

# SAGAR

## International Journal of Management and Research

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## **Use of Alternative Medicine for Sinusitis and Dental Caries and Impact of Demographic Factors**

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### **Abstract**

*The main objective of the study is to access the perception of patients about herbal medicine and alternative to modern medical practices. Its subsidiary objective of the study include awareness about herbal medicine, and attempt to know the level of satisfaction with herbal medicine.*



## Use of Alternative Medicine for Sinusitis and Dental Caries and Impact of Demographic Factors

### Introduction

Since ages, mankind has been struggling to fight against diseases and to maintain good health. With evaluation of human species, new types of diseases have also evolved along with development of medical science. Medical science has developed to protect mankind from all kinds of ailments, living healthy life. Human urge to live long and healthy life has resulted in to development of modern medicines. Various medical branches have developed to take care of specific diseases. Scientific inventions & research have always been the thrust of mankind and is largely responsible for the standard of living he has today. Today's medicinal science has developed from ancient Indian science and many of the pharmaceuticals currently available in the modern medicines have long history of use as herbal remedies including opium, aspirin, digitalis and quinine. Plants were in existence even before man came into existence. According to World Health organization (WHO) nearly 80 per cent of the world population depends on traditional medicines. Major chronic diseases such as diabetes, piles, fistula, renal stones, skin diseases, arthritis, hyperacidity and constipation, impotency and paralysis etc. are treated with the use of herbal medicines. Traditional use of herbal medicines involves substantial historical use, and this is certainly true for many products that are available as 'traditional herbal medicines'.

In many developing countries, a large proportion of the population relies on traditional practitioners and their armamentarium of medicinal plants in order to meet health care needs. Although modern medicine may exist side-by-side with this traditional practice, herbal medicines have often maintained their popularity for historical and cultural reasons. Such products have become more widely available commercially, especially in developed countries. In this modern setting, ingredients (raw material) are sometimes marketed for uses that were never contemplated in the traditional healing systems from which they emerged

India has abundant supply of medicinal plants. Medicinal plants are the primary life supporting system for rural and tribal communities and over 8000 species of plants have been estimated to be used in indigenous health system. There are around 50 species, widely used under cultivation. While the demand for medicinal plants is growing, some of them are increasingly being threatened in their natural habitat. In the olden days indigenous medicine had attained a very high standard, and we have stalwarts in Ayurveda, Siddha, Unani, Allopathy and Homeopathy. The importance of plants in the medical treatment cannot be overestimated.

Home remedies made at home from natural ingredients like herbs, vegetables, fruits come under herbal treatment. It is believed that herbal treatment is not usually accompanied by side effects to a great extent. This is because of the absence of chemicals in the herbs used in herbal treatment.

**Herbal Medicine:** Herbal medicine is the oldest and still the most widely used system of medicine in the world today. It is medicine made exclusively from plants. It is used in all societies and is common to all cultures. There are many different "types" of herbal medicine that spring from different cultures around the world. All these have the use of medicinal



plants in common, but they vary in the plants they use, the way they prepare and use medicines from these plants, and the philosophy of their treatment approaches. Different cultures may also use the same plants but in different way or different part of plants they use..

The World Health Organization (WHO) has recently defined traditional medicine (including herbal drugs) as comprising therapeutic practices that have been in existence, often for hundreds of years, before the development and spread of modern medicines and are still in use today. Or we can say, traditional medicine is the synthesis of therapeutic experience of generations of practicing physicians of indigenous systems of medicine. The traditional preparations made up of medicinal plants, minerals, organic matter, etc. Herbal drugs constitute only those traditional medicines which primarily use medicinal plant preparations for therapy.

According to WHO report on Herbal medicine for human health factors such as an easy availability of herbal remedies, accessibility to practitioners at all times and an inherent faith, particularly in rural areas, in natural things, also complement the desire of large sectors of the population to use medicinal herbs for therapeutic purpose.

### **Objective of the Study**

The main objective of the study is to access the perception of patients about herbal medicine and alternative to modern medical practices. Its subsidiary objective of the study include awareness about herbal medicine, and attempt to know the level of satisfaction with herbal medicine.

### **Research methodology**

Study is based on both secondary and primary data about herbal medicine. Secondary data about the herbal medicine market, export and import of herbal medicines, production of herbal medicine etc. are collected from various online sources including report of government, international organizations etc. In order to access the perception of patients about herbal medicine primary survey has been conducted with the help of structured questionnaire. Before finalization, pilot testing of the questionnaire was conducted with the sample of 30 respondents. Based on the feedback received during the pilot testing suitable modifications were done in the questionnaire. For conducting primary survey sample of 300 patients with Sinusitis and Dental Caries was selected. Attempt has been made to select equal number of patient from both types of medical ailments. In order to get representative sample four districts of Gujarat viz. Ahmedabad, Baroda, Surat and Rajkot were selected and equal number of respondents (75) each has been selected from each district. Both primary and secondary data collected during the survey were analyzed with the help of MS Excel and SPSS. Various statistical tools like frequency distribution, descriptive statistics, chi-square etc. are used for the purpose of analysis. Graphical presentation included bar graph and pie charts are used for the data presentation.

### **Data Analysis**

The profile of the respondents included in the study shows that 55 percent are male and 45 percent are female. The age profile of the respondents shows that nearly half are in the age group of above 30 while remaining half are in the age group of above 30 years. Educational qualification of respondents shows that more than 40 percent have education below

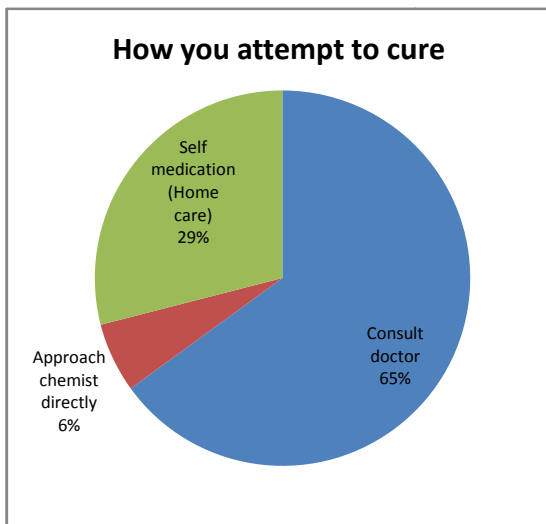


graduation. Income level data reveals that nearly 41 percent respondents are earning monthly income of up to 10000 while 23 percent are earning monthly income of 20000-30000.

**Duration of Health Issue and Treatment:**

With regards to duration of health issues included in the survey viz. sinusitis and dental caries shows that more than 33 percent are suffering since more than a year while 18 percent have reported that they are suffering with this ailment for duration of one year.

Since how long you have been facing this problem?		
Duration	Frequency	Percent
One week	63	21.0
One month	27	9.0
Six Months	57	19.0
Year	54	18.0
More than year	99	33.0
Total	300	100.0



It is clearly evident that good number, nearly 35 percent, patients do not consult doctors, approach chemist directly or follow self medication. Nearly 65 percent respondents included in the survey have reported that they consult doctor for care. It is important here to note that 29 percent use self-medication while 6 percent approaches chemist directly for medicine. Further analysis of approach to cure the health problem shows that 29.6 percent respondents with dental problem and 29.7 percent respondents with sinusitis use self-medication and do not consult doctor. The check the interdependence between type of health problem and attempt to cure, chi-square test has been performed. The results of chi-square test do not

reject the null hypothesis that attempt to cure and type of problem are independent (chi-square 3.472,  $p > 0.05$ ).

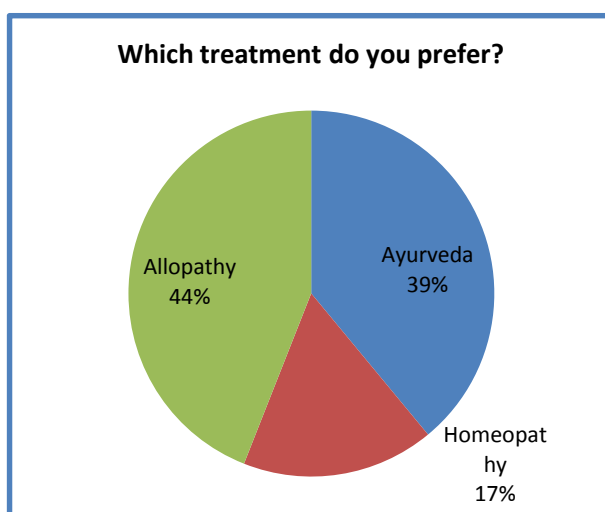
The relationship between gender and approach to cure indicates that nearly 31 percent male follow self-medication and 26.7 percent female followed self-medication in the case of health problems i.e. dental problem and sinusitis. Chi-square test has been performed to test the interdependence between gender and approach to cure health problem. The results do not support the relationship (Chi-Square 3.887,  $p > 0.05$ ).

Only about 33.3 percent patients with education up to secondary have reported to visit doctor as compared to 71.9 percent among patients with education of post-graduation level. It can also be seen from the data that 50 percent of respondents among education up to secondary level have reported to follow self-medication as compared to 25 percent among patients with post-graduation qualification. Chi-square test has been performed to check the relationship between education and gender which proves the significant relationship between them (Chi-Square 32.770,  $p < 0.05$ ).



In order to check the statistical significance of the relationship between income and approach to cure, Chi-Square test has been performed. The chi-square test results do not support the hypothesis of interdependence of income and approach to cure health issue (Chi-square 10.481,  $p > 0.233$ ).

Which treatment do you prefer?		
Treatment	Frequency	Percent
Ayurveda	117	39
Homeopathy	51	17
Allopathy	132	44
Total	300	100



Among total patients included in the survey, 44 percent have reported that they prefer allopathy treatment for health issue while 39 percent prefer ayurvedic treatment for dental and sinusitis. Only about 17 percent respondents have reported that they prefer homeopathy.

Data shows that 38.9 percent patients of dental problem prefer Ayurveda as compared to 43.2 percent patients of sinusitis. Largest number of respondents with dental problem prefers allopathy while the largest number of respondents with sinusitis prefers ayurveda.

Chi-square test does not support the relationship between type of health problem and treatment preferred (Chi-square 6.80,  $p > 0.05$ ). There is not significant relationship between nature of health problem and type of treatment preferred.

The comparative picture of gender and treatment preference is presented in table below. The data shows that ayurveda is preferred by 43.6 percent male patients as compared to 33.3 percent of female patients. Chi-square test performed to check the relationship between gender and preference for treatment does not support the hypothesis that two variables are dependent. There is no significant relationship between gender and treatment preferred (Chi-square 5.143,  $p > 0.05$ ).

The comparative picture of patients from different age group about the treatment they prefer is presented in table below. It can be seen from the data that patients from young age group i.e. up to 20 and 21-30 prefer ayurveda while patients from age group 31 -40, 41-50 and above 50 prefer allopathy. Chi-square test rejects the null hypothesis that age and treatment preferences are independent (chi-square 31.265,  $p < 0.05$ ).

The relationships between treatments prefer by the patients and level of education is also tested. The data presented in table below indicates the comparative picture between treatment preferred and level of education. The data preferred show significant relationship between level of education and preference for treatment. Patients from lower level of education prefer ayurvedic treatment while those with higher level of education prefer allopathy. Largest number of respondents from education level up to secondary prefer ayurvedic treatment



while largest number of respondents with graduation and post graduation qualification prefer allopathy. The significant relationship between level of education and preference for treatment is also proved by chi-square test results (chi-square 35.219,  $p < 0.05$ ).

Attempt has been made to understand the relationship between preference for treatment and occupation. The data is presented in table below which shows that ayurveda is preferred by 42.9 percent students and 44.7 percent respondents in job as compared to 12.5 percent retired and 33.3 percent respondents engaged in business. Largest number of students and people involved in job prefer ayurvedic treatment while largest number of housewives, retired people and business people prefer allopathy.

The relationship between occupation and treatment preference is tested statistically using chi-square test. The results reject the null hypothesis that occupation and treatment preference are independents (chi-square 36.00,  $p < 0.05$ ).

Similarly attempt towards comparing the treatment preference across various income groups is presented in table below which indicates that respondents from income up to 30000 per month prefer ayurvedic treatment while respondents from income above 30000 prefer allopathy. Nearly 43.9 percent respondents from income up to 10000 prefer ayurvedic treatment as compared to around 8.3 percent from respondents earning above 40000.

The relationship between monthly income and preference for treatment when tested statistically using chi-square test, the results reject the null hypothesis that two variables are independent. There is significant relationship between monthly income and treatment preference (Chi-square 19.213,  $p < 0.05$ ).

### **Conclusion:**

Home remedies made at home from natural ingredients like herbs, vegetables, fruits come under herbal treatment. It is believed that herbal treatment is not usually accompanied by side effects to a great extent. This is due to the absence of chemicals in the herbs used in herbal treatment. Nearly 30 percent people use self-medication for treatment of sinusitis and dental carries. Education has direct impact on treatment used while age, income and gender have no impact on method of treatment. The survey shows that there is competition between allopathy and ayurved for treatment of both problems. Ayurvedic treatment is preferred by young and educated people as they understand the long term consequences and side effect of allopathy. There is urgent need to create awareness about benefit of alternative medicine among patients. Main source of information of most of the people about ayurvedic medicine is word of mouth. Doctors can play an important role in creating awareness about ayurvedic medicine among patients and increasing use for health benefit of people at large.



## **Influence of Natural Law on Indian Legal System**

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### **Abstract**

*The expression 'Natural law' is a very wide concept and it is misapplied and misunderstood by Jurists of different ages. Natural Law, does not owe to any one or more jurists for its origin. On the other hand' it is rooted in certain standards of morality and ethics which the human kind has developed throughout the ages based on the dictates their reason, distinguishing between Good and Evil. It was the Romans who developed the Natural law as Universal law. However, jurists across the world have contributed to its development at different times.*

*The natural Law principles have influenced the movements for people's liberation across the Globe. The American revolution, French Revolution, Russian Revolution etc are a few examples. The laws in these countries reflect the influence of natural law theory. The governance and administration in ancient India was based on 'Dharma' the Indian equivalent of Natural Law. Though the foreign invasion and other social factors have brought a decline to 'Dharma' in the medieval era; 'Dharma' started reviving itself in the post-independence era through the legislations as well as through judicial decisions. The present paper is modest attempt to have an overview of the influence of Natural law in India Laws and Legal system*





## **Influence of Natural Law on Indian Legal System**

### **Introduction**

The expression 'Natural law' is a very wide concept and it is misapplied and misunderstood by Jurists of different ages<sup>1</sup>. Origin of this theory can be traced back to the development of human race and idea of humanity as it was discovered by the human by application of reason to elect between good and evil. Natural Law, therefore; is rooted in certain standards of morality and ethics which have universal application. It was the ancient Greek Philosophers who gave a formal impetus to the theory of natural law. According to the Greek Philosophy, Law consists of rules in accordance with reason and nature. Man being a rational and reasonable being can suppress instinct and act against its dictates and the reason leads to the power to distinguish between good and evil. The sense of reason induces conduct, which is consistent with good and forbids the evil conduct. The criterion which distinguishes well from evil, right conduct from wrong is the instinctive laws of nature. Socrates describes such laws to be immutable principles. Plato was of the view that the goodness of laws must be measured by their contribution to social harmony, because all individual interest must be subject to social welfare<sup>2</sup>. Aristotle named law inspired by reason as natural law, and declared that natural law is inherent in the nature of man<sup>3</sup>.

It was the Romans who developed the Natural Law as a Universal Law. They accepted the superiority of Natural Law (Jus Naturale) as a higher law. Inspired by natural law, Romans tried to develop a code called Jus Gentium ; which contained the elements of a refined legal system and subsequently it has become the foundation of many legal systems of the world. The medieval period witnessed the rise of the authority of Church and struggle for power between the Church and the State. Both the sides often invoked natural law to support their assertions. It was in this period that St. Thomas Aquinas<sup>4</sup> harmonized the teachings of the Church with those of the natural law; stating that man's intellect and free will are the closest images of God in the material universe.

The developments in the seventeenth and eighteenth centuries resulted in the breakdown of supremacy of Church and of the Emperor and gave rise to origin of 'modern nation states' and marked the period of socio economic and political revolutions. The individuals demanded rights to safeguard and protect their personality and interests. Individual liberties and freedom from political tyranny have become the subjects of discussion for Political Philosophers. The principles of natural law were used in the struggle to liberate people from political tyranny. Traces of influence of natural law are evident in the English Revolution of 1688, American Declaration of Independence of 1776, the French Revolution of 1789. It has further influenced the development of different legal systems including India. Natural law played a decisive role in the quest for constitutionalism across the globe. It found expression in the French Constitution of 1946, Italian Constitution of 1947 and German Basic Law of

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<sup>1</sup> Aggarwal, Nomita; Jurisprudence, Central law publications, (2012) Allahabad

<sup>2</sup> Wild, John; 'Plato's Modern Enemies and the theory of Natural Law' (1953) Chicago University Press, Chicago.

<sup>3</sup> Shellens, Max Salomon; 'Aristotle on Natural Law' (1950) Natural Law forum; Paper. 40

<sup>4</sup> Adler, M.J.; Essays in Thomism, Edit. Brennan R.E (1942) Books for Libraries Press, Virginia University.



1949. The preamble to the French Constitution solemnly reaffirms the rights and liberties of man and of the citizen consecrated by the Declaration of Rights 1789. Italy affirms the rights of citizen. Germany protects the dignity of Man<sup>5</sup>, abolishes capital punishment<sup>6</sup> and compulsory Military service. These Governments have transformed some of the natural law principles into positive laws and kept them immune from ordinary legal change. For example France and Italy kept the republic form of Government inviolable. Germany went further ahead to protect the individual's fundamental rights, separation of powers and federalism in addition to keeping the democratic form of Government permanently secured. Any discussion on Indian law will not be complete without at least a passing reference to United States of America and England.

### **Influence on England**

No doubt that the natural law theory suffered a setback under the growing influence of Positivist theory in the nineteenth century. The positivists have confined natural law only to the realm of morals and religion. However, the influence of natural law in developing the English Law cannot be overlooked. The idea of 'Rule of Law' with its emphasis on supremacy of law, the principles of justice, equity and good conscience, principles of natural justice, etc; are inspired by natural law. It is not denied that the Legislative Supremacy is one of the basic principles of Constitutional law of England. This does not mean that principles of natural law are totally irrelevant in England. The courts in England have always relied on natural law on matters not covered by the statutory law. For example, Lord Mansfield in *Somerset V Stewart*,<sup>7</sup> declared slavery to be 'an institution so odious to natural law that English court would not countenance it'. Natural law is also invoked by English courts to test the reasonableness of customs, to test the acceptability of foreign law and to control the administrative and quasi-judicial functions of public authorities. The natural law has played its role in the development of legal systems in all the common law countries.

### **Influence on United States of America**

The influence of natural law is clearly evident in the constitution and development of legal system in America. The Constitutional recognition of inalienable natural rights by the US Constitution and the judicial recognition of the due process clause reaffirm the faith in a higher order of law which cannot be taken away or abridged by the positive law. It would be very interesting to note the decision of the US Supreme Court in *Brown V Board of Education of Topeka, Kansas*;<sup>8</sup> wherein it declared racial segregation as unconstitutional as being violative of equality. In this case the Supreme Court was reversing one of its own earlier decisions<sup>9</sup>. The influence of natural law in the Bill of Rights is explicit in the words of Jackson, J. who said "One's right to life, liberty and property, to free speech, a free press, freedom of worship and assembly and other fundamental rights may not be submitted to vote, they depend on the outcome of no election"<sup>10</sup>

### **Natural Law in the Pre Independent India**

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<sup>5</sup> Art 1

<sup>6</sup> Art 102

<sup>7</sup> (1772) 98 ER 499

<sup>8</sup> 347 US 483 (1954)

<sup>9</sup> *Plessey V Ferguson* 163 US 537 (1896)

<sup>10</sup> *West Virginia State Board of Education V Barnet*



Natural Law is no doubt is an integral part of Indian legal thought right from the ancient times. It suffered a minor setback after the medieval period, but regained momentum by the end of British rule. Therefore, the influence of natural law on Indian laws and legal system can be examined with reference to Pre- Independence Period and Post-Independence period. The essence of natural law can be found in the ancient Indian concept of 'Dharma'. Dharma was neither a legal principle nor a code in the western sense. But it was right and proper law of life and true ideal of social order. Dharma is generally accepted to have been derived from the Vedic concept of Rita, which literally meant, 'the straight line' and signifies moral laws based on righteousness. When something is Rita; it simply meant that thing is true, right and nothing more. Dharma evolved side by side of Rita but eventually took over it as a practical tool embodying all walks of life including administration. Dharma signifies Natural law. A particular 'Dharma' was attached to every aspect of human life. Justice M. Rama Jois in Book on Legal and Constitutional History of India defines 'Dharma' as that which sustains and ensures progress and welfare of all in this world and eternal bliss in the other world and it is promulgated in the form of command". In its essence, whatever that ensures welfare (of living beings) is surely Dharma. It can be explained with reference to Brihadaranyaka Upanishad which says, "punyo vai punyena Karmana bhavati, Papah Papeneti", meaning 'everyone becomes good by good deeds and bad by bad deeds', in other words 'every one reaps what he sows' and what's good is defined by Dharma.

The supremacy of Dharma can be understood from a simple point that the King was not above Dharma. He was governed by it, and if he didn't then right was given to the public to revolt against such an unjust, arbitrary and unrighteous King or Government. The treaties of Manu, Kautilya and others contains many rights and duties of both the king and the public, and even recognized various rights which were truly the dictates of natural law. Dharma faced decline during the Muslim and British rule. Though, Islamic law was introduced by Muslim rulers based on the teaching of Quran; the concept of Dharma; remained by and large unaffected. However, British rulers had no reverence for Indian legal system and they started introducing English Laws and codifying the laws in terms of their political aspirations. As a result the Indians lost a lot of civil rights they enjoyed and the system of social order was sabotaged resulting in the growth of practicing social evils. Again Dharma has got revived along with the national movement.

### **Natural Law in the Post-Independent Period**

India's national movement was fundamentally based on the principles of natural law. Apart from being a political struggle for freedom, it was also a movement against socio-economic inequalities and injustice. A number of civil rights were sought to be ascertained; that too through peaceful means. The call for civil disobedience was an express rebellion against unjust laws. Gandhiji always recognized the superiority of a higher order of laws or divine laws and stood for truth. He said "if you're right and know it, speak your mind. Even if you are a minority of one, the truth is still the truth". During his famous Champaran Trial, Gandhiji remarked that he disobeyed the law not to show disrespect to British law, 'but in obedience to higher law of our being – the vice of conscience', by which he meant Dharma.

Our national leaders were very much influenced by quest for democratic rights and protection of inviolable rights of the people in the background of similar political movements in other parts of the world as well as due to the aftermath of the World War II. Therefore, it is quite natural that natural law found prominent place in our Constitution. The Chapter on



Fundamental rights is the most powerful reflection of natural law principles in the Constitution. As observed by the apex court, the aim of having a declaration of fundamental rights is that certain elementary rights, such as right to life, liberty, freedom of speech, freedom of faith and so on, should be regarded as inviolable under all conditions and that the shifting majority in Legislature of the country should not have a free hand in interfering with these fundamental rights.<sup>11</sup> Apart from Chapter on Fundamental Rights there are a number of provisions which shows that the framers of the Constitution were conscious about inclusion of natural rights into the supreme law of land. The Supreme Court in *Dattatraya Govind Mahajan vs. State of Maharashtra*<sup>12</sup> spoke about the Dharma of the Constitution, and the karma of adjudication

India has transformed the natural law doctrines into positive laws and has a plethora of legislations giving effect to natural law dictates. It has the distinction of being the first ever country to provide for preferential discrimination for the upliftment of socially and educationally backward sections of the population. The legislations like Schedule Caste and Schedule Tribes (Prevention of Atrocities) Act, 1989, Schedule Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006, Pre Conception and pre natal Diagnostic techniques Act, 1994, Child Labour (Prevention and Regulation) Act, National Food Security Act, 2013, Prohibition of Child marriage Act, 2006, Equal Remuneration Act, 1976, Maternity Benefit Act, 1961, Indecent Representation of Women (Prevention) Act, 1986, Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 Commission of Sati Prevention Act, 1987 Protection of Women from Domestic Violence Act, 2005 are only a few examples. At this juncture, it is not attempted to discuss these legislation with reference to its content due to fear of explanation and constraints of this paper. There can be hardly any law in India which does not have some or other bearing to natural law.

The Indian Judiciary has contributed a lot in integrating natural law into our legal system. A large number of cases can be cited in support of the same. However, I would like to discuss only few important judgments in this context. The quest for a principle of constancy in the Constitution resulted in the development of the doctrine of 'basic structure'.<sup>13</sup> The *Kesavanand Bharti* case is the most eloquent example of the zeal of Judiciary to introduce natural law in the Constitutional jurisprudence. Mr. Justice K.K. Mathew opined that the Fundamental Rights are not absolute and immutable' but they are relative in nature and changeable in order to build a 'Just' social order. The value of fundamental rights were reaffirmed and enlarged by the Supreme Court in *Minerva Mill's* case;<sup>14</sup> by holding that the Fundamental rights enshrined in Part III and the Directive Principles of State Policy enshrined in Part IV; taken together constitute the core of the Constitution and form its conscience. This doctrine has given a new direction to Indian Constitutional Jurisprudence by postulating new ideals and values in order to strengthen the cause of democracy. It has become the sheet anchor of individual liberty and social justice.<sup>15</sup> With the decision in *Menaka Gandhi* case, the principles of natural justice; which was earlier confined only to judicial and quasi-judicial enquiries got extended even to administrative actions. By applying

<sup>11</sup> A.K. Gopalan V State of Madras, AIR 1950 SC27

<sup>12</sup> AIR 1977 SC 915

<sup>13</sup> Kesavanand Bharti V State of Kerala, AIR 1973 SC 1461

<sup>14</sup> Minerva Mill Ltd V Union of India, AIR 1980 SC 1789

<sup>15</sup> Menaka Gandhi V Union of India, AIR 1978 SC597



the principles of natural law the Supreme Court of India has actually rewritten Article 21.<sup>16</sup> On the strength of the extended doctrine natural justice Sec. 303 IPC was struck down by supreme Court in Mithu V State of Punjab<sup>17</sup> and in Bachan Singh's case<sup>18</sup> 'rarest of rare cases' doctrine was introduced. In People's Union Democratic Rights V Union of India<sup>19</sup> payment below the minimum wage was held to be unconstitutional.

From the natural law, the ideas of human rights are developed. Almost all rights guaranteed under the Universal Declaration of Human Rights (UDHR) have incorporated into the constitution. But still we have provided for a discreet mechanism for protection of human rights under the Protection of Human Rights Act. The setting up Human Rights Commissions, Family Courts, providing Free Legal Aid, conducting Lok Adalats etc is initiatives towards promoting the cause of natural law and justice. The contribution of Supreme Court to Human Rights jurisprudence through judicial activism and Public Interest Litigation has reinforced the faith of the masses in the justice delivery system. A few examples can be drawn from the innumerable cases, such as Hussainara Khatoon V State of Bihar wherein the miserable plight of the under trial prisoners<sup>20</sup> was addressed. The bonded labourers got justice in Bhandhua Mukthi Morcha case<sup>21</sup>, while protection and security of juveniles in care homes was the issue in Sheela Barse V State of Maharashtra.<sup>22</sup> The Environmental jurisprudence got a shot in arm though the decisions in Doon Valley case,<sup>23</sup> M.C. Mehta case (1987) 4 SCC 463, Indian Council of Enviro Legal Action V Union of India (1996) 3 SCC 212 etc. The liability of State for the acts and omissions of its agents and instrumentalities were fixed while addressing the issues of illegal detention, inhuman torture custody etc through a number of decisions. Rudul Shah V State of Bihar,<sup>24</sup> Bhim Singh V State of J&K<sup>25</sup> Nilbati Behra V State of Orissa<sup>26</sup> Extra Judicial Execution Victim Families Association V Union of India<sup>27</sup> D. K. Basu V State of West Bengal<sup>28</sup> Kishore Singh V State of Rajasthan<sup>29</sup> etc. are a few examples.

## Conclusion

The Judicial initiatives and legislations giving predominance social values have provided unquestionable recognition to the principles of natural law and justice. Though there had been a few instances of concern far between, Indian legal system has embodied higher values of life, liberty, equality and justice and gained widespread acceptance for accomplishing a social order with just and humane conditions in contemplated by our long cherished values and desired by the framers of the Constitution.

<sup>16</sup> Pillai, Atchuthen, P.S, Jurisprudence and legal Theory (1994) Eastern Book Company

<sup>17</sup> (1983) 2 SCC 277

<sup>18</sup> Bachan Singh V State of Punjab AIR 1980 SC 898

<sup>19</sup> (1983) 3 SCC 235

<sup>20</sup> AIR 1979 SC 360

<sup>21</sup> (1984) 3 SCC 161

<sup>22</sup> AIR 1983 SC 1360

<sup>23</sup> AIR 1985 SC1295

<sup>24</sup> AIR 1983 SC 1986

<sup>25</sup> AIR 1986 SC 494

<sup>26</sup> (1993) @ SCC 746

<sup>27</sup> AIR 2013 SC 818

<sup>28</sup> AIR 1997 SC 610

<sup>29</sup> AIR 1981 SC 625



## **Possibility and Reality of Sustainable Development based to Gandhian Thought**

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### **Abstract:**

*As the purpose of the state isto increase GDP, it became a critical matter to manage equality between natural resources and economic development. Increment urbanization and industrialization across the world leads us to migration, increment in slums, poverty, starvation, health issues, issues of infrastructure, education and most important pollution and climate change problem. To address such challenges and to bear the worry of future generation, the UNDP released seventeen goals of sustainable development in 2015, which has been implemented by member nations to achieve them. Gandhi presented his economic thought by keeping of nature and humanity into the center. According to Gandhi "Nature produce enough for our day to day wants and if everybody for himself and nothing more, there would be no pauperism and starvation in this World." (Gandhi,1930) In the center of Gandhi's constructive programs, many organisation in Gujarat are doing the work of rural development, on the basis of which Gandhi is the idea and foundation of Gandhi's thinking is the nature and the human being. The purpose of this paper is to explained the possibility of sustainable development based to Gandhian thought and to find out reality of this thought as per the study of five constructive organisations of Gujarat which Bhalnalkantha Prayogik Sangh-Gundi, Sarvodaymandal-Pindaval (Dharampur), Lokseva-Khadsali, Lokniketan-Ratanapur, SarvodayAsharam-Nilpar. This paper has been prepared from secondary data and use. The source of the secondary data, used as foundation a base of this paper, is taken into consideration from the study relative book and reports of organisation.*

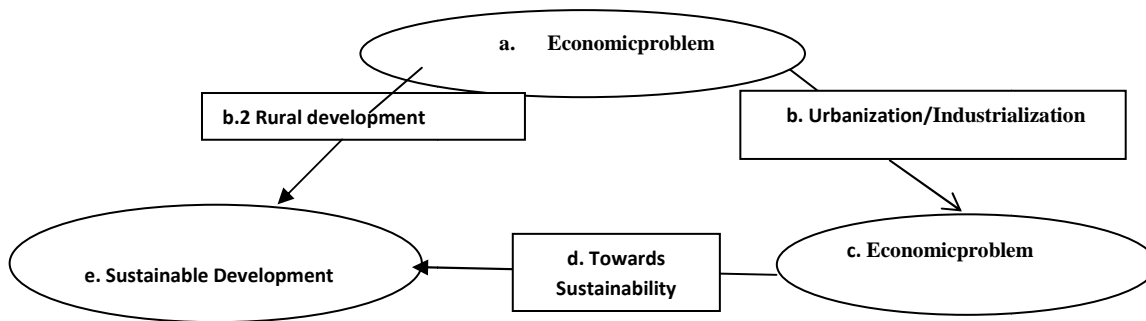
**Key words:** Sustainable development, Gandhian thought, Contractive organisation



## Possibility and Reality of Sustainable Development based to Gandhian Thought

### Introduction

Because of the state's urban development policy we have been challenged by economic problems like migrations, unemployment, poverty, starvation, slums, infrastructural issues; Social issues such as health, education, rape, sexual exploitation, communalism, racism, terrorism and Environmental issues like pollution, shortage of natural resources, climate change and increase in toxic gases in the environment. To overcome this situation all countries have come to a conclusion that sustainable development is a solution. Years ago, Gandhi presented his thoughts in keeping the nature and the human being centered on solving the economic problems. The economics mainstream and the Gandhian ideology for sustainable development is shown in the figure.



Two ways to solve economic problems are shown in the figure.

1. In the above figure a-b1-c-d-e shows the mainstream, whereas
2. a-b2-e shows the Gandhian way

In the past time people were belonging to rural background, which leded them towards poor agricultural production, low income, lack of effective demand, unemployment, poverty and hence lower standard of living. And because of this situation he moved to urban areas, where the availability of short-term employment, income and basic needs were easily available and hence their standard of living was improved. According to the present situation of the country, due to disruption of environmental balance the country faces several climate change problems and hence various natural disasters every year.

The questions have not only emerged in the whole world but also in India. In September 2015, the 193 member countries gathered, in the United Nations general assembly to emphasize the objectives of sustainable development. This includes 17 main goals and 169 targets. Which is a part of transforming our world: The 2030 Agenda for sustainable development which has come into effect from January 1, 2016. In which no poverty, no starvation, Good health and well being of people, Quality Education, Gender Equality, Clean



water and sanitation, Affordable and Clean Energy, Decent work and Economic Growth, Industry, Innovation and Infrastructure, Reduced Inequalities, Sustainable Cities and communities, Responsible consumption and production, Climate Action, Life under water, Life on Land, Peace, Justice and Strong institutions and Partnership for the goals. Which is shown by a-b1-c-d-e in the fig.

Gandhi writes that the solution of the human problems is in the nature, “Nature produce enough for our day to day wants and if everybody for himself and nothing more, there would be no pauperism and starvation in this World.” This matter is associated with sustainable development. The Gandhi ideology relies on the principle of the Gram Swaraj to solve economical issues which includes economic equality, decentralization, limited use of machines, indigenous and self reliance, trusteeship concept and morality. Thus according to the Gandhi ideology, rural development has been emphasized for solving economic issues. Which is shown by a-b2-e in the fig.

By Sarvodaya Mandal or by following Gandhi ideology some organization and / or volunteers are working in various districts like Mehsana, Vadodara, Valsad, Sabarkantha, Bhavnagar, Kutch, Rajkot, Ahmedabad, Gandhinagar, Bharuch, Kheda, Surat, Amreli, Banaskantha, Dang, Junagadh, Jamnagar keeping the constructive program of Gandhi in centre. Which are based on Gandhian ideology and The Gandhian ideology is based on nature and human.

Lokkesh Jain (2016) “The impact of the changing consumerism of the rural people and its impact on the sustainable development” has been studied the village of “Radhu” of Kheda district. He says, in order to improve rural markets for sustainable development, selfless and unbiased efforts should be made by the society, government and voluntary organizations.

Chaitanya Bhatt (2011) compiled 16 works of 14 writers of articles written on life in the book “NokhiMatinaDivda”. If we classify the works of these volunteers in economic aspects and social aspects then economical aspects includes organic farming, agricultural tools and rural development whereas the social aspects consist of health, education, cultural programs.

Ramnarayan Pathak and Shantilal Desai (1969), on behalf of “Gandhi Smarak Nidhi” presented the works of, Gandhi-ideology-following organization and activists in “GujaratmaRachanatmakSansthaoaneSevako” on the occasion of Gandhi’s Birth Century.

The purpose of the presented study is to find out the success or failure of Sustainable development on the basis of Gandhian thought in reality.

Five Gandhian thought following organizations across the state, are studied here. Which includes Lokniketan-Ratanpur, Gram Swaraj Sangh-Nilpar, Lokshala-Khadasali, SarvodayaParivar Trust-Pindval, BhaalNalkanthaPrayogikSangh-Gundi.

This study is prepared from secondary data, which are derived from reports of those particular organizations, study related books and other papers.

### **Sustainable Development and Gandhi Ideology**

It is meaningless to raise the question whether sustainable development according to Gandhian thought is possible or not. Because Gandhi gave the concept on the basis of nature,





humanity and rural development. Moreover the base of this concept were morality and hence it can be named as Sustainable Development.. But here, it should be noted that Gandhi has not given any principle and that's why it should be rearranged in the theoretical structure of sustainable development. But before that let what sustainable development is being explained.

Sustainability considers morality, thought of environment and economical context.

Morality says that we should not be harmful to the right of progress and well being of future generations by our economical activities.

The context of environment says to conserve environment in such a way that our economical aspects or approach should neither harm environment nor affect the bio diversity of our surrounding.

Economical equality and economical perspective says that in order to achieve more and more economical needs we should not harm the economical rights of future generations. And for present generation also economical equality should also be maintained.

The concept "sustainable development" is not the same for various economists. Various organizations and environmental economists define it differently. Some examples are given below.

According you UNESCO "There are four dimensions to sustainable development – society, environment, culture and economy – which are intertwined, not separate. Sustainability is a paradigm for thinking about the future in which environmental, societal and economic considerations are balanced in the pursuit of an improved quality of life. For example, a prosperous society relies on a healthy environment to provide food and resources, safe drinking water and clean air for its citizens."

According John Pizzey, "sustainable development will be non-devlning per capita utility-because of its self-evident appeal as a criterion for intergenerational euity."

According to World commission on Environment and Development "Our Common Future defined the major objective of development as the "satisfaction of human needs and aspirations" (WCED 1987, p. 43).

Redclift (1996) argues that the UNCED neglected to address important questions relating to population, trade, poverty, the debt crisis (faced by many oil-importing developing nations), and distributional inequality more generally. In addition, he raises an important question about whether the "development" of industrialized nations is what the developing world should be aspiring to achieve.

Various philosophers presented their views on Sustainable development. Out of that NityanandaSatapathay (1998) says in "" The Western materialist paradigm of development which seeks to bring about competition and centralized Planning, has reached a point of self-destruction. The Gandhian Sarvodaya is a model for sustainable development. The 'sarvodaya' which embodies 'an altruistic ethic for self-realisation'. Its value system differs fundamentally from modernism thinking. While 'Sarvodaya' seeks all round development of the human society with emphasis on spiritual aspects rather than material wealth needing



minimum energy input, in the western model of development the craving for material acquisitions keep on growing which in itself leads to unsustainability.”

His principles of “Gandhian Economics are relevant to sustainable development” are given below..

- 1) Nonviolent ownership – Trusteeship
- 2) Nonviolent Production – Appropriate Technology, cottage and small scale industries.
- 3) Nonviolent consumption – Non-possession, Less consumption, limited wants,
- 4) Nonviolent work – Bread labour.
- 5) Nonviolent Allocation – Cooperation, self-help, mutual help.
- 6) Nonviolent Distribution – Equality-generation distributive justice.
- 7) Economic and political decentralization
- 8) Austerity, Simplicity in life style
- 9) Nonviolent in Reforming Economics system.

According to Pravin Seth (1994) in “Theory and praxis of environmentalism : Green plus GandhiThe use raw material and other natural resources in a sustainable manner is a Gandhian principle, one which is not still rated in the Western living pattern but which is quite relevant for India. Two centrally theoretical concerns can be constructed from this.

- i) Can democracy (movements) support environmental integrity, especially thought common property and resource management on ‘communal’ lines?
- ii) What will be the impact of democracy on distributional equity? Local democracy like the panchayati raj as instituted by the Indian state, thought welcomed on ideational lines, is not conducive to both the aims – common property management and equity to the poor. Thus as on Gandhian lines, local democracy and decentralisation tend to support a social ecology or radical environmentalism with the ‘monkey wrenching’ and the like abrasive techniques of protests but expressed thought non-violent peaceful way also will help us to move away from state-centric environmentalism to a community- centric ecology. Thus a theoretical convergence can be discerned in the post- modern thinking and Gandhian thought related to environment thought and praxis.

Gandhian’s was the third way, which rejected both liberal individualism and socialist collectivism, both of which were abstractions and artefacts without anchor in the actual life of the people, their needs and concerns, and their symbiotic relationship with nature, the changing seasons, the sunshine, rainfall and cold weather.(Ali asharaf, 1993)

Sudarshaniyengar says in “Environmental Economics” that The principles/views/suggestions of Gandhi about living or about managing production for removal of poverty and principles/views/suggestions consumerism/consumption can be considered as his economic principles/views/suggestions. And the whole principle was explained in only one sentence that “Nature produce enough for our day to day wants and if everybody for himself and nothing more, there would be no pauperism and starvation in this World.“ (Iyengar, Second Edition, 2001, Page no.37)

In this way, Gandhi says in “True Civilization” of “Hind Swaraj” what are the real reformations? And why India adopted the path of morality or why India should adopt the path of morality.“We notice that the mind is a restless bird; the more it gets the more it wants, and



still remains unsatisfied. The more we indulge our passions the more unbridled they become. Our ancestors, therefore, set a limit to our indulgences. They saw that happiness was largely a mental condition. They saw that our real happiness and health consisted in a proper use of our hands and feet. They further reasoned that large cities were a snare and a useless encumbrance and that people would not be happy in them, that there would be gangs of thieves and robbers, prostitution and vice flourishing in them and that poor men would be robbed by rich men. They were, therefore, satisfied with small villages.”

If we divide Sustainable Development into three parts which are Economic, Social and Environmental, we can derive the exact figure of Equality which is the foundation of Sustainable Development and Gandhian Ideology.

**Solving Economic Problem: Sustainable development goals and Gandhian thought**

C o n t e n t s	Economic Issue	Sustainable development Goals	Gandhian Thought
E c o n o m i c	Poverty	<b>No Poverty</b> End poverty in all its forms everywhere.	<b>Daridranarayan</b> We are either ignorant or negligent of the divine law by virtue of which man has been given only his daily bread and no more, with the result that there arise inequalities with all the misery attendant upon them. The rich have a superfluous store of things which they do not need and which are, therefore, neglected and wasted; while millions starve and are frozen to death for want of them. If each retained possession only of what the needed, no one would be in want and all would live in contentment. As it is, the rich are discontented no less than the poor. The poor man would become a millionaire and the millionaire a multi-millionaire. The poor are often not satisfied when they get just enough to fill their stomachs; but they are clearly entitled to it and society should make it a point to see that they get it. The rich must take an initiative in the matter with a view to a universal diffusion of the spirit of contentment. If only they keep their own property within moderate limits the poor will be easily fed, and will learn the lesson of contentment along with the rich.
	Starvation	<b>Zero Hunger</b> End hunger, achieve food security and improved nutrition and promote sustainable agriculture.	
	Employment	<b>Decent Work and Economic Growth</b> Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.	<b>Full Employment</b> A person can be a cultured part of society: Every man has a right to live, so there should be such arrangement that one cat get necessary things to eat, to drink, to wear and to well
		<b>Clean Water and Sanitation</b> Ensure availability and sustainable management of	<b>Village Swraj</b> The villagers should develop such a high degree of skill that articles prepared by them should



		water and sanitation for all.	<p>command a ready market outside. When our villages are fully developed there will be no dearth in them of men with a high degree of skill and artistic talent. There will be village poets, village artists, village architects, linguists and research workers. In short, there will be nothing in life worth having which will not be had in the villages. Today, the villages are dung heaps. Tomorrow they will be like tiny gardens of Eden where highly intelligent folk whom no one can deceive or exploit dwell. The reconstruction of the villages along these lines should begin now. The reconstruction of the villages should not be organized on a temporary but permanent basis. Craft, art, health and education should all be integrated into one scheme. NaiTalim is a beautiful blend of all the four and covers the whole education of the individual from the time of conception to the moment of death. Therefore, I would not divide village uplift work into water-tight compartments from the very beginning but undertake an activity which will combine different from education I will regard the former as the medium for the latter. NaiTalim therefore ought to be integrated into the scheme.</p>
		<b>Affordable and Clean Energy</b>	
		Ensure access to affordable, reliable, sustainable and modern energy for all.	
		<b>Industry, Innovation and Infrastructure</b>	
		Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	
		<b>Life on Land</b>	
		Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	
Economic Equality		<b>Reduced Inequalities</b>	<b>THE WAY TO EQUAL DISTRIBUTION</b>
		Reduce income inequality within and among countries.	Indeed at the root of this doctrine of equal distribution must lie that of the trusteeship of wealthy for the superfluous wealth possessed by them .For according to the doctrine they may not possess a rupee more than their neighbours. How is this to be brought about? Non-violently? Or should the wealthy be dispossessed of their possessions? To do this we would naturally have to resort to violence. This violent action cannot benefit society. Society will be the poorer, for it will lose the gifts of a man who knows how to accumulate wealth. Therefore the non-violent way is evidently superior. The rich man will be left in possession of his wealth, of which he will use what he reasonably requires for his personal needs and will act as a trustee for the remainder to be used for the society. In this argument honesty on the part of the trustee is assumed.
Social	Health	<b>Good Health and Well-Being for people</b>	<b>Key of Health</b>
		Ensure healthy lives and promote well-being for all at all ages.	Nature cure implies that the treatment should be the cheapest and the simplest possible. The ideal is that such treatment should be carried out in the villages. The villagers should be able to provide the necessary



			means and equipment's. What cannot be held in the villages should be procured. Nature cure does mean a change for the better in one's outlook on life itself. It means regulation of one's life in accordance with the laws of health. It is not a matter of taking the free medicine from the hospitals or for fees. A man who takes free treatment from the hospital accepts charity. The man who accepts nature cure never begs. Self-help enhances self-respect. He takes steps to cure himself by eliminating poisons from the system and takes precautions against falling ill in the future.
Education	<b>Quality Education</b>	<b>Life Education</b>	
	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.	In my opinion, intelligent labour is for the time being the only primary and adult education in this land of starving millions. Literacy education should follow the education of the hand-the one gift that visibly distinguishes man from beast. It is a superstition to think that the fullest development of man is impossible without a knowledge of the art of reading and writing. That knowledge undoubtedly adds grace to life, but it is in no way indispensable for man's moral, physical, or material growth.	
Gender	<b>Gender Equality</b>	<b>Equality of Sexes</b>	
	Achieve gender equality and empower all women and girls.	I am uncompromising in the matter of women's rights. In my opinion she should labour under no legal disability not suffered by men. I should treat the daughters and sons on a footing of perfect equality.	
Communism	<b>Peace, Justice and Strong Institutions</b>	<b>Truth, Non-violent and Sarvodaya related thought</b>	
Terrorism	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.		
War			
Casteism			
Environment	<b>Climate Action</b>	Gandhian thought of nature and human related	
	Pollution		
	Climate Change		Take urgent action to combat climate change and its impacts by regulating



	emissions and promoting developments in renewable energy.	
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(Source: Prabhu(ed.), 1963 and GSIDB,2016)

The above table shows the solutions of the said problems by the way of sustainable development and by Gandhian thoughts. The following points can be derived from the above table.

- In SDGs the United Nations has tried to consider environment and sustainability at the same time but it is rarely possible. Because they said to prevent pollution whereas their sustainable development seems to be dependent on Industrialization and Urbanization.
- In Gandhian thought there is nothing in oppose of nature.
- The United Nations has given goals, whereas Gandhi presented what is good for an individual, for a society and for a state.
- It is clear from Gandhi's view that the basic foundation of it is ethics and morality.
- SDGs are goals for sustainable development, and it is necessary for the member nation to implement it for next 15 years. Whereas Gandhian thoughts are being ignored to be implemented by the state.

We can derive the following economic sustainability from Gandhian Thought and Sustainability.

- Production - indigenous and self-reliant and Bread labour
- Consumption – Sustainability by Satisfaction in limited needs
- Distribution - Decentralization, economic equality
- Ownership - Trusteeship
- Employment - Completed Employment
- Economy – Non-violent Economy
- Development - Village based development (Development through Rural Development)
- The whole Gandhi ideology – Ethics and Morality

### **Constructive organization and Sustainable development**

Gandhian thought has not only been a concept but it was implemented in India's history from 1915 to 1945, in which Gandhi's followers started doing the work/programmes by the way of Gandhian thought. Out of those, some organizations are still working in India and Gujarat. Out of those, following organizations of Gujarat are studied as per the view / perspective of sustainable development.

Kutch - Gram Swaraj Sangh, Nilpar



Saurashtra - Lokseva, Khadasali, Amreli

UttarGujarat - Lokniketan, Ratanpur

South Gujarat –Sarvodayapativar Trust, Pindval

Central Gujarat –Bhal-NalkanthaPrayogikSangh, Gundi, Ahmedabad

The details of whose activity area is as follows.

<b>Detail of Organization</b>				
<b>Sr. No.</b>	<b>Name of Organization</b>	<b>Establishment</b>	<b>Objective</b>	<b>Activities</b>
1	<b>Gram ,Swaraj Sangh, Nilpar</b>	18-06-1969	To create awareness and people's power to enable them to enjoy village self-rule.	Life Education
				Khadi
			To enable the people of this area to be self-reliant.	Ambar spinning center- Badargadh
				de-addiction
			To ensure all-round development of the people this area through variegated constructive, educational, cultural and activities of other sorts keeping in view the village self-rule and the ideals of Sarvodaya and to strive to create a non-violent, sarvodaya social order.	Resisting Injustice
				Health Service
				Publication
			Drought Relief Work	
				Well-recharging Programme.
			To provide education to the new generation.	Sarvodaya Yojana-1991-2000
2	<b>Lokniketan, Ratanpur</b>	<b>19-06-1961</b>	<b><u>Vision</u></b>	Adult Education- Jan-shikshan



			To provide leadership and inspiration for learning and human development in rural communities.	Youth Awareness and development
				Khadi
				Health Service and Environment
				Removal of untouchability
			<b><u>Mission</u></b>	Resisting Injustice
			Our Mission is to pursue knowledge through academic, co-curricular and extra-curricular activities and to develop the learner's personality with a strong value base.	De-addiction
				Women's Awareness and welfare
				Sewing classes and Employment
			We are committed to maintaining a balance between theory and practical. We endeavor to facilitate the learners to gain knowledge and experience, enabling them to achieve meaningful individual development and the well-being of society at large.	Publication
				Nursery
				Check-dams for water harvesting
				Social service and Relief Work
3	<b>Lokshala, khadsali</b>	<b>02/10/1954</b>	Village should be prosperous and self-reliant. Agriculture, animal husbandry, cottage and village industries should become self-supporting	Spinning wheel and Khadi
				Women's Awareness





				Sulabh latrines
				Improvement of primary education
				Service activities and Relief activities
4	<b>SarvodayaParivar Trust, Dharampur</b>	<b>1968</b>	Each person should at least be able to get the basic necessities of two meals a day, clothing to cover himself and a shelter to live.	Education
				Food grain-Bank
				Health
				Water shed pattern
			People should have access to basic medical care, an education, employment at their doorstep, and finally an overall evolution in quality of their life. Keeping these objectives in mind, the following activities were initiated.	Land Development
				Check-dams for water harvesting
				Nursery and Gramavan
				Improving Agriculture
				Varli Painting
				Tiled Roof Over their Heads
Community mass marriages				
Public Awareness				
5	<b>BhalNalkanthaPrayogikSangh,</b>	<b>1938</b>	Reconstruction of social order on the basis of spiritual values without being	Education
				Water



<b>Gundi</b>			influenced by power and wealth.	
			To establish synthesis and harmony between all good social forces	Khadi and Gramodyog
				Injustice resistance
			To make all possible efforts to awaken and harness people's power without depending upon the administrative power.	Health services
				Co-operative activity
			To establish and conduct institutions which run on explorative and scientific basis to achieve the above objectives.	Removal of untouchability
				Village-Gruh scheme
				Social service and Relief Work
				Publication

Above table shows various activities of the organizations under this study. Which type of activities are these and whether they can be connected to sustainability and environment is should be studied here. The organization's functionality / works are mainly divided into economic, social, structural and environmental aspects.

**Economic :** Agriculture, Khadi, Cottage Industry, Animal Husbandry, Food Distribution, Bachat Mandal and Cooperative Activities

**Social :** Education, Health, Removal of Untouchability, Prohibition, Social Awareness and Fight with Injustice

**Structures :** Check dams, housing, toilets, water facilities, roads and land development works

**Environment:** Nursery and Gramvan, Plantation, Natural Resource Conservation Work.

Each of the above things is related with sustainability. For example, by organic farming and making check dams and providing irrigation facilities, there is not only increase in crop or other agricultural production, but with limited use of chemical



based fertilisers we can also conserve the soil and the crops can also be chemical free as well. And hence economic and environmental sustainability is created. Providing education and health facilities socio-economic sustainability in the society can be created. Energy consumption has been reduced through khadi, And the pollution caused by cloth mill is also reduced. And hence economic sustainability of cottage industries and hence solving of economical problem of rural area. This ultimately leads to environmental and socio-economic sustainability.

Thus, economic, social and environmental sustainability has created through Gandhi thought based constructive organizations.

### **Overview**

Whether Gandhian thought based sustainable development is possible is found itself in the thought presented by Gandhi. This includes economic, social and environmental sustainability. Apart from that, Gandhi has introduced the next step and that is ethical and moral sustainability. And in this way, Gandhi ideology is superior to current economic main stream. Many experts say that Gandhi's ideology is designed on the basis of ideal situation, and hence cannot be implemented in real. But this is not true, since in many cases Gandhi's ideas proved useful, and one of them is a relationship between nature and human. Secondly, implementing these thoughts, some organizations and activists and/or volunteers are still solving various issues of the society, out of which some has been studied here.

It can be said that economic, social and environmental sustainability has been created because of the economic, social, infrastructural and environmental works and activities of these organizations. The perspective of sustainability is ethic and the organization have also achieved moral sustainability, but their ethics and morality are not compared with that of Gandhi. There are some limitations of Gandhi thought based sustainable development which are as follows.

- It is difficult to specify whether sustainable development is in basis of Gandhi thought or vice versa.
- When we think about Gandhi thought, it is intertwined with "Gramsvaraj", but the world is rushing towards urbanization in such a way that it seems impossible to turn back towards villages.
- Gandhi has completely ignored the cities, so no way has been shown to solve the problem arising in the cities.
- It is not desirable or rather say meaningless to discuss about what is wrong and what is right, with the person who is suffering from economic or social problems.
- As human has put the nature's and environmental thoughts kept aside for sake of his economic facilities, it is doubtful whether he will think about sustainability or Gandhian thought.
- In Gujarat, there are some institutions which are working on the basis of Gandhi thought and sustainable development. Even if they succeed, then also the problems and issues will be face by them also (and also by all of us) which are being generated by those whose interest are only use of nature for their economical enhancements.



In a way, the idea of sustainable development is itself wise and filled with fervour. But it is a matter of discussion whether it is feasible and implementable. On the other hand the sustainability being discussed in the world has not much weightage of nature as much weightage Gandhi has considered. And thus even if we imply Gandhi thought then also the possibility of sustainable development in real is very rare.

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## **Environmental Economics: Prevention of Environmental Pollution is far more Profitable than Correction of Pollution: Need for Paradigm Change**

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### **Abstract**

*The environs across the earth are witnessing catastrophic variations due to gaps in ecological cycles. Climate change and global warming are at their peak. Global warming is a Global Warning. Adoption of the Rio Declaration, Millennium Development Goals etc. are for Our Common Future and Sustainable Development. Poverty, population, migration and urbanization are drivers of environmental change and have far reaching effects on economic and environmental aspects of human welfare. Trade, industry, infrastructure, etc. takes precedence over key environmental issues on public expenditure. Billions are spent on correction of pollution rather than prevention. Prevention is a thumb rule to be met with honest action. Dollars saved can solve trans-global problems. Good development ensures optimal functioning of natural environment. Access to information and education is a basic tool for generating knowledge linking ecological analysis to challenges for decision-making. People need to be empowered to participate in decision making process and implementation of Eco-Friendly policies for wellness of human race, consistent with highest values of economics and human aspirations. From “Graying of the Greens”, our collective effort must lead to “Greener from Greens”. My paper reviews impact of prevention over correction and call for paradigm change in inclusive efforts of the nations*



## **Environmental Economics: Prevention of Environmental Pollution is far more Profitable than Correction of Pollution: Need for Paradigm Change**

### **Introduction**

Wind is renewable, life is not. Man is a complex being, makes deserts bloom and lakes die. Environment means all the conditions, circumstances, and influences surrounding and affecting the development of an organism or group of organisms [1]. It means that the complex of physical, chemical and biotic factors that act upon an organism or an ecological community and ultimately determine its form and survival. There are energy cycle, heat cycle, carbon cycle, oxygen cycle, and nitrogen cycle, which give rhythm to our Environment. We need to tune our lives to its rhythm and maintain these cycles for a better and sustainable future.

### **Environmental Melancholy**

There was an era when man survived in woods amidst animals and lived in harmony with the nature. We are the humans of the 21<sup>st</sup> Century captives of modern science and technology trying to conquer the nature. The emphatic growth of science and technology have brought revolutionary changes in all fields of life, may it be food, cloth, means of communications, transport, and socio-economic living. Melancholy literally means deep and long lasting sadness, a state of depression [2]. This word snugly describes the state of environmental degradation of today. Climate change, energy wastage, land degradation, increasing pollution, rise in population, ozone depletion, fast depleting resources, etc. define environmental melancholy.

### **Environmental Economics**

Environmental economics is concerned with the impact of economic activities on the environment and the significance of ecosystem to the economy[3]. It also suggests the appropriate ways of regulating economic activity, so that cosmic balance is achieved in the society. The following methods signify the importance of environmental economics and its cost benefit studies:

- Assign environmental costs to resources under use.
- Use price as a tool to avoid waste of resources.
- Allocation of environmental resources based on true costs and real benefits.
- Resource conservation through environmental management.

### **Environment-Economy Interaction**

Environment and economy are intrinsically inter-linked. First, the environment provides the economy with raw materials (inputs) which are transformed into consumer products through the production process. Secondly, the environment provides services which are utilised directly by the consumers. These may be critical life-support services such as oxygen, climate etc. Finally, there is a less recognised but vital service that the environment provides to the economy; it acts as a receptacle or a sink for all the waste products that are the results of the process of production and consumption [4]. The environment is not a passive sink, it acts



upon the waste products to clean up the environment and recycle the waste into material that can be used again. This reveals the perennial importance of environment for the progress of an economy and mankind at large.

### **Pollution- current scenario**

Pollution is the introduction of contaminants into the natural environment that causes adverse change [5]. Today, the condition of the world's environment and variations in environmental quality around the globe has become a matter of concern. The environs across the earth are witnessing catastrophic variations due to gaps in ecological cycles. Climate change and global warming are at their peak. Global warming is a Global Warning! Already, there is growing evidence that the global climate change is affecting the life-support systems on which humans and other species depend. This pace of impact is higher than what, many climate scientists predicted. Recent studies have revealed changes in the breeding and migratory patterns of animals worldwide, from sea turtles to polar bears. Mountains glaciers are shrinking at faster rates, threatening water supplies for millions of population, animal species and plant kingdom. The climate change has triggered severe disruptions with widening consequences for local, regional, and global security. Droughts, famines, and weather-related disasters have claimed thousands and millions of lives and such threats continue to haunt mankind. These are causing exacerbation in existing tensions within and among nations, fomenting diplomatic and trade disputes. It will reduce the capacities of Earth's natural systems and elevate the rising environmental deterioration which could threaten the very survival of nations, destabilize the global economy, geopolitical balance and lastly but not the least incite violent conflicts.

### **Drivers of change and pressures**

Environmental changes and the effects on human wellbeing are induced by various drivers and pressures. Drivers such as population, urbanization, economic growth trade, globalization, energy, science and technology, as well as institutional and socio-political frameworks induce pressures which, in turn, influence the state of the environment with impacts on the environment itself, and on society and economic activity. Most pressures on ecosystems result from, for example, changes in emissions, land use and resource extraction. In the two decades since the Brundtland Commission, these drivers and pressures have changed, often at an increasing rate. No region has been spared of changing environment and its immediate, short- and long-term impacts on human well-being.

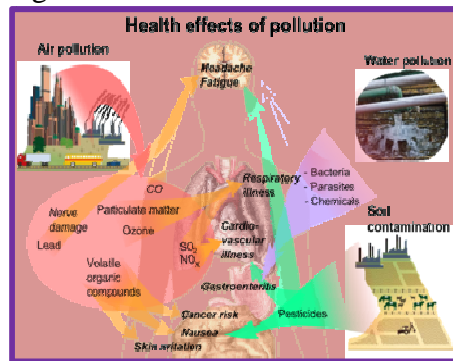
### **Costs of pollution**

Pollution is the consequence of mostly man made and caused as well by natural disasters (most of which the man himself is the reason). For instance hurricanes often involve water contamination from sewage, and petrochemical spills from ruptured boats or automobiles. It is air pollution, water pollution, soil contamination, radioactive pollution, noise pollution, thermal pollution, light pollution, etc. These have been the front bearers of pollution. It is evident from the Figure-1 below that enormous damage to health caused by effects of pollution [6]. Adverse air quality can kill many organisms including humans. Ozone pollution can cause respiratory disease, cardiovascular disease, throat inflammation, chest pain and



congestion. Water pollution causes deaths, mostly due to contamination of drinking water by untreated sewage in developing countries. Oil spills can cause skin irritations. Noise pollution induces hearing loss, high blood pressures, stress and sleep disturbance. Mercury has been linked to developmental deficits in children and neurologic symptoms. Lead and other heavy metals have been shown to cause neurological problems. Chemical and radioactive substances can cause cancer and birth defects.

Figure 1. Health effects of Pollution



Source: Google images

### Economic Costs of Pollution

Economic impact of global warming is costing the world more than \$1.2 trillion a year, wiping 1.6 % annually from the global GDP. The pollution costs India almost \$80 billion per year, equivalent to 5.7% of GDP [7]. By 2030, the cost of climate change and air pollution combined will rise to 3.2 % of global GDP, with the world's least developed countries forecast to bear the brunt, suffering losses of up to 11% of their GDP. The world's major economies will also be hit, as extremes of weather and associated damage-droughts, floods and more severe storms could wipe 2% of the GDP of the US by 2030, while similar effects could cost China \$1.2 trillion by the same period [8]

Table 1. The Most Expensive Disasters of the Past Decade.

<ul style="list-style-type: none"> <li>• French Nitrogen plant explosion</li> <li>• France 2001</li> <li>• Loss/ injury to lives, damage to buildings, shopping areas, etc</li> <li>• \$522 million</li> </ul>
<ul style="list-style-type: none"> <li>• Prestige Oil Spill</li> <li>• Spain 2002</li> <li>• Loss/ injury to lives, clean up of polluted coastline, harm caused to local fishing industry</li> <li>• \$ 2.8 billion</li> </ul>
<ul style="list-style-type: none"> <li>• Indian Ocean Earthquake and Tsunami</li> <li>• India and other nations 2004</li> <li>• Loss/ injury to lives, houses destroyed, economic and human development related infrastructure damaged, etc.</li> <li>• \$15 billion</li> </ul>
<ul style="list-style-type: none"> <li>• Buncefield factory explosion</li> </ul>



<ul style="list-style-type: none"><li>• Britain 2005</li><li>• Loss/ injury to lives, damage to buildings, church, schools, etc.</li><li>• \$1.11 billion [9]</li></ul>
<ul style="list-style-type: none"><li>• Cote d'Ivoire Toxic Waste dump</li><li>• Amsterdam 2006</li><li>• Contamination of food chain, large number of livestock affected; payment borne by the Trafigura Beheer BV company to the Ivorian government</li><li>• \$198 million [10]</li></ul>
<ul style="list-style-type: none"><li>• Volganef 139 tanker disaster</li><li>• Russia/Ukraine 2007</li><li>• Contamination of marine flora and fauna, sea and land property loss.</li><li>• \$200 million</li></ul>
<ul style="list-style-type: none"><li>• Cyclone Nargis</li><li>• Myanmar 2008</li><li>• Loss/ injury to lives, loss of assets, damage to assets such as homes, health facilities etc.</li><li>• \$4 billion [11]</li></ul>
<ul style="list-style-type: none"><li>• Victorian Black Saturday Bushfire</li><li>• Australia 2009</li><li>• Insurance claims, property loss, livestock loss, environmental damage, etc</li><li>• \$ 4.4 billion [12]</li></ul>
<ul style="list-style-type: none"><li>• BP Oil Spill</li><li>• Gulf of Mexico 2010</li><li>• Fishing, tourism, hospitality industries etc.</li><li>• \$ 1.2 billion [13]</li></ul>
<ul style="list-style-type: none"><li>• Japan Tsunami/ Earthquake/ Fukushima Plant leak</li><li>• Japan 2011</li><li>• Loss/ injury to lives, huge damage to farms, factories, roads, railways and electricity etc.</li><li>• \$300 billion [14]</li></ul>

Table-1 is a selective list of the most expensive environmental disasters which have cost the world's economy billions and trillions!! It is suggestive of the fact that the nature's wrath costs the nations enormously and takes a long period to recover. Thus my question is-is it not beneficial for us, to wake up to this "global warning" and by default, take up pollution prevention as thumb rule rather than pollution correction?? This needs to be done before life on earth totally becomes endangered with gloom of extinction!!!!

### **Responses and Economic Instruments**

Interactions between drivers and pressures, and their consequent impacts on ecosystem services and human well-being present un-foreseen challenges. There is an urgent need for effective policy responses at all levels to protect the environment from the adverse effects of pollution and many nations worldwide have enacted legislation to regulate various types of pollution as well as to mitigate the adverse effects of pollution. There is general agreement that we must control pollution of our air, water, and land, but there is considerable dispute over how controls should be designed and how much control is enough and who should be



responsible. The range and scope of response options available to policy-makers has progressively evolved over the past 20 years, with a diversity of multilateral environmental agreements and institutions now involved in trying to address the challenges see Table-2 [15]. The increase in governance regimes has brought about its own challenges, including competition and overlap. An inter-linkages approach is essential for managing the environment, not in its individual parts but more holistically.

Table 2.Types of Responses

• Command-and-control-regulation includes standards, bans, permits and quotas, zoning, liability systems, legal redress, and flexible regulation.
• Direct provisions by government deal with environmental infrastructure, eco-industrial zones or parks, protected areas and recreation facilities, and ecosystem rehabilitation.
• Public and private sector engagement relates to public participation, decentralization, information disclosure, eco- labelling, voluntary agreements and public-private partnerships.
• Market use includes environmental taxes and charges, user charges, deposit-refund systems, targeted subsidies, and the removal of perverse subsidies.
• Market creation addresses issues of property rights , tradable permits and rights, offset programmes , green programmes, environmental investment funds, seed funds and incentives

The evolution of policy response measures should shift from a focus on command-and-control policies to creating markets and incentives, particularly for industry to implement voluntary measures aimed at minimizing environmental damage. For conventional, well-known environmental problems with proven solutions, it is necessary to continue to apply, and to further improve upon previously successful approaches. Inclusive and adaptive management is essential, to enable policymakers to learn from previous experience as well as to make use of a variety of new tools that maybe needed.

### **Economic Instruments**

Today, greater emphasis is being placed on the potential use of economic instruments to help correct market failures. These instruments were promoted by Principle 16 of the Rio Declaration: “National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments.” Natural resources can be seen as a capital asset belonging to a general portfolio, which is comprised of other assets and capitals, including material, financial, human and social. Managing this portfolio in a good and sustainable manner to maximize its returns and benefits overtime is good investment. Numbers of economic instruments exist, including property rights, market creation, fiscal instruments, charge systems, financial instruments, liability systems, bonds and deposits. There exists a mix of the market-based instruments (MBIs) and command-and-control instruments to enable policymakers to better manage and get more accurate information regarding the portfolio of capital assets.

### **Valuation**

The value of the environment needs to be specified in the background of three important features of environmental goods, namely, irreversibility, uncertainty and uniqueness.



Valuation presents a set of challenges beyond conflicting value systems or lack of existing market institutions [16]. It uses notional and proxy measures to estimate the economic values of tangible and intangible services provided by the environment. Valuing different goods-and-services involves comparisons across different sets of things. It is possible to weigh the benefits from an activity such as the construction of a dam against its negative impacts on fishing, livelihoods of nearby communities, and changes to scenic and aesthetic values.

### **Public participation**

Human well-being depends on the unconstrained ability of people to participate in decisions, so that they can organize society in a way that is consistent with their highest values and aspirations. In other words, public participation is not only a matter of procedural justice, but also a precondition for achieving well-being and establishment of an improved sustainable environment for generations to come.

### **Education**

Access to information and education is a basic human right, and an important aspect of human well-being. It is also an important tool for generating knowledge that links ecological analyses to societal challenge and this is critical to the decision-making process. Women and marginalized communities must be ensured access to education. The United Nations launched its Decade of Education for Sustainable Development (DESD) in 2005 and designated UNESCO as lead agency for the promotion of the Decade [17].

The overall goal of the DESD is “to integrate the principles, values, and practices of sustainable development into all aspects of education and learning.” This educational effort will encourage changes in behaviour that will create a more sustainable future in terms of environmental integrity, economic viability, and a just society for present and future generations. In the long-term, education must contribute to government capacity building, so that scientific expertise can inform policy.

### **Environmental justice and ethics**

Environmental justice must be pursued affirmatively, so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons. It has been argued that a “global ethic” is required to address the problems of the 21st century. The pursuit of some people’s opportunities and freedoms may harm or limit those of others. It is important that policymakers consider the adverse effects their decisions have on people and the environment in other areas or regions, since such communities do not participate in local decision making. The Global environmental ethics must acknowledge that "Everyone has the right:

- to an environment that is not harmful to their health or well-being; and
- to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation;
- promote conservation; and
- Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development”.



## Environmental Governance

The turn of the century brought a sense of urgency to attempts to address environment and development challenges. The global and regional political context has changed considerably since the Brundtland Commission, triggering renewed optimism in multilateral and global governance. The 1990s was a decade of global summits on a diversity of issues, including children (1990), sustainable development (1992), human rights (1994), population (1994), social development (1995), gender equality (1995) and human settlements (1996).

World leaders sought to ensure a world free from want. In the Millennium Declaration, adopted in 2000, world leaders committed to free their people from the “threat of living on a planet irredeemably spoilt by human activities, and whose resources would no longer be sufficient for their needs” (UN 2000). The Millennium Summit adopted the declaration and created time-bound goals and targets – the Millennium Development Goals (MDGs) – to better human well-being [18]. Links between the environment and the Millennium Development Goals given in Table-3 below;

Table 3. Links between the environment and the Millennium Development Goals

<b>GOAL-1: Eradicate extreme poverty and hunger</b> Livelihood strategies and food security of the poor often depend directly on healthy ecosystems, and the diversity of goods and ecological services they provide. Natural capital accounts for 26 per cent of the wealth of low-income countries. Climate change affects agricultural productivity. Ground-level ozone damages crops.
<b>GOAL-2: Achieve universal primary education</b> Cleaner air will decrease the illnesses of children due to exposure to harmful air pollutants. As a result, they will miss fewer days of school. Water-related diseases such as diarrhoeal infections cost about 443 million school days each year, and diminish learning potential.
<b>GOAL-3: Promote gender equality, and empower women</b> Indoor and outdoor air pollution is responsible for more than 2 million premature deaths annually. Poor women are particularly vulnerable to respiratory infections, as they have high levels of exposure to indoor air pollution. Women and girls bear the brunt of collecting water and fuelwood, tasks made harder by environmental degradation, such as water contamination and deforestation.
<b>GOAL-4: Reduce child mortality</b> Acute respiratory infections are the leading cause of death in children. Pneumonia kills more children under the age of 5 than any other illness. Environmental factors such as indoor air pollution may increase children’s susceptibility to pneumonia. Water-related diseases, such as diarrhoea and cholera, kill an estimated 3 million people/year in developing countries, the majority of whom are children under the age of five. Diarrhoea causes 1.8 million children die every year (almost 5000/day).
<b>GOAL-5: Improve maternal health</b> Indoor air pollution and carrying heavy loads of water and fuelwood adversely affect women’s health, and can make women less fit for childbirth and at greater risk of complications during pregnancy. Provision of clean water reduces the incidence of diseases that undermine maternal health and contribute to maternal mortality.
<b>GOAL-6: Combat major diseases</b> Up to 20 per cent of the total burden of disease in developing countries may be associated with environmental risk factors. Preventative environmental health measures are as important



and at times more cost-effective than health treatment. New biodiversity-derived medicines hold promises for fighting major diseases.

**GOAL-7: Ensure environmental sustainability**

Current trends in environmental degradation must be reversed in order to sustain the health and productivity of the world's ecosystems.

**GOAL-8: Develop a global partnership for development**

Poor countries and regions are forced to exploit their natural resources to generate revenue and make huge debt repayments. Unfair globalization practices export their harmful side-effects to countries that often do not have effective governance regimes.

**Source:** Adapted from DFID and others 2002, UNDP 2006, UNICEF 2006

In signing on to the MDGs, nations explicitly recognized that achieving Goal 7 on environmental sustainability is key to achieving poverty eradication. To achieve real progress, the inter linkages between MDG 7 and the other MDGs need to be acknowledged and integrated into all forms of planning. The national level remains central in governance, despite discussions in the context of globalization and regionalization. Some countries are adopting innovative governance systems and there has been a trend towards both political and fiscal decentralization of governance to sub-national levels. Local governments have also engaged much more widely in international cooperation in various arenas, and their role has been strengthened at the global level. India is party to most multilateral environmental agreements such as United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol etc. Various policy measures across the domains of forestry, pollution control, water management, climate change, clean energy, and marine and coastal environment has promoted Environmental protection and conservation.

The National Environment Policy, 2006 intends to mainstream environmental concerns in all development activities in a response to India's commitment to a clean environment and [19].

**The Pollution Control Approach**

As the pace of industrial activity intensified and the understanding of cumulative effects grew, a pollution control paradigm became the dominant approach to environmental management.

Two specific concepts served as the basis for the control approach:

- The assimilative capacity concept, which asserts the existence of a specified level of emissions into the environment which does not lead to unacceptable environmental or human health effects
- The principle of control concept, which assumes that environmental damage can be avoided by controlling the manner, time and rate at which pollutants enter the environment.

**The Costs of Pollution Correction**

The way pollution correction is often built into the production process makes any estimation of their cost extremely difficult. Pollution correction diverts economic resources from other economic activities, thereby reducing the potential size of measured national output. As long as the increase in the value of the environment is at least one dollar for each additional dollar spent on controls, the total value of goods, services, and environmental amenities is not reduced. Market incentives also turn out to be costly. Pollution fees i.e. taxes on polluters that penalize them in proportion to the amount they discharge into an air-shed, waterway, or local



landfill make the investment cost include the marginal abatement cost of pollution to be taken into consideration.

### **Pollution Prevention is Profitable than Pollution Correction**

The Pollution Precautionary Principle provides a framework for action to protect human health and the environment in the face of uncertainty [20]. The central premise of the precautionary principle is that when an activity poses threats of serious, irreversible harm to human health or the environment, we should act to prevent that damage. Implementation of the precautionary principle means taking a new, forward-looking approach to environmental regulations. It also requires careful consideration of alternative production materials and processes.

The evidence shows that implementing the precautionary principle is not just good science; it is also good economics, for at least four reasons:

1. Precautionary action benefits workers;
2. Precautionary action does not impose damaging costs on industry;
3. Precautionary policies can stimulate technological innovation; and
4. Economic logic supports timely action to avoid massive health and environmental costs.

Figure2. From Correction (Costs) to Prevention (Savings)



Source: Google images

While the pollution control approach has achieved considerable success in producing short-term improvements for local pollution problems, it has been less effective in addressing cumulative problems that are increasingly recognized on regional (e.g., acid rain) or global (e.g., ozone depletion) levels. The pollution prevention approach focuses directly on the use of processes, practices, materials and energy that avoid or minimize the creation of pollutants and wastes at source, and not on “add-on” abatement measures. Pollution control in other words cannot by itself provide a solution to the environmental crisis. Trade, industry, infrastructure, etc. takes precedence over key environmental issues on public expenditure. Billions are spent on correction of pollution rather than prevention (Table: 2). Dollars saved by prevention of pollution can solve trans-global problems.

Prevention is a thumb rule to be met with honest action (Figure: 2). There are two ways of looking at it:-

Pollution prevention will not only reduce the short term economic costs but also long term or delayed economic ones, i.e. long term social and ecological costs. From this point of view money spent on pollution prevention will be extremely beneficial to the socio-economic



progress of the nations of the world. Also, it will maintain or restore such cohesive conditions that will permit further demographic and economic growth of the countries.

## Conclusion

Global trends report that life expectancy has risen, infant mortality has fallen. Price being a measure of scarcity, resources are becoming less scarce. There's increasing level of carbon dioxide in atmosphere and falling quantities of proven energy reserves in relation to levels of resource use.

The above preceding paragraphs specify the urgency to act towards ensuring "Environmental Jurisprudence" and save the dollars and therefore gain profitability by pollution prevention rather than pollution correction. Good development ensures optimal functioning of natural environment.

The need is of an intergenerational education for generating knowledge linking ecological analysis to challenges for decision-making which would encourage the youth to do Ecological-Economical inventory in their community to carry forward preserving and renewing ecological wisdom.

In other words, environment related efforts should be aimed at producing "Green Citizens", not just green consumers. People need to be empowered to participate in decisions making process and implementation of Eco-Friendly policies for wellness of human race, consistent with highest values of economics and human aspirations.

Environmental issues present some of the most profound and complex challenges requiring attention today and in the coming decades.

The foundation base is enhancing local, national and global capacities to respond to those challenges with extended commitment and generate new forms of action and activism that will lead to effective responses to ecological challenges. From "Graying of the Greens", our collective effort must lead to "Greener from Greens".

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## **Relationship between Economic Development and Human Development: A Global Perspective**

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### **Abstract**

*The difference between economic growth and economic development has gain popularity since the development of concept of human development. UNDP has been publishing Human Development Index (HDI) in order to provide comparative picture of the level of human development across various countries. Lot of work has been done in the area of human development. Present paper is an attempt to understand the relationship between economic development and human development. Based on the data collected from World Bank and UNDP, relationship has been established between economic development and human development.*

**Keywords:** Economic Development, Human Development, HDI, National Income, GDP, Per Capita Income



## **Relationship between Economic Development and Human Development: A Global Perspective**

### **Introduction**

The concept of human development is most widely discussed in academic literature, political arena as well as policy discussion. At the same time the concept of human development is most misunderstood in terms of what constitute human development and parameters defining human development. The concept of human development was introduced in the early 1990s sought to shift focus from national income as an indicator of development to expanding choices available to people. Before the concept of human development came on the forefront, the concept of economic development was the buzz word in literature and policies. Modern theories of economic development appeared mainly after the Second World War. Before Second World War, the term economic development was rarely used in economic literature. The concepts and theories of economic development were greatly influenced by the postwar experience of Europe and the great destruction that the war caused in the productive infrastructure of European countries. During late 1950s the focuses of developmental economists have shifted from reconstruction of Europe to mainstream economic development. During late 1970s and early 1980s debt crisis of less developed countries has overtaken the thought of development which centered around the program of economic stabilization and structural adjustments led by World Bank and IMF. During the process it was realized that these programs should take into consideration, the social aspect as well. Another major shift in the development thinking came as a result of experience of industrialized countries like US. Developed countries during their process of economic growth realized that growth could take place together with social ills, such as the mal-distribution of income, persistence of poverty and increasing homelessness, the disintegration of the family, high rates of divorce, environmental pollution and destruction, the spread of violent crime and drug abuse, and the appearance of other social pathologies etc. The developmental economists have realized the fact that Gross National Product (GNP) and other measures of economic performance could show improvement together with the rise of undesirable social trends which is neither desirable nor sustainable in the long run. Social scientists have made many attempts to device more welfare sensitive measurement of development which incorporates other measures of social development along with economic development. Unitary Index developed in 1960s combines a large set of social variables in the areas of nutrition, shelter, health, education, leisure, security, and social and physical environment. Similarly Physical Quality of Life Index (PQLI) developed during 1970s combines infant mortality, life expectancy at birth and adult literacy. International Human Suffering Index (IHSI) of the 1980s integrated a large set of variables such as expectation of life at birth, calorie intake, and availability of clean drinking water, secondary enrollment, inflation rate, infant immunization and other indicators dealing with civil rights and political freedom. Finally the Human Development Index (HDI) of the 1990s which is most widely used as indicator of development. All indices of development has one common feature, all these multi-variable indices of development is that they try to combine a number of indicators, generally proxies for various aspects of economic and social life, into one index of development.

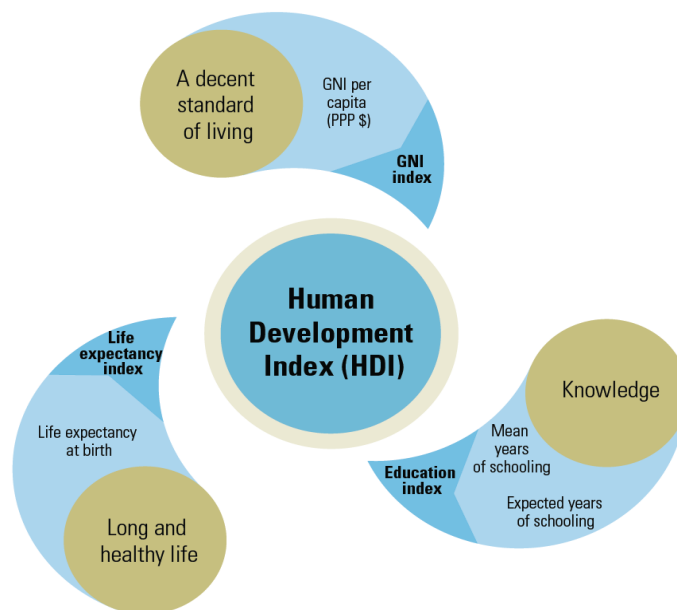


Among all indices, HDI is different in these aspects (a) it is supplemented by other indices that give, separately, specific characteristics of development and, together, a broader picture of the development processes taking place, (b) it was developed and is backed by the United Nations Development Programme (UNDP), the major United Nations development agency and a major international forum of development and (c) human development is not only a new measure of development performance; it involves an altogether new approach to development efforts.

### Human Development Index

The Human Development Index (HDI) was developed by the United Nations as a metric to assess the social and economic development levels of countries. HDI is based on four principal areas of examination for the purpose of ranking countries; mean years of schooling, expected years of schooling, life expectancy at birth and gross national income per capita. HDI makes it possible to follow changes in development levels over time and to compare the development levels of different countries. The main emphasis of HDI is on individual countries with specific focus on their opportunities to realize satisfying work and lives. Evaluation of a country's potential for individual human development provides a supplementary metric for evaluating a country's level of development besides considering standard economic growth statistics, such as gross domestic product (GDP). HDI can also be used to examine the various policy choices of nations in terms of policy decisions.

The HDI was created to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone. The HDI can also be used to question national policy choices, asking how two countries with the same level of GNI per capita can end up with different human development outcomes. These contrasts can stimulate debate about government policy priorities (<http://hdr.undp.org/en/content/human-development-index-hdi>).





As stated by United Nations, Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions (UNDP). Specific variables are selected for each of these dimensions. Health dimension is assessed by life expectancy at birth while education dimension is measured by mean years of schooling for adults aged 25 years and more and expected years of schooling for children of school entering age. In order to measure the standard of living dimension, gross national income per capita is taken into account. It is important to note that HDI uses the logarithm of income, to reflect the diminishing importance of income with increasing GNI. The scores of each individual country for these three HDI dimension indices are then aggregated into a composite index using geometric mean.

To measure human development more comprehensively, the Human Development Report also presents four other composite indices. The Inequality adjusted HDI discounts the HDI according to the extent of inequality. The Gender Development Index compares female and male HDI values. The Gender Inequality Index highlights women's empowerment. And the Multidimensional Poverty Index measures non-income dimensions of poverty. (Human Development Report 2015) The countries with highest and lowest HDI are presented in table below;

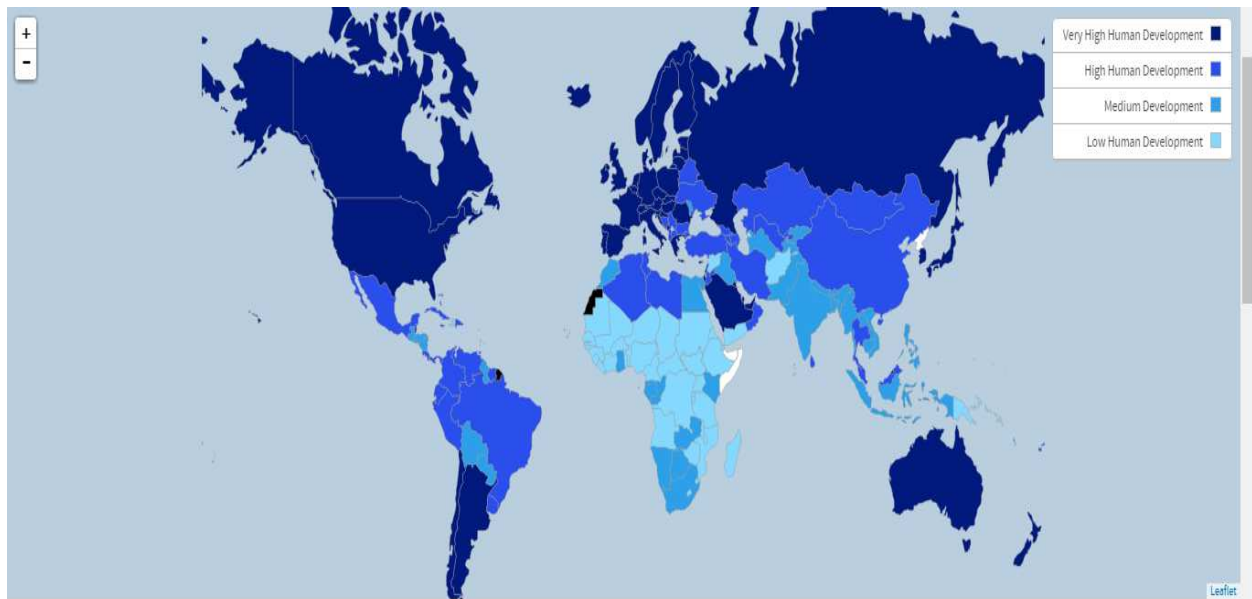
<b>Countries with highest HDI : 2015</b>		
HDI Rank	Country	HDI Score
1	Norway	0.949
2	Australia	0.939
2	Switzerland	0.939
4	Germany	0.926
5	Denmark	0.925
5	Singapore	0.925
7	Netherlands	0.924
8	Ireland	0.923
9	Iceland	0.921
10	Canada	0.920
10	United States	0.920
Source: HDI 2016, UNDP		
<b>Countries with Lowest HDI :2015</b>		
HDI Rank	Country	HDI Score
179	Eritrea	0.420
179	Sierra Leone	0.420
181	Mozambique	0.418
181	South Sudan	0.418
183	Guinea	0.414
184	Burundi	0.404
185	Burkina Faso	0.402
186	Chad	0.396



187	Niger	0.353
188	Central African Republic	0.352
Source: HDI 2016, UNDP		

It can be seen from the data that Norway achieved the highest position in terms of HDI ranking (1<sup>st</sup>) and score (0.949) followed by Australia (2<sup>nd</sup> rank, score 0.939) and Switzerland (3<sup>rd</sup> rank, score 0.939). On the other side Central African Republic is at the bottom end with HDI rank of 188<sup>th</sup> and score of 0.352 followed by Niger (187<sup>th</sup> rank, score 0.353) and Chad (186<sup>th</sup> rank, score 0.396).

The global picture in terms of human development as reported by UNDP is presented below;



According to 2015 UN Human Development reports major progress has been made over the last 25 years with 2 billion people lifted out of low human development levels. During the period 1990 to 2014, the number of people living in countries with very high values of human development index more than doubled from 0.5 billion to 1.2 billion people, as 34 countries moved up to this category. Similarly, the number of people living in countries with low levels of human development fell by more than 60 percent from 3.2 billion to 1.2 billion as 19 countries moved up and out of the low human development category including Congo, Ghana and Namibia. It is also reported that HDI for developing countries grew by 1.2 percent annually between 2000 and 2010, but by only 0.7 percent annually for the period 2010-2014.

HDI 2016 reported that over the past quarter-century the world has changed—and with it the development landscape. New countries have emerged, and our planet is now home to more than 7 billion people, one in four of them young. The geopolitical scenario has also changed, with developing countries emerging as a major economic force and political power. Globalization has integrated people, markets and work, and the digital revolution has changed human lives.



### Human Development Index: India

According to human development report 2015 released by UNDP, India continued to rank low in the Human Development Index (HDI), but climbed five notches to the 130th rank among 188 countries in the latest UNDP report on account of rise in life expectancy and per capita income. India's rank has improved from 135 as per 2014 report. As per the report India's HDI value for 2014 is 0.609, which puts the country in the medium human development category, positioning it at 130 out of 188 countries and territories.

It is important to note that between 1980 and 2014, India's HDI value increased from 0.362 to 0.609, an increase of 68.1 per cent or an average annual increase of about 1.54 per cent.

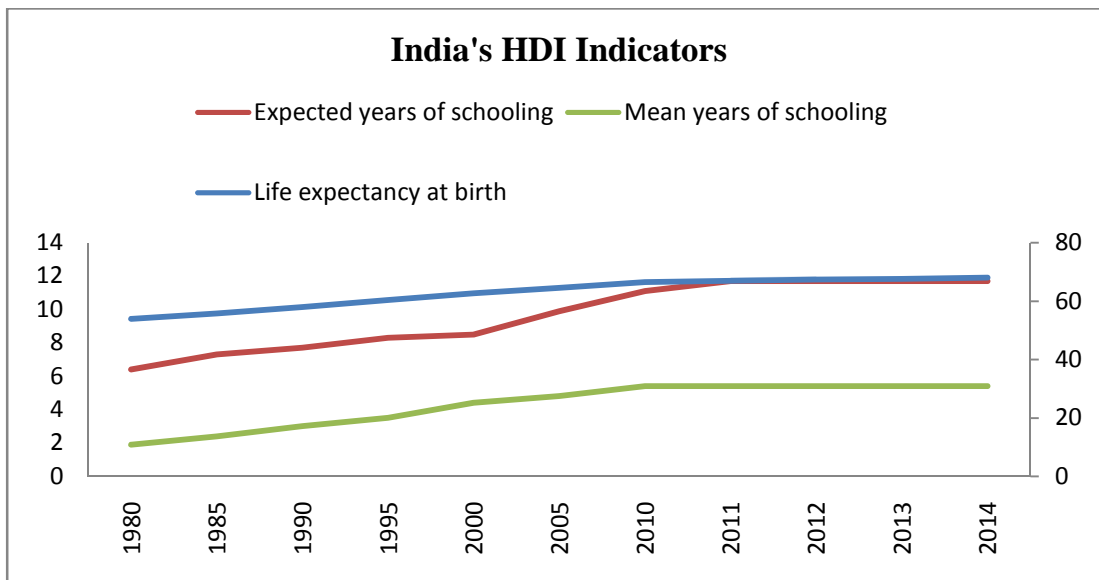
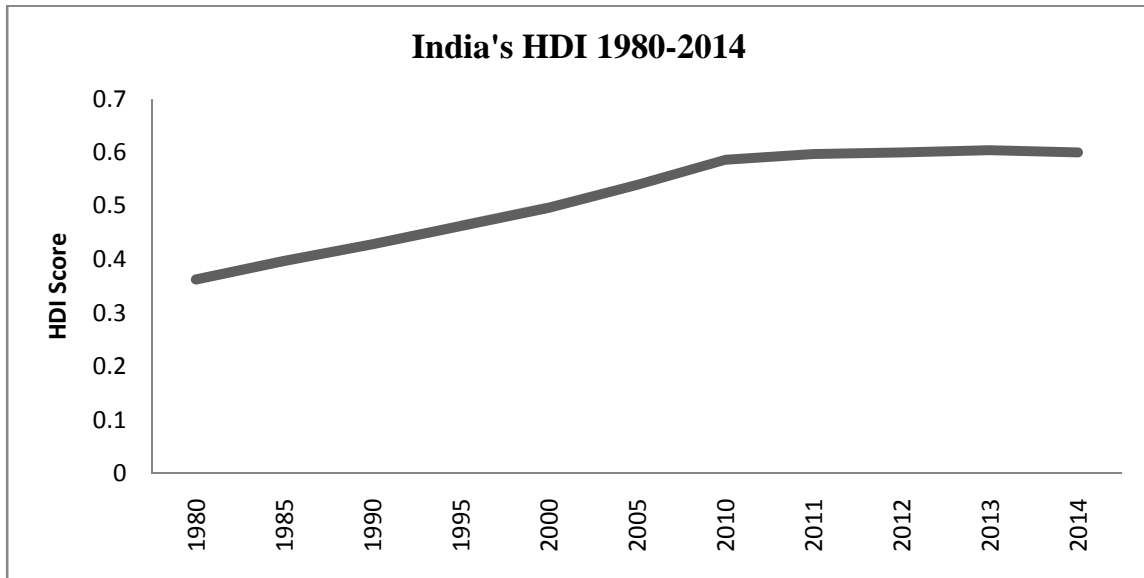
Life expectancy at birth in India has increased to 68 years in 2014 from 67.6 years during 2013 and 53.9 in 1980.

Similarly India's Gross National Income (GNI) per capita was \$5,497 during 2014 which was higher than \$5,180 registered during 2013 and \$1,255 in 1980. India's GNI per capita has increased by about 338 per cent between 1980 and 2014 according to the report.

Human development report also highlighted that the expected years of schooling is stagnant at 11.7 since 2011 and mean years of schooling at 5.4 has not changed since 2010.

HDI Trend in India					
Year	Life expectancy at birth	Expected years of schooling	Mean years of schooling	GNI per capita (2011 PPP\$)	HDI value
1980	53.9	6.4	1.9	1,255	0.362
1985	55.8	7.3	2.4	1,446	0.397
1990	57.9	7.7	3	1,754	0.428
1995	60.4	8.3	3.5	2,046	0.462
2000	62.6	8.5	4.4	2,522	0.496
2005	64.5	9.9	4.8	3,239	0.539
2010	66.5	11.1	5.4	4,499	0.586
2011	66.9	11.7	5.4	4,745	0.597
2012	67.3	11.7	5.4	4,909	0.6
2013	67.6	11.7	5.4	5,180	0.604
2014	68	11.7	5.4	5,497	0.6

Source: UNDP



During the period 1980 and 2014, India's life expectancy at birth increased by 14.1 years, mean years of schooling increased by 3.5 years and expected years of schooling increased by 5.3 years.

According to the UNDP, India's 2014 HDI of 0.609 is below the average of 0.630 for countries in the medium human development group and above the average of 0.607 for countries in South Asia.

From South Asia, countries which are close to India in 2014 HDI rank and to some extent in population size are Bangladesh and Pakistan, which have HDIs ranked 142 and 147, respectively.

### Review of literature

**Aria-Lenuța (2015)** in research work on “analyzing the composition of HDI in European countries stated that HDI, which is published by UNDP, may be the most comprehensive indicator, but it is not fully compatible enough to measure the human development level in a





global perspective. Human Development Index explicitly explains the development of a country as being more than an economic growth tool or material wealth. In this way, this index is distinguished from many other performance indicators. This article aims to analyze the proportion of the three indicators on 37 European countries. **Mohapatra P R (2015)** in their work titled “HD, HDR & HDI : An Indian Perspective” stated that India is one of the emerging economic power house, but scoring very low in the Human Development Index. Research paper not only highlights the human development (HD), but also focuses on the documentation and reporting known as human development report (HDR). In addition it also covers the indexing method used by the UNDP, which is recorded as human development index (HDI). It analyses the major parameters of development. Factors such as equity, sustainability, productivity are discussed along with empowerment, cooperation and security. Analyses are made from India’s point of view, while comparing to its neighboring countries. The process of calculating the Index for reporting is also highlighted in this paper. **Muttneja P (2015)** in study on a review of human development index (HDI) and human poverty index (HPI) in the Indian perspective, concluded that the challenges that India faces in reducing poverty in the future and more effectively than it has in the past are enormous one. India has met and mastered other major challenges and is pursuing its goal of higher economic growth with the policies of liberalization and structural adjustment programmes. Building on this foundation for faster growth would require that the challenges of poverty reduction remain at the fore front. Liberalization of the economy needs to focus on deregulating sectors on which depends the livelihood of many of the poor and on improving the provision of infrastructure and social services to the underprivileged. **Chivu M, Chivu M R & Elena A S (2014)** in article on Economic Growth Sustaining Under Environmental Sustainability and Human Development shows the concept of sustainable development’ origins and enlargement, the transition from the economic development paradigm to the sustainability paradigm as is seen through the three sustainability’ dimensions (economic, social and environmental). It is made an analysis of environmental and business sustainability in the context of economic development, due to the fact that sustainable development comprises environmental protection, and environmental protection is a determinant of sustainable development. Without the environment protection, there is no sustainability. As a conclusion, the implementation of the environmental strategies in organizations should be a policy priority in order to meet the needs of current and future generations. **Gopinath S (2005)** in paper on Human Development and State Finances: Some Thoughts sated that India, have done remarkably well in many areas of human development. On the social front, we have seen increase in our primary school enrolments, including for girls, which was a major concern. There has been secular and universal reduction in our infant and child mortality rates. Life expectancy has shown significant upward change. But high regional disparity in HDI across States is also a source of concern. Nevertheless, analysis of State-level HDIs by the Planning Commission indicated a decline in such regional disparity during the last two decades. **Selçuk Akçay (2006)** studied relationship between Corruption and Human Development in a sample of 63 countries. In order to test the impact of corruption on human development, three different corruption indexes are used. Test results reveal that there is a statistically significant negative relationship between corruption indexes and human development. Empirical evidence of the study suggests that more corrupt countries tend to have lower levels of human development. In brief, this study extends the list of negative consequences of corruption and argues that corruption in all its aspects retards human development. **Kaya H D (2016)** made a study on “How do Economic Crises Affect Regional Human Development? An Investigation of the 2008 Global Crisis”. Study examine the impact of the 2008 Global Crisis on the Human Development Index (i.e. HDI) values of 149 countries. Over the 1980 to 2013 period,



there has been a gradual and consistent improvement in the index values for the overall sample. However, our results show that this improvement has slowed down sharply after the 2008 crisis. This slowing down differs from region to region. For Latin American and the Caribbean countries, the East Asia and the Pacific countries, and Sub-Saharan Africa countries, the slowdown started in 2008. For European and Central Asian countries, the slowdown started in 2011. For Arab States and South Asian countries, the slowdown is not statistically significant. Interestingly, the Sub-Saharan Africa countries have been more resilient compared to some of the other regions. **Mohapatra P R (2015)** has contributed paper on “Indexing Human Development- with Respect to India”. According to author in the radically opposite trends of India’s economic growth and Human Development Index are raising question on the dichotomy. On the other side small and economically less developed countries are ranking high on Human Development Index. Research study also covers the information about introduction of the new method of calculation of preferring PPP over GDP in addition to it three parameters are such as life, education and income are only considered as the base for the calculation of HDI. Paper is an attempt to review the performance of India in the scale called Human Development Index. Study concluded that Human Development Index is not the ultimate index to calculate and assess human development, it is better than other indices in more ways than one because of which HDI is being used by various countries. There can be assessment as per the new HDI which can better assess than old HDI and lot of improvement in deciding HDI, since growth is a natural process but development require deliberate intervention. **Uppal J U & Mudakkar S R (2013)** Have attempted their study on titled “Human Development and Economic Uncertainties: Exploring Another Dimension of Development” in order to makes the case that economic uncertainties—i.e., the extent to which economies face systemic uncertainties—need to be considered another dimension of human development because they render development vulnerable, diminish social welfare, and constrain human capabilities. Research study proposed a methodology for adjusting the human development index (HDI) for economic uncertainties, using the time variability of income changes as a proxy. Constructing an adjusted index associated with the income component for the 2011 HDI, analysis indicates that such an index contains additional information. According to the analysis data related to HDI, study found that the percentage loss in the income component of the HDI seems to reflect the variability in economic indicators arising from the political and economic tribulations experienced by each country. In the case of Pakistan, the results of a time series analysis of the percentage loss from the uncertainty adjustment appear to closely trace the country’s political and economic upheavals. **Pavla B, Aleš K & Šárka L (2012)** have made “An Analytic Study on Internal Linkages between Human Development and Globalization.” According to them globalization is often understood as increasing global economic integration, global forms of governance, and globally inter-linked social and environmental developments. The objective of the study is to demonstrate the connection among human development, globalization, and institutional quality. Paper uses Konjunkturforschungsstelle (KOF) Globalization Index which includes economic, social, and political contexts. Later part of the paper introduces one of the parameters of institutional quality i.e. Inequality-adjusted Human Development Index (IHDI) as the real indicator of the level of human development. For the purpose of analysis two out of three dimensions of IHDI are used (long and healthy life and access to education) and two dimensions of Globalization Index were employed (social and political globalization) are used. The comparative picture of indices shows that the social globalization has stronger linkages with human development than with the political globalization. Research study concludes that spurring growth rates and reduced poverty in countries with poor institutions cannot be achieved simply by globalizing their economies.



### Research Methodology

Research methodology is an integral part of any research work. Presents study is exploratory in nature. Attempt has been made to explore the relationship between economic development and human development. The data for the purpose of research are collected from World Bank and UNDP. List of the countries for which both economic growth (GDP) and Human Development (HDI) are available. Final list of 174 countries was used for the purpose of analysis. In order to measure the economic development, GNI per capita (PPP) has been used.

### Data Analysis

The comparative picture of economic development measured in terms of per capita national income and human development measured in terms of HDI is presented in table below. It can be seen from the data that Qatar top the list with GNI Per Capital of US \$ 124740 followed by Singapore US\$ 85050 and Kuwait US\$83420. The average GNI per capita of top 10 countries is US\$ 76979.

On the other hand the list of countries with lowest GNI per capita shows that Central African Republic and Liberia are the bottom position with GNI per capita of US\$700 followed by Congo, Dem. Rep US\$ 730 and Burundi US\$ 770. The average GNI per capita of lowest 10 countries is US\$ 1009. The information about GNI per capita shows wide differences across countries.

Countries with Highest GNI Per Capita		
Country	GNI Per Capita (PPP) US \$	Human Development Index (HDI)
Qatar	124740	0.856
Singapore	85050	0.925
Kuwait	83420	0.800
Brunei Darussalam	83250	0.865
Luxembourg	75750	0.898
United Arab Emirates	72850	0.840
Switzerland	63660	0.939
Norway	62510	0.949
Hong Kong SAR, China	60530	0.917
United States	58030	0.920



<b>Countries with Lowest GNI Per Capita</b>		
<b>Country</b>	<b>GNI Per Capita (PPP) US \$</b>	<b>Human Development Index (HDI)</b>
Togo	1370	0.487
Sierra Leone	1320	0.420
Guinea	1200	0.414
Mozambique	1190	0.418
Malawi	1140	0.476
Niger	970	0.353
Burundi	770	0.404
Congo, Dem. Rep.	730	0.435
Central African Republic	700	0.352
Liberia	700	0.427

In terms of Human Development Index the average index of countries with highest GNI per capita is computed at 0.891 while the average index of countries with lowest GNI per capita is computed at 0.419. The result of the study shows direct relationship between economic development and human development. Countries with higher economic development also show higher level of human development.

In order to test the relationship between economic development and human development across selected countries correlation analysis has been performed. The results of correlation analysis are presented in table below.

<b>Correlations Between Economic Development and Human Development</b>			
		<b>GNI</b>	<b>HDI</b>
<b>GNI</b>	Pearson Correlation	1	.758 <sup>**</sup>
	Sig. (2-tailed)		.000
	N	174	174
<b>HDI</b>	Pearson Correlation	.758 <sup>**</sup>	1
	Sig. (2-tailed)	.000	
	N	174	174

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

It can be seen from the data that there is positive correlation between economic development and human development. The correlation  $r = 0.758$  shows positive relationship between economic development and human development. Further is also evident from the data that correlation is found to be significant ( $p < 0.01$ ).

### **Conclusion**

Human development is considered to be final outcome of processes followed for the purpose of economic development. Economic development has no meaning if it does not lead to human development. The result of the study shows direct relationship between economic development and human development. Countries with higher economic development



measured in terms of per capital GNI have higher level of human development measured in terms of human development index. Government should focus on economic development in order to achieve higher level of human development.

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## **Women Health and Human Development Studies in Gujarat**

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### **Abstract**

*In the study presented has been studied in the human development of a person. Increase in expected life expectancy, Birth rate mortality decreased, and nutrition has talked about. It is said that the good health. Of the country is also good for the development of the country it should be a health person in the creation of a good nation. Here is the take of women heath. Currently there is a problem of malnutrition in the country. Many attempts have been made to solve this malnutrition problem. Such as integrated child development programs (ICDS). These programs provide nutrition and children. That's why women health is good and the coming baby is also healthy. So healthy people can build a good nation. Because of good health its efficiency in creases even more in his income. And the higher the income the person's life standard is also high. This leads to an increase in investments with good health. So study of women health status in the study, and mother mortality change in child mortality and health care costs have been studied in health facilities. Economic growth has a relationship with productivity. So good health is showing the productivity of the country.*



## **Women Health and Human Development Studies in Gujarat**

### **Introduction:**

Human development is the process for the development of physical and mental powers in humans. The investment that is made to develop human and physical and mental powers is called Investment for Human Resources Development. So, education for education, training, research, health services etc. is good on the productivity of human-investment by increasing the skills and health of the people. Here, human development components can lead to equality, productivity, sustainability, empowerment and the best health care available and the better available for sustainable diet. "Human development is the growth of their capacities for people to get a greater chance in life (Human Development Report 2009)

In the context of India, "Human development means that human development, which is not of the basic ability, to develop it in those who have been marginalized, it also means helping them. Apart from the purpose of human society, there is also a development plan to adopt this achievement (Indira Hirwe 2004).

According to Sen, "The development of resources, capabilities and preferences should also be increased with the growth of tools (not only human development) from economic growth." The continuous expansion of the san capabilities is called human development.

### **Research Question:**

The present research paper has been introduced only in pregnant women and child health. Women are not given as much importance as seeing in health, and often produced, problems like nutritional deficiencies in the home, home-grown environment, and health-related problems arise. Also, poor women get approval in the fields like factories, industries, construction. So that their physical, mental negative effects are found. Many different diseases become victims. And the coming baby is also born poor. Attempts to improve health through various health programs have been tried to prevent this problem. As well as propagation of prophylactic equipment of embryonic instruments, the rules for frequent delivery of pregnancy and implementation of small pest control have been implemented. However, there is no improvement in women's health in the interior areas.

### **Study Objectives:**

1. The state of women's health and human development has been studied in Gujarat
2. Check out the changes in maternal death to child mortality.
3. Cost-benefit, and health facilities being followed for health (PHC, CHC nutritional information)



### **Health and human development:**

1990 Human Development Report (HDR) published by the United Nations Development Program (HDR). The important role of presenting the HDR is also the contribution of Indian economist and also in 2009, there were three factors in which 1. Expected Lives (Health) 2. Education 3. Showing good standard of living (number of income).

In 2014, the world's largest number of people in 188 countries, with a 0.944 rating in HDR, Norway is ranked first and India is at 130th position with 0.609 points.

### **According to the Health Statistics of 2009:**

- 1) Pauchi India ranked 182 countries with the average life expectancy of 63.4 years, while the average age of China was 72.9 years (92nd), 74 years (in the 102nd rank) in Sri Lanka and 70.05 years in Indonesia (101st rank) Was noticed. The average life expectancy in Bhutan and Bangladesh was 65.7 years, 66.2 years in Pakistan and 66.3 years in Nepal.
- 2) The proportion of children in the age group of five years, which is malnourished or inadequate to nutrition, was 48%. India ranked 132 on this issue. In addition, 51% of children seemed lower than the height and 30% of the children were underweight.
- 3) Maternal mortality rate was 1 lakh 254, whereas in China it was 45, 58 in Sri Lanka and 320 in Pakistan.
- 4) By five years, the death rate of children per 1,000 was 69, whereas in China it was 27, Sri Lanka's 14 and Bangladesh in 73 years.

### **Expected life expectancy and child-rate:**

Expecting births, the newborn child is expected to live the average of years. Enough diet, hygiene, drinking pure water, health services, etc. to determine the average life expectancy of people living in the country. Since poor people receive less of these facilities, their average life expectancy is low.

Child Mortality Rate is the rate of the death of children per 1,000 live births in children below a year less than the rate of child mortality-rate of health, availability of health services, education in mother, vaccination in children, nutritious diet etc. Child Mortality Rates is the director of poverty in terms of poor health services.

Expected life expectancy and infant mortality rates in some countries of the world have been as follows:

### **Table Expected life expectancy and child-rate:**

<b>Country</b>	<b>Life expectancy (Year: 2014)</b>	<b>Child mortality )Year: (2014</b>
Norway	81.6	02
America	79.1	06
Sri Lanka	74.9	09
China	75.8	10
India	68.0	39





Source: HDR-2015, Economic Survey (16-2015 and www.data.worldbank.org. Integrated from

According to the information presented above, the expected life expectancy in Norway was 81.61 years, which is 79.1 years in the US, 74.9 years in Sri Lanka, 75.8 in China, whereas in India it is 68.0 years which is less than those of China and Sri Lanka.

In regard to child mortality, children born to every 1000 births in Norway are 2 in the United States, 9 in Sri Lanka, 10 in China and 39 in India.

**Table showing important health indicators in the state of Gujarat:**

<b>Table showing important health indicators in the state of Gujarat:</b>					
Rank	Details	1971	1991	2001	Current level (2012)
1	Birth rate (1000)	40.0	8.5	24.4	21.1 SRS)2012(
2	Mortality (1000)	16.4	8.5	7.8	6.6 SRS)2012(
3	Total reproduction rate	5.6	3.1	2.9	.23 SRS)2012(
4	Mother's death rate Every 100, 000 live births	-	398	202	122 SRS)2012(
5	Child Mortality Rates Rate (1000 children)	144	69	60	38 SRS)2012(
6	Child Mortality Rate (0-4) Rate (1000 children)	59.3	31.7	18.5	12.1 SRS)2012(
7	Consumption of Sustainable Regulation Tools Rate all methods (percent)	-	44.3	49.0	66.6 SRS)2012(
8	Life expectancy at birth 1. Man 2. Female	Inaccessible	62.4 64.4 )1998- 02(	62.9 65.2 )2002- 06(	67.2 71.2 )2006-10(

Source : (1) SRS bulletin Registrar General of India

The table above can be said that the mortality rate (MMR) was 308 in 1990. That was 112 in 2012- 13. That is, according to the Millennium target, there were 77 targets by 2015, but by 2015 it is estimated to be 101.89. The health infrastructure of so has seen the car improvements in health earlier than ever.



**Table showing infant mortality in Gujarat:**

Gujarat infant death rate (IMR, per 1000 live births)		
Rank	Year	Infant Mortality (IMR)
1	1990	72
2	1994	64
3	2010	44
4	2012	38
5	2013	36
6	2017	30

Source : (1) SRS bulletin Registrar General of India (2)MDGs India Country Report-2015

According to the above, the child mortality rate (U5 MR) below the age of five years (U5 MR) per 1,000 live births (child death rate of a child before the age of a certain age) (U5 MR) says that in 2013, the infant mortality rate in Gujarat is 36 in which 35 in males, 37 in females and according to the area. In rural Gujarat, infant mortality rate is 43%, urban area is 22. Thus, infant mortality rate is also female, rural and urban. Believed.

**Extradited Fortified Blended Micks:**

This benefit is given to pregnant, pregnant and mother. Nutritious diet that is available in 500 calories and 18 to 20 grams of protein is given at home. In it, premixes are provided in the. Which can be made in hot water or milk. During November 2014, 705377 pregnant women have been given benefit.

**Table showing the achievement of the activities achieved under RCH**

Rank	Point out	Unit	2013-14	2014-15
1	Mother health care			
(A)	Pregnant Announcement for Pre Posture Service	In lakhs	15.81 (101.4)	8.50 (58.7)
(B)	Pregnancy Anti-Antile Vaccine (TT- + Busy)	In lakhs	12.44 (85.1)	7.04 (48.6)
(C)	Birth Announcement Institutional Maternity	In the registration number of births in lakhs	96.3	97.2
(D)	House maternity		3.7	2.8
2	Child Vaccination (0.1 years)	Vaccinated children (in lakhs)	-	-



(A)	Anti-tuberculosis		12.34 (92.9)	6.97 (53.0)
(B)	Triple(3 if the dose)		13.23 (103.7)	6.53(52.0)
(C)	Polio (3 if the dose)		11.55 (90.1)	6.73(53.3)
(D)	Indy		11.50 (90.1)	6.73 (53.3)
(E)	Full vaccination		11.25 (88.1)	6.67 (52.8)

Source: Social Economic Review Gujarat State 2014-15

### Status of medical services in Gujarat:

Women's Health Programs- Financial Assistance is also provided by the Yojana, Chiranjeevi Yojana, Kasturba Nutrition Assistance Scheme, Jan Shishu Yojana , Family Planning, MamtaDay, MilkSanjeevani Scheme, Integrated Child Development Program.

According to the census of 2011, special attention is given to the structure of rural health services in accordance with the National Health Policy of the state, especially rural and urban health services. According to the norm, the rural population of 3000 people has been set up to set up a sub-center in tribal areas, as well as 20 , 000 rural population, for primary health center rural areas A 30,000 population is determined to set up a primary health center, which is as follows.

### Table showing information about state health centers:

Rank	Level of health facility	Total programs in the state	Under tribal area scheme	Percentage of total centers
1	Sub-centers	7274	2209	30.37
2	Primary health centers	1158	358	30.97
3	Collective centers	318	70	22.01

Source: Department Of Health and Family Welfare Gandhinagar.

Primary health centers and sub-centers are working to provide good health and emergency facilities as well as to get information about the main diseases of the people there, but provide free treatment .But due to rural ignorance Bhuva or Mantra is more recognized because of medical treatment. There is no information about government's health plans. There is a lot of increase in the number of child labor and maternal size due to the lack of nutritional deficiency in pregnant women, marriage at the earliest, and the vaccination of adequate vaccinations during pregnancy. And in particular tribal areas, the number of sickle anemia is also found more.

### Conclusion:

The countries which have a high proportion of health have more incomes. Especially women and children have a problem that is more of a social problem. Malnourished victim is more likely to give birth to a malnourished child. Mother's nutritional status is also important for the child's better health. Undecided child development stops and affects future productivity and capabilities. Thus adequate nutrition is important for the child's development. Nutritional deficiencies in childhood growth in younger age and illness in childhood are more sensitive because the first 60 months of birth are extremely important, during this time, nutrition conditions play an important role in children. Medical services are an important area of health



care. Administrative services of the Health and Family Welfare Department are operational in medical services. The current health policy has been successful in providing health services based on the primary health care approach to the public on the basis of pandemic promotional, remedial and corrective structural integration.

Comparing India with other countries on the other hand, many countries of the world are ahead of India. In terms of human development, India is too much more than its neighboring country, Sri Lanka, so India needs to make many progress. Similarly, Gujarat has developed a lot, but Gujarat has developed a lot. Gujarat is ranked 6th in terms of human development, and in terms of human development, it is still to be developed in comparison to other states.

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## **Tribunalization of Environmental Justice: Suo Moto Power of National Green Tribunal**

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### **Abstract**

*The 21<sup>st</sup> century has been visualized as an era where mankind has to prepare itself to meet adverse environmental consequences by the fury of nature. The mankind has shown its failure in maintaining proper environment and has caused severe harm to the society at large. Access to environmental justice has become a key component to ensure just and equitable outcome of sustainable development. Therefore, to ensure the environmental justice, the judicial body should be empowered enough to take appropriate action as and when required. Different countries have globally established separate 'Green Courts' or 'Environmental Courts' to deal with the environmental problems or to avoid greater environmental hazards.*

*The need for environmental justice and sustainable development has been propounded by the Stockholm Conference which has acted as a basis for various environmental legislations in India and setting up of Environmental Court in India. This paper will focus on the present judicial structures that offer an access to environmental justice in India. But there are instances wherein MOEF has declined to give suo motu power to the NGT and it has criticized NGT, whenever NGT has taken any suo motu action. The paper will throw some lights on the powers granted to the green bench of other nations and will compare it with National Green Tribunal of India.*



## **Tribunalization of Environmental Justice: Suo Moto Power of National Green Tribunal**

### **INTRODUCTION**

Earth has plenty of natural resources which are more than sufficient not only for the human needs, but also for the consumption of plants and animals. Regular and controlled utilization of resources would not be a problem till their use becomes excessive causing imbalance in the whole ecosystem. Moreover, excessive or misuse of natural resources would result in increase of pollution through different forms. By the end of 21<sup>st</sup> century, the mankind has to prepare itself to face the severe environmental consequences by the nature's fury.<sup>1</sup>

Access to justice, the foundation for democratic and republic governance, provides a just and equitable application of rule of law. The UNDP defines access to justice as "the ability of people to seek and obtain a remedy through formal or informal institutions of justice, and in conformity with human rights standards."<sup>2</sup> In regard to the matters relating to environment, justice is not limited to administrative & judicial procedures but also extends to accessing information and participating in decision making process.<sup>3</sup> These rights emerge through various international obligations and duties which makes the environmental justice both 'sustainable and green'.<sup>4</sup>

### **DEVELOPMENT OF NGT IN INDIA**

The National Green Tribunal has huge history behind its existence starting from 1970s. It begins from Stockholm Conference on human environment in June, 1972 where significant declarations and principle were laid down for safeguarding natural resources of the earth for present and future generation.<sup>5</sup> Reaffirming the principles of 1972 Conference, United Conference on Environment Development was held at Rio de Janeiro.<sup>6</sup> It marks the significance of sustainable development for the betterment of human beings.

The concept of Sustainable Development<sup>7</sup> was introduced in the Stockholm Conference, 1972 but got a legal shape after the Brundtland Report of 1987 which defined it as "development which meets the needs of the present conserving sufficient resources for the future generations. The Aarhus Convention, which advances the principles of Rio Declaration, mandates the environmental protection obligations through enhance access to justice. The

<sup>1</sup> R. Sharma, "Green Courts in India: Strengthening Environmental Governance?" last visited March 3, 2018, available at [www.lead-journal.org](http://www.lead-journal.org)

<sup>2</sup> Jayasundere, R, "Access to Justice Assessments in The Asia Pacific: A Review of Experiences and Tools From The Region", UNDP, 11.

<sup>3</sup> Pring, G. & Pring C., "Greening Justice: Creating and Improving Environmental Courts and Tribunals" last visited March 3, 2018, available at [moef.nic.in/downloads/public-information/Greening%20Justice.pdf](http://moef.nic.in/downloads/public-information/Greening%20Justice.pdf)

<sup>4</sup> Prof. Grudip Singh & Amrita, RMLNLUJ, "Sustainable Development: International and National Perspective", 2008, p. 36

<sup>5</sup> United Nation Stockholm Declaration on Human Environment, Principle 14, June 16, 1972, II ILM 1416

<sup>6</sup> United Nations Rio Declaration on Environment & Development, August, 1992, 31 ILM 874 (1992)

<sup>7</sup> *Vellore Citizen Welfare Forum v Union of India*, (1996) 5 SCC 647; *People United for Better Living in Calcutta v State of West Bengal*, AIR 1993 Cal 215.



world summit held at Johannesburg<sup>8</sup> in 2002 reaffirmed the sustainable development principle as a central element of international environment law.

India has been signatory to these Conventions and has also ratified them. By virtue of its powers, Parliament of India has enacted various legislations to curb down the pollution and deal with other issues such as tribes protection, climate change etc. Parliament has enacted legislations such as Air Act, 1981, Water Act, 1974 for the control & prevention of pollution and setting up Central and State Board to keep a check on pollution.<sup>9</sup>

Though we have stringent laws for environment protection but still Supreme Court has highlighted the difficulty which is faced by judicial officers while adjudging the complex environment cases.<sup>10</sup> It also laid the emphasis on the need of establishing special courts dealing with environmental matters and to reduce the burden on the High Courts which were unable to speedy disposing environment cases.<sup>11</sup> As a dire need of hour, the National Green Tribunal was founded in October, 2010 under NGT Act, 2010.

### CONSTITUTIONAL PROVISIONS FOR ENACTING NGT

The application of the PIL in the interpretation of the three main constitutional provisions, namely Art 48A, 51A (g) and 21 have caused a paradigm shift in the environmental landscape. Article 48A which is originally a Directive principle applicable on the states, makes it mandatory for the state to enhance and improve the environment, moreover safeguard the flora and fauna of the country.<sup>12</sup> Article 51A (g) which imposes a fundamental duty on each and every citizen of this country to safeguard and protect the natural environment which consists of forest, lakes, water bodies, wildlife and etc. Wherein, the presence of Article 21 has helped in forming a strong hold over the environmental issues by making it a fundamental right which cannot be denied to anyone.

The carrier of the cause our own law commission being influenced by the judgments of the highest court of this country has supported the view of establishment of environmental courts for speedy and roper justice.<sup>13</sup> In the landmark case of AP pollution Control Board v. M.V Naydu,<sup>14</sup> the Supreme Court has emphasized on the need to establish separate courts dealing with environmental matters which would have expert qualified person as judicial officers.

### ENVIRONMENTAL COURTS IN OTHER JURISDICTION

The foremost system which was prevalent in the western countries, specifically in U.S.A and Europe, the courts were inclined towards environment which in itself was exceptional. At the

<sup>8</sup> Johannesburg Declaration on Sustainable Development, last visited March 3, 2018, <http://www.joburg.org.za/pdfs/johannesburgdeclaration.pdf>.

<sup>9</sup> T. S. Doabia, Environmental & Pollution Laws in India, II ed, 2010, p. 1645

<sup>10</sup> CEL, "Three years of National Green Tribunal" last visited March 3, 2018, [https://www.wwf.org/about\\_wwf/enablers/cel/national\\_green\\_tribunal/article\\_by\\_cel/](https://www.wwf.org/about_wwf/enablers/cel/national_green_tribunal/article_by_cel/)

<sup>11</sup> Law Commission of India, 186<sup>th</sup> Report on Constituting Environment Courts last visited March 3, 2018, [lawcommissionofindia.nic.in/reports/186th%20report.pdf](http://lawcommissionofindia.nic.in/reports/186th%20report.pdf)

<sup>12</sup> T Damodar Rao v. Municipal Corporation of Hyderabad, AIR 1987 AP 171.

<sup>13</sup> Law Commission of India, "186th Report on Proposal to Constitute Environmental Courts", last visited March 3, 2018, [www.lawcommissionofindia.nic.in/reports/186th%20report](http://www.lawcommissionofindia.nic.in/reports/186th%20report).

<sup>14</sup> AP Pollution Control Board v M. V. Naydu, 1999 (2) SCC 718



time, when environmental litigations were normally covered by the traditional courts, a scheme of allocation of environmental cases to the different judicial bodies depending on the specific matter treated in each case was followed.

The establishment of “green benches” was an intermediate solution, which was suitable in applying to such countries which already had a consolidated judicial system. In such cases it was not required by the public to file a case in separate courts, which might be in a different location. Nor does it necessarily require appointment of specially trained judges in regards to the environmental law”.

In the exhaustive study on European environment and judges, Lavrysen underlines that in countries which have “a dual structure in terms of jurisdiction in certain matters, the administrative courts are trying to develop a certain degree of specialization in environmental law, as all the settlement of virtual disputes between citizens and public authorities in environmental matters fall within their remit”.<sup>15</sup>

Europe & USA have established independent green courts with the experienced independent judges. The model of environmental courts came from Oceania, which has the Land and Environment Court established in 1979 in New South Wales, Australia, further followed by the New Zealand Environmental Court established in 1996. The “Australasian model” has been considered as an ideal model by various countries when they were studying green justice models in other jurisdiction.<sup>16</sup>

### **SUOMOTU POWERS OF NGT**

The greater importance has to be provided for the protection of the environment as it was one of the major concerns of the drafter of the constitution. The inference can be drawn from the judicial pronouncements<sup>17</sup> developed by courts through the concept of green constitutional law to protect the rights of the citizens from the effects of environmental deterioration. It has been held in the matter of *M.C. Mehta v. Union of India*<sup>18</sup> (Oleum Gas case), absolute liability would be applied to those people who would be degrading the environment and compensation would be given to the affected people. The court took a further step to include right to healthy environment<sup>19</sup>, right to clean air<sup>20</sup>, right to clean water<sup>21</sup> under the ambit of Article 21.

There have been many principles which have been applied in many situations but these principles have not been explicitly mentioned under any domestic legislation. Principles like the polluter pays<sup>22</sup>, precautionary principle. In the *Vellore Case*<sup>23</sup> and *Doon Valley Case*<sup>24</sup>,

<sup>15</sup> L. Lavrysen, “The role of National judges in environmental law”, last visited March 3, 2018, available at <http://www.inece.org/newsletter/12/lavrysen.pdf>.

<sup>16</sup> R. Sharma, “Green Courts in India: Strengthening Environmental Governance” last visited March 3, 2018, available at [www.lead-journal.org](http://www.lead-journal.org), p. 61.

<sup>17</sup> *Madras Bar Association v. Union of India*, (2014) 10 SCC 1; *R.K. Jain v. Union of India*, (1993) 4 SCC 119.

<sup>18</sup> *M.C. Mehta v. Union of India*, (1987) 1 SCC 395.

<sup>19</sup> *Subhash Kumar v. State of Bihar*, (1991) 1 SCC 598, 604; *M.C. Mehta v. Union of India*, (1992) 3 SCC 256, 257.

<sup>20</sup> *M.C. Mehta v. Union of India*, (1998) 6 SCC 60.

<sup>21</sup> *Narmada Bachao Andolan v Union of India*, (2000) 10 SCC 664.

<sup>22</sup> *M.C. Mehta v. Kamal Nath*, (2000) 6 SCC 213.





the court had held that the precautionary principle was applicable even though there was no legislation stating the same and this principle had been adopted from international conventions and obligations. Therefore another analogy that can be made is that the courts are taking actions in which there are no legislations to do complete justice. On similar lines, an important body like the Tribunal also has the implied power to take suomotu cognizance of cases to do complete justice<sup>25</sup>.

The concept of 'green bench' was introduced in T.N.GodavarmanThirumulpad v. Union of India<sup>26</sup> where a special bench of 3 judges took the matter at hand. The procedure here was that the cases which were taken up the courts had to go to an expert analysis of the environment.<sup>27</sup> On the other hand, the Tribunal bench consists of a judicial member and a technical member. Therefore the expert opinion is provided there and then and cases are disposed of quickly. Moreover, after the establishment of the tribunal, the cases taken up by the green bench of the court had reduced substantially implying that they were now becoming a substitute<sup>28</sup>. Thus, an analogy can be implied that the Tribunal much like green bench of court disposes of the cases quickly and performing the essential functions of the court, therefore, their suomotu action actions can be justified by taking away the suomotu power of the Tribunal, the court would turn the tribunal into a toothless tiger. The court should be allowed to work on its own and take suomotu cognizance of cases only if they feel to be deemed fit.

Thus, through various constitutional amendments and judicial interpretations it can be implied that the formation of Tribunal was necessary and the freedoms to take an independent view do complete justice is its inherent power<sup>29</sup>. In the matter of Ridge v. Baldwin<sup>30</sup>, the court had held that the duty to act judicially is arise from the nature of duty performed by the authority. This ratio was further approved in the matter of Maneka Gandhi case<sup>31</sup> and Liberty Oil Mills case<sup>32</sup> which reiterated the same principle.<sup>33</sup> The Courts have further gone on to state that there should be compliance with the Natural Justice Principle by the quasi-judicial bodies<sup>34</sup>.

According to Environment Court<sup>35</sup> established in Australia, it has been seen that they are allowed to take suomotu cognizance of cases. It has been mentioned very specifically in their

<sup>23</sup>Vellore Citizens' Welfare Forum v. Union of India, (1996) 5 SCC 647.

<sup>24</sup>Rural Litigation & Entitlement Kendra v. Union of India, 1989 Supp(1) SCC 504.

<sup>25</sup>Harayana Finance Corporation v. Jagdamba Oil Mills, AIR 2002 SC 834.

<sup>26</sup>T.N. GodavarmanThirumulpad v. Union of India, (1997) 2 SCC 267.

<sup>27</sup>Orissa Mining Corporation Ltd v. Ministry of Environment & Forest, (2013) 6 SCC 476.

<sup>28</sup>J.B. Chopra v. Union of India, (1987) 1 SCC 422.

<sup>29</sup>Varsha Plastic (P) Ltd. v. Union of India, (2009) 3 SCC 365.

<sup>30</sup>Ridge v. Baldwin, (1963) 2 All ER 66.

<sup>31</sup>Maneka Gandhi v. Union of India, AIR 1987 SC 597; Indian National Congress v. Institute of Social Welfare, AIR 2002 SC 2158

<sup>32</sup>Liberty Oil Mills v Union of India,(1984) 3 SCC 465.

<sup>33</sup>JUSTICE GP SINGH, PRINCIPLES OF STATUTORY INTERPRETATION 410(10<sup>th</sup>ed., 2006).

<sup>34</sup> Kothari Filaments v. Commissioner of Customs, (2009) 2 SCC 192; Bhopal Gas PeedithMahilaUdyogSanghatahn v. Union Of India, (2007) 9 SCC 707; Sukhanlal Singh v. Collector Satana, AIR 1969 MP 176; Sarabjit Rick Singh v. Union of India, (2008) 2 SCC 417.

<sup>35</sup> Environmental Court established in Australia, last visited March 3, 2018, <http://www.courts.sa.gov.au/OurCourts/ERDCourt/Pages/default.aspx>



ERD Act<sup>36</sup> and their rules. Part 5 Section 17(4)<sup>37</sup>, 20A (1) of the Act, gives the court the power to take suomotu cognizance of cases, transfer cases to the Supreme Court. According to the Resource Management Act, 1996, New Zealand Environment court was established. The powers of this court are much wider than that of the Courts created in Australia<sup>38</sup>.

### SUGGESTION AND CONCLUSION

Similar to different environmental court established in the development countries such as Australia, New Zealand and USA, India has also started its Green Tribunal in 2010. As India is growing day by day, there is an establishment of a lot of industries in India which has led to the destruction of the environment. In order to curb down the destruction and make the environment clean and healthy to live, there is requirement to provide the suomotu powers to NGT specifically mentioned in the statute. When compared to other jurisdiction, suomotu powers are provided in their statutes specifically in order to serve the proper and speedy justice. Therefore, in order to ensure the access of environmental justice to all, suomotu power must be given to the NGT and this power shouldn't be taken away by MOEF. The NGT Act, 2010 must specifically grant the suomotupower to the NGT.

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<sup>36</sup> Environment, Resources and Development Act, 1993, last visited March 3, 2018, <http://www.legislation.sa.gov.au/LZ/C/A/ENVIRONMENT%20RESOURCES%20AND%20DEVELOPMENT%20COURT%20ACT%201993/CURRENT/1993.63.UN.PDF>.

<sup>37</sup> Section 17(4) of Environment & Resource Development Act, 1993.

<sup>38</sup> "An everyday guide to the RMA: Your Guide to the Environment Court", last visited March 3, 2018, <http://www.mfe.govt.nz/publications/rma/everyday/court-guide/>



## **Volatility Persistence and Asymmetry in the Indian Stock Market**

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### **Abstract**

*This study aims to examine the behavior of stock return volatility using daily returns of National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) by using symmetric and asymmetric models from the GARCH family models. The findings of the paper suggest that volatility persistence, leverage effect and leptokurtic exists in the Indian Stock market. Alternatively, the volatility measurements and diagnostic checks indicate volatility clustering which means that the shocks to the volatility process persist and the responses to the news are asymmetric. This implies that the impact of good and bad news is not the same.*

**Keywords:** Volatility persistence, EGARCH, Leptokurtic, Stock market returns



## **Volatility Persistence and Asymmetry in the Indian Stock Market**

### **1. INTRODUCTION**

The significance of the stock market can't be overstated. It eases investment in the most productive mechanization by reducing the cost of catalyzing the savings. Moreover, it improves capital allocation by allowing implementation of long-term projects and their payoffs. In addition, the market provides market liquidity which permits the investors to trade in a less risky manner along with allowing the businesses to enjoy effortless access to capital. Therefore, the development of the market would improve the corporate governance as well as alienate the interest of the managers and owners, thus motivating them to maximize the value of the firm (Sin-Yu Ho and Bernard,2017).

By virtue of this, various researchers have modeled the temporal behavior of stock market volatility, a large part of which focuses on computing the stock return volatility and the persistence of volatility. In addition, the time series of financial asset returns often exhibit the property of volatility clustering: large changes in price tend to cluster together, resulting in persistence of the amplitudes of price changes and the presence of an asymmetric effect.

This study attempts to understand the stylized facts of the Indian stock market returns.

While the objective is to examine the predictability of the stock market returns by analyzing the long-term volatility and investigate the asymmetric impact of shocks/innovations on volatility in the case of the two Indian Stock Markets Viz. National Stock Exchange and Bombay Stock Exchange. Therefore, the empirical analysis using GARCH and EGARCH model has been estimated to investigate the clustering, persistence of volatility and the leverage effect which is made at a macro level on two major indices, namely S&P CNX Nifty and BSE Sensex based on the vanilla GARCH (1,1) and Exponential GARCH (1,1) models with alternative probability density function for the error term, namely normal distribution and Student's-t distribution.

The rest of the paper is prearranged as follows. In Section 2 we present the brief literature review on the subject. Section 3 describes the empirical specifications used in the paper. The empirical analysis is undertaken in three parts viz: time variation in volatility using the GARCH (1,1) model, asymmetric EGARCH (1,1) normal distribution and asymmetric EGARCH (1,1) non-normal distribution i.e., Student's-t distribution. The data and the analysis results are presented in Section 4 and 5. The main conclusion of our study is summarized in Section 6.

### **2. LITERATURE REVIEW**

In recent years many studies have empirically investigated the shifts in the stock market volatility and its stylized facts. Agrawal, Reena, et. Al (1995) examined the shifts in the volatility of the returns of the emerging stock markets and the adverts that are associated with increased volatility. Large changes in the volatility seem to be related to important country-specific political social and economic events. Batra, Amita (2004) examined time variation in volatility in the Indian stock market and concluded that the period around the BOP crisis and



initiation of economic crises is the most volatile. Another study by Raju M. T et al (2004) concluded that developed markets continue to provide over a long period of time high returns with low volatility and amongst emerging markets except for China and India, all countries exhibit low volatility. Padhi P (2006) examined the stock market volatility at the individual script level and at the aggregate indices level. Samantha, G.P in 2010 shows that stock market volatility strongly influenced by its own past values stating the presence of significant volatility feedback effects in the stock market. Prashant Joshi (2011) investigated volatility spillover effect between the stock markets in India and suggested various linkages among Asian stock markets. Rosy Kalra (2015) studied the volatility and persistence variations in the returns of the stock markets of India during the period of 2009 to 2014. Additionally, Gurmeet Singh (2017) indicated that the presence of leverage effect and the positive impact of volatility on returns for pre-derivatives, post derivatives and whole period from January 2000 to December 2014.

### 3. METHODOLOGY

The ARCH/GARCH classes of models are some of the most widely used non-linear models for specifying volatility. The pioneer study in the field of modeling volatility is credited to the study of Engle (1982) who offered to model conditional volatility by using Autoregressive Conditional Heteroscedasticity (ARCH) process; which is in simple words a function of lagged squared residuals. However, this model suffered from certain weaknesses, especially the one related to its inability to exhibit volatility clustering. These weaknesses were overcome by symmetric Generalized Autoregressive Conditional Heteroscedasticity (GARCH) model introduced by Bollerslev (1986).

The GARCH model helps in understanding the phenomena of stock market volatility by providing a theoretical explanation of links between the stock market returns and the volatility in them. It synchronized both lagged squared residuals and lagged variances and, in this way, GARCH model is allowed to be dependent on both recent variance of itself side by side with past shocks, at the end providing volatility clustering.

The basic structure of the symmetric normal GARCH model given by Chris Brooks (2008) is:

$$\text{Mean Equation: } Y_t = u_t + \varepsilon_t$$

$$\text{Variance Equation: } \sigma_t^2 = \alpha_0 + \alpha_1 \varepsilon_{t-1}^2 + \beta \sigma_{t-1}^2$$

$$\varepsilon_t = v_t \sigma_t v_t \sim N(0,1)$$

where  $\sigma_t^2$  denotes the conditional variance since it is a one –period ahead estimate for the variance calculated on any past information thought relevant.

For GARCH(1,1) the constraints  $\alpha \geq 0, \beta \geq 0$  are needed to ensure that conditional variance is strictly positive. The conditional variance equation specified is a function of  $\alpha_0$  which is a constant term,  $\alpha$  and  $\varepsilon_{t-1}^2$  are ARCH components and  $\beta$  and  $\sigma_{t-1}^2$  are GARCH components. However, the GARCH model suffers from certain limitations as the non-negativity constraints in the linear GARCH model are too restrictive (Nelson and Cao, 1992) and it does not account for leverage effects.



These limitations can be overcome by using Exponential-GARCH model i.e., EGARCH model, introduced by Nelson (1991), which captures the sign and magnitude of the ARCH and GARCH term, as well as the asymmetric effect on the variance caused by negative and positive market news, referred to as leverage effect.

### **EGARCH:**

The Exponential-GARCH model uses the natural logarithmic value of the dependent variable that provides a positive value.

The formula of EGARCH can be expressed as follows,

$$\ln \sigma_{(t)}^2 = \omega + \beta \ln (\sigma_{t-1}^2) + \alpha \left\{ \frac{|\varepsilon_{t-1}|}{\sigma_{t-1}} - \sqrt{\frac{2}{\pi}} \right\} - \gamma \frac{\varepsilon_{t-1}}{\sigma_{t-1}}$$

where  $\sigma_{(t)}^2$  denotes the conditional variance since it is a one –period ahead estimate for the variance calculated on any past information thought relevant.

The  $\alpha$  parameter represents a magnitude effect or the asymmetric effect of the model, the “GARCH” effect.  $\beta$  measures the persistence of conditional volatility irrespective of anything happening in the market. When  $\beta$  is relatively large, then volatility takes a long time to die out following a crisis in the market, see Alexander (2009).

The  $\gamma$  parameter measures the asymmetry or the leverage effect.

If  $\gamma = 0$ , then the model is symmetric. When  $\gamma < 0$ , then positive shocks (good news) generate less volatility than negative shocks (bad news).

This model has several advantages over GARCH model, some of which is that it makes use of log of variance which ensures that the parameters are positive and therefore a non-negative restriction of GARCH model is not needed. Moreover, to make sure that the stationary assumption still holds  $\beta$  must be positive and less than 1; while, the value of gamma ( $\gamma$ ) is the indicator of leverage effect (asymmetric) and must be both negative and significant.

Lastly, the distribution of the error term has always been a topic of debate where Engle assumed the error term distribution to be normal while Bollerslev (1987) preferred the students t-distribution. According to Bollerslev (1987), Baillie and Bollerslev (1989), Nelson(1991), if the observed conditional densities were non-normal, the forecasting power of the model would be lower.

This paper will provide an analysis using daily return data from NSE and BSE by undertaking the investigation of the conditional variance model GARCH (1,1) and EGARCH (1,1) along the normal or students t-distribution.



## 4. DATA AND EMPIRICAL ANALYSIS

### 4.1 Data

To accomplish the research objective daily data ranging from January 1991 to December 2017 of BSE and January 1994 to December 2017 for NSE are obtained which comprises 6529 and 5894 data points respectively for the analysis. The series of return is computed from daily closing data for the SENSEX and NIFTY index of Bombay Stock Exchange and National Stock Exchange.

The daily returns are computed using the natural logarithm of the closing price at time  $t$  divided by yesterday's adjusted closing price  $t-1$ .

Table 1 presents description of variables and data.

**Table 1: Description of Variables**

Acronyms	Construction of Variables	Data Source
BSE	Returns of Bombay Stock Exchange from January 1991 to December 2017	BSE website
NSE	Returns of National Stock Exchange from January 1994 to December 2017	NSE website

### 4.2 Descriptive Statistics

The descriptive statistics of SENSEX and NIFTY Index are presented in table 2

**Table 2: Descriptive Statistics of Variables**

Statistics	BSE	NSE
Mean	0.000528	0.000381
Median	0.000684	0.000643
Maximum	0.159900	0.163343
Minimum	-0.136607	-0.130539
Std. Dev.	0.016271	0.015195
Skewness	-0.052223	-0.143032
Kurtosis	9.761707	10.15061
Jarque-Bera	12440.90	12577.07
Probability	0.000000	0.000000
Sum	3.446296	2.244990
Sum Sq. Dev.	1.728188	1.360672
Observations	6529	5894

Source: Author's Estimation

For a normally distributed series, the value of skewness is 0 and kurtosis is around 3. The value of skewness and kurtosis in the above table indicates lack of symmetry in the distribution. In our result, the returns are negatively skewed which implies that the distribution has a long-left tail. In addition, kurtosis is 9.76 and 10.15 which shows that the



returns are also leptokurtic caused by the presence of excess kurtosis thereby indicating fat tails. Moreover, the Jarque and Bera test confirm the above results that our distribution is not normal. Hence, the above-mentioned statistics support the suitability of applying the ARCH family models.

Further to test for Autoregressive conditional heteroskedasticity (ARCH) in the residuals, the ARCH-LM test statistic is computed from an auxiliary test regression.

The results of which are presented in Table 3.

**Table 3: Result of the ARCH Test**

**BSE**

<b>F-statistics</b>	414.6799	<b>Prob. F (1,6526)</b>	0.0000
<b>Obs*R-squared</b>	390.0238	<b>Prob. Chi-Square (1)</b>	0.0000

Source: Author's Estimation

**NSE**

<b>F-statistics</b>	263.7276	<b>Prob. F (1,5891)</b>	0.0000
<b>Obs*R-squared</b>	252.5035	<b>Prob. Chi-Square (1)</b>	0.0000

Source: Author's Estimation

The findings indicate the possible presence of ARCH effect which is confirmed by the computed value of Lagrange Multiplier (LM) for both BSE and NSE.

The results show that the clustering effects in returns exist i.e. periods of low volatility tend to be followed by periods of low volatility for a prolonged period. Similarly, periods of high volatility tend to be followed by periods of high volatility for a prolonged period. This provides all the justification required to run ARCH family model.

Our next logical step in modeling is to determine the best fitting mean equation by applying Auto-Regressive Moving Average (ARMA) to choose the best process in modeling the conditional mean.

**4.3 GARCH Model**

To investigate whether the volatility explains the GARCH effect, GARCH(1,1) model is estimated and the results are shown in Table 4.

**Table 4: Result of GARCH (1,1) Model**

**BSE**

<b>GARCH = C(8) + C(9)*RESID(-1)^2 + C(10)*GARCH(-1)</b>				
<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>z-Statistic</b>	<b>Prob.</b>
C	0.00081	9.67E-05	8.374965	0.0000
AR(1)	0.29285	0.065158	4.49443	0.0000





AR(2)	0.710805	0.054194	13.11591	0.0000
AR(3)	-0.409964	0.043704	-9.38056	0.0000
MA(1)	-0.182598	0.065826	-2.773951	0.0055
MA(2)	-0.714108	0.057704	-12.37548	0.0000
MA(3)	0.330731	0.047033	7.031949	0.0000
Variance Equation				
C	2.02E-05	7.17E-07	28.18813	0.0000
RESID(-1)^2	0.149848	0.004629	32.37242	0.0000
GARCH(-1)	0.599848	0.009417	63.69795	0.0000
Schwarz criterion	-5.494025		Akaike info criterion	-5.504419

Source: Author's Estimation

### NSE

GARCH = C(7) + C(8)*RESID(-1)^2 + C(9)*GARCH(-1)				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.000608	0.000482	1.260549	0.2075
AR (1)	0.848558	0.080236	10.57576	0.0000
AR (2)	-0.868052	0.077982	-11.1315	0.0000
MA (1)	-0.749115	0.083415	-8.980625	0.0000
MA (2)	0.783852	0.078732	9.955964	0.0000
MA (3)	0.108071	0.026696	4.048215	0.0001
Variance Equation				
C	0.00015	2.61E-05	5.750357	0.0000
RESID (-1)^2	0.15	0.025897	5.792115	0.0000
GARCH (-1)	0.6	0.063511	9.447182	0.0000
Schwarz criterion	-5.412148		Akaike info criterion	-5.422354

Source: Author's Estimation



The conditional mean equation of BSE contains three autoregressive and moving average lags all of which are statistically significant.

In the variance equation, the ARCH term and GARCH term for BSE and NSE is positively significant at 5 % level. This leads to acceptance of the fact that volatility from the previous periods has a power of explaining the current volatility condition in case of Indian stock market.

The sum of coefficients  $\alpha$  and  $\beta$  in GARCH model measures the persistence in the volatility shocks. If the result of  $\alpha + \beta$  is close to unity, then it implies that the shock is more persistent to conditional variance.

From our model  $(\alpha + \beta)$  is around 0.75 for BSE and NSE both which means that the return series have both attributes; volatility clustering and persistent.

### 4.3 EGARCH:

In order to capture the availability of asymmetric behavior and the existence of leverage effect, the study first applies EGARCH model with normal distribution in order to detect the leverage effect (asymmetric).

**Table 5: Results of EGARCH (1,1) – Normal Distribution**

#### BSE

LOG(GARCH) = C(9) + C(10)*ABS(RESID(-1)/@SQRT(GARCH(-1))) + C(11)				
*RESID(-1)/@SQRT(GARCH(-1)) + C(12)*LOG(GARCH(-1))				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
@SQRT(GARCH)	0.032072	0.018928	1.694482	0.0902
C	4.78E-05	0.000176	0.27197	0.7856
AR(1)	0.860615	0.127728	6.737888	0.0000
AR(2)	-0.523012	0.156216	-3.347994	0.0008
AR(3)	-0.237389	0.103076	-2.303056	0.0213
MA(1)	-0.76077	0.125356	-6.068891	0.0000
MA(2)	0.429718	0.146779	2.927652	0.0034
MA(3)	0.324021	0.099262	3.264296	0.0011
Variance Equation				
C(9)	-0.325493	0.019371	-16.8034	0.0000
C(10)	0.228636	0.008844	25.85118	0.0000



C(11)	-0.040972	0.004912	-8.340927	0.0000
C(12)	0.982604	0.001728	568.5018	0.0000
Schwarz criterion	-5.775886		Akaike info criterion	-5.788359

Source: Author's Estimation

**NSE**

LOG(GARCH) = C(8) + C(9)*ABS(RESID(-1)/@SQRT(GARCH(-1))) + C(10)				
*RESID(-1)/@SQRT(GARCH(-1)) + C(11)*LOG(GARCH(-1))				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
@SQRT(GARCH)	0.012449	0.039094	0.318423	0.7502
C	0.000286	0.000449	0.63727	0.5239
AR(1)	0.6699	0.095185	7.037859	0.0000
AR(2)	-0.718914	0.069658	-10.32065	0.0000
MA(1)	-0.559365	0.095068	-5.883853	0.0000
MA(2)	0.636135	0.068622	9.270114	0.0000
MA(3)	0.117978	0.013705	8.608523	0.0000
Variance Equation				
C(8)	-0.392427	0.02393	-16.39874	0.0000
C(9)	0.211726	0.008476	24.97839	0.0000
C(10)	-0.076379	0.005867	-13.01789	0.0000
C(11)	0.973357	0.00254	383.1449	0.0000
Schwarz criterion	-5.825245		Akaike info criterion	-5.837719

The asymmetric effect captured by parameter C(11) in case of BSE and C (10) in case of NSE is found to be statistically significant and with a negative sign which indicates that negative shocks imply a higher next period conditional variance than positive shocks of the same sign, implying the existence of leverage effect. In other words, negative shocks/innovations have a greater impact on volatility rather than positive shocks/innovations of the same magnitude.



**Table 6: Results of EGARCH (1.1) – Student’s-t distribution**

**BSE**

LOG(GARCH) = C(9) + C(10)*ABS(RESID(-1)/@SQRT(GARCH(-1))) + C(11) *RESID(-1)/@SQRT(GARCH(-1)) + C(12)*LOG(GARCH(-1))				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
@SQRT(GARCH)	0.029157	0.011669	2.498697	0.0125
C	7.44E-05	2.61E-05	2.855297	0.0043
AR(1)	0.981835	0.137792	7.125515	0.0000
AR(2)	-0.493659	0.170431	-2.896539	0.0038
AR(3)	-0.219252	0.10541	-2.079995	0.0375
MA(1)	-0.871436	0.135033	-6.45352	0.0000
MA(2)	0.377139	0.161138	2.340467	0.0193
MA(3)	0.298512	0.099007	3.015056	0.0026
Variance Equation				
C(9)	-0.302751	0.027142	-11.15421	0.0000
C(10)	0.309557	0.015618	19.82114	0.0000
C(11)	-0.051842	0.009352	-5.54347	0.0000
C(12)	0.992443	0.002055	483.0394	0.0000
T-DIST. DOF	6.745573	0.496721	13.58021	0.0000
Schwarz criterion	-5.833997		Akaike info criterion	-5.84751

Source: Author’s Estimation



**NSE**

LOG(GARCH) = C(8) + C(9)*ABS(RESID(-1)/@SQRT(GARCH(-1))) + C(10)				
*RESID(-1)/@SQRT(GARCH(-1)) + C(11)*LOG(GARCH(-1))				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
@SQRT(GARCH)	0.032427	0.03801	0.853105	0.3936
C	0.000133	0.000433	0.307543	0.7584
AR(1)	0.593661	0.085286	6.960849	0.0000
AR(2)	-0.773798	0.075837	-10.20348	0.0000
MA(1)	-0.48507	0.08558	-5.66802	0.0000
MA(2)	0.696245	0.076091	9.150147	0.0000
MA(3)	0.116212	0.013306	8.733559	0.0000
Variance Equation				
C(8)	-0.395475	0.0409	-9.669213	0.0000
C(9)	0.203348	0.015343	13.25359	0.0000
C(10)	-0.083481	0.009498	-8.789218	0.0000
C(11)	0.972447	0.004108	236.6952	0.0000
T-DIST. DOF	7.052289	0.532927	13.23312	0.0000
Schwarz criterion	-5.825245		Akaike info criterion	-5.837719

Source: Author's Estimation

Further, the leverage effect is being checked with EGARCH (1,1) model with students t-distribution and the outcomes of the model are shown in the table above.

	BSE			NSE		
Info criterion	GARCH(1,1)	EGARCH (1,1) (normal ditribution)	EGARCH (1,1) (t distribution)	GARCH(1,1)	EGARCH (1,1) (normal ditribution)	EGARCH (1,1) (t distribution)
AIC	-5.5044	-5.7783	-5.8475	-5.422	-5.8377	-5.8877
SIC	-5.4940	-5.7758	-5.8339	-5.412	-5.8252	-5.8741

Source: Author's Estimation



The AIC and SIC criteria for all the models are mentioned in the above table.

The AIC and SIC are lowest in EGARCH (1,1) student t distribution.

Overall results of this study provide more evidence for all the three characteristics in case of Indian Stock Exchange.

## 5. CONCLUSION

Emerging economies are characterized by a higher proportion of risk-averse investors making it important to measure and model volatility to determine the cost of capital, leverage effect and investment decisions that will affect the performance of the firm.

Our study concludes, firstly, that the returns distribution of the indexes is not normal (in fact they are leptokurtic in nature) and there are extreme values around the tails of the distribution which signifies that the market is under a bubble. Secondly, volatility shocks in Indian stock market are quite persistent and the impact of old news on volatility is significant. Further, the ARCH and GARCH effects remain significant highlighting the inefficiency of the market and signifies a possibility of the existence of other factors other than volatility to contribute to the heteroscedasticity in returns.

In order to detect the asymmetric effect in the data, the study applied EGARCH (1, 1) model, to investigate the effect of good and bad news separately on the future volatility. The negative sign of the leverage parameter in case of both BSE and NSE indicates that investors are more prone to negative news in comparison to the positive news. Moreover, the risk of businesses goes up which means that the investors shift their funds to less risky investments. This implies that the volatility spillover mechanism is asymmetric.

Lastly, the study compared the GARCH (1,1), EGARCH (1,1) Normal distribution, EGARCH (1,1) Students-t distribution models, it was found that EGARCH (1,1) Students-t distribution model fits better. This has been done in accordance with the lowest AIC and SC criteria.

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## Effect of Digital Marketing on Society

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### ABSTRACT

*Digital marketing is also referred to as 'Online marketing', 'Internet marketing' or 'Web marketing'. It is very difficult to convene the costumer, for that, the companies have to do investment. To attract the costumer, companies have two mediums; one is Traditional medium and second is Non-traditional medium. Digital marketing is non-traditional medium. It is the marketing of products or services using digital technologies, mainly on the Internet, but also including mobile phones, display advertising, and any other digital medium. Digital platforms are increasingly incorporated into marketing plans and everyday life, and as people use digital devices instead of visiting physical shops. Digital marketing methods such as Search Engine Optimization (SEO), Search Engine Marketing (SEM), content marketing, influencer marketing, e-commerce marketing, social media marketing, social media optimization, e-mail direct marketing, display advertising, e-books, are becoming more common in our advancing technology. In fact, digital marketing now extends to non-Internet channels that provide digital media, such as mobile phones (SMS). The use of digital marketing in the digital era not only allows for brands to market their products and services, but also allows for online customer support through 24/7 services to make customers feel supported and valued. This study is based on that how digital market affected on our society and then present opportunities the marketers' objectives in the new environment.*

**KEYWORDS:** Digital marketing, Online services, Opportunities, Online reviews





## **Effect of Digital Marketing on Society**

### **INTRODUCTION**

In the 21<sup>st</sup> century, digital marketing is becoming necessary and also a fashion. Business of all sizes is using digital marketing to increase awareness of their company's good and services. Digital marketing allows the smallest firm to compete in a global market.

Digital marketing is defined as the sale of goods and services to the customer over the internet. Compared to traditional method of marketing, digital marketing offers realistic costs. It is important for small and medium size firms and start-ups. Digital marketing means it can include email campaigns, search engine optimisation (SEO), online advertisement, webinars, virtual events and blogging.

Digital marketing is the marketing of products or services using digital technologies, mainly on the Internet, but also including mobile phones, display advertising, and any other digital medium.

Digital marketing's development since the 1990s and 2000s has changed the way brands and businesses use technology for marketing. As digital platforms are increasingly incorporated into marketing plans and everyday life, and as people use digital devices instead of visiting physical shops, digital marketing campaigns are becoming more prevalent and efficient.

There are a number of ways brands can use digital marketing to benefit their marketing efforts. The use of digital marketing in the digital era not only allows brands to market their products and services, but also allows online customer give services to make customers feel valued. The use of social media interaction allows brands to receive both positive and negative feedback from their customers as well as determining what media platforms work well for them. As such, digital marketing has become an increased advantage for brands and businesses. It is now common for consumers to post feedback online through social media sources, blogs and websites on their experience with a product or brand. It has become increasingly popular for businesses to use and encourage these conversations through their social media channels to have direct contact with the customers and manage the feedback they receive appropriately

It is increasingly advantageous for companies to use social media platforms to connect with their customers and create these discussions. The potential reach of social media is indicated by the fact that in 2015, each month the Facebook app had more than 126 million average unique users and YouTube had over 97 million average unique users.



## DIFFERENCE BETWEEN TRADITIONAL MARKETING METHOD AND DIGITAL MARKETING METHOD

Points of difference	Traditional marketing method	Digital marketing method
i. Barriers of business Transactions	All the business transactions are carried out by humans.	All the business transactions are carried over through computers via internet.
ii. necessity	All the work is done by n individuals. Man is a necessity.	All the work is done on an internet. computer is necessity.
iii. Errors	Here, All the work is done by men and there is more possibility of mistakes being made by them.	All the work is done by computer machine and there is less possibility of mistakes being made by computer machine.
iv. expenses	The company has to incur large amount of expenses for their business because so many persons are required and big space is also necessary. Transaction cost is very high.	The company has incur small amount of expenses because the less number of help of person is required and a small space is sufficient. Transaction cost is very low.
v. Geographical situation of a place	The main role is played by geographical situation of a place.	Geographical situation of a place plays only the secondary role.
vi. Investment	It requires more investment because firms have to purchase or hire a very big space.	Firms require less investment because the have to purchase or hire a small space.
vii. global business	It is very difficult to carry a global business with the other countries of the world.	A global business can be carried on very easily with other countries of the world by using the internet media.



## ESSENTIAL ELEMENTS OF DIGITAL MARKETING

### (A) Costumer point of view:

#### i. Easy to shopping:

A company' website should be very much user friendly. A consumer should not be tension while surfing and searching for the products. It should be easy to operate. The process of purchasing is same on every website. But few people provide very good interfaces and very good support at very stage so that the consumer feels very good about it. Way of presentation and the support services make shopping easy. From this, point Amazon. Com is very good websites.

#### ii. Security of Transaction:

While big brands set-up e-commerce websites, they always keep issue of security of transaction.

A consumer should be taken in confidence that whatever information they are going to disclose for the shopping. Security of transaction protection may result in consumer satisfaction.

#### iii. Advantage of different pricing policy:

Price is the amount of money which founds the consideration for the transfer of legal title to a good or service. It is the first important elements of digital marketing. it plays a very important role. Costumer invests some time different websites for the same product, the can get amazing price of same product and services. There are lots of "Price comparison websites or shopping engines "available to help costumer. Price comparison shopping engine is a vertical search engine that consumers use to filter and compare product based on price and other key features. Well-known price comparison websites like Google shopping, Amazon product Ads, Shopping. come etc.

#### iv. Provide Guarantee of the product:

Guarantee of the product appeals to consumer emotional triggers like security and trust. Consumer should know all the features of product which they are going to purchase through e-commerce.it is advisable to check and ask for the guarantee and warranty of the product before placing the order from the distribution who is selling it online.

#### v. Easy Return policy:

Return policy is very important if the product is costly. Good return policy inspires confidence in consumer and showing distribution is committed to consumer service. Consumers return product when they are disappointed with purchase.

If the products distribution is selling have informative description and proper picture or proper video, they are greatly reducing the number of returns.



**vi. Customer care services:**

Customer services are very important on e-commerce. If customers have any problem about goods quality or any doubt about product they can easily use customer care service. Customer care services are backbone to any e-commerce business. They are the organ of any online web store.

**(B) Seller point of view:**

**i. Necessity Website:**

A website is the first necessary element of any digital marketing campaign. Website should be consumer oriented. The main objective of website should be to convert visitor into paying consumer. A website should be user friendly and attractive also. It covers all the details regarding company, product, purchase, return policy, condition etc. It shows the features and benefits of product and services in clear way.

**ii. Web design:**

Attractive web design has always played a key role in successful online marketing. That is because it increases the perceived value of product and works to make business website seem more trustful. Success of the company depends on web design.

**iii. Strategic contents:**

Strategic contents mean creating content that drives the visitor to specific goal. Each and every page on company website should have one goal.

Company's objectives:

- a) Purchase of product
- b) Sign up for email updates
- c) Download a document
- d) Watch a video
- e) Click a link

If these objectives are fulfilled by visitors, it is the success of company.

**iv. Simplification:**

In each and every detail should be very clearly in website. It avoids confusion during online shopping by e-consumer. When consumers are confused, they are faced with too many decisions and too much information, they do nothing, company may suffer a prospect lost. On



other hand consumer is not confused. They are not faced too many things. They do buying. It is clear that time to simplify.

**Provide all regarding information of product:**

This does not have to be anything physical, but give people your knowledge. When distributor give people free content that solves their problem and help them understand company clearly which ultimately leads to the sale.

**v. Search engine optimization (SEO):**

Search engine optimization (SEO) is the process of affecting the online visibility of a website or a web page in a web search engine's unpaid results—often referred to as "natural", "organic", or "earned" results. In general, the earlier (or higher ranked on the search results page), and more frequently a website appears in the search results list, the more visitors it will receive from the search engine's users; these visitors can then be converted into customers. SEO may target different kinds of search, including image search, video search, academic search, news search, and industry-specific vertical search engines. SEO differs from local search engine optimization in that the latter is focused on optimizing a business' online presence so that search engines will display its web pages when a user enters a local search for its products or services. The former instead is more focused on national or international searches.

It is time consuming Google is always with you and help to you. Find keywords that best suit your business and start working on them. Build content is time consuming. You have to earn it. There is no easy way in.

How fast you climb Google depends on a number of factors:

1. Strength of your competition
2. Quality of the content on your website
3. On-page SEO and clear code
4. Number and quality of back links pointing back to your website

**vi. Excellent Marketing Strategy:**

In traditional marketing method, distributor can easily convince their visitors to spend money on their product and services by creating an excellent marketing strategy. In online marketing, it is not easy to convince visitor. In digital marketing a seller has to make website very attractive, they have to make web design and should give information in very clear and limited content, they have to put photos and videos in website.

**vii. Social media:**

In social media a computer and internet based tools that allow people to create and share information, ideas, pictures, videos in virtual communities and networks. Social media marketing involves advertising and marketing efforts through social networking sites like Twitter, Facebook, Instagram, Google+ etc.



## ADVANTAGES OF DIGITAL MARKETING

The main advantage of digital marketing is that a **targeted** audience can be reached in a **cost-effective** and **measurable** way. Other digital marketing advantages include increasing **brand loyalty** and driving **online sales**.

### (A) Benefits to companies:

#### i. Easy expand to market:

In traditional method – not easy to access market, but in digital market it is easy to reach your customer. A seller can access market by using online market places. Such as a Amazon and e-bay allow anyone to set up a simple online shop and sell product within minutes.

#### ii. shop is not necessary:

There is not required to establish shops or show rooms at different cities in digital marketing. It can manage the whole business with a limited investment.

#### iii. Lower cost:

Selling online can remove the need for expensive retail premises and customer-facing staff and allowing business to invest in better marketing and customer experience on their e-commerce site. a properly planned and effectively targeted digital marketing campaign can reach the right customers at a much lower cost than traditional marketing methods

#### iv. Increase in sales volume:

On placing a web site of the product on the internet, a company can get the customer any corner of the world and they can attract the customers from the whole world. They can increase of their sales and can earn a good amount of revenue.

#### v. Global market:

Online marketing is managed through an internet and the internet is spread over the whole world. In this way, a facility of worldwide market is available in online marketing. Company can easily enter in global market. Company can expand their market beyond local customer very quickly by using online retail marketing. Company can put his website in different languages and take advantages of different nation's people.

#### vi. No necessity for holding the huge stock:

In online marketing, It is not necessary to keep the whole stock at one place. Company can entrust responsibility to different agencies at different places. E.g., Amazon does not require keeping a huge stock at one place and it facilitates the customers for purchasing from nearby shop.



**vii. Easily Develop the business:**

The new business of any kind can be developed or can be introduced in the global market very easily.

**viii. Providing Qualitative goods and services:**

By using the website, more information can be given to customers and better services can be offered before, during and after the sale.

**ix. Openness:**

By getting involved with social media and managing it carefully, you can build customer loyalty and create a reputation for being easy to engage with.

**x. Improved conversion rates:**

If you have a website, then your customers are only ever a few clicks away from completing a purchase. Unlike other media, which require people to get up and make a phone call, or go to a shop, digital marketing can be seamless and immediate.

**(B) The Benefits to Consumers:**

**i. Lots of choice for consumer:**

Consumers have so many choices in digital marketing. On looking at the websites of many companies, a consumer can select his item of internet, keeping in view the multiple factors for selection. He can compare the item by considering its price, quality and get up.

**ii. Give affordable price:**

On looking at the web sites of many distributions, a consumer can compare the prices of the items of his choice and can select one, which is affordable to him. Consumers may go to various price comparison websites and he can easily getting off same product of different distribution. For e.g., Flipcard, Amazon, Snapdeal, etc.

**iii. Less time consuming:**

A costumer is not required to visit shops or show rooms situated at different places. He can do this only by looking at the different website on an internet. In this way, a consumer can save his time in searching a particular item.

**iv. Large market of Foreign items:**

By looking at the internet website, a consumer can book an order for an item available from the distribution in foreign countries.

**v. Provide desirable services to costumer:**

A consumer can become well versed with the services before, during and after purchase given by different distribution



And he can select the best distributor who can provide the best services and information.

**vi. 24hours services:**

By using the internet the distributor or companies can be contacted at any time on all the days. this types of services are known as 24\*7 selling or purchasing services.

**vii. Chatting with member of company:**

There is also a facility of chatting with member of company directly. It is useful in purchasing the products of company. Just by a mail from any consumer, they are ready to answer within a short period of time and try to provide best answer of consumer's questions or quires. All most all the websites give the facility of feedback form and try to improve the services or product.

## **DISADVANTAGES OF DIGITAL MARKETING**

**i. High Web-site costs:**

Web site is costly. It is not cheap. Especially if a seller expect large and growing sales volumes. Website planning, designing, creating, hosting, securing is not easy.

**ii. Lack of personal contact:**

In online marketing business, transaction is carried over an internet and people purchase simply by looking the web site. The buyer does not contact with distributor or seller, and a distributor not contact with buyer. So buyer think before to buy that product because they think if the items happen to be defective, then there is a risk for replacing product.

**iii. Chances of Cheating and security:**

This is very dangerous things in online marketing. Sometimes our confidential data may stolen by hackers, so reputation of company could be damaged. If company want to secure their website, they must in the latest security systems to protect their website and processes of transaction.

**iv. Lack of customer trust:**

Without face-to-face interact connection with costumer it is very difficult to establish a trusted brand name. In online marketing, we cannot easily attract to costumer to buy our product. Company have to make sum strategy for increasing their selling otherwise customer could not trust on company's product. Company should provide good services to costumer.

**v. High Cost of advertising:**

In digital marketing, if a seller wants to increase their sells that they should make market strategies. A company should spend more amounts on advertisement for large selling.





**vi. There is Problem of returning the goods:**

Process of returning good is difficult in digital marketing. Sometime website does not give any provision of returning of good. So the people do not ready to purchase from digital marketing.

**vii. Lack of to see the product on web:**

In traditional marketing, we have to see product and we checked the product but in digital marketing lack of this same facility so how can the customer trust on available product on web.

**viii. Cost of good customer service system:**

As a producer, it's a necessary to establish good customer service on his website and he add this expenditure in total cost therfor increase his sales price.

Above all the points reflected negative effect of digital marketing.

## CONCLUSION

Therefore, we can say that in recent times, both big as well as emerging organizations have started to shift their focus on improving their strategies using digital marketing medium. Moreover, this is no mystery that the results they got after executing their strategies have been quite exceptional. One cannot deny that there is an advantage that this digital way of marketing can give to companies, organizations and at the same time enable them to grow. Ever since the Internet has risen, Marketing over the internet has proved its ability by reaching more customers than the traditional medium of marketing actually does. In short digital marketing is important aspect in 21<sup>st</sup> century but some where it is harmful and dangerous to our society and many customer complained about they purchased their product on website. However, the digital marketing is the one of the most important part in our life.

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## **A Study on the Behaviour of Micro, Small and Medium Enterprises towards Joining Industrial Associations**

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### **Abstract**

*Economic development of any country, to great extent, depends on the industrial development which in turn depends on the various factors like infrastructure development, government support, market, banking facilities, government policies etc. Among various types of industries, Micro, Small and Medium Enterprises (MSME) plays an important role because of its special nature. It requires small investment and creates more employment. Considering the importance of MSME, special nodal agencies have been established by many countries to oversee the development of MSME and provide government support for the same. MSMEs play a vital role in the Indian economy by providing support to national priorities of employment, removing poverty and regional imbalances. MSMEs are complementary to large industries as ancillary units and this sector contributes enormously to the socio-economic development of the country. Because of small size of business, unity among MSME owner is very essential. MSME owners have tendencies towards joining their association for various benefits accruing from unity. Present study aims at understanding the status of MSME in India and also to analyze the behaviour of MSME owners of towards joining industrial association. Study is based on primary data collected from the sample of 319 MSME owners across various districts in the state of Gujarat.*

**Keywords:** MSME, behaviour, Association, Enterprises, Employment



## **A Study on the Behaviour of Micro, Small and Medium Enterprises towards Joining Industrial Associations**

### **Introduction:**

Economic development of any country, to great extent, depends on the industrial development. Industrial development depends on the various factors like infrastructure development, government support, market, banking facilities, government policies etc. The sustained industrial development, development of various types of industries is necessary. Among various types of industries, Micro, Small and Medium Enterprises (MSME) plays an important role because of its special nature. MSME require small investment and create more employment. Special nodal agencies have been established by many countries to oversee the development of MSME and provide government support for the same. MSMEs play a vital role in the Indian economy by providing support to national priorities of employment, removing poverty and regional imbalances. MSMEs are complementary to large industries as ancillary units and this sector contributes enormously to the socio-economic development of the country.<sup>1</sup>

In the case of India, also MSME establishment has for the first time been defined in terms of separate Act, governing promotion and development of Micro, Small and Medium Enterprises (MSME) development Act, 2006 (which has come into force from 2nd Oct, 2006) the Office of Development Commissioner (Micro, Small and Medium Enterprises) functions as the nodal Development Agency under the Ministry of Micro, Small and Medium Enterprises (MSME)<sup>2</sup>. According the MSMED Act, 2006 the Micro, Small and Medium Enterprises (MSME) are classified in two categories viz. (a) Manufacturing (b) Service Enterprises. The main objective of the Act is to impart greater vitality and growth impetus to the Micro, Small and Medium Enterprises (MSME) in terms of output, employment and exports and instilling a competitive culture based on heightened technology awareness<sup>3</sup>. Government of India (Govt. of India) has been taking proactive steps in the direction of strengthening the competency of Indian MSMEs. The Five-year plans of the Government have placed emphasis on the MSME sector for achieving various growth parameters.

### **Defining MSME:**

According the MSMED Act, 2006 the Micro, Small and Medium Enterprises (MSME) are classified in two categories viz. (a) Manufacturing (b) Service Enterprises.

**Manufacturing:** Enterprises engaged in the manufacture or production of goods pertaining to any industry specified in the first schedule to the industries (Development and regulation) Act, 1951) or employing plant and machinery in the process of value addition to the final product having a distinct name or character or use. The Manufacturing Enterprises are defined in terms of investment in Plant & Machinery.

<sup>1</sup><http://www.msme.nic.in/Web/Portal/About-ministry.aspx>, DOI: 13 October 2017, © Content Owned by Ministry of Micro Small & Medium Enterprises, Government of India.

<sup>2</sup> [http://www.msmediahmedabad.gov.in/about\\_msme.html](http://www.msmediahmedabad.gov.in/about_msme.html), DOI: 13 October 2017, Copyright © 2015 - All Rights Reserved - [MSMEDI Ahmedabad](#).

<sup>3</sup>[http://dcmsme.gov.in/ssiindia/msme\\_in.htm](http://dcmsme.gov.in/ssiindia/msme_in.htm), DOI: 13 October 2017, Website hosted & managed by [The office of Development Commissioner \(MSME\), Ministry of Micro, Small & Medium Enterprises, Government of India](#)



**Service Enterprises:** The enterprises engaged in providing or rendering of services and are defined in terms of investment in equipment.

The limit for investment in plant and machinery / equipment for manufacturing / service enterprises, as notified, vide S.O. 1642 (E) dtd.29/09/2006 are as under<sup>4</sup>:

**Tab. 01**

<b>Manufacturing Sector</b>	
Enterprises	<b>Investment in plant &amp; machinery</b>
Micro Enterprises	Does not exceed <b>twenty five lakh rupees</b>
Small Enterprises	More than <b>twenty five lakh rupees</b> but does not exceed <b>five crore rupees</b>
Medium Enterprises	More than <b>five crore rupees</b> but does not exceed <b>ten crore rupees</b>

**Tab. 02**

<b>Service Sector</b>	
Enterprises	<b>Investment in equipment</b>
Micro Enterprises	Does not exceed <b>ten lakh rupees</b>
Small Enterprises	More than <b>ten lakh rupees</b> but does not exceed <b>two crore rupees</b>
Medium Enterprises	More than <b>two crore rupees</b> but does not exceed <b>five crore rupees</b>

### Review of Literature

**Bharathi Nand Gnanavelu N (2014)** have done study on financial obstacles faced by the MSME entrepreneurs in Tirupur city. According to them an entrepreneur is an economic leader who possesses the ability to recognize opportunities for the successful introduction of a new product, new source of supply, new technique of production, etc. and who assembles the necessary resources and organizes them into a going concern. Major recommendation of the study is that Government should also provide Tax holiday benefits for them till they sustain their market. They have also recommended that MSME ministry has to direct the banks to provide various types of loans and subsidies for the units set up under MSME and therefore the entrepreneurs will wheel their maximum efforts in raising profits and adding revenue to the government. **P. Natarajan and S. Siva (2011)** in their research work on entrepreneurial styles among the entrepreneurs of MSME's with reference to Puducherry region explained that developing and preserving an entrepreneurial spirit should be a concern of all who want to convert their conventional business as professionally managed corporation. According to them there is no single capsule that could be prescribed to achieve this as all organisations have the potentiality to excel but only some are able to do so and many are unable and different strategies, techniques, styles of leadership have been evolved to manage people effectively. Study examines the leadership styles practised by the entrepreneurs of MSME and recommended that the study reveals that most of the entrepreneurs have inherited the business from their parents or grandparents and they follow the participative style widely followed by Autocratic style, the key leadership behaviour possessed by them are visionary and improver traits and there is an impact of personal

<sup>4</sup><http://msme.gov.in/know-about-msme>, DOI: 13 October 2017, Website Content Managed by Ministry of Micro, Small & Medium Enterprises, Govt. of India.



variables influence the leadership styles of Entrepreneurs in MSME in Puducherry. **Singla A. and Grover P (2012)** have done made an attempt to study growth and financing of MSMEs with special reference to Punjab and Haryana. According to them one of the greatest obstacles towards the growth and development of MSMEs in industrialised and emerging economies is the access to formal finance. Study concluded that credit is an important element for growth and sustainability of MSMEs and there is an opportunity for banks to enhance loans to MSMEs because in financing large corporate, the risk is concentrated among few units, whereas in case of same amount of loans to the MSME sector, the risk would be spread over a large number of units. Proper infrastructure is required for the MSME sector to facilitate access, availability and use of funds which would give MSMEs an equal platform to compete, manage and sustain in the age of globalisation. **Siddiqui M. A. (2015)** has studied on problems and challenges of MSMEs in Telangana and concluded that the major problems encountered by sample MSMEs could be summed up as shortage of working capital, lack of management skills, excessive competition, fluctuation in the price of raw material, availability of skilled labour and low quality of products offered to market. **Dey S. K. (2014)** has searched the topic on an assessment of performance of MSMEs in India with special reference to Odisha where researcher has concluded that the present status of the performance of MSMEs in India and Odisha in particular in terms of employment generation, number of units and capital formations and MSMEs contribute to economic development in various ways such as creating employment opportunities for rural and urban population, providing goods and services at affordable costs by offering innovative. **Rajpal N. K. (2014)** in have made a study on performance and prospects of MSMEs in North East India. According to them, the North Eastern Region (NER) of India is among the major backward regions of the country, the main reason for their uneven growth is their geographical location and distance from mainland and further, factors like climatic conditions, poor infrastructure, political disturbances, local dominance and market unavailability have retarded the growth of industries in this region. Researcher presents a comparative picture of MSME development in India and its NER and moreover, special emphasis has been laid on the growth of MSME sector in different states of NER, their composition, and reasons for their backwardness and lower growth. **Manickaraj M. (2010)** in the case study of Electronica Finance Limited focuses on the action taken in making their micro, small, and medium enterprises (MSME) successful. According him to EFL has been cautious when it comes to MSMEs wherein it has achieved its growth by broadening financial services. MSMEs are risky however; EFL has able to do good business through exposure limit, handholding, and its merger with Small Industries Development Bank of India (SIDBI) to expand its resources. **Goel A. (2015)** in their research work on challenges in micro, small and medium enterprises investigated the major challenges faced by MSMEs today and concluded that there is a pressing need for banks to extend more credit to weavers. Reducing collateral requirements and making documentation easier and hassle-free is a major necessity in order to make loans easily accessible. Organising awareness programmes about wide variety of schemes and other non-financial institutions who lend to MSMEs is the need of the hour. Also, banks need to extend support on machinery loans. Borrowing from informal sector can only be discouraged if the units get full support from the formal lending institutions. **Kushalappa S. and Kunder S. (2015)** have made an attempt analysis of micro, small and medium scale industries in India reported that contribution of the Micro, Small and Medium enterprises (MSME's) to the economic growth of a nation is well recognized. One of the interesting findings of the study is that the proportions of women entrepreneurs are minor in most of the states of our country. Except few states like, Gujarat, Tamil Nadu, Madhya Pradesh and Uttar Pradesh, entrepreneurial initiatives taken up by other states are not satisfactory. Therefore, is



concluded in this study that every state has to take initiative for the growth and development of MSMEs, the growth engine of our economy. **Sharma N. (2015)** attempted to study the contribution of this sector based on MSMEs Census reports. According to the study the roles of MSMEs in development and growth are inclusive of the entrepreneurial thoughts, innovation and pragmatic approach towards practical marketing solution to enable the small scale industrial sector for sustainable development. Sustainability thus depends on the possession of international capabilities of product delivery. It must be complemented by other necessary antecedents such as macroeconomic stability, sound logistics, infrastructure, competitiveness of firms, and social cohesion. It will be possible only when the small scale enterprises will acknowledge, appreciate and reap benefits out of it. **Mohideen A. K. and A. Babu Rao (2012)** focused on need for Strategic management implementation which drives MSMEs towards comparative advantage and challenges for implementation of Strategic management in MSME. Major Findings of the study included differences in opinion among the experts regarding introduction of strategic management in MSMEs particularly in small enterprises. But it is a fact that small and developing enterprises increase their chances of success if they seriously attempt to work through the strategic issues embedded in the strategic management model. Authors recommended that the management of the MSMEs must make necessary progression towards a strategic orientation and more sophisticated strategic management techniques as the MSME grows to ensure future survival and long-run success of the enterprise. **Tiwari S. (2011)** in their research work related to performance and prospects of MSME sector in India concluded that in order to bring inclusive growth, the banking system should provide enough funding and efforts should be made to bring competitiveness in accordance with WTO. Emphasis should be given on capacity building through entrepreneurship education and training in small-scale industry with the introduction of necessary course curriculum in college and university education. The big industrial houses should also come forward to resource their demand of raw material and accessories from their small but important participants; in fact law should be framed to compulsorily fulfil their demand through MSME sector. **Lokhande M. A. (2011)** in their research work on financial inclusion: options for micro, small and medium enterprises stated that MSMEs operate on tight budgets, often financed through owner's own contribution, loans from friends and relatives and some bank credit. Also, the information asymmetries associated with lending to small scale borrowers have restricted the flow of finance to the micro enterprises. Study concluded that recognizing the importance of easy and adequate availability of credit for ensuring sustainable growth of the MSME sector, the government has undertaken several measures. The need of the hour is to ensure that these measures benefit the segment they have been designed for. **Jahanshahi A. A., Nawaser K., Khaksar S. M. S., Kamalian A. R. (2011)** stated that it is commonplace for Governments to have policies to encourage the growth of local MSMEs as they can help to directly alleviate poverty by increasing income levels and creating jobs. Results of the study show that those countries have succeeded in achieving higher growth of MSME, who have given much more emphases on Entrepreneurship Development Program (EDP). Consistently they are trying to accumulate optimum utilization of their resources in this field. Through the EDP, they have earned a very significant achievement to reach in to their development goal. **Kumar P. (2014)** in their research work on an empirical study on performance of Indian MSME highlighted that all industrial policies have been primarily focusing on an increase of the investment ceiling without concentrating on other issues which are more important, like infrastructure, adequate credit facility, proper training, viable marketing, export facilities, etc. Research has concluded post-liberalisation policies are not relevant, post-liberalisation changes in specific policies were not correct, post-liberalisation performances are not better than the pre-liberalisation



period, there are weak interrelationships between performance variables; the performance cannot increase without holistic changes in policies and up gradation of infrastructure. **Mehraj T. A. L. M. Z. (2015)** attempt to analyse the performance of MSMEs in terms of various parameters, looking the various problems hindering their growth and different policy initiatives undertaken by the government for their growth. Some of major issues of MSMEs include inadequate market linkages, lack of infrastructure, inadequate finance, lack of managerial competence, obsolete technology etc. Study concluded that in order to keep their growth engine on the right path, it is better to put emphasis on formulation of MSME friendly policies, conducive operating environment, improvement of proper infrastructure, securing peace and security, arranging proper finance, ensuring better and efficient management and arranging appropriate and modern technology. **Chand S. and Sharma S. (2010)** have researched the topic on performance and problems in financing of micro, small and medium enterprises (MSMEs) in India. Study examines the performance and trends in institutional financing as well as direction of credit flow to MSME sector covering the recent period. Authors have reported that though credit flow to this sector under various schemes of Govt. and SIDBI is steadily increasing, but at the same time it is also facing problems of finance, marketing, technology and unrestricted imports from multinationals due to greater integration with world economy under WTO regime. Thus, need of the hour is to provide more support to MSME sector in terms of credit, technology upgradation, marketing, infrastructure and skill development and protect this sector from the vagaries of global/financial markets and misuse of WTO/TRIPs regime. **Garg N. (2012)** studies the performance of unorganised manufacturing units in Indian economy in the present scenario and analyses the various problems faced by these units which hinders their growth. Study concluded that majority of the workers working in the unorganised manufacturing sector are mainly employed in low productive units and are paid very low wages so they are quite vulnerable to certain contingencies of life as they are not able to meet their minimal requirements even after working for long hours in their irregular and insecure jobs.

### **Objectives of the study:**

Main objective of the study is to understand the status of MSME in India and Gujarat. Study also aims at analyzing the behaviour of MSMEs in Gujarat towards joining industrial associations. Study mainly focuses on the behaviour in terms of membership of industrial association, purpose of joining, frequency of meeting, discussion methods etc.

### **Research methodology:**

A research methodology is a systematic plan of action for conducting research. Social scientists draw on a variety of both qualitative and quantitative research methods, including experiments, survey research, participant observation, and secondary data. Present study is descriptive in nature. Study is based on both primary and secondary data. Secondary data for the purpose of study have been collected from various sources like central and state government reports, reports of industrial associations and various online databases. The primary data have been collected with the help of structured questionnaire. In order to have qualitative picture, attempt has been made to collect primary data to support the findings emerging from the secondary data. Primary data are collected from selected MSME owners. Sample of 319 MSME owners were interviewed from various districts of Gujarat. The district wise sample is as follow;





**Tab. 03**

Name of District		
	Frequency	Percent
Rajkot	87	27.3
Jamnagar	28	8.8
Bhavnagar	33	10.3
Vadodara	29	9.1
Ankleshwar	29	9.1
Surat	25	7.8
Vapi	23	7.2
Ahmedabad	65	20.4
Total	319	100.0
<b>Source:</b> primary data		

In order to collect the primary data from MSME owners, structured questionnaire was prepared. Before finalizing the questionnaire, pilot testing of the questionnaire was conducted with the sample of 40 respondents. Based on the feedback and responses received during the pilot testing, suitable modifications were done in the questionnaire. Along with the survey of MSME owners, qualitative data were collected from Government officers, and heads of industrial associations. Qualitative information about the problems and challenges of MSME were collected through personal interaction and in depth interviews.

#### **Method of data Analysis:**

The secondary data collected from various reports and online sources and personal visit to various departments, ministries and agencies are analyzed with the help of MS Excel and SPSS. Various statistical tools such descriptive statistics, time series, Correlation, regression, chi-square etc. are used for the purpose of data analysis. Graphical presentations are used for presentation of data.

#### **MSME in India:**

The Ministry of Micro, Small and Medium Enterprises, a branch of the [Government of India](#), is the apex body for the formulation and administration of rules, regulations and laws relating to micro, small and medium enterprises in [India](#). Micro, Small and Medium Enterprises (MSMEs) sector has emerged as a highly vibrant and dynamic sector of the Indian economy over the last five decades. MSMEs not only play crucial role in providing large employment opportunities at comparatively lower capital cost than large industries but also help in industrialization of rural & backward areas, thereby, reducing regional imbalances, assuring more equitable distribution of national income and wealth. MSMEs are complementary to large industries as ancillary units and this sector contributes enormously to the socio-economic development of the country.<sup>5</sup> MSME in India contribute to economic growth, poverty reduction, employment creation etc. It provides support to entrepreneurship development & innovation wave. MSME have special role in balanced regional development along with rural development as well as outsourcing support to and linkages with large units.

<sup>5</sup><http://msme.gov.in/about-us/about-us-ministry>, DOI: 13 Oct. 2017, Website Content Managed by Ministry of Micro, Small & Medium Enterprises, Govt. of India.



MSMEs are backbone of Indian economy. They constitute more than 90% of total units/enterprises. The Sector consisting of 36 million units, as of today, provides employment to over 80 million persons. The Sector through more than 6,000 products contributes about 8% to GDP besides 45% to the total manufacturing output and 40% to the exports from the country. The MSME sector has the potential to spread industrial growth across the country and can be a major partner in the process of inclusive growth.

**Tab. 04**

<b>Micro, Small And Medium Enterprises (MSMEs) Sector : Profile<sup>6</sup></b>	
<b>Quick Estimates of 4th Census (2006-07) MSMEs</b>	
❖ Number of MSMEs	2.61 Crore
❖ Number of Manufacturing Enterprises	73 Lacs
❖ Number of Service Enterprises	1.88 Crore
❖ Number of Women Enterprises	21 Lacs (8%)
❖ Number of Rural Enterprises	1.42 Crore (54.4%)
❖ Employment	5.97 Crore
❖ Per unit employment	6.24
❖ Per unit fixed investment	Rs.33.78 lakh
❖ Per unit original value of Plant & Machinery	Rs.9.66 lakh
❖ Per unit gross output	Rs.46.13 lakh
❖ Employment per one lakh fixed investment	0.19

**Summary Result of Fourth All India Census of MSME**

**Tab. 05**

<b>Characteristics</b>	<b>Units</b>	<b>Regd. Sector</b>	<b>Unregd. Sector</b>	<b>EC-2005*</b>	<b>Total</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>
<b>Size of Sector</b>	In Million Numbers	1.56	19.87	14.74	36.17
<b>Rural Units</b>	In Million Numbers	0.71	11.97	7.34	20.02
<b>Women Enterprises</b>	In Million Numbers	0.22	1.81	0.64	2.67
<b>Total Employment</b>	In Million Numbers	9.31	40.89	30.33	80.53
<b>Per Unit Employment</b>	In Numbers	5.97	2.06	2.06	2.23
<b>Total Original Value of Plant &amp; Machinery</b>	In Billion Rupees	1050.25	946.39	--	1996.64
<b>Total Fixed Investment</b>	In Billion Rupees	4491.38	2408.17	--	6899.55
<b>Total Gross Output</b>	In Billion Rupees	7075.10	3697.03	--	10772.13

\*Economic Census 2005

Source: MSME Annual Report 2012-13,

<http://msme.gov.in/sites/default/files/ANNUALREPORT-MSME-2012-13P.pdf>, Govt. of India (Ministry of Micro, Small & Medium Enterprises), pp.21, DOI: 13 Oct. 2017, Website Content Managed by Ministry of Micro, Small & Medium Enterprises, GoI.

<sup>6</sup> [http://www.msmediahmedabad.gov.in/about\\_MSME.html](http://www.msmediahmedabad.gov.in/about_MSME.html), DOI: 13 Oct. 2017, Copyright © 2015 - All Rights Reserved - [MSMEDI Ahmedabad](http://www.msmediahmedabad.gov.in)



**Performance of SSI / MSME: Employment, Investments:**

**Tab. 06**

Sr. No	Year	Total Enterprises (In Lakh)	Working Employment (In Lakh)	Market Value of Fixed Assets (Rs. In Crore)
01	2001-2002	105.21	249.33	154,349.00
02	2002-2003	109.49	260.21	162,317.00
03	2003-2004	113.95	271.42	170,219.00
04	2004-2005	118.59	282.57	178,699.00
05	2005-2006	123.42	294.91	188,113.00
06	2006-2007	361.76	805.23	868,543.79
07	2007-2008	377.36	842.00	920,459.84
08	2008-2009	393.70	880.84	977,114.72
09	2009-2010	410.80	921.79	1,038,546.08
10	2010-2011	428.73	965.15	1,105,934.09
11	2011-2012	447.66	1,011.80	1,183,332.00
12	2012-2013	467.56	1,061.52	1,269,338.02
13	2013-2014	488.46	1,114.29	1,363,700.54
14	2014-2015	510.57	1,171.32	1,471,912.94

**Source:** Annual Report of MSME 2013-14 & 2015-16.

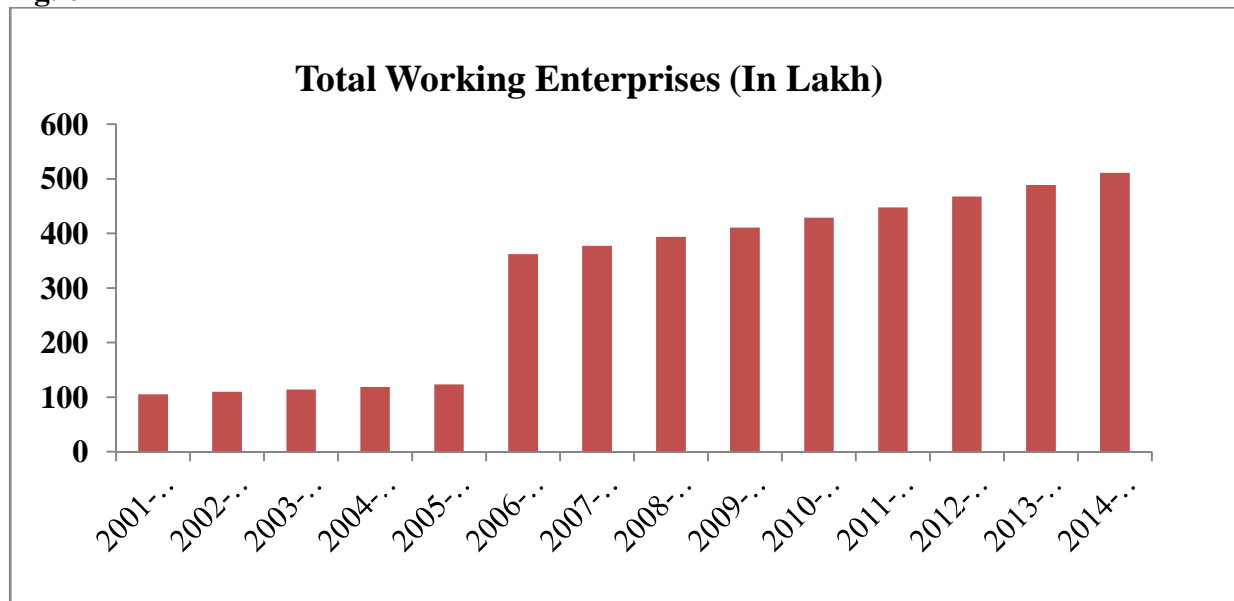
Annual Report 2013-14

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**Fig. 01**





**Source:** Compiled by Author

It can be seen from the data above that total working enterprises in MSME has increased from 105.21 lakh during the year 2001-2002 to 510.57 lakh during the year 2014-15. During the same period total employment in MSME has increased from 249.33 lakh to 1171.32 lakh. Similarly the market value of fixed assets has increased from 154,349.00 crore during 2001-02 to 1,471,912.94 crore during 2014-15. Total Working Enterprises, Employment and Market Value of Fixed Assets are constantly increasing from last many years. The distribution of MSMEs across various states in India is presented in table above. It can be seen from the data Tamilnadu has the largest number of MSMEs and it contributed nearly 26 percent of total MSMEs in India. Tamilnadu is followed by Gujarat (14.65%), Uttar Pradesh (13.17%), Karnataka (7.57%) and Madhya Pradesh (6.61%). On the other side Lakshadweep has lowest number of MSMEs in India followed by Sikkim, Arunachal Pradesh, Andaman and Nicobar Islands and Goa.

**State/UT Wise Distribution of Principal Characteristics of MSME Sector:**

**Tab. 07**

Sr. No.	State/UT	Enterprises (in Lakh)	Employment (in Lakh)	Market Value of Fixed Assets (Rs. In Crore)
01	Jammu & Kashmir	1.13	3.07	8475.28
02	Himachal Pradesh	1.72	2.92	5599.25
03	Punjab	10.14	18.31	37126.69
04	Chandigarh	0.29	0.70	607.05
05	Uttarakhand	2.23	4.42	6014.98
06	Haryana	5.20	12.23	25998.80
07	Delhi	1.78	6.52	10164.54
08	Rajasthan	9.68	18.42	25452.90
09	Uttar Pradesh	24.21	59.30	56161.03
10	Bihar	7.98	17.45	8405.45
11	Sikkim	0.07	0.57	72.16
12	Arunachal Pradesh	0.25	0.88	937.48
13	Nagaland	0.18	1.17	1273.67
14	Manipur	0.49	1.58	646.03
15	Mizoram	0.13	0.56	403.14
16	Tripura	0.28	0.76	661.73
17	Meghalaya	0.50	1.17	468.55
18	Assam	2.34	6.58	6941.15
19	West Bengal	21.23	58.53	39433.22
20	Jharkhand	4.43	8.99	5020.72
21	Odisha	9.97	23.67	12284.89
22	Chhattisgarh	3.01	5.43	3303.41
23	Madhya Pradesh	12.57	20.30	10530.40
24	Gujarat	15.32	34.42	166753.68
25	Daman & Diu	0.02	0.28	1881.53
26	Dadra & Nagar Haveli	0.06	0.34	229.58
27	Maharashtra	15.32	35.61	67941.24



28	Andhra Pradesh	15.36	38.98	32757.63
29	Karnataka	12.49	30.48	27161.11
30	Goa	0.59	1.20	3820.19
31	Lakshadweep	0.01	0.05	17.30
32	Kerala	14.44	33.20	44353.53
33	Tamil Nadu	20.55	53.16	77824.34
34	Puducherry	0.14	0.46	1135.29
35	Andaman & Nicobar Isl.	0.07	0.23	96.95
<b>All India</b>		<b>214.38</b>	<b>501.93</b>	<b>689954.86</b>

**Source:** Annual Report 2014-15

[http://msme.gov.in/sites/default/files/MSME%20ANNUAL%20REPORT%202014-15 English 1.pdf](http://msme.gov.in/sites/default/files/MSME%20ANNUAL%20REPORT%202014-15%20English%201.pdf), Govt. of India (Ministry of Micro, Small & Medium Enterprises), DOI: 13 Oct. 2017, pp. 28, Website Content Managed by Ministry of Micro, Small & Medium Enterprises, GoI.

MSMEs are backbone of Indian economy. They constitute more than 90% of total units/enterprises. The Sector consisting of 36 million units, as of today, provides employment to over 80 million persons. The Sector through more than 6,000 products contributes about 8% to GDP besides 45% to the total manufacturing output and 40% to the exports from the country. The MSME sector has the potential to spread industrial growth across the country and can be a major partner in the process of inclusive growth<sup>7</sup>.

**Tab. 08**

**Classification of MSME by type of Organization**

Type of Organization	Number of MSME (In Lakh)	Percentage
Proprietary	341.54	94.41%
Partnership	4.28	1.18%
Private Company	0.49	0.14%
Co-operatives	1.21	0.33%
Others	8.09	2.24%
Not Recorded	6.15	1.70%
Total	361.76	100.00%

**Source:** Annual Report 2015-16,

<http://msme.gov.in/sites/default/files/MEME%20ANNUAL%20REPORT%202015-16%20ENG.pdf>, Govt. of India (Ministry of Micro, Small & Medium Enterprises), DOI: 13 Oct. 2017, pp. 150, Website Content Managed by Ministry of Micro, Small & Medium Enterprises, GoI.

It is evident from the data that most of the MSME units are in the form of proprietary nature. Out of total 361.76 lakh MSME units 341.54 lakh (94.41 percent) are in the nature of proprietary business. The proportion of MSME units in the nature of partnership, private company and cooperative is very less. Only about 1.18 percent of all MSME units were in partnership business and 0.14 percent units were in the form of private company. MSME have

<sup>7</sup> MSME at a GLANCE\_2016Final,

[http://msme.gov.in/sites/default/files/MSME\\_at\\_a\\_GLANCE\\_2016\\_Final.pdf](http://msme.gov.in/sites/default/files/MSME_at_a_GLANCE_2016_Final.pdf), Ministry of Micro, Small and Medium Enterprises, Government of India, DOI: 13 Oct. 2017, pp. 01.



been significant contributor to Gross Domestic Product (GDP) of India. The information about the performance of MSME in India in terms of share in GDP is presented in table and graph below. It can be seen from the data that total output of MSME has increased from 1198818 crore during 2006-07 to 1809976 crore during 2012-13 registering growth of 51 percent during the period. MSME has been contributing nearly 35.13 percent to India's GDP during 2006-07 which has increased to 37.54 percent during 2012-13. Thus MSME contribute significantly to country's GDP.

**Tab. 09**

<b>Contribution of MSME Sector In GDP and Output</b> (at 2004-05 prices)					
Year	Gross Value of Output of MSME Manufacturing Sector (in crore)	Share of MSME sector in total GDP (%)			Share of MSME Manufacturing output in total Manufacturing Output (%)
		Manufacturing Sector MSME	Services Sector MSME	Total	
2006-07	1198818	7.73	27.4	35.13	42.02
2007-08	1322777	7.81	27.6	35.41	41.98
2008-09	1375589	7.52	28.6	36.12	40.79
2009-10	1488352	7.45	28.6	36.05	39.63
2010-11	1653622	7.39	29.3	36.69	38.5
2011-12	1788584	7.27	30.7	37.97	37.47
2012-13	1809976	7.04	30.5	37.54	37.33

**Source:** Annual Report 2015-16, <http://msme.gov.in/sites/default/files/MEME%20ANNUAL%20REPORT%202015-16%20ENG.pdf>, Govt. of India (Ministry of Micro, Small & Medium Enterprises), DOI: 13 Oct. 2017, pp. 9, Website Content Managed by Ministry of Micro, Small & Medium Enterprises, GoI.

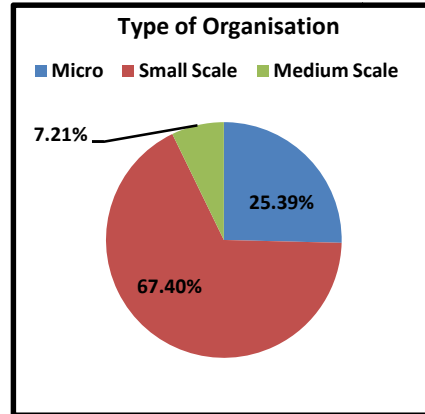
### Classification by Types of Organization

The MSME segment of industries consists of Micro, Medium and Small scale industries. The classification of industries selected during the study by their size is presented in table and graph below. It can be seen from the data that 67.4 percent of total industries include in the survey were small scale segment while 25.4 percent were from Micro segment. Only around 7.2 percent industries were belonging to medium scale segment.

**Tab. 10**

Type of Organisation		
	Frequency	Percent
Micro	81	25.4
Small Scale	215	67.4
Medium Scale	23	7.2
Total	319	100.0

**Fig:02**



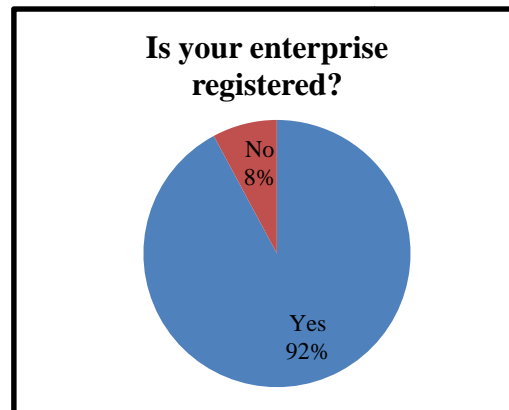
**Registration Status**

In order to take benefits of any government schemes and programs it is necessary to register industry under MSME categories. The classification of industries surveyed by their registration status as presented in table and graph below shows that majority of industries, 92.2 percent, are registered while 7.8 industry owners have reported that their industry is not registered of they are not aware about the registration status of their company.

**Tab. 11**

Is your enterprise registered?		
	Frequency	Percent
Yes	294	92.2
No	25	7.8
Total	319	100.0

**Fig. 03**



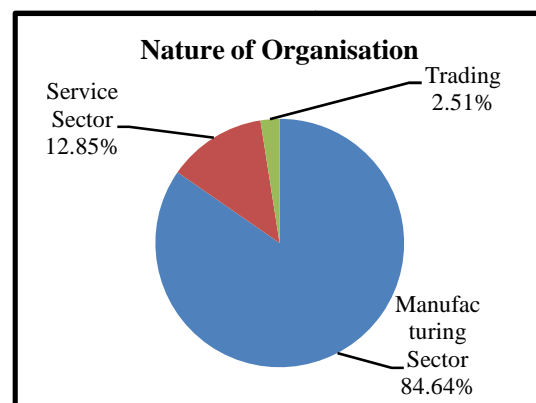
**Nature of Organization**

For the understanding purpose MSME were classified based on nature of their business viz. manufacturing, services and trading. The classification of industries surveyed by the nature of their business is presented in table and graph below.

**Tab. 12**

Nature of Organisation		
	Frequency	Percent
Manufacturing Sector	270	84.6
Service Sector	41	12.9
Trading	8	2.5
Total	319	100.0

**Fig. 04**



The classification of industries by nature of business as presented in table and graph above shows that 84.64 percent industries were from manufacturing sector while 12.85 percent were from services sector.

### Year of Establishment

As part of study information was also collected about the year of establishment of industry. Based on the information collected during the research work, the industries were classified in to four categories viz. established before 1991, between 1991-2000, between 2001-2010 and those established after 2010.

**Tab. 13**

Year of Establishment		
	Frequency	Percent
Before 1991	52	16.3
1991-2000	60	18.8
2001-2010	127	39.8
After 2010	80	25.1
Total	319	100.0

The information about year of establishment of organizations selected in the study as presented in table shows that nearly 658 percent companies are established after 2001. Within that group 38.9 percent companies are established during the period 2001-2010 while 25.1 percent are established after 2010.

### Annual Turnover

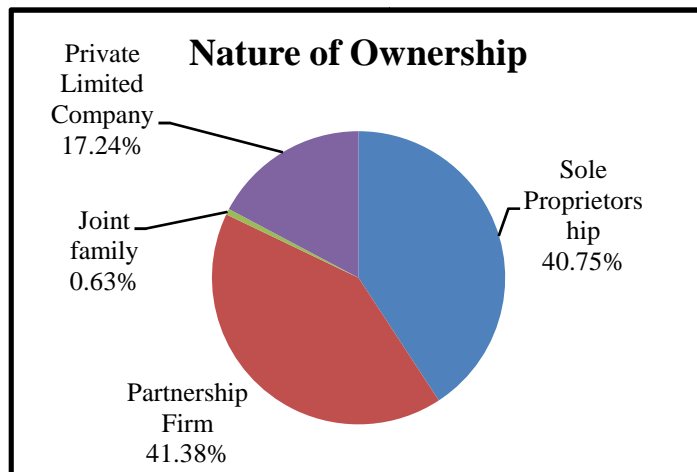
**Tab. 14**

Annual Turnover		
	Frequency	Percent
Less than 25 lacs	42	13.2
25-50 lacs	22	6.9
50 lac to 1 crore	61	19.1
1 -5 crore	126	39.5
Above 5 crore	62	19.4
Not Reported	6	1.9
Total	319	100.0

For the purpose of analysis, industries surveyed were classified based on their annual turnover. The results of the data are presented in table below. It can be seen from the data that nearly 40 percent industries are having annual turnover between 1 crore to 5 crore while 19.4 percent companies have turnover above 5 crore.

### Ownership Status

**Fig. 05**



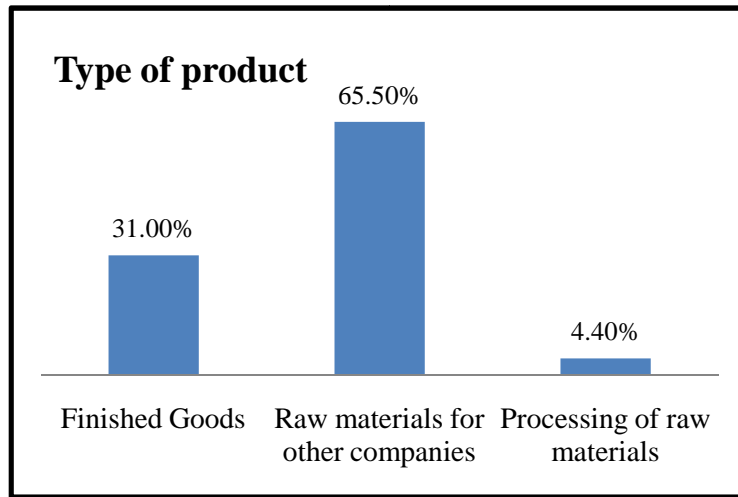
The classification of companies surveyed by their ownership structure is presented in table and graph below. The data shows that nearly 40.8 percent are sole proprietorship in nature while 41.4 percent are having partnership structure. It is important to note that 17.2 percent MSMEs selected in the study were registered as private limited companies.



### Type of Product and Activities and Type of Activities

The MSME selected during the survey were different in terms of their product type and type of manufacturing activities. The classification of MSMEs by their type of product and nature of activities is presented in table and graph below.

**Fig. 06**



The classification of MSME by type of product as presented in table and graph above shows that nearly 65.50 percent MSMEs are involved in manufacturing raw materials for other companies while 31 percent are manufacturing final products. At the same time it can be seen from the data that 4.40 percent MSMEs have reported that they are involved in processing of raw materials, a kind of job work. The classification of MSMEs by

nature of their manufacturing activities is presented in table and graph below.

**Tab. 15**

Type of Manufacturing activity		
	Frequency	Percent
Chemical	54	16.9
Pharmaceutical	8	2.5
Textile	22	6.9
Plastics	45	14.1
Rubber	3	.9
Engineering	21	6.6
Metal	102	32.0
Construction Materials	5	1.6
Food	22	6.9
Steel	9	2.8
Electrical	11	3.4
Fabrication Works	3	.9
Leather	1	.3
Wood	4	1.3
Packaging	5	1.6
Agro Production	4	1.3
Total	319	100.0

The classification of MSME by nature of product as presented above shows that MSME in Gujarat are dominated by metal (32 percent), chemical (16.9 percent), plastic (14.1 percent) textile (6.9 percent) and food (6.9 percent). The proportion of MSME involved in other product was relatively low.

### Who looks after the day operations of the company?

As part of research attempt has been made to know the operational aspect of MSMEs in Gujarat. MSMEs included in the survey were asked about management of the organizations i.e. management of day to day operations. The analysis of data collected is presented in table and graph below.



**Tab. 16**

<b>Who looks after the day operations of the company?</b>		
	Number of Respondents	Percent of Cases
The Owners	132	41.4%
Partners	123	38.6%
Professionals (Managers)	4	1.3%
Family member	45	14.1%
Director	58	18.2%

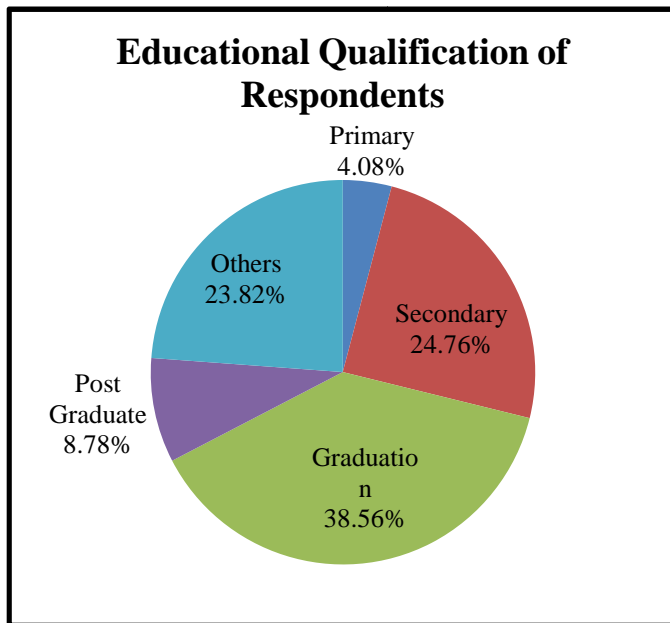
The information about day to day management of MSMEs included in the study as presented in table and graph above shows that 41.40 percent are managed by owner himself and 38.60 percent are managed by partners. Only in 18.20 percent cases MSMSs have reported that their company's day to day operations are managed by

director. The professional management of MSMS was very low at 1.30 percent. This indicates that professional management of MSME is far from reality. MSMEs are mostly managed by their owners only. Owner themselves take care of day to day operations of the company instead of appointment of professional managers.

**Profile of MSME Owners**

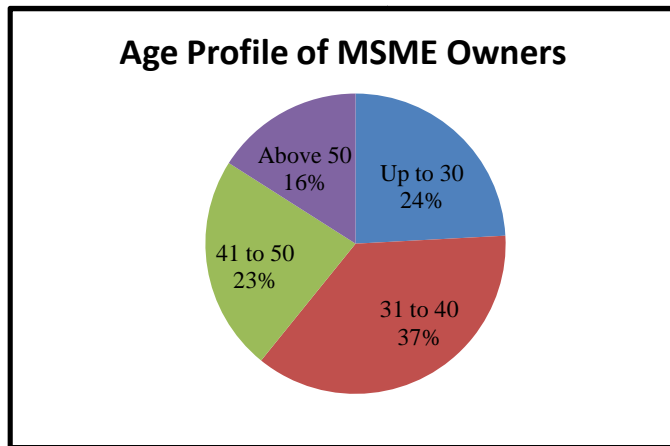
The primary data for the purpose of research has been collected with the help of structured questionnaire. In order to collect the data MSMEs across Gujarat were visited in person. The information is mostly collected from head of MSME available, mostly owner. The profile of respondents in terms of educational qualification, age and caste is presented in tables and graphs below.

**Fig. 07**



The classification of respondents by their level of education as presented in table and graph below indicates that 38.6 percent were having qualification up to graduation level while 8.8 percent are post graduate. The proportion of MSMEs respondents with qualification of primary education is 4.1 percent only.

**Fig. 08**



The classification of MSME owners include in the survey by their age is as presented in table and graph below. The results show that 24.1 percent were in the age group of below 30 years while 36.7 percent were in the age group of 31 to 40 years. This means that more than 60 percent MSME owners are below the age of 40 years. The proportion of MSME owners in the age group of 50 years and above is very low at 16 percent. Thus we can conclude that most

MSME owners in Gujarat are young, first generation entrepreneurs.

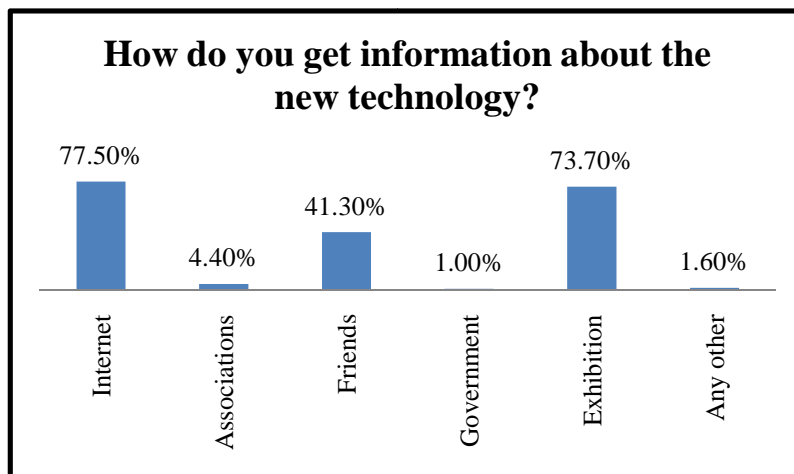
**Tab. 17**

Source of Information	Number of Respondents	Percent of Cases
Internet	244	77.5%
Associations	14	4.4%
Friends	130	41.3%
Government	3	1.0%
Exhibition	232	73.7%
Any other (Newspaper, Magazines)	5	1.6%

About various sources to get information about new technology, the results of the data as presented in table and graph below shows that internet and exhibitions are the main sources of information about technology. 77.5 percent MSME owners have reported that they are updating themselves about technology

through internet while 73.7 percent have reported exhibition as source of information about technology.

**Fig. 09**



It is important to note that only 1 percent MSME owners have reported that they are getting information about new technology from Government and 4.4 percent are getting updates from associations. Government and industry associations working toward promoting technological development are required to take special steps to spread information to MSMEs.

For the technological development of MSMEs in Government of Gujarat at the state level and Government of India at the national level have various policies and schemes. Government



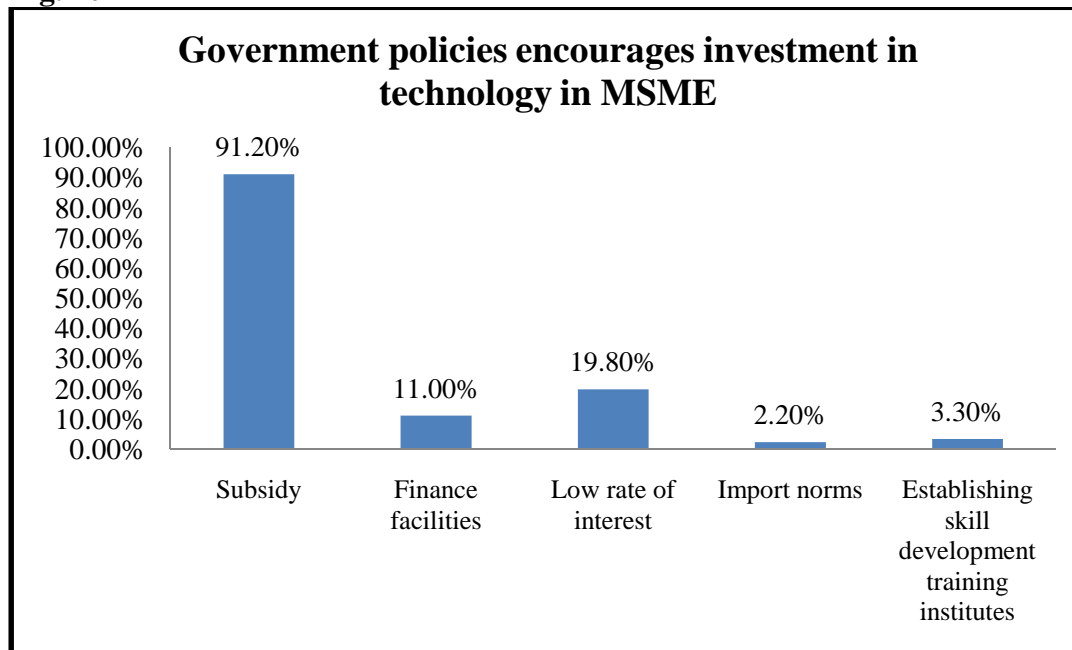
provides subsidies for technological advancement by MSMEs. Financial assistance and low rate of interest are also offered by government to MSME for technological advancement. Norms for the import of technology are also liberalized. Government has also established skill development training for providing training for latest technologies. Especial skill development training institutes are established for the benefit of MSMEs.

As part of the study MSME owners were asked about government policies that encourage investment in technology as MSME. The results of the study are presented in table and graph below.

**Tab. 18**

<b>What kind of government policies encourages investment in technology in MSME?</b>		
Government Policies	Number of Respondents	Percent of Cases
Subsidy	83	91.2%
Finance facilities	10	11.0%
Low rate of interest	18	19.8%
Import norms	2	2.2%
Establishing skill development training institutes	3	3.3%
Any other	1	1.1%

**Fig. 10**



It is evident from the data that a subsidy on technology upgradation is the main encouraging factor for MSME to adapt to new technology. Nearly 91 percent MSME owners have reported that subsidies encourage investment in technology at MSME. Low rate of interest is also reported as encouraging factor by nearly 20 percent MSME owners included in the survey. Thus we can conclude that government should provide subsidies for investment in technology by MSMEs.



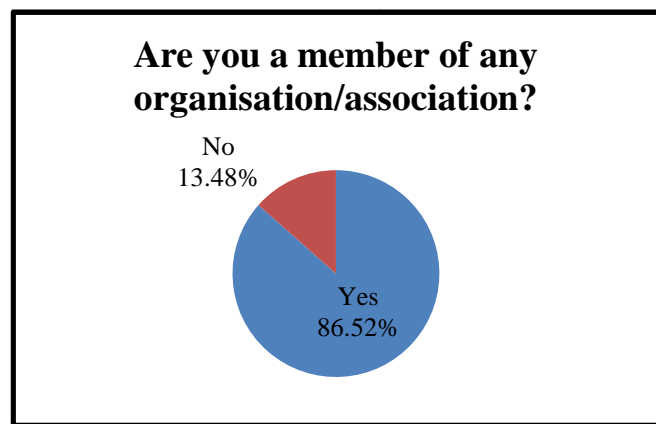
### Membership of Association

Most of the industries are forming their own association or joining existing industrial associations. The purpose of association is to discuss the common problems and help each other. Association forms the rules and regulations for its members. The membership of association helps an individual industry to get update about new technology, government regulations, market scenario, and status of business environment. It also helps the member to take up trade disputes between the members. Study intends to cover the issue of association membership among MSMEs in Gujarat. The data collected during the study about association membership, purpose of joining, meetings etc. are presented below.

**Tab. 19**

Are you a member of any organization /association?			
		Frequency	Percent
	Yes	276	86.5
	No	43	13.5
	Total	319	100.0

**Fig. 11**



### Purpose of joining /your expectations from Association/Organization

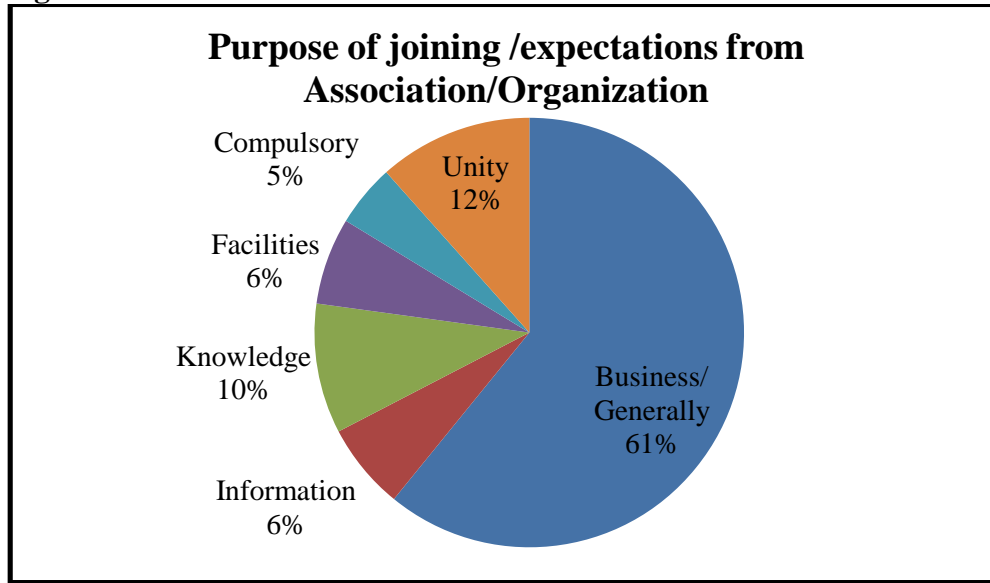
With regards to membership of associations/organization, the results of the study shows that majority of the MSME in Gujarat have taken membership. Nearly 87 percent MSMEs included in the survey have reported that they are members of some or the other organization/associations.

The question about the purpose of joining association or expectations from the membership was also asked. The responses received are presented in table and graph below.

**Tab. 20**

Purpose of joining /your expectations from Association/Organization		
	Frequency	Percent
Business/ Generally	168	60.87
Information	18	6.52
Knowledge	27	9.78
Facilities	18	6.52
Compulsory	13	4.71
Unity	32	11.59
Total	276	100

**Fig. 12**



The results of the study about purpose of joining association/organization as members as presented in table and graph above shows that largest number, 61 percent, have joined for business reasons as cited above. Nearly 12 percent MSMEs have reported that they have joined association membership for unity while 10 percent have joined for knowledge purpose.

**Meeting is held**

The common issues and challenges are discussed in the meetings of the association/organizations. Such meeting also serves a networking platform for its members. There are no standards for frequency of meeting to be organized by association/organizations. The information collected during the survey about the frequency with which the association/organizations are conducting meeting is presented below.

It can be seen from the data that most organization/associations organize monthly meetings. Nearly 24.1 percent MSMEs have reported that their association has system of monthly meetings. At the same time 22.6 percent MSMEs have reported that their association meetings are held 6-7 times in a year while 19.4 percent have reported about 3-4 times.

**Tab. 21**

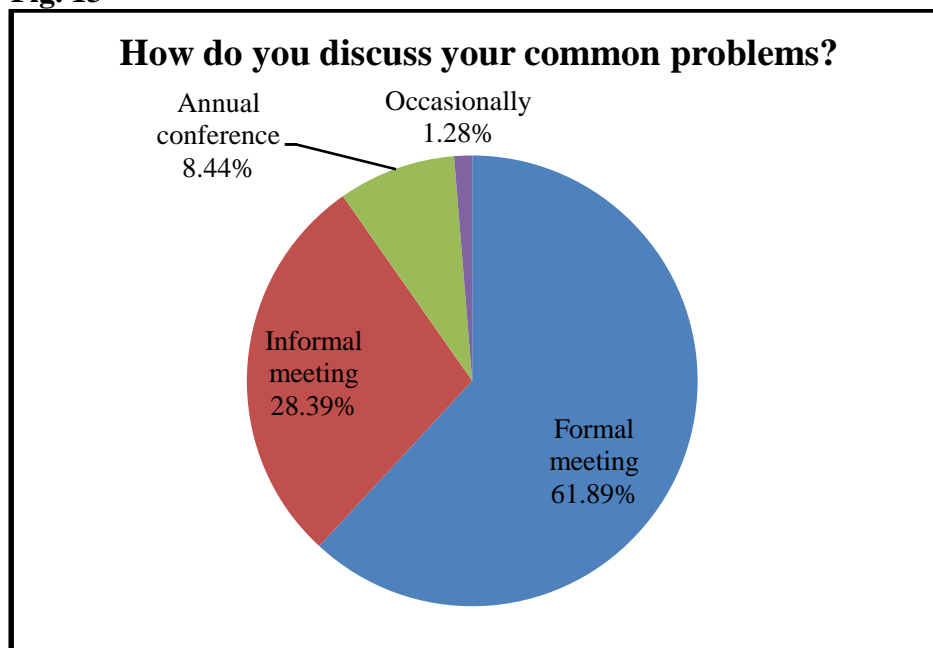
Meeting is held		
Frequency of meeting	Frequency	Percent
Weekly	1	.3
Monthly	77	24.1
Bi-Annual	49	15.4
Annual	14	4.4
3-4 Times	62	19.4
6-7 Times	72	22.6
Any Other	1	.3
Total	276	86.5
NA/NR	43	13.5
Total	319	100.0

To discuss the common problems there are various methods like formal meeting, informal meeting, annual conference etc. The analysis of information collected during the study of MSME in Gujarat shows that in largest number of cases the issues are discussed in formal meeting. 76 percent MSMEs have reported that their common issues are discussed during the formal meeting of their association while 35 percent have reported that they follow informal meeting. Annual conference as a medium to discuss the common problem has been reported by 10 percent MSMEs.

**Tab. 22**

<b>How do you discuss your common problems?</b>		
	Number of Respondents	Percent
Formal meeting	242	76%
Informal meeting	111	35%
Annual conference	33	10%
Occasionally	5	2%

**Fig. 13**



**Findings and Conclusion:**

MSME plays an important role in the economic development of country. The results of the survey show that internet and exhibitions are the major sources of information for MSME owners to upgrade themselves with modern technology. Among various schemes and policies designed by the government, a subsidy is one of the major factors which encourage MSME for investment in technology. With regards to membership of associations, the study shows that majority of MSME owners are members of associations with business reasons and unity emerging has major drivers. Regular meetings are held for discussing the common problems of the industry, mostly in formal meetings. The strength of MSME in country like India is



strength of their industrial associations. There is urgent need on the part of the government to design programme and policies for strengthening the industrial association of MSMEs which in turn will help MSME owners in upgrading their business models for better growth.

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## **Analysis of Agricultural inputs and their role in the development of agriculture sector in state of Gujarat and India**

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### **Abstract**

**Purpose:** *The purpose of this paper is to explore the Analysis of Agricultural inputs and their role in the development of agriculture sector in state of Gujarat and India..*

**Design/ Methodology/ Approach:** *The present study is a descriptive study.*

**Research limitations/ implications:** *The study has explored Analysis of Agricultural inputs and their role in the development of agriculture sector in state of Gujarat and India and it has suggested measures to improve its contribution in the state GSDP.*

**Originality/ Value:** *The paper has explored a positive relationship between Various Agricultural inputs and the development of agriculture sector in state of Gujarat and India.*

**Keywords:** *Agricultural inputs, Agricultural Development, Agriculture, Role of Agricultural inputs, Agricultural Sector.*

**Paper type:** *Conceptual Research Paper*



## **Analysis of Agricultural inputs and their role in the development of agriculture sector in state of Gujarat and India**

### **1.Introduction:**

In order to get the depth of the problem, researcher has tried to explore various studies related to my subject and it is seen that various studies have been conducted in the different aspects of agricultural development and financing in Gujarat state and India. Even though the number of studies have been conducted in the area of agricultural financing but there is no single attempt has been made about agricultural financing by nationalized banks to agriculture sector in Gujarat. The current study is fair and humble attempts to fill the gap in the related literature, with its primary objective of; to analyze the impact of agricultural financing by nationalize banks in agriculture sector in Gujarat since 1991. This chapter reviews the existing related literature to identify the variables and method of analysis which are employed in the current study, in order to bring out methodology to be carried out in my study.

### **2.Pattern of Agricultural Financing in Gujarat and India:**

Nerella (2015) has shown that Agriculture development is affected by various factors like credit, irrigation infrastructure and market. Out of all variables credit is key input for long term sustainable agriculture development. This study also shows that KCC scheme has also played significant role in the form of operation and income of farmers in agriculture sector. The availability of crop loan has helped in realizing higher value per hectare gross return for the KCC beneficiaries for the crops taken under study. This study also high lights that the process of opening up of banks accounts should be simplified. This can be achieved by organizing village campaigns for issuance of KCCs in agriculture sector in India. The commercial banks have issued 629.94 lakhs KCCs as of 2012-13 in India. Godara et al (2014) have shown in their study that, there is increasing rate of share of institutional credit which have registered remarkable growth form 7.3 per cent in 1951 to 61.1 per cent in 2002 and there is a noticeable decrease in the share of non-institutional credit form 92.7 per cent to 30.6 per cent during the same period respectively. However, the field result of this research paper shows that all farmers assume agriculture credit is inadequate and proportion of small and marginal farmers who access the credit by formal sources were lower than those in medium and large farmers. About 83 per cent of small farmers, 78 per cent of medium farmers and 87 per cent of large farmers are still based on informal credit channels in agriculture sector in India. Ahangar et al. (2013) opines that the institutional is very important for agricultural development in India. This research paper primarily analyses the growth of Schedule Commercial Banks in providing agricultural credit in India. This study also shows the contribution of commercial banks is much-much higher in case of commercial banks while it is the lowest in case of Co-operative banks. Similarly the total number of account holders have increased in case of SCBs from 5,841 to 30,538 and the amount of finance also have increased from 14,516 to 2,71,670 in referred period of time. This study also high-lights that there is the considerable increase in amount outstanding in case of commercial banks from 59310 to 583343 crores during the same referred period. Varinder and surjit (2014) have shown in their study that commercial banks have played very significant role in providing finance to agriculture sector in India. With the aim of facilitating timely and adequate loan to



agriculture sector, the SCBs have targeted the agriculture financing as part of the priority sector lending programme introduced after nationalization of banks in 1969. Since then, banks have become successively an important source of agriculture credit in India. This study also shows that in the first half of 2000s, the share and role of SCBs have increased considerably, especially with the newer credit delivery system in the form of KCC. Kumar et al. (2010) have studied the large number of formal institutions like Co-operative, Regional Rural Bank (RRBs), Schedule Commercial Banks (SCBs), Non-Banking Financial Institution (NBFIs) and self-help Groups (SHGs), etc. are important to meet the short term and long term credit needs of farmers. This study has considered the share of agricultural credit in agricultural GDP (AgGDP) and over all GDP and the credit per unit of GCA was examined to assess the overall performance of institutional agricultural credit flow. This paper also examine the share of different institutional agencies in the agricultural credit flow where it has been observed that the share of schedule commercial banks have increased from 1.9 per cent in TE 1972-73 to 73 per cent in TE 2008-09. Bhattacharya (2006) has examined that, the government and RBI have vigorously instituted various initiatives for financial inclusion. This study shows that high light these measures, which probably have an effect in urban areas; rural areas might need some extra initiatives. The crux of the dilemma is that the characteristics of intermediating finances to rural households and small farmers—cash constraints, asymmetric information and high transaction costs are likely to keep the impact of traditional channels and administrative mandates fairly limited. Focusing commercial entities to combine these two disparate businesses is likely to decrease overall efficiency and it is something the system can put some afford in the competitive environment. The kind of access involve, however, will probably need viability gap funding like; a subsidy or transfer mechanism to attract investment in agriculture sector, especially in initial years. Kalkadi (2012) has shown in his comprehensive study that, India has a very huge number of tenant farmers including share croppers and oral lessees whose legal relationship with the land owners and the piece of land they cultivate has not been recognized. In the absence of an official agreement with land owner, the State Government virtually has no record of tenancy farming. The latest National Sample Survey for the year 2003 estimated that the area under informal tenancy in the country varies between 15 % and 35 % of the total farm area. And 36 % of the total rural households leasing land are landless labourers and 47.5 % have land below 0.5 hectare. This study also shows that it is absolute unfortunate that such a huge numbers of tenant farmers do not exist in revenue records, consequent upon which they are exposed to several problems including the most severe being tenant farmers inability to access institutional credit and insurance cover. This study also conceptualize absence of transparency in the agreement with landlords makes them pay very high and exploitative payouts in cash and kind. Simonot and Brewin (1999) have found that, Credit policy must be compared against goals. Provision of loans primarily in case of land may arguably help to maximize output (increased efficiency through rationalization) and could possibly provide its input towards higher growth rates through larger scale and quick adoption of production-increasing technological know-how. Thus this can be concluded that facilitating this may be seen as a reduction of income inequality (opportunity inequality). These in turn, to allow a period for adjustment on an industry scale. Mohan (2004) has shown in his study that, the banking system in India is, at present, emphasizing more for providing finance for the traditional crops like cereals. However, therefore it needs to reorient itself to meet the changing need of commercializing agriculture sector. Credit demand would increase because of purchased-input intensive and dis-similar (heterogeneous) production cycles of the new areas of agriculture. This would also call for designing new and innovative schemes and products which identify the differing nature of agro-businesses and supply chains for



different agricultural goods. Latest type of credit assessment and risk managing systems may also have to be put in place, besides upgrading skills and changing attitude and mind-sets. The traditional rural credit system has been changed to some extent due to the revolution in information technology.

### **3. Pattern and Determinant of Agricultural Development in Gujarat:**

Kumar et al (2010) have studied that, a large number of formal institutions agencies like Co-operatives, Regional Rural Banks (RRBs), Schedule Commercial Banks (SCBs), Non-Banking Financial Institutes (NBFIs) and Self-help Groups (SHGs), etc. are involved in meeting the short and long term needs of the farmers. Several initiatives have been taken to boost-up the institutional mechanism of rural credit system. The main objectives of this study were to examine the initiatives of banks to improve farmers' access to institutional credit. Shah et al (2009) have shown the analysis of Gujarat's major Krishi Festival and their implications; Gujarat evolved its annual month-long KrishiMahotsav campaign as a unique extension model that brought agricultural scientists, extension staff, agro-industries, input suppliers, cooperatives banks, local and state-level political leaders together on a platform to exchange knowledge and information on the latest technologies and market opportunities. This study shows that how large exhibitions organized in all the agricultural university campuses and district towns, which are widely attended by millions of farmers. A KrishiRath – complete with audio – visual equipment, posters, and model and accompanied by scientists and administrators – visits every village of the state. Scientists give some lectures but also undertake soil health tests and give soil-health cards to the farmers detailing the soil composition and the best possible crops for the soil type. They also carry out vaccination of the cattle, distribution kits on agriculture, animal husbandry and horticulture to the five poorest farmers in the village. 4 Gujarat officials recount several effects of the reinvented extension model. For instance, they argue that in using chemical fertilizers, Gujarat farmers have moved wholesale from a 13:7.5:1 Nitrogen-phosphorous-potassium composition to a 6.5:3.5:1, thereby reducing cost, optimizing production and improving net income. The farm credit system too has been revitalized. Agricultural loan disbursements in Gujarat have clocked 22-25% annual growth rate, thanks to supportive government policies. In the three years ending 2006-07, for example, agricultural loan disbursals in Gujarat doubled from 4,735 crore in 2003-04 to 10,468 crore in 2006-07. Mehta (2012) has analyzed the role of agricultural sector in the over-all growth in Gujarat State. Agriculture occupies a prominent position in Gujarat. It provide employment to nearly half of the rural workforce (52%) despite a decline in its share in the state net domestic product to less than one-half, indicating that the state economy is witnessing a structural transformation. Post economic reforms, cropping pattern has favoured wheat, cotton, spices, fruits, vegetables, and floriculture and medicine plants in Gujarat's agricultural sector. Despite a secular decline in the share agricultural sector and sharp fluctuations in its output and income, the decade of 2000s could mark a very high growth phase. Economy wide gross domestic product had shown a structural break in 2002-03, giving credence to the notion that agricultural sector has been the driving force behind acceleration of the overall economic growth in Gujarat state. After 2000-01, unprecedented increase in physical output and monetary value of crops has been attained. Adoption of high-yielding varieties of food crops and Bt cotton has been the main factors behind the revolutionary growth. Swain et al (2012) have analyzed the importance of rain water harvesting and micro-irrigation as the important measures to improve water management. This study has found that the improvement in water use efficiency required for



irrigation expansion and for decreasing the excess pressure on ground water in water stressed areas of the state. More priority should be given to rain water harvesting and effective water management through promotion of micro-irrigation methods, while efforts should be made to bring more area under canal irrigation through expansion of irrigation network from neighbouring states. This study also found that after implementation of MNREGA in 2006, the availability of farm labourers has been reduced considerably mainly at the time of intercultural operations and harvesting of the crops. Shah (2012) has found that Gujarat's growth story is marked by a significant divergence economic and human development. Besides, the agriculture sector in the state is faced with many special limitations- mainly agro-ecological and social-demographic. These include: i) low and variable rainfall with single rainy season thus, rendering large parts of the state as dry land/semi-arid region; ii) heavy dependence on ground water for irrigation, drinking/domestic water supply, and industrial-use; iii) a substantial larger tribal population (about 15% of the state's population) facing high levels of poverty; iv) pressure for conversion of farm land for non-agriculture uses; and v) influx on migrant farm labour from the relatively poorer regions in the neighboring states (M.P and Rajasthan) which may work against corresponding increase in agricultural wages. Together these constraints may create additional stress on natural resources especially, land and water; affect quality of drinking water often drawn from deep aquifers; and lead to unequal sharing of benefits between the farmers and farm labour. Roy et al (2007) have shown in their sample study about the importance of various types of seeds used by farmers in order to get desired results on the farms. Under their study they have concluded that, there is no general and specific pattern; agronomic variation is telling. Some farmers obtained higher yield with loose-seed transgenes, others with Mahyco-Monsanto MECH varieties. If there is any conclusion, it is that Navbharat 151 – the 'Robin Hood' seed – may have been the best variety, though it has been officially banned. MECH-184 seems to be the most finicky about water timing. All Bt seeds proved capable of producing profit under typical conditions. Bahera (2015) has studied that agricultural development is an important component of inclusive growth in Gujarat. According to the Socio-Economy Review of 2011 – 12 of Gujarat, the gross state domestic product (GSDP) of factor cost at constant prices in 2010-11 has been estimated at Rs. 3652950 million which accounted a growth of 10.5 per cent during the year. On the other hand, in India the GDP of factor cost has been estimated at Rs. 48,85,9540 million at constant prices in 2010-11, registering a growth of 8.4 per cent during the year. The growth of agriculture and allied sectors is still an important factor in the overall growth performance of the Gujarat economy, as agriculture sector still continue to be the main sector of almost half of the rural population in Gujarat state. Panwar and kumar (2008) have shown the importance and analyzes of water resource and its management in Gujarat state. The study shows several symptoms of an impending crisis, such as water abstraction exceeding the recharge, decreasing ground water levels, bad economics of groundwater irrigation, unethical water utilization practices, drinking water scarcity in hard rock areas, and ecological imbalance such as land degradation. This study also shows the way out of water management problem can be by a combination of conjunctive management approaches, and demand management in agriculture and urban areas in Gujarat state. Dholakia (2003) has studied the future potential of agriculture growth in Gujarat state; on one hand the supply of agriculture products in Gujarat causing concern. As per the official estimates, the level of agricultural real income (GSDP) in 2000-01 (about 93.04) is absolutely lower than the level reached in 1080-81(about 113.18). And on the other hand the supply of basic agro-products form Gujarat in future needs to grow rapidly with reasonably stability and consistency. This seems to be enough potential for agricultural growth in the state. However, unlike the Gujarat Agro Vision – 2010, the potential for agricultural growth needs



to be realistically estimated rather than over-optimistically stated (Government of Gujarat, 2000). Saraswat et al (2014) Gujarat's agriculture grew faster than Indian agriculture as a whole since 1970s. Agriculture in Gujarat after 2000 seems to have picked up dramatically, recording average annual growth rate of 9.6% during 2000 - 2001 to 2006 - 2007. The main sources of Gujarat's agricultural growth post 2000 have been the massive boom in cotton production, the growth in the high value sector comprising livestock and fruits and vegetables and the rise in wheat production. Das and Khunt (2008) shown in their study that agricultural sector in India contributed about 40 per cent to the GDP during 1960s. It has gradually declined to about 20 per cent in later years, whereas the contribution of livestock to Ag DGP has increased from 14 per cent in 1980-81 to 30 per cent in 2000-01. In Gujarat State also, the contribution of agricultural sector to gross state domestic product (GSDP) has gradually decreased from 21.26 per cent in 1997-98 to 14.98 per cent in 2001-02, while during this period, the contribution of livestock sector has increased from 22.67 per cent to 31.56 per cent, with an annual growth rate of six per cent. Shaikh and zala (2011) have studied production performance economic appraisal of broiler which is a very important part of animal husbandry Anand district of Gujarat. This study shows that in Gujarat, the total number of poultry was about 5.2 million during the year 2003-04 (GOG, 2005). The major poultry farming districts of Gujarat are: Anand, Surat, Vadodra, Dahod, Panchmahal, Kheda and Banaskantha constituting about 67.61 per cent of the total number of poultry farms. Anand district had the highest number of poultry farms, i.e. about 11 lakhs (21.51 % of Gujarat). This study primarily has shown the transformation of agricultural sector, from cultivation of traditional crops to agro-business like broiler which is a significant part of livestock in Gujarat state. Tewari and Khanna (2005) have studied that, the Gujarat Government had made efforts to involve people in minor irrigation schemes. For example, the state government introduced the Sardar Patel Participatory Water Conservation program on a large scale in January 2000 with the active participation of beneficiary farmers in the Saurashtra and Kutch regions. The government contributed 60% of the total cost. The objectives was to conserve rain water in order to recharge groundwater, which otherwise flowed into the sea. In 2000 - 2001, a total of 13,746 check dams were constructed in 2,315 villages under this programme. This research paper primarily shows the way out to solve the problem of water management in Gujarat state to overcome the problem of ground water which is the important farm input. Gulati et al (2009) have shown the changing pattern of agriculture sector in Gujarat state; oilseeds (primary cash crop in Gujarat), kapas, value showed unprecedented growth after 2000 with relatively lower volatility, emerging as the first source of growth. The second source of growth is the livestock with lower volatility at 6 - 7 per cent per annum. It contributes around 5 per cent to overall GSDP of Gujarat state on an average. Milk is the largest product, forming 89 per cent of the total value of livestock and almost 20 per cent of the total output of agriculture and allied activities. The stable performance of the livestock sector seems to be a key growth component within the agriculture and allied services sector. The next important source of growth is the fruits and vegetables sector whose value of output grew steadily at 14.4 per cent per annum during 2000-01 to 2005-06. Lastly food grains, this sector also have recorded rapid growth after 2000. In terms of value, both cereals and pulses are growing at 11 per cent per annum, but with high annual fluctuations. Wheat and paddy are the two largest crops contributing 32.5 and 24.3 per cent of the value of total food grains. Thus this paper primarily high-lights the commercialization of agricultural sector particularly after 2000 in Gujarat state. Shah and Dave (2010) have studied that Crop and livestock mixed farming is an essential characteristic of the Indian agriculture. In India, the state of Gujarat has historically been the front runner in milk production activities. One of the ways to assess the significance of agriculture and



livestock in the state economy is through their contribution to the gross state domestic product. It is found that livestock contributed around 23 per cent to the gross value of output of the combined agriculture and livestock sector in 2007-08. Since the successful implementation of Operation Flood (OF) program – one of the world's largest and most successful dairy development programs – the country has been maintaining a secular growth of around 4 per cent per annum in milk production, this paper particularly shows the importance of agro-business like milk production and its distribution as an important supportive activity in Gujarat after 2000s. Pande et al (2011) have studied that problem of land degradation in general and adoption of conservation practice in particular cannot be tackled in isolation and must find a place in the approach of holistic development of small and marginal farmers. Thus this research paper shows the importance of quality of land as another major input for better, faster and holistic development of agriculture sector in Gujarat state. Narala and Zala (2010) have presented in their study that the farm-specific technical efficiencies range from 71.39 per cent to 99.82 per cent, with the mean of 72.78 per cent, which indicates that on average, the realized output can be raised by 27 per cent in the region with the available technology and resources, without any additional resources. It has found that that factors like operational area, experience, education and distance of field from canal structure are the most influential determinants of technical efficiency and numbers of working family members have shown significant but negative relationship with technical efficiency. By adopting good management practices and proper allocation of the existing resources and technology, along with sound extension programmes, the potential that exists for improving the productivity if rice in the state, could be exploited. Pattnaik and shah (2013) have shown that the growth in farm production is confined t relatively better off households with respect to ownership of land and water. The growth in farm production leads to increased use of water per unit of land hence depletion of ground water in Gujarat. Increasing cost and market related risks leads to rich households eventually leave farming in Gujarat. Investment gets channelized to alternative occupations and/or education in the case of Gujarat. Thus this paper emphasizes up on water utilization and other important inputs, and their role in agricultural development in Gujarat. Kumar et al. (2010) have shown in their research study that, the agricultural growth seen in the recent past in Gujarat is nothing but a good recovery from a major dip in production occurred during the drought year of 1999 and 2000. Because of four consecutive years of successful monsoon and bulk water transfer through SardarSarovar project. The input price policy can be one which encourages efficient use or one which encourages wasteful use of input resources such as water, fertilizers and pesticides.

#### **4.Role of Agricultural Finance in Agricultural Development in Gujarat:**

Ahmad (2011) has studied the role of credit to agricultural sector in Pakistan. Small farmers, large farmers and non-farm population in agriculture sector all suffer from the problem of lacking in capital. After green revolution, and technological changes in this sector, the requirement of credit has increased to buy modern inputs. Large farmers also need the credit for the lumpy investment in this sector. Small farmers usually face cumbersome procedure and collateral problems in availing credit. These impediments had hardly hit the tenants and share croppers who did not own land. Other problems like providing credit to targeted farmers did not increase the number of farmers benefiting from this facility. Despite these problems, the role for financial institutions has been significant and emerged in the wake of technological changes in agriculture sector. In the past subsidized interest rate policy and share reserved for the poor farmers remained ineffective due to financial unsustainability in





the loans portfolios. State Bank of Pakistan has introduced banking reforms and revised policies from time to time. Singh et al. (2009) have shown in their study that In spite of various measures to rejuvenate farm credit, the flow of credit to agriculture sector remained inadequate quantitatively and qualitatively. The study is based on a random sample of 600 farm households covering 11 districts in Punjab, comprising 107 marginal, 150 small, 53 semi-mediums, 87 medium and 103 large farmers and pertains to the year 2005-06. The total debt per sample farm household from both institutional and non-institutional sources has been found to be Rs. 178934 in the year 2005-06. The institutional sources have contributed about 62 per cent to the total debt and non-institutional 38 per cent. Although the institutional credit has increased rapidly in recent years in Punjab, it still lacks behind the productive needs of the farmers in Punjab. A farmer on an average has to incur Rs. 4016 for obtaining a loan from commercial banks, which amounts to 5 per cent of the total loan obtained by him. In the case of cooperative, the transaction cost has been worked out to be 1.2 per cent of the loan and the cooperatives are located right in the villages. About 59 per cent farmers have reported the procedure to get loans from the institutional agencies to be complicated and time-consuming. On the contrary, availing non-institutional loan has been found easy and is the reason of preference given by 51 per cent farmers to it. Policy implications include issuing of a simple but comprehensive record book to farmers containing information relating to his land record and institutional transactions; computerization of land records by the state government; simplification of loan application form; and maintenance of proper records of loan applications and making disbursement of loan mandatory. Abdullah et al (2015) have studied that, agriculture is central to economic growth and development of Country of Pakistan. The credit requirement of farmers in Pakistan is increased over time, mainly due to technological advancement and the high use of fertilizers and pesticides, Due to state bank of Pakistan (SBP) initiative of introduction of annual outstanding indicative target for banks, the outstanding portfolio of an agricultural loans has increased from Rs. 28.1 billion to 312.7 billion, an increase of 11.2 percent at the end of March 2015 as compared to the previous year. Commercial banks disbursed Rs. 326.0 billion on this year as compared to Rs. 255.7 billion last year, which is 27.5 percent higher and is 65.2 percent of the increased by about 25.4 percent from Rs. 133.5 billion to Rs. 167.4 billion.

**5. Conclusion:** Agriculture Sector is the mainstream of our Indian Economy and it is the base of our economy. The changes in agriculture sector – assertive or negative results multiple effect on the economy as whole. Agriculture sector has played very important role in the growth story of Gujarat State, especially after 2000. Though agriculture development depends up on several factors like irrigation, infrastructure, market, insurance, advance technology and credit availability. Out of all other factors Technology and Finance are two important pillars of sustainable agriculture development in Gujarat State.

## **6. Limitations of the study**

The study recognizes its limitation of being conceptual.

## **7. Future scope of the study**

The various factors identified for the study can be used as input for future empirical studies and institute based studies.



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