on non-commercial basis on 15 August 1995 in Delhi.
1995	Internet introduced in India starting with Laxmi Nagar, Delhi 15 August 1995

Telecom Service Providers In India

Indian Telecom service comprises of following

1. Land line(wire line) Network
2. Mobile(wireless) Network
3. Internet

Land Line Network

A landline network (also known as land line,

land-line, main line, home phone, landline, fixed-line, and wire line) is a telephone network that uses a metal wire or optical fiber line for telephonic information transmission. In India, There are **EIGHT** Land Line service Providers. They are listed in Table 1

Table 1 Land Line service Providers and Subscribers

S.No.	Service Providers	Area of Operation	No. of Subscribers in Million	Percentage
1.	BSNL	All India except Delhi & Mumbai	12.47	53.57
2.	Airtel	Telangana, Delhi, Gujarat, Haryana, Karnataka, Kerala, Kolkata, Madhya Pradesh (excluding Chhattisgarh), Chhattisgarh, Maharashtra (excluding Mumbai), Punjab, Rajasthan, Tamil Nadu (excluding Chennai), Chennai, UP-East and UP-West(excluding Uttaranchal), Delhi & Mumbai	3.61	16.88
3.	MTNL	Delhi & Mumbai	3.38	14.82
4.	Tata	Andhra Pradesh (Excluding Telangana), Telangana, Assam, Bihar (Excluding Jharkhand), Jharkhand, Delhi, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Kolkata, Madhya Pradesh (Excluding Chhattisgarh), Chhattisgarh, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, Orissa, Punjab, Rajasthan, Tamil Nadu (Excluding Chennai), UP-East, UP-West (Excluding Uttaranchal), West Bengal (Excluding Andaman & Nicobar and Sikkim)	1.86	7.99
5.	Reliance	Andhra Pradesh (excluding Telangana), Telangana, Bihar (Excluding Jharkhand), Jharkhand, Delhi, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Kolkata, Madhya Pradesh (excluding Chhattisgarh), Chhattisgarh, Maharashtra (Excluding Mumbai & Goa), Goa, Mumbai, Orissa, Punjab, Rajasthan, Tamil Nadu (excluding Chennai), Chennai, UP-East, UP-West (Excluding Uttaranchal) and West Bengal (Excluding Andaman & Nicobar)	1.14	4.99
6.	Quadrant	Punjab	0.25	1.07
7.	Vodafone	Andhra Pradesh (Excluding Telangana), Telangana, Assam, Bihar (Excluding Jharkhand), Jharkhand, Delhi, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Kolkata, Madhya Pradesh (Excluding Chhattisgarh), Chhattisgarh, Maharashtra (Excluding Mumbai & Goa), Goa, Mumbai, Meghalaya, Orissa, Punjab, Rajasthan, Tamil Nadu (Excluding Chennai), UP-East, UP-West (Excluding Uttaranchal), Uttaranchal and West Bengal (Excluding Andaman & Nicobar)	0.20	0.89
8.	Aircel	Andhra Pradesh (excluding Telangana), Delhi, Gujarat, Karnataka, Kolkata, Maharashtra (Excluding Mumbai & Goa), Mumbai, Rajasthan, UP-East, UP-West (Excluding Uttaranchal)	0.07	0.3
Total			22.28	100

Source: TRAI Performance Report December, 2017

In Land Line service, BSNL has 53.57% of subscribers and broad area coverage compares that others.

Mobile (wireless) Network

A cellular network or mobile network is a communication network where the last link is wireless. The network is distributed over land areas called cells, each served by at least one fixed-location transceiver, but more normally three cell sites or base transceiver stations. In India, ten service providers play predominant role. Table 2 incorporated these details

Table 2 Mobile network Service Providers and Subscribers

S. No.	Service Provider	Area of Operation	No. of Subscribers in (Million)	Percentage
1	Bharti Airtel	All India	290.11	24.85
2	Aircel Group	All India	84.93	7.28
3	Reliance	All India (except Assam & NE)	33.17	2.84
4	Vodafone (India) Ltd	All India	212.33	18.2
5	Tata Teleservices	All India except Assam, NE & J&K	36.69	3.14
6	IDEA Cellular Ltd	All India	196.50	16.83
7	BSNL	All India (except Delhi & Mumbai)	107.92	9.24
8	MTNL	Delhi & Mumbai	3.58	0.31
9	Telenor Communications (India) Pvt. Ltd.	ML, Gujarat, AP, UP(W), UP(E), Bihar	41.91	3.60
10	Reliance Jio Infocom Ltd	All India	160.09	13.71
	Total		1167.43	100.00

Source: TRAI Performance Report December, 2017

In wireless network, 24.85% of subscribers use Bhrathi Airtel Network

Internet

The Internet is generally defined as a global network connecting millions of computers; More than 190 countries are linked into exchanges of data, news and opinions. In India, Internet service providers' details exhibit in Table 3

Table 3 Internet Service Providers and Subscribers

S.No	Service Providers	No. of Internet Subscribers in (Millions)	Percentage
1	Reliance JIO	160.09	35.90
2	Bharti Airtel Limited	98.64	22.11
3	Vodafone	69.94	15.68
4	Idea Cellular	42.61	9.56
5	BSNL	32.18	7.21
6	Aircel	16.06	3.60
7	Telenor	9.44	2.12
8	Tata Teleservices	7.31	1.64
9	Reliance Communications	1.99	0.45
10	MTNL	1.86	0.42
11	Others	5.83	1.31
	Total	445.95	100.00

Source: TRAI Performance Report December, 2017

JIO plays key role in internet service (35.9% of Subscribers use JIO network for internet service)

Apart from these, Telecommunications service provide value added services like Public Mobile Radio Trunk Services (PMRTS) and Very Small Aperture Terminal (VSAT)

Conclusion

“A bird without wings cannot fly; likewise a man without Telecom service cannot dwell”.

In India, 85.77% (Telecom subscribers 1109.67 millions; total population approximately 1388.23 million) of population use Telecom services. BSNL is a market leader in Landline network, Bhrathi Airtel play leading role in Mobile network and Reliance Jio has more number of subscribers in Internet service.

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THE ROLE OF N. KUMARAN IN VAI KOM SATYAGRAHA

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Abstract

Mahakavi Kumaran Ashan is one of the makers of modern India. He was one of the Trimvirate poets of Kerala. He was also a philosopher, a social reformer and a disciple of Sree Narayana Guru. He fought against the inequalities of a caste ridden society and passionately sang of individual dignity, social freedom and the brotherhood of man. In 1904 Kumaran Asan was selected as the representative of Sree Moolam Popular Assembly. He was also elected as the Sree Narayana Dharma Paripalana Yogam's first General Secretary. Up to 1919, July 20 he was on the post, except in 1906. The personal magnetism and charisma of Guru and the intellectual excellence and poetic genius of Asan worked wonders in the society and within two decades after the establishment of the S. N. D. P. Yogam, the intent Ezhava community, turned into a vigorous and progressive social force. In the 12th session of the Assembly Kumaran Asan drew the attention of the Government to this evil and referred to roads in Vaikom, Tirunakkara, Suchindram and a few other places and demanded the removal of the prohibition boards placed near some of these temples.

Key Words : N. Kumaran, Vaikom, Satyagraha, Sree Narayana Dharma Paripalana Yogam, Unapproachability.

Introduction

N. Kumaran is one of the makers of modern India. He is also known as Mahakavi Kumaran Ashan. He was one of the Trimvirate poets of Kerala. He was also a philosopher, a social reformer and a disciple of Sree Narayana Guru. He fought against the inequalities of a caste ridden society and passionately sang of individual dignity, social freedom and the brotherhood of man. Kumaran Ashan initiated a revolution in Malayalam poetry in the first quarter of the 20th century. His works are an eloquent testimony of poetic concentration and

dramatic contextualisation. This paper gives an account of N. Kumaran's contribution of Malayalam poems and the relationship of Sree Narayana Guru. It also analyses the interpellation in the Travancore Legislative Council and how to lead the Vaikom Satyagraha.

Ashan was born in a merchant family belonging to the Ezhava community on 12th April 1873 at Kayikkara, a small coastal village of Kerala. He was the second son in a family of nine children. His father, Narayanan

Perungudi was well versed in Malayalam and Tamil. His mother was Kaali. Asan inherited his taste for Kathakali and classical music. Kumaran trained in Mathematics and Sanskrit for which he had a passion. Even though through his father's effort, he got a job as a primary school teacher and an accountant the job two years later to pursue higher studies in Sanskrit. He undertook a studentship in poetry under Manamboor Govindan Asan. He wished to learn yoga and Tantra and worked as an apprentice in a Muruga Temple at Vaikom. He composed a few devotional songs for the benefit of regular worshippers at this Temple.

Ashan And Sree Narayana Guru

Kumaran was dogged by ill health all through his early life. When he was eighteen, Sree Narayana Guru visited his house at the request of his father. Kumaran was bedridden at that time. The great saint suggested that Kumaran should stay with him and become his disciple. The little boy found the invitation irresistible. Thus began a new phase of life for the young lad.

Kumaran's meeting with Sree Narayana Guru can be compared to the meeting of Naran with Sri Ramakrishna. While Naran became a full – fledged swami, Kumaran continued as a lay disciple of Narayana Guru and made substantial contributions in the field of poetry, literature and social renaissance.

Swamy took the fledgling devotee under his care and in 1895 Kumaran was sent to Bangalore for three years for higher studies in Sanskrit, at the Sree Chamarajendra Sanskrit College. He specialized in Tarka Sastra. He could not take the final exam because during that time plague was existed. Leaving Bangalore he came to Madras and after a brief stay, left for Calcutta to join the Sanskrit College. His teacher was Mahamahopadhiyaya Kmakhya Nath who encouraged the poetic gift of his student and prophesised that he would one day become a famous poet.

Gurudeva's aim was to create an organization which would bring together people

who wanted to be such good men. Such an organization was open to all regardless of caste or religion. In Gurudev's vision was to start an organization, open to all, would ridicule the caste differences, blunt the harshness of class conflict and gradually demolish the caste barriers. It was with the aim of fostering an awareness and unity and to spread the ideals that Gurudev decided to launch Sree Narayana Dharma Paripalana Yogam. Thus was established SNDPY with Gurudev's blessing. The Yogam came into being on 7th January 1903. Kumaran Ashan was elected as the yogam's first General Secretary. Up to 1919, July 20 he was on the post, except in 1906.

Early Works

Some of the earlier works of the poet were 'subramanya Sathakam' and 'Sankara Sathakam' where in Ashan voiced his devotional aspirations. His short poem 'veena poovu' is a literary classic. It paved the way for a new movement in Malayalam literature. His elegy *Prarodanam* mourns the death of his contemporary and friend A. R. Raja Raja Varma, a famous grammarian. His 'Khanda Kavyas' (poems) like *Nalini*, *Leela*, *Karuna* and *Chandaalabhikshuki* won critical acclaim as well as popularity. In 'Chintaavishtayaaya Seetha' he displays his poetic artistry, while in 'Duravastha' he patiently and skilfully tears down the barriers created by feudalism, orthodoxy and casteism and consummates the dictum of the Guru, "One Caste, One Religion, One God for Man."

He wrote the epic poem 'Buddha Charitha' for which he got inspiration from Edwin Arnold's 'Light of Asia'. While in *Duravastha*, he revealed his revolutionary zeal for fighting caste distinctions; a few other poetic works had a distinct Hindu or Buddhist slant. Kumaran Ashan received the 'Mahakavipattom' for his true and heart touching work 'Duravastha'.

Member Of Sree Moolam Popular Assembly

The Sree Moolam Popular Assembly in the erstwhile state of Travancore was the first popularly elected legislature in the history of

India. Its predecessor legislative council was formed in Travancore in 1888 with eight appointed members. Sri Mulam Thirunal Ramavarma, who became Maharaja of Travancore in 1886, established it in an order issued on 30th March 1888. In 1898, the strength of the council was increased to fifteen, comprising nine officials and six non – officials.

In 1904, a lower house called the Sree Moolam Popular Assembly (Sree Mulam Praja Sabha) was formed with 88 members to provide for increased participation of the people in the administration. Its membership was limited to representatives of landlords and merchants. Although not a legislature, it was intended to give the people an opportunity to bring to the notice of the government their requirements, wishes or grievances, and to make government policies and measures better known to the people. The members of the assembly were not elected but chosen, two from each taluk, by the District heads from among landholders who paid annual land revenue of not less than Rs. 100, and landholders or traders whose net annual income was Rs.6000 or above.

In 1905, the Sree Moolam Popular Assembly began to have elected members. Out of the new strength of 100 members, 77 were to be elected and 23 were to be nominated. Voting right was limited to persons who paid an annual land revenue of not less than Rs. 50, or whose net income was not less than ten years of standing, and having their residence in the respective Taluk were also eligible to vote.

In the second year of the establishment of Sree Moolam Popular Assembly, the Ezhava community was given representation there by the government nominating Kumaran Asan, the General Secretary of the yogam, as a Member. The personal magnetism and charisma of Guru and the intellectual excellence and poetic genius of Asan worked wonders in the society and within two decades after the establishment of the S. N. D. P. Yogam, the intent Ezhava community, turned into a vigorous and progressive social force.

In the beginning of the twentieth century the Ezhavas, as noted earlier, had no voice of their own; but by 1920, their voice became pre-eminently sharp and clear that the Government considered it expedient to accommodate the interests of this community in the scheme of administration. In all the sessions of the Popular Assembly from the beginning the Ezhava members pressed on the attention of the Government the extreme irksomeness of their social position in public places and the urgency of its removal. The most distressing of these disabilities enumerated in the Ezhava Memorial and repeated in every session of the Assembly, were the prohibition imposed on the community to utilize certain schools on account of the proximity of them to temples and palaces and also the existence of *tindal palakas* or prohibitory notice-boards on public roads in the vicinity of temples which prevented their enjoyment of the right to walk along them.

Demand For The Removal Of Prohibition Boards

In the 12th session of the Assembly Kumaran Asan drew the attention of the Government to this evil and referred to roads in Vaikom, Tirunakkara, Suchindram and a few other places and demanded the removal of the prohibition boards placed near some of these temples. Unapproachability in general and the prevention of the right to walk along these roads in particular had been made the subject of specific petition in the Assembly. Government did not deem it necessary to examine the rationale of the issue much less to do anything to remove the specific grievances. As N. Kumaran put “It is one thing for Government and their officers to say that they would take their own time to come to a decision. But it is quite another matter to those who are reminded every moment of their life that they are only fit to be underdogs and that they are not to have even some of the elementary rights of man which under the laws of God and of man are absolutely inalienable and indefeasible.”

Kumaran Asan who was the first made a

concert effort to convince the Government of the necessity of removing the bar on the public roads. He said “there were certain public roads and streets to which they were not admitted. Certain places were inaccessible to them on account of proximity of temples. But there was no uniform principles adopted in these cases. The Ezhavas could not go up to the outer wall of the Suchindram temple during the festival period, though they could do so at other times. During certain occasions whole villages were closed against the low caste people in Nanjanad. The prohibition would seem all the more serious when it was known that even scavengers were excluded and that sanitation was not attended to during those periods. In the Vaikom temple, the valan (Hindu fisherman) could go as far as the western tower-gate to present the cord of the flag-staff, but neither he on other occasions, nor Ezhavas, could go so far. There were boards put up on the roads on all sides of the Tirunakkara temple prohibiting the Ezhavas and other low caste people from passing along these roads. Similar restrictions were enforced on the roads near the Tiruvarpu temple also.” He said that “the Government should see that the places to which the backward communities could have access at any time, and those where they could be reasonably admitted were declared open to them at all times. Stringent orders should be issued to the District Magistrates not to renew the notice boards prohibiting them from having access to certain places. The royal proclamation of 1040 granting all the backward communities access to all public roads etc. should be republished for general information.”

Vaikom Satyagraha

In connection with this interpellation, the Peishkar, reported amongst other things, the existence of three notice boards on the northern, southern and western sides of the Vaikom Temple. These were situated a furlong, 56 furlong and 2 furlong respectively from the gopurams on each side concerned. The notice boards prohibited the *theendal jatis* from going further into the approaches of the Temple. The

Peishkar also added that the roads in question fell under the category of common highways the use of which regulated by local usage and custom. The existence of these notice boards on public roads leading to and around certain sirkar temples, prohibiting the use of certain portions of the said roads by Non Caste Hindus, was considered a source of grievances to them. The questions were carefully considered by the Government and regarding to the Vaikom Temple, the following decisions were arrived at in December 1922.

1. To shift the notice board on the western entrance to a point west of the *Althara*.
2. To put up a gate at that point which is removed from the temple wall by 66 feet, with a fresh notice board declaring that the portion of the road to the east of it was not open to the public;
3. To acquire the bazaar on either side of the road to the east of the gate and to declare it to be Sanketam;
4. To put up a notice board of the same description on the northern side of the Satram compound, the Satram being conserved for use of caste – Hindus;
5. To put a similar notice on the eastern side of the temple at the site at which the board formerly stood, i.e., at a distance of 970 links from the gopuram; and

To shift the notice board on the south to the south – east so as to admit of the lane in the locality being thrown open to all classes. The Government made it clear that their decision was strictly in accordance with the recorded opinion of the *Tantri* that non – caste Hindus should be kept at a distance of 64 feet from the outer walls of the temple.

The legal implications of the subject had been stated by Subbier, the Law Member of Legislative Council. He concluded that:

1. There are two classes of roads recognised in Travancore
2. Public highways have been opened by Government notification to all classes of His Highness subjects and even otherwise

as a matter of right they may have access to them.

3. Common ways are those around a temple and streets occupied by particular communities and those which have been specially notified by Government as not open to all classes.
4. That roads leading to markets, public offices, hospitals, from town to town and through which traffic is carried on ought to be thrown open to all classes.
5. There is nothing illegal in having notice boards put up restricting the use of such roads by certain classes even though the road belongs to Government and is maintained by Government.

In fact, Kumaran Asan who first made a concert effort to convince the Government of the necessity of removing the bar on the public roads in Vaikom Temple. As early as 1905, the Ezhava member from Karthikappalli, Kochu Kunju Channar, raised the question of permitting the Ezhavas to walk along the roads passing near the Haripad temple. But Government did not deem it necessary to examine the rationale of the issue much less to do anything to remove the specific grievances. Asan's efforts to force the issue of the temple roads on the Government that ultimately compelled them to permit discussion on the question of Temple entry.

Conclusion

N. Kumaran was moderate in politics he resorted to recognised constitutional means to achieve social reforms. He was not against the right of lower castes to enter temples; he was to be sure, not merely for the right to enter temples for worship but to have the right to perform the tantric rites too in the temple.

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AN EFFECTIVE ANALYSIS TOWARDS ONLINE SHOPPING EXPERIENCE AND CUSTOMER SATISFACTION

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Abstract

The main objective of the present study is to discover the different factors that influences E-shopping apparent benefits like expediency, Pricing and larger Selection towards Online client Satisfaction and Word of Mouth sales. The required statistics has been gathered conveniently from 200 respondents who experienced minimum one online shopping transaction in the last years. Four hypotheses have been tested empirically with the help of Partial Least Square Structural Equation Modeling (PLS-SEM) and the consequences are noteworthy. The outcome of the study states that convenience during the online shopping; various alternatives for selection of products and low price extensively influence shopping online customer satisfaction in Indian circumstance.

Keywords: Online shopping, customer satisfaction, Internet usage Skills, E-Shopping, Brand name.

Introduction

The rapid explosion of e-commerce is inflicting deep effect on current business world. The rapid growth of ecommerce is still in a youth stage and the determinants to create a center of attention to people towards online shopping remain indistinguishable well. To appraise and predict those immense impacts of ecommerce, it is very important to auxiliary improve our understanding of customers online shopping activities. In the reference from Davis (1989) refers to online shopping or e-commerce as “the buying, selling, marketing and servicing

of products or services over computer networks”. By the appearance of aggressive business environment, online shopping becomes an crucial for intensifying the market space for any organization. A number of studies have already investigated that online shopping customer behavior is based on various theories. This experimental study, which was done in 2013, has focused mainly on the factors that influences definite online shopping seeming benefits namely convenience, cost/price, wider selection and availability of products towards customers’ satisfaction.

Online Shopping Customer Behavior

Every individual in the world is the customer. Every individual of us purchases and sells or consumes goods and services in their life. Customer behavior is very multifaceted and is determined by a huge extent through various social and psychological factors. Customer behavior can be defined as those acts of individuals directly concerned in obtaining, by means of and disposing of economic goods and services. The significance and consequence of understanding customer behavior is entrenched in modern marketing. The needs of it are not even that no two customers are the same. Therefore they purchase only those goods and services which gratify their needs and desires. To endure in the market, a firm has to be constantly innovative and indulgent the latest customer needs and tastes. It will be enormously useful in exploring marketing opportunities and in gathering the challenges that the Indian markets are offering. Online customer behavior parallels to that of offline customer behavior with some apparent differences. The stages of the customer decision making expansion are basically the same whether the customer is online or offline. But the general representation of customer behavior needs modification to take into account new factors.

In the online mode, a web site features alongside with customer skills, product individuality, attitudes towards online purchasing and perception about control over the Web environment plays a major role. There are parallels available in the analog world, where in the customer behavior can be influenced by the design of the store, and that accepting the specific movements of customers through a physical store can improve sales if goods & promotions are set along the almost certainly customer tracks.

Customer skills refer to the acquaintance that customer has about how to accomplish online shopping transactions. Product distinctiveness refer to the actuality that some

products can be effortlessly described, packaged and shipped over the Internet whereas some products cannot. collectively with traditional factor such as brand name, promotion and organization capability, these are few factors that's leads to specific attitudes about online shopping. Customer behavior regarding the use of internet for shopping varies. Some customers either lack access or resist using this new channel of distribution, chiefly due to privacy and security concern. Few shoppers choose to glance through the Web so as to collect information and then visit the stores to negotiate the buy face to face from the retailer. Some shoppers visit the retail stores first and then purchase from an online shopping. Still others do the online shopping: collecting information, negotiating, purchasing and either arranging for delivery or picking up the merchandise in the store. A Study on the Customer Satisfaction towards Online Shopping, it takes time for individuals to build up confidence to do online shopping. Primarily shoppers may confine themselves for searching information or using mails. As their assurance grows their use of the Internet for procure is likely to increase with a move to advanced value items and additional frequent purchases through online.

The growing purchasing power of the Indian customers is set to fetch online shopping boom in India. One of the newest accompaniments to online retail is promotion through social media websites like Twitter, Facebook, Google, Whats app etc. Apart from website technologies, retail leaders are trying to espouse videos, mobile advertisements and social media strategies with a vision to provide richer, more creative and user friendly experience. After bringing rebellion in all the metro cities, online shopping is set to create consciousness even in the rural areas. Furthermore, with the opportunity of the Indian economy in relation to transform in the FDI strategies, it is a wake-up call for all retailers that have put slight efforts to develop an online shopping strategy as retail giants like Amazon, Flipkart, club factory, Jabong and have

Tesco has already started taking actions and their strategy implementation in the Indian retail markets.

Scope Of The Study

The rising reach of the Internet and internet shopping among customers has resulted in huge requirements for retailers providing online benefits for customers to make purchasing at the click of the mouse. Customers not only browse internet to make easy purchases but they also use for searching information about the product or service being purchased. Now a day's Internet has distorted the way of conducting business. Many businesses have ongoing process of building up their strategies around the internet. If Electronic Marketers evaluate and understand the different factors that are influencing customer's online attitude, they can further modify their business strategies towards customer preferences and their satisfaction.

This study deals with customer behavior and their perceptions towards the below mentioned aspects online shopping and how its presence or lack of these aspects in an online shopping atmosphere affects the customer satisfaction.

- Availability of various Product categories that customers looking online
- Quality of the product & Easy availability of the product
- Speed and Mode of delivery of the product to the customer
- Product prices and offers available for online shopping customers
- Various Payment options accessible for the customers
- Shipping charges, Return of the product & Exchange policies of the online shopping organizations
- Accessibility and Ease to use the product

Objectives of the study

The primary objective of this study is to identify and understand the various factors that

are affecting customer behavior and their satisfaction with respect to online shopping in India. The Secondary Objectives are as follows:

- To analyze the available product categories for which customers support online shopping and product segregation for which they still stand for shopping through traditional approach.
- To know various easy features that customers look forward to use online shopping portal.
- To understand the different payment methods and availability of various delivery systems favored by the customers.
- To know the various problems faced by customers through online shopping.
- To understand how these various factors work together to influence customers online shopping decisions.
- To evaluate the relationship among online shopping experience and customer satisfaction
- To know the relationship between the product quality and customer satisfaction

Review of Literature

Online shopping, referred to as online retailing or e-tailing, is growing every day in India. According to e-Bay India Census (2011), *Online Shopping is mainstream & a nationwide phenomenon: India had over 3,311 e-Commerce centers across the country*. In India, traditionally people used internet to compare and evaluate options and went back to traditional approach for the actual purchase. But this trend is changing now. Several factors like the increasing internet awareness and availability, PC penetration etc have caused an increase in online shopping. According to The Times of India's - article on Online Retail Industry published on July 3rd 2011- "*A booming economy and rising disposable incomes have contributed to the evolution of online shopping*," said Associated Chambers of Commerce and Industry of India

(ASSOCHAM) Secretary General, D S Rawat.

As the possibility of internet is expanding, it becomes a popular marketing channel. There are various differences among a physical store and its electronic counterpart such as consumers can buy things whenever they want and wherever they are through online shopping. It is a complex purchasing process that includes navigations, and searches for information, the online transactions and the customer interactions. The intensity of online shopping is expected to be increased in double digits by every year. In fact, consumers can also enjoy window shopping on the internet without enduring/feeling the pressure to purchase, unlike the traditional shopping environment. Most of the previous online shopping research works have focused on identifying the attributes of successful online store. These attributes comprised of time saving/ convenience, lower price, wider selection, entertainment, homepage, customer service and price comparison.

Research Methodology

The data has been collected from the customers who made minimum one online shopping transaction in the last year. Descriptive research design adopted to identify and describe customer expectations, influencing variables etc. In India there are thousands of online customers using online shopping websites for purchasing products. These customers constitute the study population. Judgment sampling technique is used for collecting the data. For conducting this study it is proposed to collect both primary and secondary data. The primary data is collected by administering a structured questionnaire to consumers who use internet for shopping. The questionnaire was circulated in electronic form and was completed by the respondents and used for further analysis.

Data Analysis and Interpretation

The majority of the respondents use the

Internet for more than 4 hours per day (49%). The most popular actions for which the respondents use the Internet (percentages based on responses) are as Surfing the internet, Online Shopping, Banking transaction, Chatting on Whatsapp, Messenger etc, Social Networking like Face book, Twitter. A huge percentage of the respondents (83%) use the Internet for information search former to making any purchase decisions. The various products that the respondents often looking to purchase online (based on percentage of responses) are booking of their Train/Bus / Flight Tickets, Movie / Event Tickets, Books / CDs.

The Various Features of shopping portals that the respondents think about most important (based on percentage of responses) are Payment Options available, Variety of Products Available, and the Speed& Quality of product Delivery, Security of transaction and User Friendly appearance. Most preferred payment options of the respondents are Cash on Delivery and Internet Banking.

Factors that infuriate customers the most (based on percentage of responses received) while online shopping are unsuccessful transactions and unsecured payment options. Most frequently used for shopping portals in India (based on percentage of responses) are; IRCTC, Yatra / MakeMyTrip, TicketNew, Amazon, FlipKart and EBay. Greater parts of the customers are willing to spend more than Rs.1000 for a single online shopping purchase (70%). Almost majority of the respondents (98%) agree that online shopping helps them to save time and it is more convenient. Majority of the respondents agree that it is easier to search for and compare products online. (90%). Majority of the respondents fail to see the product touch and feel while online shopping and they do not wish to wait for products till it is delivered to them. The Respondents below age of 35 years consider them as having more awareness of the Internet. This strongly influences their self-confidence to do online

shopping behavior. Respondents in the age group of 25-34 years shop online more frequently than the compared to respondents of other age groups.

Hypothesis 1

H0: There is no significant relationship between Age group and Internet expertise.

H1: There is significant relationship between Age group and Internet expertise.

Age Group	Internet Expertise			Total
	Beginner Level	Intermediate Level	Advanced Level	
15-25 yrs	1	24	22	47
26-35yrs	3	42	50	95
36-45yrs	4	22	12	38
46 & above	8	5	7	20
Total	16	93	91	200

Expected Value $E = (\text{Row Total} * \text{Column Total}) / \text{Grand Total}$

The critical value $\div 2$ at 0.05 level of significance for degree of freedom 8.

Calculated Value	58.762
Degree of Freedom	8
Level of Significance	0.05
Table value	25.5

Hence, the calculated value is greater than the table value; the Null Hypothesis H0 is rejected. Therefore there is no association between Age group and internet expertise.

Hypothesis 2

H0: There is no significant relationship between Age group and regularity of online shopping.

H2: There is significant relationship between Age group and regularity of online shopping.

Age Group	Regularity of Online Shopping			Total
	Quite Often	Sometimes	Rarely	
15-25 yrs	24	22	1	47
26-35yrs	50	42	3	95
36-45yrs	22	12	4	38
46 & above	7	5	8	20
Total	103	81	16	200

Expected value $E = (\text{Row Total} * \text{Column Total}) / \text{Grand Total}$

The critical value $\div 2$ at 0.05 level of significance from the table is 21.026 for degree of freedom 12.

Calculated Value	40.69
Degree of Freedom	12
Level of Significance	0.05
Table value	21.92

Hence, the calculated value is greater than the table value; the Null Hypothesis H0 is rejected. Therefore there is no association between Age group and regularity of online shopping.

Hypothesis 3

H0: There is no significant relationship between Gender and regularity of online shopping.

H3: There is significant relationship between Gender and regularity of online shopping.

Age Group	Regularity of Online Shopping			Total
	Quite Often	Sometimes	Rarely	
Male	45	28	17	90
Female	52	38	20	110
Total	97	66	37	200

Expected value $E = (\text{Row Total} * \text{Column Total}) / \text{Grand Total}$

The critical value $\div 2$ at 0.05 level of significance from the table is 12.96 for degree of freedom 3.

Calculated Value	12.26
Degree of Freedom	3
Level of Significance	0.05

Hence, the calculated value is greater than the table value; the Null Hypothesis H0 is rejected. Therefore there is no association between Gender and regularity of online shopping.

Conclusion

Based on the above mentioned findings, all apparatus in factors that makes an impact on

the customer satisfaction towards online shopping have major effect. In this research the researcher just not only focused on three major factors that give a major impact on customer satisfaction which are mainly product quality, brand name and shopping understanding. Various approaches have been used in finding the answers for the objectives that are stated in this research which were collected through distribution of questionnaires, as well as some of methods used to evaluate the data obtained such as, validity and reliability analysis of the data, correlation coefficient and regression analysis

The findings and outcome reflects the perceptions, preference and factors influencing satisfaction of online shopping. The consequences indicate that the respondents are becoming more internet savoir-faire every day. As they become more convinced they are ready to purchase high value products online as well. Businesses venturing into or expanding into the online market need to reduce the customer supposed risks by making shopping portals easier to steer and by providing secured payment options as per the norms of the business, ensuring speed and quality of delivery to grow and preserve customer trust, better management and classification to make up for the absent touch and feel the experience of the product etc. Efforts have to be made to be taken to educate the people to buy online shopping for the steps that need to be undertaken while making an online purchase. Furthermore, the feedback of an online buyer should be captured to identify flaws in service delivery to the customers. This can be done through online

communities and various blogs that serve as advertising and marketing tools and a source of feedback for various business enterprises.

Online shopping is becoming more accepted day by day with the enlargement in the usage of World Wide Web known as www. Consideration of customers' need for online shopping has become a major challenge for Businesses. Especially understanding the Customer attitude and Behavior towards online shopping, building improvement in the factors that manipulate consumers to do online shopping and working on various factors that affect customers to do online shopping which will help businesses to gain the competitive edge over others competitors in the market. In conclusion, having access to online shopping has truly revolutionized and prejudiced our society as a whole.

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A STUDY ON THE TOURIST ATTITUDE TOWARD SELECT TOURIST PLACES IN TAMILNADU

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Abstract

The growth of the Indian tourism industry is being impacted by several industry drivers. Favourable growth in the Indian economy, rise in middle class population and increasing levels of disposable income with increased affinity for leisure travel are some of the driving forces. With more than 65 per cent of the Indian population falling in the age group of 15-64 years, Indian travellers are more open to holidays and are keen to explore newer destinations. Besides, diverse tourism offerings such as rural, medical, pilgrimage, adventure and other forms are driving tourism growth. Increased adoption of credit culture and availability of holidays on equated monthly installments is another growth driver. The present study is tourist attitude toward select tourist places in Tamil Nadu. Conclusion will be given.

Key words: *Attractions of Tourists, Tourist Attitude, Tourist Places.*

Introduction

Tourism is a booming industry in India. It contributes 6.23 per cent to the national GDP and 8.78 per cent of the total employment in India. Despite the recession, the tourism industry has shown impressive growth in the number of foreign tourist arrivals. India is 42nd in the world rankings in terms of foreign tourist arrivals to the country. The World Travel and Tourism Council named India along with China as one of the fastest growing tourism industries for the next 10 to 15 years. Tourism is the most

vibrant tertiary sectors and strong hold of the economy. The WTTC has said that, India's competitive advantage lies in its mystical attractions with its ancient civilization and culture. The country has much to offer with attractions ranging from the world's highest mountains, vast coastline with excellent beaches, rich tropical forests, captivating wild life, desert safari, lagoon backwaters, ancient and majestic monuments, forts and palaces, diverse culture, colorful fairs, folk arts, unique hospitality, etc. Tourism development has

always been an integral part of the Five Year Plans. The National Tourism Development Policy, 2002, aims to position tourism as a major engine of economic growth and to harness its direct and multiplier effects for the employment and poverty eradication in a sustainable manner. The Tourism Ministry has also played an important role in the development of the industry, initiating advertising campaigns such as the “Incredible India” campaign, which promoted India’s culture and tourist attractions in a fresh and memorable way. Tourism industry has helped growth in other sectors as diverse as horticulture, handicrafts, agriculture, construction and even poultry. In order to bolster their top lines, tourism agencies are in pursuit of newer ways and means of achieving organic growth through strategies that enable acquisition of more tourist arrivals. Therefore, an understanding of the tourist attitude toward select tourist places in Tamilnadu would help the policy makers to formulate strategies for further improvement.

The growth of the Indian tourism industry is being impacted by several industry drivers. Favourable growth in the Indian economy, rise in middle class population¹ and increasing levels of disposable income with increased affinity for leisure travel are some of the driving forces. With more than 65 per cent² of the Indian population falling in the age group of 15-64 years, Indian travellers are more open to holidays and are keen to explore newer destinations. Besides, diverse tourism offerings such as rural, medical, pilgrimage, adventure and other forms are driving tourism growth. Increased adoption of credit culture and availability of holidays on equated monthly installments is another growth driver. With 28 world heritage sites, 25 bio-geographic zones along with a 7000 km³ long coastline India abounds in natural resources and offers a rich cultural heritage through multiple religions, traditions, fairs and festivals. Rise in FDI in the tourism sector is providing fillip to its growth. Policy actions such as 100 per cent FDI,

plans for extension of visa on arrival scheme to a larger number of countries and a five year tax holiday for 2, 3 and 4 star category hotels located around UNESCO World Heritage sites are expected to drive future growth. India is fast emerging as the preferred nation for hosting of major international events such as the Commonwealth Games held in 2010. Meetings, incentives, conventions and exhibitions tourism is on a rise on account of increased business travel in India.

Review of Literature

Matthw Walpole and Harold Goowin (1998)⁴ examined the local attitudes towards the protected area tourism and the tourism benefits on local support for Komodo National Park, Indonesia. They stated that, local support for protected areas is increasingly viewed as an important element of bio-diversity conservation. This is often predicated on the provision of benefits from the protected areas, and a common means of providing such benefits in tourism development. However, the relationship between receipt of tourism benefits and support for conservation has not been explored. The findings revealed the positive attitudes towards the tourism and high support for conservation. Positive attitudes towards tourism were positively related to the receipt of economic benefit to and to support for conservation. However, a positive relationship between receipt of tourism benefits and support for conservation was not identified.

Abdul Rahman, et al., (2009)⁵ stated that, eco-tourism and nature tourism are the two most commonly associated and contrasted terms with sustainable tourism. Nature tourism is travel to natural places, while eco-tourism is responsible travel to natural areas that conserves the environment and sustains the well-being of local people. Sustainable tourism on the other hand, is the development that meets the needs of present opportunities for the future. It is envisaged as leading to management of all resources in such a way that, economic, social

and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, and biological diversity and life support systems.

Gaurav Jaiswal, Praveen Sahu and Manita Matharu (2010)⁶ found that consumers prefer those restaurants that provide the maximum degree of satisfaction. The study concluded that various factors are responsible for affecting the choice of consumers regarding restaurants. Consumers are generally familiar with such products. They hold their attitudes and values related to purchase and consumption. Such trends differ to a greater extent. Hence, the marketers have to work harder to sell their goods, because of the diversity of values and attitudes present in the minds of consumers.

Madhavi Chockalingam and Auroubindo Ganesh (2010)⁷ stated that, tourism is an upcoming and fast growing industry in developing countries like India. Due to its newness in nature, there are some hurdles that the tourists face. It will affect the national economy and the growth of this industry. Travel and tourism have been confined to a privileged few, namely the rich, at the time of independence of India. Tourism is now calls for a perfect co-ordination among diverse segments that go to structure this industry. Tourism has grown to such dimensions and importance that it has become the largest industry in the world.

Yang Yung-Sheng (2013)⁸ reported that, the planners in tourism businesses and medical institutes, the evaluation criteria and dimensions for medical tourism marketing are determined by experts through expert interviews. The weights and correlations among the dimensions and criteria are determined by analytic hierarchy process to construct an evaluating indicator model suitable for medical tourism marketing. Furthermore the author identified five key success factors in medical tourism marketing. They are brand positioning, healthcare facility, healthcare quality, touring spots, and horizontal alliance.

Statement of the Problem

Tourism as a fast growing sector and has been endowed with vast and inexhaustible potential to enhance national income, foreign exchange and employment opportunities. The system and the style of travel and tours have duly attracted the attention of both developed and developing economies of the world. Tourism gains economic and social significance for its potentials to provide employment, generate income, earn foreign exchange, contribute towards regional development and encourage cultural exchange and national integration. Tourism sector is thus a highly complex one of many firms contributing different products and services to the tourists. Thus, the growth of tourism creates market for different industries and thus, it contributes towards the development of the overall economy of a nation. However, many factors hamper the growth of the Indian tourism industry. These need a serious and focused study and suitable solutions.

Objectives of the Study

- To study the overall tourist attitude toward select tourist places in Tamilnadu.

Sampling Technique

There are ten top tourist places in Tamilnadu, which includes Kodaikanal, Ooty, Kanyakumari, Chennai, Palani, Tiruchandur, Madurai, Rameswaram, Mamallapuram, and Tiruvannamalai. By adopting the convenient sampling, 50 tourists were selected from each destination. Thus, the sample consists of 500 tourists. The following table shows the sampling distribution of the present study.

Table – 1 Sampling Distribution

S.No.	Name of the Tourist Destination	No. of Samples
1.	Kodaikanal	50
2.	Ooty	50
3.	Kanyakumari	50
4.	Chennai	50
5.	Palani	50
6.	Tiruchandur	50
7.	Madurai	50
8.	Rameswaram	50
9.	Mamallapuram	50
10.	Tiruvannamalai	50
	Total	500

Source: Primary data

Tools for Data Collection

The present study is empirical based on survey method. The first-hand information for the study was collected from the tourism offices in the respective places. As an essential part of the study, the primary data were collected from 500 tourists with the help of interview schedule. A pilot study was conducted with 25 tourists. In the light of the experience gained from the pilot study, few changes were incorporated in the revised interview schedule. Each question was improved of its relevance and meaning by constant interaction with experts in the areas. The interview schedule was constructed based on Likert Scaling technique. The secondary data were collected mainly from journals, reports, books, etc. The data so collected have been entered into a master table and tabulated to arrive at useful conclusions.

Analysis And Interpretation

Demographic Profile of the Respondents

The demographic profile of the respondents such as gender, age, education, monthly income, purpose of visits, type of tourist, nature of tour and marital status they belong to is given in Table 2.

Table – 2 Demographic Profile of the Respondents

Demographic Profile		No. of Respondents	Percentage
Gender	Male	273	54.60
	Female	227	45.40
Age (years)	Upto 30	126	25.20
	31-40	175	35.00
	41-50	113	22.60
	51-60	49	9.80
	Above 60	37	7.40
Education	Upto SSLC	96	19.20
	H.Sc	178	35.60
	Degree	147	29.40
	PG and above	79	15.80
Monthly income (₹)	Upto 10,000	58	11.60
	10,001 - 20,000	241	48.20
	20,001 - 30,000	131	26.20
	Above 30,000	70	14.00
Purpose of visit	Pleasure	93	18.60
	Cultural interest	70	14.00
	Religious & pilgrimage	69	13.80
	Business purpose	56	11.20
	Health and medical services	115	23.00
	Meeting friends and relatives	93	18.60
	Others	4	0.80
Type of tourist	Pilgrim tourist	187	37.40
	Medical & services tourist	129	25.80
	Entertainment tourist	184	36.80
	Self organized tour	157	31.40
Nature of tour	Package tour	163	32.60
	Group tour	180	36.00
Marital status	Married	293	58.60
	Unmarried	207	41.40

Source: Primary Data

Impact of Independent Variables on the Overall Attitude

The selected independent variables like transport availed from residence, transport availed for local sight-seeing, boarding, accommodation mode, accommodation facility, shopping facilities and recreation areas might affect the overall attitude of the tourists. Therefore, an attempt was made to examine the effect of the variables on the overall attitude of the tourists by using multiple regression analysis.

Table – 3 Multiple Regression Analysis

Variable	Predicted Value		t-value	p-value
	T	Std. Error		
Constant	2.10	0.17	12.2	0.00
Transport availed from residence	0.56	0.10	5.10	0.00
Transport availed for local sight-seeing	0.00	0.04	1.00	0.30
Boarding	0.07	0.06	1.00	0.30
Accommodation mode	0.08	0.07	1.10	0.20
Accommodation facility	0.14	0.09	1.50	0.10
Shopping facilities	0.06	0.07	0.80	0.40
Recreation areas	0.05	0.06	0.80	0.40
Overall attitude	0.00	0.00	0.00	0.00

Source: Computed value

Variable	Exp. Coeff.	Partial Coeff.	Partial R Square	Significance
Transport availed from residence	0.556	0.556	0.584	0.00

The multiple correlation co-efficient analysis was employed to find out the relationship between the actual values and the predicted values. The calculated multiple correlation co-efficient is 0.768. The value of R square 0.584 means that, about 58.40 per cent of the variation of dependent variable is explained by the estimated SRP as the independent variables and the R square values are significant at 1 per cent level. Hence, the co-efficient of X_1 0.556 represents the partial efficient of transport availed from residence on significant difference holding other values as constant. The estimated positive sign implies that, such effect in positively significant difference score would increase by 0.556 for every unit in transport availed from residence and this co-efficient value is significant at 1

per cent level. The co-efficient of X_7 0.309 represents the partial effect of dependent variable as constant. The estimated positive sign implies that such effect is positive that, every unit increase in recreation areas and this co-efficient value is significant at 1 per cent level. From the above result, accommodation mode (X_4) has significant influence on overall attitude in a positive way at 1 per cent level of significance.

Table – 4 Correlation Coefficient between Dimensions and Overall Attitude of the Tourists

Overall Attitude	Transport availed from residence	Transport availed for local sight-seeing	Boarding	Accommodation mode	Accommodation facility	Shopping facilities	Recreation areas	Attitude of the tourists
Transport availed from residence	1.000	0.413**	0.183**	0.328**	0.261**	0.511**	0.128**	0.304**
Transport availed for local sight-seeing	-	1.000	0.205	0.461	0.308	0.593	0.873	0.467
Boarding	-	-	1.000	0.243	0.179	0.431	0.412	0.406
Accommodation mode	-	-	-	1.000	0.369	0.531	0.270	0.308
Accommodation facility	-	-	-	-	1.000	0.932	0.384	0.462
Shopping facilities	-	-	-	-	-	1.000	0.540	0.601
Recreation areas	-	-	-	-	-	-	1.000	0.733
Attitude of the tourists	-	-	-	-	-	-	-	1.000

Source: Computed value

Note: ** Denotes significant at 1 per cent level

The correlation co-efficient between transport availed from residence is 0.413, which indicates 41.30 percentage relationship between transport availed for local sight-seeing, and boarding at 1 per cent level of significance. The correlation co-efficient between transport availed for local sight-seeing, boarding and accommodation mode factor is 0.328, which indicate 32.80 per cent of positive relationship between transport availed for local sight-seeing, boarding and accommodation mode at 1 per cent

level of significance.

Table – 5 Rotated Factor Matrix for the Attractions of Overall Tourists

Factor	Variables	Factor Loading	Component		
			Eigen Value	Percentage of Variance	Cumulative percentage Value
I	Historic place visit	0.821	2.305	19.205	19.205
	Tradition and socio culture	0.765			
	Temple visit	0.443			
	Travels	0.517			
II	Zoo	0.879	3.273	18.933	38.136
	Cinema	0.783			
	Museum	0.701			
	Horse riding	0.906			
III	Sight seeing	0.589	1.862	15.518	53.654
	Any other programme	0.563			
IV	Boating	0.806	1.667	13.893	67.546
	Trekking	0.589			

The Principal Component Analysis. 4 Components Extracted.

It is observed from the above table that, the components play a dominant role in the variations of the score of overall tourist attitude. These components contribute to an extent 19.20 per cent of the variations in the scores of overall tourist attitude. The first factor pilgrimage tourists covered to explain 19.20 per cent of the variation in the overall tourist attitude, which are historic place visit, tradition and socio-culture, temple visit, and travels. Hence, it is concluded that, the tourist attitude consider these aspects are the important for the tourists level. Hence, these aspects are given greater importance in tourists' attitude in Tamilnadu. The second factor, enjoyment component contributes 18.93 per cent to the enjoyment related activities include zoo, cinema, and museum. Hence, these factors would contribute to tourists' attitude in the study area. The third factor, entertainment factors contributes 15.52 per cent of variation among all variables. The factor includes horse riding, sightseeing, and any other programme. The fourth factor, entertainment factors contributes 13.89 per cent of variations among all variables. This factor includes boating and trekking facility.

Conclusion

In this paper, an attempt has been made to study the attitude of the tourists in Tamilnadu. For this purpose, 500 respondents were selected. Out of 500 respondents, 33.40 per cent, 38.40 per cent, 17.40 per cent, 7.80 per cent and 3 per cent of the respondents strongly

agree, agree, neither agree or disagree, disagree and strongly disagree respectively about various factors influenced them to prefer tour in Tamilnadu. There is no significant association between demographic profiles of the respondents and factors influencing them to prefer tour in Tamilnadu. Respondents ranging from 42.20 per cent to 47.40 per cent stated that inhospitable climate, poor quality of accommodation, non-availability of right type of food, poor sanitary conditions and problems in transport facility are problems with their tour in about 48.40 per cent, 49.60 per cent, 50.80 per cent, and 52.60 per cent of the respondents' problems with respect to their tour were inadequate tourist guide services, problems in security and safety, limited shopping facility and inadequate cultural activity/ entertainment respectively. The respondents suggested suitable measures to promote tourism in the select places.

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A STUDY ON FARMERS PERCEPTION TOWARDS AGRICULTURE FINANCE IN COIMBATORE DISTRICT

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Abstract

This study examined the various sources of finance for agriculture activities, opinion of the farmers about receiving agriculture finance and the problems faced in settling the agricultural credits. Data were collected using structured interview schedule. Data were analysed using descriptive statistics, chi-square and one way ANOVA. Results shows that the farmers in Coimbatore district are mostly males, 40% of respondents are in the age group of 41-50 years, 30 % of the farmers studied are below high school 46.7% of the respondents family size are below 4 members, 46.7 % of the respondents farm size are 5-10 acres, farmers practiced mixed cropping and majority (37%) of them grew coconut. Majority of the farmers (30%) received finance from Cooperative Societies for agriculture activities. Most of the farmer's problems faced in receiving agricultural finance for low level of awareness about the banking Schemes.

Key notes: Financial Sources, Sample Farmers, Finance, Cropping Pattern

Introduction

Agriculture is a vibrant part in India's economy. 54.6% of the population is involved in agriculture and allied activities (census 2011) and it contributes 17% to the country's Gross Value Added (current price 2015-16, 2011-12 series). As per the land use statistics 2013-14, the total geographical area of the country is 328.7 million hectares, of which 141.4 million hectares is the reported net sown area and 200.9 million hectares is the gross cropped area with a cropping intensity of 142 %. The net sown

area works out to be 43% of the total geographical area. The net irrigated area is 68.2 million hectares. The Government has taken many policy initiatives for strengthening of farm credit delivery system for providing credit at lower rates of interest to support the resource requirements of the agricultural sector. The emphasis of these policies has been on providing timely and adequate credit support to farmers with particular focus on small and marginal farmers and weaker sections of society to enable them to adopt modern technology and improved

agricultural practices for increasing agricultural production and productivity. Agricultural credit flow has increased consistently over the years and it reached Rs.877,527 crore against the target of Rs.850,000 crore during 2015-16. Target for the year 2016-17 has been fixed at Rs.900,000 crore and the achievement is Rs.755,995 crore (upto September, 2016). The target of Rs. 9,00,000 crore is likely to be surpassed by the end of the financial year 2016-17.

Statement Of The Problem

The agriculture sector is important for food security, employment generation and economic growth. However, concern now is on the decline in agricultural growth. Since agriculture is a vital sector in India, there should be an end for segregation of agriculture. In Tamilnadu, agriculture is the most overriding sector in the economy. The farmers have committed suicide for the reasons are accumulated debt on the bank loans and private loans. They sell their entire gold, mortgage all their lands and farmers command no respect in the society and are looked down upon, they have no guaranteed income or sufficient income, and have no full-time work. There is unemployment, under-employment, and most of the time owing to famine, drought, floods and other natural calamities they have to migrate. The institutional lending and the institutional credit have been reduced abnormally. Farmers are to depend on moneylenders and their indebtedness lead to sell their products below the production cost. So, they are not in a position to repay the loan in time. Farmers approach banks and cannot get a loan from the bank for the mere reason of holding small size of land and hence they approach moneylenders and take money at a higher rate of interest and suffer.

Objectives Of The Study

1. To Know the various cropping pattern followed by the farmers.
2. To find out the various sources of finance for agriculture activities of the farmers

3. To draw the opinion of the farmers about receiving agriculture finance and the problems faced in settling the same.

Methodology

The study is based on the data collected from the individual farmers in Coimbatore district. Convenient sampling technique has been used in order to collect data from 300 respondents which were collected for a period of 8 months i.e from December 2016 to July 2017 through interview schedule. The secondary data have been collected from the published journal, books, magazines and websites. For the purpose of study Coimbatore district includes Valparai, Pollachi, Coimbatore and Metupalayam, The data collected were processed further with the help of the Statistical Product and Service Solution (SPSS) to analyse and interpret the data in the study. The following statistical tools namely, Chi-square Test, One-way ANOVA, Mean Score and Weighted Average Methods have been used for analysis to arrive at meaningful conclusions.

Review Of Literature

Saeed Yazdani (2006) in his study on “Analyzing the Impact of Structural Change in Iranian Agricultural Credit System” stated that Replacement of the traditional interest based credit system with an Islamic credit system was one of the fundamental changes in Iran since 1979. The Islamic credit system, offers the prospect of risk sharing between the borrower and the lender. Small farmers are likely to be risk averse and they are reluctant to go heavily into debt in order to finance investments in new technology and capital intensive methods of production which they perceive to be risky. Farmer’s decision making behaviour with regard to risk under the Islamic and interest based credit systems are explored with the aid of a simple conceptual model.

Yogendra Prasad Acharya, Uma Acharya (2006) in their study on “Sustainability of Microfinance Institution from

Small Farmers Perspective: This study is a case of rural Nepal. Our data came from in-depth individual interviews, and focus group discussions carried out in three farmers cooperative organizations (the most successful, the least successful and the median) from the same geographical area and demonstrate how local understandings and views of rural small farmers can contribute towards sustainable microfinance and poverty alleviation in rural Nepal.

Betty Kibaara and James Nyoro (2007) in their book “Expanding the Agricultural Finance Frontier: A Kenyan Case” pointed that agriculture is the mainstay of the Kenyan Economy. However, agriculture has experienced low productivity over the years. Poor access to agricultural finance has been identified as a contributing factor to low crop productivity. Kenyan agriculture has undergone some fundamental changes which have profoundly affected agricultural financial services. In addition, most financiers shy away from lending to the agricultural sector because of the co-variant risks related to rain-fed agriculture.

Lena Roussanova and Dimitar Nenkov (2007) in their study on “Agricultural Finance and Institutional Reforms in Bulgaria” revealed that agriculture has traditionally played a significant role in the Bulgarian economy. Since 1997, the government has made rapid progress in implementing a wide-ranging reform program in agriculture, the financial sector and in the economy in general. Most of these programs are continuously undergoing changes, consistent with the developments in the agricultural and banking sectors. With continuing recovery of public trust in banks, and with more than 70 per cent of banks assets owned or controlled by foreign private banks, the sector is expected to overcome conservative lending.

J. O. Oladeebo and O. E. Oladeebo (2008) in their study on “Determinants of Loan Repayment among Smallholder Farmers in Ogbomoso Agricultural Zone of Oyo State,

Nigeria” examined that socio-economic factors influencing loan repayment among small scale farmers in Ogbomoso agricultural zone of Oyo State of Nigeria. Data collected from 100 farmers from 10 villages in 2 Local Government Areas from the zone through multistage random sampling techniques were analyzed using descriptive statistics and Ordinary Least Square multiple regression analysis. Results disclosed that farmers were on the average 47 years with fewer years of farming experience with credit use (average of 4 years).

K. K. Tripathy and Prof. S. K. Jain (2007) in their study “Trends and Issues in the Access to Agricultural Finance in India: Review of Micro-finance as an Innovative Credit Delivery Mechanism” stated that the outreach and access to total bank credit has undoubtedly been improved with the bank nationalization. However, the delivery of agricultural credit remains wrought with weaknesses, negating equitable and efficient distribution, thereby affecting the viability and sustainability of formal institutions. Scarcity of credit, higher transaction costs, shortage of staff and dominance of non-institutional credit markets have necessitated follow-up services for enhancing the productive utilization of credit and repayment performance through group-lending schemes.

Results & Discussion

Table No.1 Socio-Economic Characteristics of Sample Farmers

Sl. No.	Parameter	No. of Farmers	Percentage
Sex of the Farmers			
1	Male	25	25
2	Female	75	75
Age of the Farmers			
3	Below 30	10	10
4	31-40	10	10
5	41-50	10	10
6	51-60	10	10
7	61-70	10	10
8	71 and above	10	10
Education of the Farmers			
9	No formal education	10	10
10	Below Primary	10	10
11	Primary	10	10
12	Below Secondary	10	10
13	Secondary	10	10
14	Below Tertiary	10	10
15	Tertiary	10	10
Marital Status of the Farmers			
16	Married	10	10
17	Unmarried	10	10
Occupation of the Farmers			
18	Full time	10	10
19	Part time	10	10

Source: Primary data

The table 1 explains the demographic factors of the respondents. Out of 300 farmers, 87 per cent are male and remaining 13 per cent are female. 40% of respondents are in the age group of 41-50 years, 34% of respondents are in the age group of 31-40 years, 13% of respondents are in the age group of 21-30 and above 50years. Majority of the respondents are in the age group of 41-50 years. 30 % of the respondents are below high school, 23.3% the respondents are Higher Secondary, 16.7% of the respondents are No Formal Education, 13.3% of the respondents are under the category of graduates, 10% of the respondents are post graduates and 6.7% of them belong to professional. Majority of the respondents are Below High School. 46.7% of the respondents family size are below 4 members, 26.7% of the respondents family size are 7- 9 members, 16.7% of the respondents family size are above 9 members and 10% of the respondents family size 4- 6 members. 46.7 % of the respondents farm size are 5-10 acres, 30% of the respondents farm size above 10 acres and 23.3% of the respondents farm size are below 5 acres.

Table No.2 Distribution Of Respondents According To Crops Grown

Sl. No.	Crop	No. of Respondents	Percentage
1	Coconut	111	37
2	Vegetables	54	18
3	Oilseeds	36	12
4	Banana	24	8
5	Tea	21	7
6	Sugarcane	18	6
7	Paddy	15	5
8	Maize	12	4
9	Flowers	9	3
10	Others	6	2
11	Total	300	100

Source: Primary data

Table.2 revealed that 37% of the farmers grew coconut; 18% grew Vegetables; 12% produced Oilseeds while 8%,7%, 6%,5%,4% and 3% grow Banana, Tea , Sugarcane, Paddy, Maize and Flowers. This shows that the farmers practiced mixed cropping and majority of them grew coconut.

Table No.3 Sources Of Finance For Agriculture Activities

Sl. No.	Source	No. of Respondents	Percentage
1	Cooperative Banks	90	30
2	Public Sector Banks	60	20
3	Private Sector Banks	51	17
4	Regional Rural Banks	30	10
5	Money Lenders	30	10
6	Family Savings	15	5
7	Others	14	5
8	Total	300	100

Source: Primary data

The above table provides information towards the formal and informal sources of finance. Of the 300 farmers 30 per cent have borrowed money from Cooperative Banks, 20 per cent have borrowed from Public Sector Banks, 17 percent of the borrowed from Private Money Lenders, 10 percent have borrowed from Private Sector Banks and Regional Rural Banks. Majority of the farmers (30%) received finance from Cooperative Societies for

Sl. No.	Problem	No. of Respondents	Percentage
1	Not aware of facilities available	120	40
2	Complex Documentation	60	20
3	Lack of Service	51	17
4	Insufficient loan amount	30	10
5	High-interest rate	30	10
6	Loan has taken other than banks	30	10
7	Inaccessibility to credit	15	5
8	Lack of Educational Knowledge	15	5
9	Difficulties in Opening Bank Account	15	5
10	Others	14	5
11	Total	300	100

agriculture activities.

Table No.4 Problems Faced In Receiving Agricultural Finance

Source: Primary data

The above table shows that out of the 300 farmers, strongly agree in Not aware of the facilities available (4.06), Complex Documentation (3.73), Lack of Service (3.63), Insufficient loan amount (3.56), High-interest rate (3.53), Loan has taken other than banks (3.30) Inaccessibility to credit (3.06), Lack of Educational Knowledge (3.00), Difficulties in Opening Bank Account (2.76) are the major problems faced for receiving agricultural finance.

ANOVA test has been applied to find out if there is any significant difference between the educational qualification, Farm size and their opinion on the problems faced in receiving agricultural finance.

Ho: “There is no significant difference between the educational qualification of the respondents and their opinion regarding the problems faced in receiving agricultural finance.

Table No.5- ANOVA Test

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4711.534	5	942.307	31.172	.000
Within Groups	13065.143	294	44.439		
Total	17776.677	299			

The ANOVA result shows that at 5% level of significance, with the ‘Significant value of .000’ there is significant difference between the educational qualification of the respondents and their opinion regarding the problems faced in receiving agricultural finance. Hence the hypothesis is rejected.

Ho: “There is no significant difference between the Farm size of the respondents and their opinion regarding the problems faced in receiving agricultural finance.

Table No.6- ANOVA Test

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1119.343	5	223.869	11.123	.001
Within Groups	16999.365	297	57.237		
Total	17781.407	302			

The ANOVA result shows that at 5% level of significance, with the ‘Significant value of .001’ there is significant difference between the Farm size of the respondents and their opinion regarding the problems faced in receiving agricultural finance. Hence the hypothesis is rejected.

Source Of Awareness Of Financial Sources

Communication for agriculture is also not seen as a major priority at both national or international level and the role of the media as an effective player in agricultural development.

Therefore this question is relating the ways to know about formal source are gathered and given in the following table. Table 4.7 presents the respondent’s opinion about the various media through which they get awareness about the various financial sources.

Table No.7 Source of Awareness of the financial sources

Sources	Count	Percentage
Fellow Farmers	156	40.1
Newspapers	100	33.3
Radio	10	3.3
Television	30	16.7
Internet	30	6.6
Total	300	100.0

Source: primary

Table 7 says that, 40.1 % of the respondents are aware of the financial sources through fellow farmers, 33.3% of the respondents are aware through Newspapers , 16.7% of the respondents are aware through Television, 6.6% of respondents are aware through internet and 3.3 % of respondents are aware through Radios Majority of the respondents are aware of the financial sources through fellow Farmers, because it is an easy way to provide information.

Chi-Square test has been applied to find out if there is any significant difference between the demographic factors educational qualification and respondent’s Awareness of the various financial sources

Ho: “There is no significant relationship between the demographic factors and the respondent’s awareness of various financial sources through different media.

Table No.8 - Chi-Square Test

Demographic Factors	Total	df	Significance	Sig. (2-tailed)
Sex	300	1	.300	.578
Education Level	300	3	.300	.821
Family Income	300	4	.300	.821
Total	300	8	.300	.821

Based on the chi-square test, it is clear that all the demographic variables have significant relationship with the respondent’s awareness of various financial sources through different media at 5% level of significance. Hence the hypothesis is rejected. The demographic factors

such as Sex, Educational qualification, years of farming and area of living of the respondents have direct impact on the respondent's awareness of various financial sources.

Findings of the study

- ❖ Majority (40 percent) of the farmers are in the age group of 41-50 years
- ❖ Majority (30 percent) of the farmers studied are below high school
- ❖ Majority (46 percent) of the farmers family size are below 4 members
- ❖ Majority (46.7 percent) of the farmers farm size are 5-10 acres
- ❖ Most of the farmers practiced mixed cropping and majority 37 percent of them grew coconut
- ❖ Majority of the farmers 30 percent received finance from Cooperative Societies for agriculture activities.
- ❖ Most of the farmer's problems faced in receiving agricultural finance for not aware of the facilities available.
- ❖ The ANOVA result shows that at 5 percent level of significance, with the 'Significant value of .000' there is significant difference between the educational qualification of the farmers and their opinion regarding the problems faced in receiving agricultural finance.
- ❖ The ANOVA result shows that at 5percent level of significance, with the 'Significant value of .001' there is significant difference between the Farm size of the farmers and their opinion regarding the problems faced in receiving agricultural finance.
- v Chi-Square test result shows that at 5% level of significance, demographic variables have significant relationship with the respondent's awareness of various financial sources through different media.

Conclusion

The farming community in India consists of about 121 million farmers of which only about 20 per cent avail crop loans from financial institutions and only three fourth of those are insured. The remaining 80 per cent (96 millions) are either self-financing or depend upon informal sources for their financial requirements. Most of the farmers are illiterate and do not understand the bureaucratic and other requirements of formal financial institutions. Agricultural finance enables the farmer to procure the necessary wherewithal of production and creates conducive climate for enhanced output. Since Agricultural finance uses a "push effect and has a catalytic role in development process, provision of sufficient, timely and liberal finance to the farmer becoming a vital part of the agricultural developments in India. As a result, agricultural finance in the country is provided through three main channels, viz., commercial banks

including private sector banks in the recent years, regional rural banks and cooperative societies. From this study farmers view not aware of the facilities available in banks, do not provide finance in time and there is no sanction of sufficient amount. A special care should be given to provide finance in time which will assist better progress in agriculture production and also farmers social conditions in this study area.

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BIOEFFICACY OF RHIZOSPHERE ANTAGONISTIC STREPTOMYCES SP FOR THE MANAGEMENT OF BROWN LEAF SPOT OF RICE

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Abstract

Bioefficacy of rhizosphere antagonistic Streptomyces sp for the management of Brown leaf spot of rice isolate the native Streptomyces sp from rhizosphere of rice plants from different locations. The in vitro efficacy of native rhizosphere Streptomyces sp against brown spot pathogen of rice was done by dual plate technique and their compatibility with other biocontrol agents and to assess the efficacy of Streptomyces sp in enhancing the plant growth checked by roll towel method. The effect of antagonistic Streptomyces against brown spot pathogen of rice under field condition

Keywords: Rice- Streptomyces - Helminthosporium oryzae

Introduction

In Tamil Nadu, rice production is limited very much due to various diseases caused by fungi, bacteria and virus. In Cauvery delta, Brown spot of rice is very common in rice crop both in kuruvai and samba/thaladi seasons. The disease cause significant yield reduction in rice crop. Among the number of disquieting diseases, brown spot of rice caused by *Helminthosporium oryzae* is most disastrous and reported in all rice expanse of the world (Singh and Singh, 2000). Although this disease has been abandoned and ignored as a major rice disease, but history reveals that the famous Bengal famine in 1942 occurred due to this ruinous problem which caused significant losses to humanity (Padmanabhan, 1973). Brown spot fungus attacks the plant at any growing stage, causing seedling and adult plant infection. It appears on the foliage as scattered brown spot

that coalesces and result in the whiting and yellowing of the leaves. Moreover, it inhibits germination, causing rotting of seeds, roots and coleoptiles. Poor germination and poor seedling vigor further cause considerable economic loss (Mia and Nahar, 2001; Naeem *et al.*, 2001; Malavolta *et al.*, 2002)

The use of chemicals for the disease management has been found to be with limited success. The chemicals used at the ear head stage lead to environmental pollution, residual toxicity and development of resistance by the pathogen besides necessitating repeated application involving more expenditure on plant protection.

Several studies have reported the potential of actinomycetes to control diseases caused by diverse phytopathogens such as *Alternaria solani* and *Helminthosporium oryzae*

(Chattopadhyay and Nandi, 1982), *Phytophthora fragariae* var *rubi* (Valois *et al.*, 1996), *Macrophomina phaseolina* (Hussain *et al.*, 1990), *Sclerotium rolfsii* (Pattanapitpaisal and Kamlandharn, 2012), *Sclerotinia sclerotiorum* (Baniyadi *et al.*, 2009) *Alternaria brassicicola* (Tahvonen and Avikainen, 1987). Actinomycetes constitute a morphologically diverse group, distinguished from other Gram-positive bacteria by their filamentous growth and GC-rich DNA (Lacey, 1997). Actinomycetes are metabolically and morphologically more complex than sessile bacteria (Doubou *et al.*, 2001). Metabolically, they are prolific producers of an array of secondary metabolites, including antimicrobial agents, plant growth hormones and siderophores.

With this background, the present study is proposed to isolate, screen effective *Streptomyces* for the management of brown spot of rice. Objectives 1. To collect and isolate the native *Streptomyces* sp from rhizosphere of rice plants from different locations 2. To study *in vitro* efficacy of native rhizosphere *Streptomyces* sp against brown spot pathogen of rice and to check their compatibility with other biocontrol agents and to assess the efficacy of *Streptomyces* sp in enhancing the plant growth checked by roll towel method 3. To study the effect of antagonistic *Streptomyces* against brown spot pathogen of rice under field condition

Materials and methods

Isolation of pathogen

Soil collected from the Tamil Nadu rice Research institute field was filled in 15 cm diameter earthen pots. Rice seeds were sown thickly in the pots. After sowing, the pots were kept under shade and watered daily to induce damping off incidence. After 14 days, seedlings showing damping off symptom were collected and the pathogen was isolated by tissue segment method using potato dextrose agar medium (Rangasamy, 1972). The isolates were purified

in plain agar medium by single hyphal tip method (Riker and Riker 1936). Two isolates obtained from affected seedlings grown on nursery soil and among the two isolates based on virulence assay, the virulent isolate was used for further studies.

Identification of Pathogen

The mycelial disc from the purified pathogen was dissolved in water and mycelium containing water droplets was taken on a microscopic slide and was exposed under 100 X magnification. The mycelia and spore characters were recorded and based on the spore morphology the pathogen was identified up to species level.

Isolation of Actinomycete *Streptomyces* from the soil

The soil samples were collected from rhizosphere regions of rice from different places. The samples were sieved and 2 g soil samples were taken for isolation. The soil samples were suspended in 25 ml basal salt solution (5.0 g/l KH_2PO_4 and 5.0 g/l NaCl) and shaken in rotary shaker (150 rpm) at 28 °C for 30 min. The soil suspensions were diluted and heated at 50 °C for 6 min. Subsequently 0.1 ml of diluted soil suspensions were spread into Starch-Casein agar (Benjaphorn *et al.*, 2008) plates which were supplemented with 50 µg/ml of filter sterilized cycloheximide to inhibit fungal growth and incubated at 28 °C for 12-14 days. Colonies on the agar plates were picked on the basis of their morphological character. A total of fifteen isolates were isolated from the samples collected from different geographical locations.

In vitro testing of actinomycete *Streptomyces*

The antagonistic effect of actinomycete *Streptomyces* against *H. oryzae* was assessed by dual culture method on PDA medium (Dennis and Webster, 1971). In sterilized petriplates medium was allowed to settle for 1 hour. Then the actinomycete *Streptomyces* were streaked at the periphery of the petriplate

and incubated for 48 hours for good growth. After 48 hours 9 mm disc of *H.oryzae* was placed just opposite to the bacterial streak. Three replications were maintained. The growth was measured at every six hours interval. From these the most effective actinomycete *Streptomyces* antagonist was selected for further studies

Biochemical characterization

Biochemical characteristics of isolated actinomycetes was determined by the method described by Shirling and Gottlieb (1966). All tests were performed at room temperature.

Starch hydrolysis

Actinomycetes isolate was streaked on solidified starch agar medium and incubated for 5 days. The Petriplate was flooded with iodine solution for 30 seconds after incubation and drained. The amylase positive activity was indicated by the formulation of yellow zone around the colonies.

Gelatin hydrolysis

Actinomycetes isolate was tested for the production of gelatinase, which is proteolytic exo enzyme and capable of hydrolyzing gelatin. Solidified gelatine agar plates were streaked with the actinomycetes isolates and incubated for 5 days at 30°C. Hydrolysis was confirmed by flooding the plates with mercuric chloride solution

Casein hydrolysis

The isolate were streaked on skim milk agar plates and incubated at room temperature for 5 days. Hydrolysis of casein was confirmed by flooding the plates with mercuric chloride solution and the plates were observed for the presence of clear zone surrounding the colonies and considered for positive reaction.

Hydrogen sulfide production test

Sulfide indole motility (SIM) agar deep tubes were stab inoculated with actinomycetes isolates and incubated at 35°C for 4-5 days. Black colouration along the line of stab

inoculation indicates H₂S production. Hydrogen sulphide production was carried out according to (Cowan, 1974).

Indole production test

The actinomycetes isolates were inoculated into glucose tryptone broth and incubated for 5 days. About 0.3 ml of Kovac's reagent was added and mixed well. After incubation, the reddening of the alcohol layer within a few minutes indicates indole production by the culture.

Methyl red Voges proskauer test

MR-VP tests were performed to differentiate bacteria that produce acid from those that produce acetoin, a neutral product. The actinomycetes isolates were inoculated into MR-VP broth and incubated at 35°C for 4-5 days. The positive Methyl red test was indicated by change in colour of broth from yellow to red by the addition of methyl red indicator after incubation. Positive test of Voges Proskauer was indicated by the development of red colour in MRVP broth by addition of Baritts' reagent

Urease test

Urease test of actinomycetes isolates was performed on urea agar containing the pH indicator phenol red. The actinomycetes isolates were inoculated and incubated for 5 days. The development of red colour in the broth indicates the positive reaction for the test.

Efficacy of actinomycete *Streptomyces* against *H.oryzae* under glass house conditions.

Preparation of bio-formulation

Actinomycetes cultures were grown in molasses broth for 20 days. Then the 400 ml broth was mixed with 1 kg of talc powder and 5 g of Carboxy methyl cellulose. Allowed to dry in shade for 2 days to get 20% moisture level. Fifteen gram of each bio formulations were used for pot culture studies.

In vivo studies

An experiment was conducted in glass house to test the efficacy of effective actinomycetes *Streptomyces* in reducing the damping off disease incidence in rice variety ADT 46. Two delivery methods were adopted 1. Seed treatment and 2. Soil application.

Seed treatment with effective isolates of actinomycetes *Streptomyces*

Seeds of rice variety Co1 were treated with actinomycete *Streptomyces* isolate @ 10g/Kg of seed with small amount of sterile distilled water. Treated seeds were sown in pathogen inoculated soil at the rate of 25 seeds per pot. Each treatment was replicated three time and the pots were uniformly irrigated daily.

Soil application of effective isolates of actinomycete *Streptomyces*

Actinomycete *Streptomyces* was added to the soil @ 10 g/pot, five days prior to the addition of pathogen inoculum and the pathogen inoculum was added one day prior to seed sowing. Fungicide was soil drenched one day prior to sowing. Rice seeds ADT 46 was used for sowing at the rate of 25 seeds per pot. Pots were uniformly irrigated daily. Three replications were maintained in each treatment.

Compatibility among bacterial strains

Streptomyces strains were tested for their compatibility among each other by following the method described by Fukui *et al.*, (1994). The compatibility was determined for *Streptomyces* and other biocontrol strains by using Nutrient Agar (NA) medium. The bacterial strain *Streptomyces sp* was streaked horizontally on NA medium and the test strain was streaked vertically from the streak and incubated at room temperature. Compatibility was tested by overgrowth or by inhibition of *Streptomyces* and *test* strains by incubating at room temperature and by making observations over a period of 72 h.

Results and discussion

Biological control of plant pathogens using

antagonistic plant growth promoting microorganisms has been considered a more natural and environmentally acceptable alternative to the existing chemical control methods (Weller *et al.*, 2002; Bhattacharyya and Jha, 2012). It has been suggested that antagonistic microorganisms isolated from the root or rhizosphere of a specific crop may be better adapted to that crop and may offer better control of diseases than microorganisms originally isolated from other plant species (Cook, 1993). Several studies have reported the potential of actinomycetes to control plant diseases (Chattopadhyay and Nandi 1982; Tahvonen and Avikainen 1987; Hussain *et al.*, 1990; Hodges *et al.*, 1993; Valois *et al.*, 1996; Gyenis *et al.*, 2003; Baniyadi *et al.*, 2009; Pattanapitpaisal and Kamlandharn, 2012; Adhilakshmi *et al.*, 2013). In the present study actinomycetes were isolated from the rhizosphere soil collected from different parts of Tamil Nadu, India. These isolates were tested for their efficacy in suppressing mycelial growth of *H.oryzae* and *Streptomyces sp* *in vitro*.

Survey for collection of *Streptomyces sp*

Actinomycetes was isolated from rhizosphere soils of rice collected from different parts of Tamil Nadu, India. Soil samples was suspended in sterile water (10%) and agitated for 30 min at 420 rpm. The supernatant was serially diluted and plated on the Ken Knight's medium (Allen, 1953). The strains was identified based on Bergey's Manual of Systematic Bacteriology (Krieg and Holt, 1984). The culture was named as Str1-7

Survey for collection of Brown spot of rice

The diseased rice leaf showing the typical symptom of Brown spot was collected from different districts of Tamil Nadu. The infected portion of leaf showing the brown spot symptoms was cut into small bits, surface sterilized in 0.1 per cent mercuric chloride solution for 30 sec., washed in repeated changes of sterile distilled water and placed on to sterilized PDA medium poured in sterilized Petri dishes. The plates was incubated at room temperature ($28 \pm 2^\circ \text{C}$) for five days and

observed for the fungal growth the fungus was purified by single spore isolation technique and the purified isolates were maintained on PDA slants for further studies. The isolates from different districts was assigned number and maintained for further studies.(Adhi)**Isolation and characterization of actinomycete *Streptomyces*** Actinomycetes are important soil microorganisms and are best known for their ability to produce antibiotics. Evidence indicates that actinomycetes are quantitatively and qualitatively important in the rhizosphere, where they may influence plant growth and protect plant roots against invasion by root pathogenic fungi (Crawford *et al.*, 1993). In the present study a total of fifteen isolates of actinomycete *Streptomyces* have been isolated and characterized based on the morphology and also molecular means. In the study all the isolates were maintained on the Starch Casein medium. The possibility of exploiting *Streptomyces* for the management of the soil borne diseases have been discussed a long ago by many authors (Elizabeth *et al.*, 1999; Handelsman and Stabb, 1996). (pg)

Observation of brown spot spores under light microscope

The morphological characters viz., growth, colour, septation of the mycelium, conidia, size (length and width) and shape of the conidia was observed. The measurement of 100 spores was observed under the microscope in respect of each isolate by using light microscope the spore of the brown spot was slightly curved, widest at the middle and tapering toward the hemispherical apex, where their width approximates half the median width. Mature conidia are brownish with a moderately thin peripheral wall.



Fig:

Brown spot of Rice

Observation of *Streptomyces* sp under light microscope

The morphological characters of *Streptomyces* sp conidia was observed. The measurement of 100 spores was observed under the microscope in respect of each isolate by using light microscope the spore of the *Streptomyces* was Smooth Conidia and

aerial sp with vegetative hyphae of *Streptomyces* branches



Fig 2: Conidia Of *Streptomyces* Sp

Sl. No.	Location	Year	Incidence (%)
1	Madurai	2011	100
2	Tamil Nadu	2012	100
3	Tamil Nadu	2013	100
4	Tamil Nadu	2014	100
5	Tamil Nadu	2015	100
6	Tamil Nadu	2016	100

Table 1. survey for the incidence of Brown spot incidence in cauvery delta zone]

Field surveys were conducted in 5 districts of Tamil Nadu . A total of 20 leaf sample were collected from the above districts. The Per cent Disease Index was worked out for each sample. The results revealed that the PDI ranged from

Sl. No.	Location	Year	Incidence (%)
1	Madurai	2011	100
2	Tamil Nadu	2012	100
3	Tamil Nadu	2013	100
4	Tamil Nadu	2014	100
5	Tamil Nadu	2015	100
6	Tamil Nadu	2016	100

28.84-.76.53

Table 2: In vitro efficacy of bio control Agents against *Helminthosporium oryzae*

Seven *Streptomyces* isolates were screened against *Helminthosporium oryzae* to test their efficacy *in vitro*. Among the isolates, Str 5 showed a maximum per cent inhibition of 78.26 followed by Str3 isolate with 69.56 per cent. The control plate recorded the mycelial growth of 46 mm growth .

The studies on the persistence of efficacy of actinomycetes *Streptomyces* against the radial growth of *H. oryzae* revealed a bipolarized activity. The reason for the change in inhibitory activity of *Streptomyces* sp isolate could be decrease in antibiotics production at the later hours or the degradation of secondary metabolites into a non toxic form in the later hours of incubation. From this study it is implied that the isolate showing the inhibitory effect in the early hours of incubation is not effective in the later hours of incubation indicating persistent efficacy of antagonists for selection of promising agent for management of disease.

Pridham *et al.*, (1956) made an extensive study using antagonistic *Streptomyces* culture filtrates to control foliage diseases. Prapagdee *et al.* (2008) reported on the inhibition of growth of *C. gloeosporioides* as a response to the culture filtrates of *Streptomyces hygroscopicus* accompanied by marked cellular changes including hyphal swelling, distortion and bulbous roundedness on hyphal structure. Getha and Vikineshwary (2002) also agreed with the earlier works observed bulging of hyphal tips of *Colletotrichum* mycelium treated with cell free culture filtrate of *S. hygroscopicus*. Chattopadhyay (1982) also confirmed that the when culture filtrate of *S. longisporus* was highly inhibitory to *H. oryzae*

The present study revealed that the actinomycete *Streptomyces* isolate KVT was

highly inhibitory to the pathogen *P. aphanidermatum* due to the production of an antifungal substance, which was liberated in the culture media.

Biochemical test for *Streptomyces* sp

Identified isolate *Streptomyces* sp. produced amylase and protease enzyme that were confirmed by starch, casein hydrolysis test,

Sl. No.	Isolate	Starch Hydrolysis	Casein Hydrolysis	Gelatin Hydrolysis	Indole Production	Voges Proskauer	Methyl Red
1	Str 1	+	+	+	+	+	+
2	Str 2	+	+	+	+	+	+
3	Str 3	+	+	+	+	+	+
4	Str 4	+	+	+	+	+	+
5	Str 5	+	+	+	+	+	+
6	Str 6	+	+	+	+	+	+
7	Str 7	+	+	+	+	+	+
8	Str 8	+	+	+	+	+	+
9	Str 9	+	+	+	+	+	+
10	Str 10	+	+	+	+	+	+

Indole, Vogues Proskauer and Methyl red test of *Streptomyces* sp.

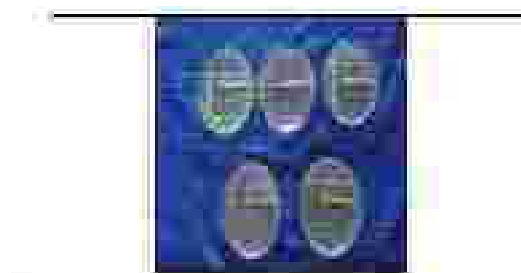
Table 1. Biochemical characterization of *Streptomyces* sp

Characterization of actinomycetes

The above five strains were identified based on Bergey's Manual of Systematic Bacteriology (Krieg and Holt, 1984). All the five isolates were found to be Gram positive. The growth of all the five isolates were maximum in molasses medium and less growth on glycerol medium. The maximum growth was observed when the

Compatibility of Actinomycete with other microorganism

Frage	Antwortverteilung				
	ja	nein	uns	we	fr
Gründungsphase:					
Aufbau	4	0	0	0	0
Informations	0	0	0	0	0
Anleitung					
Wachstumsphase:	10	10	10	0	0
Anleitung	0	0	0	0	0



Test result	Soil penetration (kN)	Soil strength (kN)	Soil strength (kN)	Soil strength (kN)
1st	0	715	710	710
2nd	0	277	100	100
3rd	0	410	710	710
4th	0	354	710	710
5th	0	510	610	610

Table 2. Compatibility of *Streptomyces* sp

1. ☐ **Yes**
 2. ☐ **No**
 3. ☐ **Not sure**



TNAU 14 5. *Azospirillum brasiliense* strain

$$\text{Vigour index} = \text{Seed germination (\%)} \times \text{Seedling Length (Shoot + Root Length (cm))}$$

Assess the efficacy of *Streptomyces* sp in enhancing the plant growth checked by roll towel method

The effect of *Streptomyces* and Mancozeb fungicide on Brown spot seed infection, seed germination and seedling vigour in the variety ADT 46 was assessed by standard blotter method and roll towel method and the results are presented in table 3 . All the biocontrol agent and fungicide treatments have significantly reduced *H.oryzae* seed infection in rice when compared to untreated control. The

Streptomyces sp treatment was found significantly superior than biocontrol agents in reducing the *H.oryzae* seed infection. Seed germination, root and shoot length and seedling vigour was significantly higher in all the treatments when compared to control.

Among the different bioagents tested for their efficacy in the management of seed-borne infections of *H.oryzae* seed treatment with *Streptomyces* 1, showed least seed infection of 46.72 per cent with maximum per cent germination of 95.3 per cent followed by *Streptomyces* 2 with per cent seed infection, per cent germination and vigour index of 518.40

The effect of antagonistic *Streptomyces* sp against brown spot pathogen of rice under Pot culture conditions.

S.No	Treatments	Post inoculation spray	
		Seed infection (%)	Seed germination (%)
1	Control	87.14	46.72
2	Mancozeb	46.72	95.3
3	<i>Streptomyces</i> 1	46.72	95.3
4	<i>Streptomyces</i> 2	46.72	95.3
5	<i>Streptomyces</i> 3	46.72	95.3
6	<i>Streptomyces</i> 4	46.72	95.3
7	<i>Streptomyces</i> 5	46.72	95.3
8	<i>Streptomyces</i> 6	46.72	95.3
9	<i>Streptomyces</i> 7	46.72	95.3
10	<i>Streptomyces</i> 8	46.72	95.3
11	<i>Streptomyces</i> 9	46.72	95.3
12	<i>Streptomyces</i> 10	46.72	95.3
13	<i>Streptomyces</i> 11	46.72	95.3
14	<i>Streptomyces</i> 12	46.72	95.3
15	<i>Streptomyces</i> 13	46.72	95.3
16	<i>Streptomyces</i> 14	46.72	95.3
17	<i>Streptomyces</i> 15	46.72	95.3
18	<i>Streptomyces</i> 16	46.72	95.3
19	<i>Streptomyces</i> 17	46.72	95.3
20	<i>Streptomyces</i> 18	46.72	95.3
21	<i>Streptomyces</i> 19	46.72	95.3
22	<i>Streptomyces</i> 20	46.72	95.3
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from the rhizosphere of field-grown tomato has been reported to suppress damping-off of tomato which was caused by *P. aphanidermatum* (Sabaratnam and Traquair, 2002). Tahvonen, (1982) reported that the isolates of *Streptomyces* spp. were assessed in Finland for 20 years for their ability to control fungal diseases. *Streptomyces* have been implicated in antagonism of a variety of plant pathogens. Trejo-Estrada *et al.*, (2008) isolated *Streptomyces violaceusniger* from turf grass rhizosphere and it inhibited seven soil borne pathogens viz., *Fusarium oxysporum*, *Pythium ultimum*, *Pythium aphanidermatum*, *Gaeumannomyces graminis*, *Colletotrichum graminicola*, *Rhizoctonia solani*, *Microdochium nivale* and *Sclerotinia homeocarpa*. The findings suggest that the possibility of exploitation of *Streptomyces* spp in control of soil borne diseases including *P. aphanidermatum*.

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WOMEN'S EMPOWERMENT IN INDIA

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Abstract

The present paper is to analyze the status of women empowerment in India using various indicators like women's household decision making power, financial autonomy, freedom of movement, political participation, acceptance of unequal gender role, exposure to media, access to education, experience of domestic violence etc.. based on data from different sources. The study reveals that women of India are relatively disempowered and they enjoy somewhat lower status than that of men in spite of many efforts undertaken by government. Gender gap exists regarding access to education and employment. Household decision making power and freedom of movement of women vary considerably with their age, education and employment status. It is found that acceptance of unequal gender norms by women are still prevailing in the society. Women's exposure to media is also less relative to men. Rural women are more prone to domestic violence than that of urban women. A large gender gap exists in political participation too. The study concludes by an observation that access to education and employment are only the enabling factors to empowerment, achievement towards the goal, however, depends largely on the attitude of the people towards gender equality.

Key words: Women Empowerment, Gender Equality, Political Participation, Gender Gap

Introduction

As we all know that India is a male dominated country where woman is forced to take care of her family and live in her home along with many other restrictions. 50% of the population in India consists of women who are not empowered and are restricted by many sources. In such a situation, we cannot say that our country will be developed in the future. If we want to make our country a developed country, it is very necessary to empower women along with the efforts of men, government and laws. The need of women empowerment arose

because of the gender discrimination and male domination in the Indian society since ancient time. Women have been given a special place in every religion and this will help in the prevention of many ill practices (including physical and mental) against women as a norm since ages. In the ancient Indian society, there were many ill practices like sati pratha, nagarvadhu system, wife burning, child marriage etc. But now we can find discrimination in the form of dowry system, sexual violence, domestic violence, female infanticide, pardapratha, sexual harassment at

work place, child labour etc. All such ill practices are due to the male superiority complex and patriarchal system of the society.

In order to provide safety to women and reduce crime against women in India, government has passed another act Juvenile Justice (Care and Protection of Children) Bill, 2015 (especially after Nirbhaya case when an accused juvenile was released). This act is the replacement of the earlier Indian juvenile delinquency law of 2000 (Juvenile Justice (Care and Protection of Children) Act, 2000) where the juvenile age is reduced from 18 to 16 years in cases of heinous offenses.

Historical background

From ancient to modern period, women's condition-socially, politically and economically- has not remained same and it kept changing with times. In ancient India, women were having equal status with men; in early Vedic period they were very educated and there are references of women sages such as Maitrayi in our ancient texts. But with the coming of famous treatise of Manu i.e. Manusmriti, the status of women was relegated to a subordinate position to men.

All kinds of discriminatory practices started to take form such as child marriage, devadashi pratha, nagar vadhu system, sati pratha etc. Women's socio-political rights were curtailed and they were made fully dependent upon the male members of family. Their right to education, right to work and right to decide for themselves were taken away.

During medieval period the condition of women got worsened with the advent of Muslim rulers in India; as also during the British period. But the British rule also brought western ideas into the country. A few enlightened Indians such as Raja Ram Mohan Roy influenced by the modern concept of freedom, liberty, equality and justice started to question the prevailing discriminatory practices against women. Through his unrelenting efforts, the British were

forced to abolish the ill-practice of Sati. Similarly several other social reformers such as Ishwar Chandra Vidyasagar, Swami Vivekananda, Acharya Vinoba Bhave etc. worked for the upliftment of women in India. For instance, the Widow Remarriage Act of 1856 was the result of Ishwar Chandra Vidyasagar's movement for improving the conditions of widows.

Indian National Congress supported the first women's delegation which met the Secretary of State to demand women's political rights in 1917. The Child Marriage Restraint Act in 1929 was passed due to the efforts of Mahommad Ali Jinnah, Mahatma Gandhi called upon the young men to marry the child widows and urged people to boycott child marriages. During freedom movement, almost all the leaders of the struggle were of the view that women should be given equal status in the free India and all types of discriminatory practices must stop. And for that to happen, it was thought fit to include such provisions in the Constitution of India which would help eliminate age-old exploitative customs and traditions and also such provisions which would help in empowering women socially, economically and politically.

Constitution Of India And Women Empowerment

India's Constitution makers and our founding fathers were very determined to provide equal rights to both women and men. The constitution of India is one of the finest equality documents in the world. It provides provisions to secure equality in general and gender equality in particular. Various articles in the Constitution safeguard women's right by putting them at par with men socially, politically and economically.

The Preamble, the Fundamental Rights, DPSPs and other constitutional provisions provide several general and special safeguard to secure women's human rights.

International Commitments Of India As To Women Empowerment

India is a part to various International conventions and treaties which are committed to secure equal rights of women. One of the most important among them is the Convention on Elimination of All Forms of Discrimination against Women (CEDAW), ratified by India in 1993.

These various national and International commitments, laws and policies notwithstanding women's situation on the ground have still not improved satisfactorily. Varied problems related to women are still subsisting; female infanticide is growing, dowry is still prevalent, domestic violence against women is practised; sexual harassment at workplace and other heinous sex crimes against women are on the rise. This disparity is due to lack of education and job opportunities and negative mind set of the society which does not approve girls' education even in 21st century.

Political empowerment (decision making):

Women's equality in power sharing and active participation in decision making, including decision making in political process at all levels should be ensured for the achievement of the goals of empowerment. The measures have been taken to guarantee women equal access to and full participation in decision making bodies at every level, including the legislative, executive, judicial, corporate, statutory bodies, as also the advisory Commissions, committees, Boards, Trusts etc.. A bill for reservation in parliament and State Legislative Assemblies is also waiting to be passed by the parliament.

The Convention on political Rights of Women, 1954, empowered women with three basic rights, namely – women shall be entitled to vote in all elections on equal terms with men, without any discrimination; women shall be eligible for election to all publicly elected bodies established by national law on equal

terms with men and without any discrimination; and women shall be entitled to hold public office and to exercise all public functions on equal terms with men.

Women in difficult circumstances

In recognition of the diversity of women's situations and in acknowledgement of the needs of specially disadvantaged groups, measures and programmes should be undertaken to provide them with special assistance. These groups include women in extreme poverty, destitute women, women in conflict situations, women affected by natural calamities, women in less developed regions, the disabled widows, elderly women, single women in difficult circumstances, women heading households, those displaced from employment, migrants, women who are victims of marital violence, deserted women and prostitutes etc..

The said directions would relieve the human problem by rehabilitation of unfortunate fallen women caught in the trap of prostitution; their children would be brought into mainstream of the social order. These directions would enable them to avail the equality of opportunity and the status of dignity of person which is the arch of the constitution.

Empowerment under personal laws

A) Safeguard of women married to nri

The Supreme court has highlighted the need and necessity for appropriate steps to be taken to safeguard the interests of women married to NRIs and issued the following guidelines; a foreign court may not annul the marriage between a NRI and an Indian woman, which has taken place in India; provisions may be made for adequate alimony to the wife in the property of the husband both in India and abroad and the decree granted by the Indian Courts may be made executable in foreign Courts.

B) Right of maintenance from husband

According to the Muslim customs, a Muslim husband was liable to maintain the wife

only during *iddat* period. But in 1985, the Supreme Court held that if, the divorced woman is able to maintain herself, the husband's liability ceases with the period of *iddat*, but if she is unable to maintain herself after the period of *iddat*, she is entitled to maintenance under section 125 of the Code of Criminal Procedure, 1973. The Supreme Court held that a Muslim divorced woman, as long as she does not remarry, is entitled to claim maintenance from her husband under section 125 of Criminal Procedure code, 1973 after expiry of period of *iddat*, even in presence of Muslim Women Act, 1986.

C. Women have equal rights under adoption and guardian law

The Personal law Amendment Act, 2011, has amended the Hindu Adoption and Maintenance Act, 1956, and the Guardian and Wards Act, 1890 to bring at par with husband. The Supreme Court held that, the mother can act as natural guardian of minor under the Hindu Minority and Guardianship Act, 1956, even when the father is alive.

D. Property rights of women

The Married Women's Property Act, 1874, provides certain liabilities on the husband of a married woman. But this Act is not applicable to any married woman who at the time of her marriage professed the Hindu, Mohammedan, Buddhist, Sikh or Jain religion, or whose husband, at the time of such marriage, professed any of those religions. Married women's wages and earnings shall be their separate property. This Act further explains the liability of husband and wife when arises in cases of post- nuptial and ante- nuptial debts, or breach of trust. Any benefit from the insurance of herself and her husband shall also be their separate property. At present this provision is also applicable to Hindus and

Mohammedans. The Hindu Succession (Amendment) Act, 2005, brings a daughter at par with son in getting equal share in the inherited property from the parents

Conclusion

The government is approaching women empowerment, but is still far away from the goals set up by the constitution and Indian commitments to the international fora. The introduction of women reservation in local self government has surely empowered them to participate in decision making to participate in family decisions and their nomination in commissions and Committees for making of women policy. On the other hand, trend of crimes against women is constantly increasing but most of them are domestic violence like cruelty by husband and his relatives, molestations, eve teasing and sexual harassment which are result of another form of women empowerment, as now they have courage to report the incidents. The approach of police, prosecution and judiciary also has changed towards the victim woman in cooperating with her in creating women friendly environment. These legislations, policies and schemes are not decorated by words on paper but create rights for women. So, implementing authority has to empower the women by enforcing these laws in true spirit. We should train and educate our male children to respect women of any age.

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