Chapter II

Review of Literature

2.1 Introduction

In this chapter a review of related literature has been carried out to diagnose and augment the historical developments, research work carried out in related area and research gap in the field of environmental auditing. This review of literature also facilitates in developing perception into the environmental accounting, environmental compliance and related auditing practices.Review of literature has been carried out on the basis of online as well as physically available books, articles and research work carried out in the field related to the topic of present research study.

This chapter is divided into three sections. The literature review encompasses three different streams: emergence, evolution and establishment of environmental auditing. Need and relevance of environmental auditing is discussed in emergence section; Dominant Social Paradigm (DSP) and New Ecological Paradigm (NEP) are summarized in evolution section. And environmental accounting, environmental reporting and environmental auditing are explored in establishment section. Hence, this literature review presents an amalgamated view of environmental auditing.

Sri Aurobindo has explained that the Upnishads are vehicles of illumination and not of instruction, composed for seekers who had already a general familiarity with the ideas of the Vedic and Vedantic seers and even some personal experience of the truths on which they were founded, dispense in their style with expressed transitions of thought and the development of implied or subordinate notions. In Isha Upanishad it is quoted that *'Ishavasyam idam sarvam yatkinch jagatyaam jagat; ten tyakten bhunjitha maa grudha kasyasvid dhanam'* (Verse, 1) meaning thereby all this is for habitation by the Lord, whatsoever is individual universe of movement in the universal motion. By that renounced thou should enjoy; lust not after any man's possession.

It is further interpreted that the entire universe and everything in it animate and inanimate is His (Almighty).Let us not covet anything. Let us treat everything around us reverently as custodians. We have no charter for domination. All wealth is common wealth. Let us enjoy but neither hoard nor kill. Every act of the ancients was an expression of harmony and respect for nature.

The uncommonality of the present research topic posed a challenge of building a systematic corpus of literature due to paucity of resources available to consolidate the thesis, expound and document the theoretical understanding of environmental accounting and environmental auditing frame work.The concept of environmental auditing is emerging concept and is the offshoot of human tendency of negating and rejecting those values that emphasized on the life of harmony between Man and Environment. Indian ancient literature is all pervaded with the philosophy of *Vasudhiava Kutumbakam.* The aim of this literature review is to draw a connect between Indian philosophy pertaining to man and environment and the recent academic interventions across the world.

Available documented research output reflects that the majority of the work is carried out in the environmental impact assessment area, but there are various untouched facets related to the Environmental Auditing practices. Hence, in the present study the environmental accounting, statutory compliances and related auditing practices have been studied from perspectives of financial and corporate reporting as well as disclosure.

2.2. Emergence of Environmental Auditing

In last two – three centuries, western thoughts of exploiting available resources with an intention to fulfill increasing human needs and inclination towards a luxurious life have coupled by the population explosion has spoiled environment giving rise to number of issues related to natural resources like, Air, Water, Soil and other available natural resources on Earth which threaten the very existence of mankind.These threats kindled an attitudinal change in the form of realization of saving and preserving the ecosystem and thereby mankind.

The emphasis in the 18th and 20th centuries was on science and technology which led to massive exploitation of natural resources. The realization that the goodness of human will consist in dependence upon the will of nature came as an eye opener but, came very late. So, in the 21stcentury we are experiencing a shift towards nature and spirituality. A change in the ideology is already perceptible all over the world. Consequently, environmental ethics have become an integral part of education, research and development.

Vasudhaiv Kutumbakam the gist of Indian vedantic philosophy believes in symbiotic existence of man and nature where adherence to ecosystem is a part of life.It insists minimal usage of natural resources to support life system.The research work by Singh C. B. (2002), reflects the same philosophy. He opined that the existence of nature is always closely linked with the emotional sensitivities of man. The discovery of so many values and truth of life of Indian culture has taken place under the umbrella of 'Nature'. The environment, synonym of nature, its functional behavior and character are related to the environment in one form or another. In support he further argues that, in the *Vedic* and *Upanishad* periods man and his society attained a new direction through nature to discover the truth of Indian spiritualism along with the survival and development of nature, forest life and plants. The *Yajurveda* has emphasized the prayer of *Vaayu (air), Prithvi (earth), Jal (water),* and trees and plants for peace. This prayer is the symbol of the high moral values of man showing the deep love of man for the environment. Further he adds that the relation of man and environment has been very sensitive and deep. All the creatures are created by *Parmaatma* (Almighty God) with help of *Panch Mahabhoota* (five elements) and have relations with each other. Therefore, environment and its existence has its inherent significance in literature, religion, medical, science, art and other disciplines. The motto of 'save the environment': for the earth, for civilization, for humanity, for the protection and continuity of natural life cycle is the soul of Indian culture and humanity. In the Vedas, the earth is considered as mother and *aakash* as father. According to the *Chhandogyopanishad*, all *mahabhoota* are embedded in the earth.

Skolimowski Henryk (1996) has described that Philosophy has travelled through many roads. At times it attempted to scale the most demanding high altitude paths leading to heaven. It then became theology – the search for God. At other times it explored the chambers and galleries of the palace of human wisdom.Philosophy, particularly as envisaged by Socrates and Plato, was also the quest for a meaningful life, for a worthwhile life. This quest has been gradually eliminated from the course of Western philosophy. But the quest has never been abandoned within the Indian tradition, within which philosophy has often been pursued as a path of 'Moksha' (liberation).This has been the strength of the Indian tradition and its philosophy. This ideal of philosophy - as Moksha - is quite close to the meaning of the term Dharma.

Although Dharma has many shades of meaning; its conception as a guide on the path of right duty is quite essential. Equally essential is the meaning of Dharma as spelling out our obligation to become liberated. These forms of Dharma which illumine for us the path of our destiny and make us aware that it.is our duty to pursue them, are essentially forms of philosophy. Thus, Dharma is a form of philosophy. Creatures with no understanding have no Dharma. They follow their instincts and their animal urges. It clearly follows that Dharma is a result of and a companion of understanding. But not any kind of understanding. When you explain the relationship of physical facts to each other, this understanding does not lead to any Dharma. Dharma is a daughter of understanding in the world which has purpose and meaning. Dharma is meaning. Dharma is purpose. Without meaning and purpose, without understanding and wisdom, Dharma would be some kind of blind groping, meaningless gestures of an actor who frantically frets his hour upon the stage and then is seen no more.Lord Shiva was continuously vigilant, constantly ready to be of help in maintaining the order of things which might have crumbled without him. Also, Lord Krishna, as is explained in, the Gita, must be, constantly vigilant, cannot rest even for one minute; for if he does, the whole the world might turn to chaos.

The ideas of Ecology have been around us for a quarter of a century. We have become used to it. We consider its ramifications goods, namely, to have clean air, clean water, and clean soil. But ecology is much deeper and much more far

reaching than, cleaning the polluted physical environments. Yes, cleaning the polluted environments is very important. But it is only a small part of the task; yes, a small part. For what is ultimately responsible for the polluted planet are not dirty technologies but polluted minds- careless, unseeing alienated. Contaminated minds produce, almost of necessity, contaminated environments.Hence the importance of Ecological Dharma –not only for the preservation of the earth as such, but for the preservation of the conditions which enable-us to become human, thus enable us to follow the path of the Buddha or, the path of Shiva or the path of Krishna; or whatever spiritual path we have chosen to follow.

Vyas, N. (1996) has discussed about relationship of Nature and Man, and noted that Man has been always curious to know the real world around him. In course of time he could develop deterministic cognition strengthened as it is by the evidential and critical study of experience at all levels. From this stage of Science as Knowledge, he could successfully translate it into Science as Power.The moot problem is that all this linear pursuit of man goes in the name of progress and humanism. Agreeing as though with scientific and technical application for man's own betterment and welfare, the painful predicament of exclusive technological obsession of man vis-a-vis the natural ecological setup is the focal point of reconsideration.The doom lurks urge in nature as due to the very process of progress made by man. For the technological quest seems as if open ended and non-selective prompting competitive craze for goods. This is done by disturbing and destroying the life supporting systems of earth.

Although, it has been clearly stated that there is nothing against the scientific and technological quest as such, only the issues arising out of it must be looked in a broader perspective. For scientific quest does not take into account the moral and social consequences affecting the man. It keeps in goading man with subconscious suggestions and incites man for mere pragmatic gains.

In fact the evolutionary transformation of man in nature has given him a unique capacity for the ethical choice too. Hence man being self-aware and self-conscious, man can creatively respond to the challenges of future. Man has to recognize his place in the scheme of things, meaning thereby that he has to grasp

the universe as an organic whole. The human survival and growth depends on man's establishing purposeful rapport with the universe.

In last century, whole world has been witnessing changes in severe weather conditions and shift in rainfall patterns across the continents is now identified as climate change. The United Nations Framework Convention on Climate Change (UNFCCC, 2013) defines climate change as "*a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural variability observed over comparable time periods"*.

These changes in the climate are directly or indirectly attributed to human activities exploiting natural resources which alter the composition of the global atmosphere in addition to natural climate variability. Climate Change is alternations in the state of the climate system over time due to natural variability or as a result of human activity. Impacts of climate change would have far-reaching and unpredictable environmental, social and economic consequences. Our consolidated efforts directed towards mitigating the ills of climate change has so far been at a very low pace, but it has got a new impetus in the last few years with very significant participation from Governments, Scientists, Technologists, Non Government Organizations (NGOs), Business Houses and common people.

Environmental Concern in economic context

World is experiencing that climate change issues are adversely affecting human life as well as creating threats to existence on earth. This has been aggravated in recent past and the year 2009 can be marked as the convergence of several global crises. Around the world, societies suffered the far-reaching consequences of financial and economic turmoil, fluctuating food prices and shortages, and energy market insecurity. Policy-makers put together immense economic stimulus packages. The financial, food, and energy crises did not unfold in isolation from other environmental and social challenges.

The indiscriminate utilization of natural resources for meeting developmental demands, rapid industrialization and unplanned urbanization are adversely impacting the environment. Dumping of wastes into our rivers and lakes, clearing forest land for cultivation, making available the agriculture land for industry and increased emission of harmful pollutants into the environment have all contributed to degrading our environment. Degradation of the environment and its symptoms like global warming and climate change has become a cause of grave concern all over the world. Every society, small or big, is feeling the ill effects of environmental degradation and this poses a high level of risk to the existence of plant, animal and human life.

Over recent years, it has become obvious to both industry and the general public alike that the damage being caused to all aspects of the global environment is *unsustainable*. The old approach to pollution prevention of control 'react and cure' has been recognized as an unsophisticated way of dealing with environmental problems, and is being superseded by a new phenomenon *'anticipate and prevent'* approach, which is more cost effective. The realization has led to the development of a wide range of Environment Management Techniques specifically aimed at reducing industry's impact on the environment and to demonstrate to the public that they are doing all they can reduce this to a minimum.

The need for refined economy led the United Nations Environment Programme (UNEP) to conceptualize 'Green Economy'. A transition to a low carbon resource efficient 'Green Economy' has become one of the leitmotifs of international efforts to evolve Sustainable Development in a rapidly changing 21st century.

Green Economy

Existing policies and market incentives have contributed to the problem of capital misallocation because they allow businesses to run significant social and environmental externalities, largely unaccounted for and unchecked. Yunus and Weber (2007) has stated that unfettered markets are not meant to solve social problems, so there is a need for better public policies, including pricing and

regulatory measures, to change the perverse market incentives that drive this capital misallocation and ignore social and environmental externalities. Increasingly too, the role of appropriate regulations, policies and public investments as enablers for bringing about changes in the pattern of private investment is being recognized and demonstrated through success stories from around the world, especially in developing countries (Green Economy-UNEP, 2010).

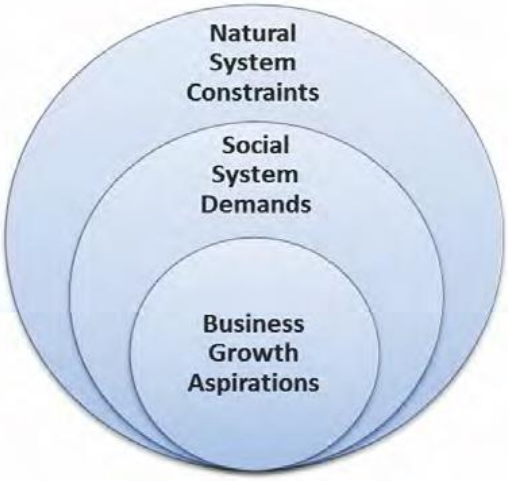
As narrated in UNEP- Decoupling, (2011) 'Decoupling' will require significant changes in government policies, corporate behavior, and consumption patterns of public, which will build understanding of this critical concept and provides the foundation for the work of the International Resource Panel (IRP). The Organization for Economic Co-operation and Development (OECD) defines 'Decoupling' as breaking the link between *'environmental bad'* and *'economic good'*.

Development and Environment

In the light of economic development and various growth models, it is imperative at this juncture to understand the various elements involved in the present growth model.

The last forty years can be called as the age of development, but the greatest paradox is that this period also marked human irresponsibility towards the preservation and sustenance of nature and ecosystem. It appears that the vast and innumerable gifts of nature are not enough to suffice human needs and greed.

Figure 2.1. Environment: Social and Business Systems



Source: Parampara, MoE and Forest 1

The above figure exhibits that on the part of corporates there are business growth aspirations in the wake of development, expansion and emergence of global market. Social system has started demanding comforts and luxuries at large beyond the necessities. But the natural system and environment has constraint on natural resources.

Sachs W. (1997) has studied that the relations between North and South have been cast in this mould; 'development' provided the fundamental frame of reference for that mixture of generosity, bribery and oppression which has characterized the policies toward the South. For almost half a century, good neighborliness on the planet was conceived in the light of 'development'.Today, the lighthouse shows cracks and is starting to crumble. The idea of development stands like a ruin in the intellectual landscape. Delusion and disappointment, failures and crimes have been the steady companions of development and they tell a common story. Moreover, the historical conditions which catapulted the idea into prominence have vanished.Above all the hopes and desires which made the idea fly, are now exhausted and development has grown obsolete.

Over the years, piles of technical reports have been accumulated which show that development does not work; stacks of political studies have proven that development is unjust. For development is much more than just a socio-economic

endeavor, it is a perception which models reality; a myth which comforts societies, and a fantasy which unleashes passions. Perceptions, myths and fantasies, however, rise and fall independent of empirical results and rational conclusions, they appear and vanish, not because they are proven right or wrong, but rather because they are pregnant with promise which become irrelevant.

Here Eco-politics of Environment and Sustainable Environment is advisable to be understood.It is imperative to understand the implication of the concepts of environment and sustainable development as propounded and furthered by the developed countries on the domestic and international economic policies of the developing and underdeveloped countries.

Sustainability – The concept of sustainability implies 'a steady growth over a long term.' The growth of income is more or less a function of the use of natural resources to increase the productivity which can be better achieved with the aid of advanced technology. Nature has its carrying capacity and the exploitation of natural resources such as land, water, forest and animal life must be restricted to a desirable extent. 'Carrying capacity' is the ability of an ecosystem to feed a certain population of human beings and or animals. Use of any resource beyond its carrying capacity will threaten to stability. Technology can be an aid to it. But once its natural capacity to regenerate dies, even technology cannot be of much help. There is a limit to the exploitation of the resources but the aspiration envisages no limits to development. A balance between the Nature's carrying capacity and resource utilization by human beings is necessary for keeping any development process sustainable.

Sustainable development cannot be a static concept and therefore, cannot be defined once for all. It is a dynamic process and applicable to different countries in their cultural, political and economic contexts. It is the way each country or a region assigns different weights to different approaches to achieve a sustainable development.

With respect to developing and underdeveloped countries, Gurjar R. D (2003) has found that the philosophy of developing countries to the sustainable

development is different. According to them, poverty is the greatest polluter of environment and therefore acceleration of economic growth to meet the basic needs of the people is the only alternative to safeguard the environment. The developing or underdeveloped countries also argue that if the industrialized rich countries are really serious about environment they should assist the former with finance and environmental friendly technology to promote their economic growth. But the common thread, whatever the diametrically opposite views for development may exist, is a firm commitment to promote economic growth but to keep the adverse effects of industrialization, urbanization and environmental deterioration under control.

Human dimensions of Sustainable Development

In consonance with economic flourishing on long term basis, the other associated dimensions were to be taken care of viz. quality of human life, state of environment and ecosystem, multilateral trade and cultural relations, etc.

Having regard to human dimension of Sustainable development, Arun, P. (1992) has explored that in traditional Hinduism, there is a harmony between the ecological view and the view of Hindu culture. The love for all living and non-living things and a sense of harmony with the environment, is very effective for the protection of the environment.The sphere of environment must be natural and built, personal and collective, economic, social and cultural, technological, ecological and aesthetic.Human activities initiate several processes which have resulted in environmental degradation. Man is responsible not only for deforestation, but also for adverse effects of modern agriculture, industrialization and population explosion on environment. Thus, man is responsible for all types of environmental problems he has brought upon himself. Unchecked population growth, accompanied by urbanization, industrialization, agricultural development and environmental degradation, is creating severe fresh water scarcities in many regions. In some regions, agricultural and industrial development has already begun to decline due to water shortage. Man is an ecological determinant. He used to produce artifacts and rearrange his habitat without caring for water, land, soil, climate, animals, plants and humans. If the process continues the preservation of man and nature will soon get out of control.

Later, Singh, A. (2002) has explored about history which reveals the fact that man-environment relationship not only affects the quality of environment of particular time, but it also affects the environment of future generations. Reflection, research and teaching concerning the environmental history of humanity are essential for a better understanding of the relations of past societies to their environments, the differing responses to differing environmental challenges. In this way, it is possible to foresee the likely course of events and anticipate the solution of upcoming environmental problems. Their solution thus takes on a historical dimension, that is, a dimension which traverses time forward and backward, demonstrating that rational or irrational management of yesterday's or today's environment has consequences, not only on the quality of today's life, but that of future generation. A historical event may be cited in the form of the first 'World Parliament of Religions', held in Chicago in 1893. It reflected the emerging sense of globalism, and revealed not only an important opportunity to discuss critical social issues, but also explored the impact of religions on the environment.

Sustainable Environment in context ofan ancient Indian view

As the objective of this literature review is to bridge the ancient Indian philosophy of Nature- its preservation and sustenance with the present ideologies it becomes relevant to observe the contribution made by Indian scriptures towards worship of planet Earth in the form of ***Mother Earth***.The natural environment has been given due significance since the remote past and the ancient Indians have brooded over it in their own way. The present day scholars sometimes call the ancient Indian views primitive and orthodox, but the perusal of ancient Indian literary sources provide some valuable and scientific ever adaptable insights with regard to *'Sustainable Environment'* which forms the foundation of environmental auditing.

According to Dubey et al (2002), the ancient Indians conceived the universe to be withheld by *Devi* (the Goddess) known in technical terms as '*Prakriti*'. The *Durgasaptasati* has very explicitly given the synonyms of '*Prakriti*' as '*Devi*', '*Mahadevi'. 'Siva' and 'Bhadra*' According to the Rishis, when the three *gunas*

(attributes or qualities) known as *sattva* (the quality of goodness or purity), *raja* (cause of great activity) and *tamas* (mental darkness, illusion, error, ignorance) lie in the state of equilibrium or balance, it is '*prakriti*'. In other words, the natural condition or state of anything is '*prakriti*'. But owing to change or modification or effect, the state of imbalance or disturbed equilibrium generates contaminations in each and every sphere, i.e., hydrosphere, biosphere, lithosphere and so on. As the scientists today are seriously engaged in countering the agents of pollution, they will have to peep into the depths of the ancient Indian views expressed in scriptures.

The ancient Indians have elucidated the importance of clean water and adequate sanitation, along with biosphere, in which forests (trees, herbs, etc.) play a significant role in maintaining the system as a whole. In the *Vedic samhitas*, the Rishis have venerated and paid homage to the heavens, atmosphere, earth, water, vegetation including herbs, creepers and trees, the Brahma (matter), etc. All these have been worshipped to maintain peace and tranquility.

Need and relevance of Environmental Auditing

The endeavors to protect environment in the recent years have gained momentum because we have lost our connection with the way of living as detailed in our ancient scriptures. It is all the more challenging to go back to the same level of integral and inherent connect with the nature, the efforts should be to carry forward this inherent philosophy to eradicate the evils of materialist way of living through a practice which is conducive in the present circumstances, so environmental auditing emerges as a meaningful tool.

Today, world is witnessing the consequences of irreparable damage to the environment. Due to climate change and global warming the natural disasters viz. cyclones, hurricanes, drought, cloud burst, landslides, etc. have endangered the eco-balance of the earth.

The events and developments presented in the UNEP Year Book 2011 remind that it is urgent to achieve results in the international climate change processes. Although countries' greenhouse gas reduction pledges are contributing

significantly to the emission reductions required to keep the temperature increase during the 21st century below 2°c, scientists warn that there is still a considerable 'emission gap' of 5 gigatonnes to be closed. The need to reduce emissions of black carbon and tropospheric ozone precursors has received comparatively little attention so far. New science shows that reducing such air pollutants could go a long way towards mitigating climate change in the short term, while also improving human health and food security.

To protect the environment, globally and regionally, governments have made commitments to address environmental issues and sustainable development. International leadership has contributed direction and facilitated cooperation on numerous environmental issues. International Environmental Agreements (IEAs) are important for facilitating international cooperation. IEAs refer to agreements, declarations, accords, treaties, and conventions with an environmental focus that have been signed by more than one country. Domestic action can involve a variety of public policy tools including legislation, taxes, enforcement, market incentives, regulations, and policies. These tools are necessary for nations to implement domestic environmental protection and IEAs at home.

Environment in Governance and in Auditing

Since the 1970s, environmental governance has broadened in responsibility, and more policy tools and processes have been created to manage environmental problems. As a result, Supreme Audit Institutions (SAIs) have had to expand the number of topics to audit and the methods used for these audits.

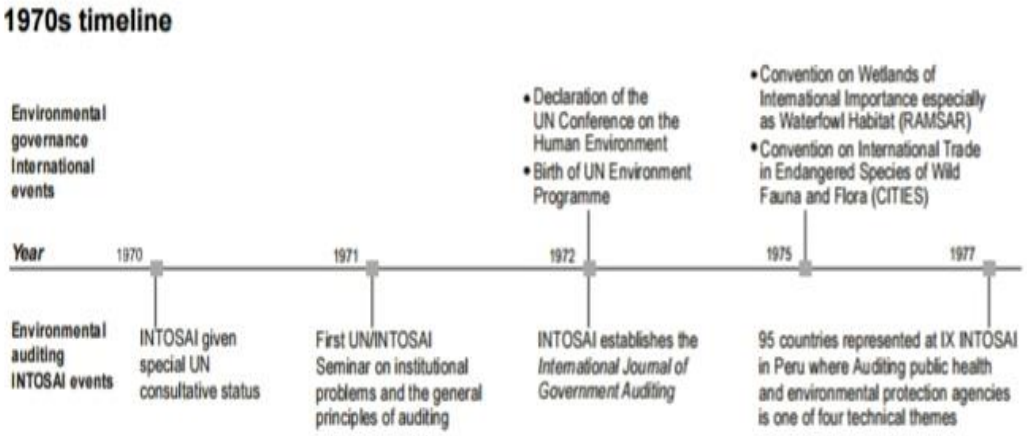
The international activities that led to global environmental actions and the creation of organizations for environmental governance (for example, the United Nations Environment Programme) and the activities in the International Organization of Supreme Auditing Institution (INTOSAI) community, including its Working Group on Environmental Auditing (WGEA). The four sections that are divided into decade-long timelines which help set the stage for the understanding evolution of environmental auditing. The timelines start from the 1970s to the first decade of 2000. Each timeline denotes significant developments in the environmental governance community and in the INTOSAI community.

The global evolution of environmental activity influences how sovereign nations understand and implement mechanisms to protect the environment. Environmental auditing traces its origin to the United States in the late 1970s and early 1980s where it developed as a separate legal compliance management tool. This was largely driven by the Securities Exchange Commission (SEC) of the United States which initiated action against three industrial companies - US Steel, Allied Chemicals and Occidental Petroleum. The SEC believed that public companies were understating their liabilities in their annual reports and required them to undertake corporate-wide audits to determine the extent of their environmental liabilities. Following the SEC audits in the early 1980s rules governing hazardous chemicals were implemented in the United States (Cahill et. al). Large chemical producing companies began to develop Environmental Audit Programme in order to comply with these rules.

Historical overview of Environmental Events

Supreme Audit Institutions' (SAI s') formal involvement in the international community began in 1953 when International Organization of Supreme Auditing Institution (INTOSAI) was founded with thirty four countries. By 1967, INTOSAI was given United Nations' non-governmental organization status.

Figure 2.2 Historical over view: 1970 Time Line



Source: INTOSAI Auditing Guidelines retrieved from www.intosai.org

All dates for IEAs reflect entry into force

In 1972, the United Nations Conference on the Human Environment held in Stockholm, Sweden, and the creation of the United Nations Environmental Programme (UNEP) were both landmark actions of global environmental leadership. These activities at the international level were important to the development of environmental governance in sovereign states.

The environment was brought much nearer to the top of many regional and national agendas. Before the Stockholm conference, there were about ten ministries of environment; by 1982 some one hundred and ten countries had such ministries or departments.

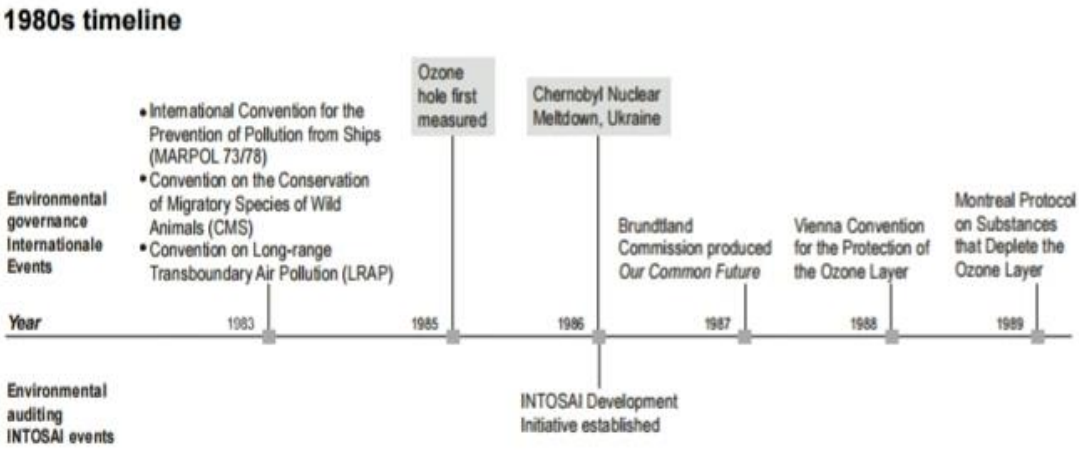
Between 1971 and 1975, thirty one major national environmental laws were passed in countries of the Organization for Economic Co-operation and Development (OECD), compared to just four between 1956 and 1960, ten between 1960 and 1965, and eighteen between 1966 and 1970.

About fifty governments have adopted instruments or national constitutions that recognize the environment as a fundamental human right.

Growth of Performance Auditing

The 1970s was also a time of significant change in the auditing world. More countries were taking on the responsibility of performance auditing. That is, in addition to evaluating the financial records and expressing opinions on financial statements, SAIs were mandated to audit the economy, efficiency, and effectiveness (value-for-money) with which governments carried out their responsibilities. For instance, SAIs audited government programs to determine whether or not they produced their intended results. As governments increased their environmental activities, Auditing Institutions increased their audit coverage. Auditing Institutions that took on performance auditing were responsible for obtaining the knowledge, expertise, and methods that were appropriate for understanding the efficiency and effectiveness of their governments' environmental activities.

Figure 2.3 Historical over view: 1980 Time Line



Source: INTOSAI Auditing Guidelines retrieved from www.intosai.org

All dates for IEAs reflect entry into force

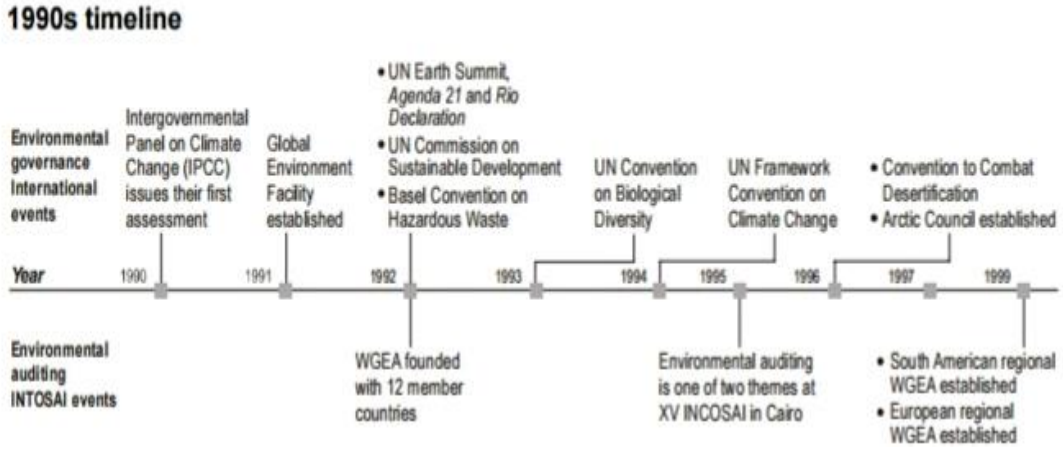
The 1980s brought environment and development issues together under one term: 'Sustainable Development'. In 1987, the World Commission on the Environment and Development (The Bruntland Commission) released *Our Common Future*, which set the direction for comprehensive global solutions and gave prominence to sustainable development. Thirty years later, *Our Common Future* is still a defining document and a reference point for environmental cooperation. Governments, as well as professionals and academia accepted the responsibility that development had consequences for future generations and had an impact on the environment, societies, and economies. Global actions reflected the trans-boundary nature of environmental problems. The first major International Environmental Agreement (IEA) negotiated in the 1980s included the Vienna Convention for Protection of the Ozone Layer, the Montreal Protocol on Substances that deplete the Ozone Layer, and the Basel Convention on the Control of Trans boundary Movements of Hazardous Wastes and their Disposal. The Chernobyl nuclear meltdown requested international cooperation which eventually had an impact on Environmental Auditing work.

By the end of the 1980s, many governments had increased their environmental activities by committing themselves to IEAs and by improving and expanding their environmental departments, agencies, laws, and regulations.

Expansion of environmental audits in the INTOSAI community:

The proliferation and expansion of international and domestic environmental policy tools increased the amount of government processes and government funds that Auditing Institutions were obliged to audit in the area of the environment. For Auditing Institutions, environmental audits in the 1980s were mainly focused on environmental departments' and ministries' domestic responsibilities.

Figure 2.4 Historical over view: 1990 Time Line



All dates for IEAs reflect entry into force

Source: INTOSAI Auditing Guidelines retrieved from www.intosai.org

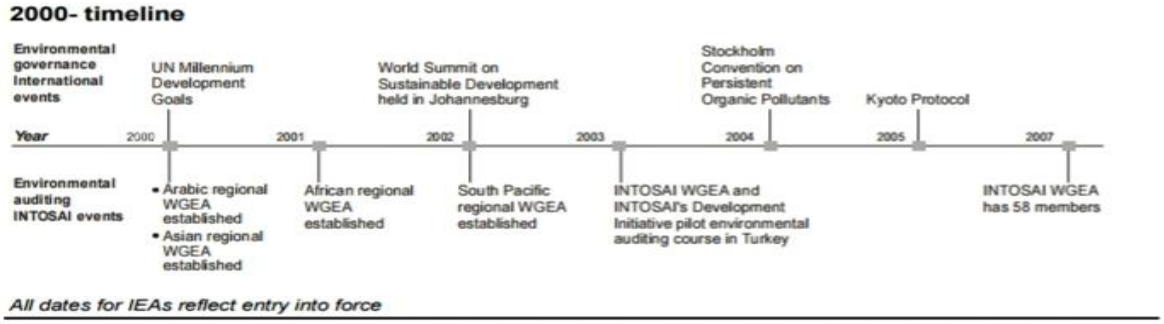
The 1990s were characterized by the search for increased understanding of the concept and significance of sustainable development. This was accompanied by accelerating trends towards globalization, particularly with regard to trade and technology. The conviction grew that there were an increasing number of global environmental problems that required international solutions.Global Environmental Outlook 3, Chapter 1 (www.unep.org/geo/geo3/*)*

The 1990s was a period of increased globalization. There was a shift from actions intended solely to protect the environment to actions that attempted to implement sustainable development. The 1992 Earth Summit in Rio De Janeiro guided future development by creating *Agenda 21*, a 'blueprint' for action to make development economically, socially, and environmentally sustainable for the 21stcentury. *Agenda 21* was adopted by more than one hundred and seventy eight countries. The United Nations Commission on Sustainable Development (UNCSD) was established in 1992 to oversee review and implementation of *Agenda 21*, the Rio Declaration on Environment and Development.

An example of how to apply sustainable development, contained in Chapter 8 of *Agenda 21*, calls upon countries to adopt National Sustainable Development Strategies. Since 1992, more than twenty national governments have developed some form of national sustainable development strategy, and more than forty other countries are in the process of developing such strategies. These strategies are an important method to ensure environment and sustainable development which raise awareness of sustainable development within government, inform stakeholders, address sustainable development at higher decision-making levels, and are used to identify areas that require more efforts.

The 1990s pushed environmental and sustainable development actions beyond government into private industry and research organizations. The examples include measuring and reporting of standards, industry certifications, and industry standards to meet environment and sustainable development.

Figure 2.5 Historical over view: 2000 Time Line



Source: INTOSAI Auditing Guidelines retrieved from www.intosai.org

The UN Millennium Declaration, the World Summit on Sustainable Development (WSSD), and the Kyoto Protocol are significant events of global environmental governance that have occurred thus far in the first decade of the 21st century. These three events and the impact they have on Auditing work are discussed below.

With the new millennium, the importance of development for the poorest of the poor was re-emphasized with the UN Millennium Declaration and its association with Millennium Development Goals (MDGs). The MDGs are the commonly accepted framework for measuring the progress of development with 8 overarching goals, 18 targets, and 48 indicators. The MDGs were part of a global transition to more measurable results. There is a renewed zeal to examine activities for end results, which is an important aspect towards work in performance auditing.

In 2002, the World Summit on Sustainable Development (WSSD) was held in Johannesburg, South Africa, as a 10-year follow-up to the Rio Earth Summit of 1992. The WSSD made it clearer than ever that the environment was intertwined with sustainable development. The WSSD's Johannesburg Plan of Implementation also emphasized partnerships, highlighting the fact that governments cannot do it alone (UNCSD).

2.3. Evolution of Environmental Auditing

Gupta K. (1999) has observed that the origin of 'audit' can be traced to the need to ensure that a person who came into possession of money or property belonging to another has properly accounted for by him. Thus, in the beginning, it was merely a scrutiny of cash transactions and the auditor merely 'heard' or was satisfied with oral explanations to 'pass' the transactions as genuine and correct. The Industrial Revolution in England gave a boost to the organization of large undertakings for carrying on large-scale industrial and commercial operations.In our two epics, the 'Ramayana' and 'Mahabharata' also there is mention on system of maintenance of books of accounts and examination or verification of

the same subsequently for control purpose. So, the existence of audit discipline can be traced back even to *Pre-vedic* and *Vedic* period where the literature posits numerous references indicating that accountancy and audit were practiced in elementary form in ancient India. *Valmiki's Ramayana* presents one incident when Lord Rama asks Bharat on meeting him in the while leaving Ayodhya for *vanvasa*: "is your income more than your expenditure and your expenditure less than your income?" (*Valmiki Ramayan*, *Ayodhyakand, Sarga*, 100). Another reference prominently brings forth the prevalence of accountancy and auditing in *Mahabharata* times when King *Yudhisthira* ordered his brother *Nakula* to look after the army's accounts (*Mahabharata*, *Shantiparva*, *Sarga* 40)

The Institute of Chartered Accountants of India has issued a comprehensive definition describing modern auditing. As "a systematic and independent examination of data, statements, records, operations and performances (financial or otherwise) of an enterprise for a stated purpose. In any auditing situation, the auditor perceives and recognizes the propositions before him for examination, collects evidence, evaluates the same and on this basis formulates his judgment which is communicated through his audit report". Another concept of auditing is " Auditing is the process by which a competent, independent person accumulates and evaluates evidence about quantifiable information related to a specific economic entity for the purpose of determining and reporting on the degree of correspondence between the quantifiable information and established criteria.

The information under audit need not necessarily by accounting information. However, information must be in a verifiable form. There should be standards or criteria for evaluation of the information (https://mahasahakar.maharashtra.gov.in/.../Edited%20Audit%20Manual).

According to Arens and Loebbecke "auditing is the accumulation and evaluation of evidence about quantifiable information of an economic entity to determine and report on the degree of correspondence between the information and established criteria. Auditing should be done by competent independent person." (Gupta Kamal, 1999)

The word ‘Audit’ takes its origin from the Latin word áudire’ which means ‘to hear’. In the middle ages, the auditor was a person, appointed by the owners whenever they suspected fraud, to check accounts and to hear explanations given by persons responsible for financial transactions. Auditing at that time was carried out to locate frauds and errors. But in 1464, an Italian named Luca Pacioli, published his treatise on the double entry system of book-keeping for the first time and also described the duties and responsibilities of an auditor. Since then, there have been noticeable changes in the scope of audit and in the duties and responsibilities of auditor (Saxena, R. G.,2007).The auditor’s duty is to ensure that the assets and liabilities actually exist or were existing at the date of balance sheet. Thus, verification means to confirm the truth or accuracy and to substantiate. It is a process by which the auditor satisfies himself not only about the actual existence, possession, ownership and the basis of valuation but also ensures that the assets are free from any charge or lien.

Audit is indispensable feature in the case of incorporated enterprises. It is commonly felt that those who look after day to day work of a company (management) using other people’s (shareholders) money has to be accountable to them. Shareholders are generally laymen but have a right to know how their money is being used. This function is entrusted to an independent agency that stands in between the shareholders and the management. The role of this agency is performed by statutory auditor, who is expected to be technically competent to do the job, and should be independent and be able to withstand the pressure of management in case such a situation arises (Sharma S. D., 1999).

The significance of inseparable bond between man and nature has long back been propounded in our two ancient historic epics, *Ramayana and Mahabharata* by bringing forth *vanvasa* of Lord Rama and Pandavas respectively. Both the epics infiltrate and instill the message of respecting, revering nature and all its gifts by the incarnations of Lord Vishnu. This message penetrates all the cross sections of society when narration of the stories of the relation between Lord Rama and Hanumaan, Sugreva, Jamvant, Jatayu, Saryu and Samudra in *Ramayana*: and that of Lord Krishna and cows, peacocks, Goverdhanparvat, Kaalinaag inspired mankind to learn to save environment and exist symbiotically with Nature. In the

present days environmental auditing has emerged as a tool but in ancient times these epics were the tools that propagated the message of preservation and protection of environment.The relics of ancient history available in Hadappa and Mohenjodaro, Indus (Sindhu) valley civilization and Egyptian (Nile) civilization concretized the fact that civilizations flourished only in relationship with the rivers and surrounding nature.The expansion of civilization paved way for urbanized way of living where nature was replaced by the machines, further industries. On one hand man distanced himself from nature, but on the other expedited his search for newer means to keep intact what is left of nature at hands.

Earlier the businesses were in the form of sole proprietor and partnership. After the industrial revolution company form of business came into existence. More supply of money and other resources were required by the companies. So, capital was contributed by the shareholders of the companies along with promoters. Other interested parties viz. employees, customers, suppliers, government, banks and financial institutions, insurers, etc. in the business of the companies got involved as stakeholders. Hence, more accountability towards various stakeholders led to the proper maintenance of books of accounts of the companies and independent audit of the same at the end of the year with written opinion.

Massive industrialization started posing serious threats to nature and its resources, with aftermaths in the form various natural calamities , depletion of ozone layers, oil spills from marine vessels, leakage of nuclear radio actives, noxious gas leakage, etc. Businesses started exploiting natural resources and habitats at unprecedented rate, so need arose of augmented efforts in all directions i.e. technological interventions, framing of policies at global level yet these efforts cannot replenish the damage done.

The world has witnessed some destructive environmental disasters that have put a question mark over man’s accountability towards environment –

- 1950-1960 – Mercury poisoning at Minamata, Japan

- 1952 London smog
- 1957 Fire at Windscale nuclear reactor, UK, causes radioactive releases
- 1967 Torrey Canyon oil tanker disaster off Sicilly Isles, UK
- 1979 Near- meltdown at Three Mile Island nuclear power station, USA
- 1984 Accident killed over 2000 lives at Union Carbide plant, Bhopal, India
- 1984 Liquefied Natural Gas explosion killed 452 in Mexico City
- 1986 Sandoz warehouse fire, Basel, pollutes Rhine
- 1986 Chernobyl nuclear power plant disaster
- 1989 Exxon Valdez tanker accident, Alaska
- 1990 Shell was fined 1 million Pound for oil pollution of river Mersey, UK
- 1998 Reservoir of toxic mine waste broke and spilled its contents into the Guadiamar River, Spain
- 2006 Southeast Asian haze event caused by continued uncontrolled burning from 'splash and burn' cultivation in Indonesia
- 2010 BP Deepwater Horizon oil rig explosion and spill, Gulf of Mexico

Besides these the stakeholders were looking for some efforts to be made and executed at the ground level of organization. Hence, the concept of 'environmental audit' emerged not as a panacea of all environmental ills and threats but promised a new beginning.

The notion of accountability towards stakeholders has assumed importance after emergence the company form of business in general and after globalization in particular.Accountability is a relatively simple notion that is widely misused and misunderstood. It is simply about identifying what one is responsible for and then providing information about that responsibility to those who have rights to that information (Gray R.H., 1992). In the organizational context we typically call these people, and groups to whom we are responsible, the stakeholders. A stakeholder of an organisation is anyone who can influence or is influenced by the organization. That pretty much includes everybody, and all stakeholders have some form of rights. Stakeholder rights to information vary somewhat (Gray R.H., 1997).

In effect, these mean that responsibilities, and thus information rights, are determined by society (law and quasi-law), the company and the stakeholders. From this, it is relatively straightforward to derive the principles for an accountability-driven social account.

In the later phase of 20th century as need was felt for accountability towards the stakeholders, environmental reporting also emerged along with financial reporting and corporate social reporting to address the operations, activities and processes of the corporates with respect to environmental issues.

'Environmental Audit' is an emerging auditing tool and is of substantial interest in view of the increasing recognition that global warming and climate change have already begun to take place, and cannot anymore be perceived as likely future events. It is generally accepted that the survival of the human kind (and of all living organisms for that matter) depends on the protection and sustenance of the environment and that no amount of cost incurred to achieve that purpose would be too high. The very mention of the terms 'environment' and 'climate change' will evoke instantaneous reaction in the mind of everyone concerned with the future of mankind. The terms will also raise apprehensions about the well-being of successive generations, - the present and the future.

The objective of safeguarding the environment and arresting its degradation cannot be achieved in isolation, and without the whole-hearted and close cooperation of the entire world community.So, in 1989 The United Nations Environment Programme (UNEP) defined Environmental auditing as"a management tool used by industry to evaluate its environmental performance", and to improve the effectiveness of its environmental policies.

Thompson et. al. (1999), defined Environmental auditing is an established management tool which provides a periodic, formalized check against an established set of criteria to assess the current situation of a company with respect to their obligation on several fronts: meeting Environmental Management System (EMS) objectives; compliance with laws and regulations; and

conformance with corporate code or policy and industry and association codes or policies.

The United Kingdom and United States of America took a first step to understand Environmental auditing. This process of environment audits originated from commercial response to natural requirement and not from the local authorities or any other government. The USA has adopted a principle 'the polluter pays' so as to compensate the environmental loss. In order to avoid this liability the companies took initiative with regard to the legislation by way of conducting 'performance review' and 'compliance audit'. During seventies and eighties of the last century, a number of anti-pollution laws and legislation came into light, in which Resource Conservation and Recovery Act (RCRA), the Clean Air Act and the Comprehensive Environmental and Liability Act (CERCLA) can be underlined.

Environmental auditing started in the late 1970s in response to the wave of high-impact environmental legislation enacted by U.S. Congress during that decade. The Clean Air Act, Clean Water Act, Resource Conservation and Recovery Act (RCRA), and other laws spawned complex federal and state regulatory requirements Companies unable to keep track of a rapidly expanding regulatory landscape were hit with notices of violation, enforcement actions, and citizen suits. They needed a reliable process for identifying the applicable requirements and getting into compliance (Ridgway, 2009).

In 1977, Arther D'Little performed first independent environment audit for the Allied Chemical Co. in wake of serious environmental incident at one of the Allied's plant. The audit was comprehensive involving surveying of sites, records, operations, interviews, etc. and done voluntarily on the initiatives of Allied company, which included thirty five Allied's plants worldwide, to determine the level of regulatory compliance and internal environmental policies. Based on the audit findings the Allied Chemical Co. formulated auditing program for all its units in 1978.

Gray, et al. have observed (1993) that in 1988, International Chamber of Commerce issued *Position Paper on Environmental Audit* and in 1991 *Guide to Effective Environmental Auditing*.The International Chamber of Commerce (ICC) promulgated its Business Charter for Sustainable Development, subtitled 'Principles for Environmental Management', at the Second World Industry Conference on Environmental Management in April 1991. By the end of 1991, over 400 organizations had endorsed the principles. Signatories of the ICC Business Charter for Sustainable Development are required to endorse its aims, rather than to reach its standards.

Campbell, (1995) has noticed that the CERES Principles were written in the wake of the 1989 Exxon Valdez oil spill which occurred in Alaska's Prince William Sound. They were developed by the Coalition for Environmentally Responsible Economies; a confederation of United States based environmental groups, socially conscious investors, pension fund trustees, and religious organizations. The CERES Principles require a commitment to the disclosure of environmental performance, restoration of the environment, minimization of pollution, and conservation of natural resources.

In 1995 US Environmental Protection Agency announced "Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations" on 22nd December, which is commonly referred as 1995-Audit Policy. It encourages the organizations to discover, disclose and correct environmental violations.

Despite many international claims that accountants and auditors are positioned to play a pivotal role in the design and conduct of environmental audits, empirical studies have indicated that in the early 1990s few accounting professionals in New Zealand were actively involved in the conduct of independent external audits. As the extent of environmental management practices adopted by organizations can be expected to have increased substantially since then, there is a reason to anticipate that the engagement of financial auditors may also have changed over the last decade. In order to examine the nature and extent of such potential changes, a study in New Zealand based on the survey of randomly selected 200 auditors was conducted(Chiang and Lightbody, 2004). The study

focused on professional accountants providing auditing services. The importance of environmental management and the associated role of the environmental audits were strongly supported by the survey respondents. The findings of the study suggest that the number of financial auditors involved in environmental audits is gradually increasing. However, the majority of financial auditors were not providing environmental audit services claiming that there was no demand for environmental audits or that they did not possess appropriate expertise.

Meanwhile, in order to determine current issues and emerging trends in the field of environmental auditing and to create pragmatic recommendations to optimize the successful evolution of environmental auditing a study was undertaken by Lloyd in 2001. This study identified eight areas of growth and new directions for the environmental auditing:

- environmental auditing and environmental management system
- verification of voluntary measures
- linking of environmental audit and internal audit functions
- sustainable development audits
- attestation of environmental and sustainable development reports
- reputation management/assurance
- forensic environmental auditing and
- verification of public agency performance.

In India, environment audit was introduced as an exercise of self-assessment in the form of Environmental Impact Assessment (EIA) to minimize the generation of wastes and pollution control. A gazette notification was issued, in this regard; by the Ministry of Environment & Forests on 13th March, 1992 and later amended vide Notification GSR 386 (E) on 22nd April, 1993.

With the emergence of environmental auditing practice, the parallel concept of environmental and social accountability started getting implications. Meanwhile, John Elkington coined the concept of 3Ps with regard to performance and reporting of corporates viz. reporting and disclosure of Profit (financial) performance, People (social) performance and Planet (environmental)

performance. Hence, environmental accountability towards stakeholders became significant.In the backdrop of this Environmental auditing exercise, it is desirable to understand some findings on Environmental Accountability.

The publication 'Evolution and trends in Environmental Auditing' prepared by the International Association of Supreme Audit Institutes (INTOSAI) Working Group on Environmental Auditing (WGEA) encouraged the use of audit mandates and audit methods in the field of environmental protection and sustainable development by Supreme Audit Institutions (SAIs). The purpose of this endeavor was to gain an enhanced understanding of the specific environmental auditing issues, to facilitate sharing of information and experiences among various SAIs, and to publish guidelines.

Although a great deal of research in business and the social sciences has assessed attitudes toward social and environmental issues, little is currently known about the determinants of stakeholders' attitudes toward corporate environmental accountability.

Korten, (1995) proposed the second dimension of reporting i.e. people (society) subsequent to profit (finance). His findings brought us near to third dimension of business reporting framework with the argument that people inhabit planet.He has observed that the socioeconomic dimensions of the Dominant Social Paradigm (DSP) in modern Western societies are generally theorized to include *political, economic, and technological* dimensions. The political dimension usually includes commitment to limited government regulation, support for private property rights, and an emphasis on liberty and economic individualism. Support for free enterprise and belief in the possibility of unlimited economic growth are typically characteristic of the dominant economic worldview. The technological dimension of the DSP reflects a faith in the ability of science and technology to solve human problems, including environmental degradation. The idea of a DSP, and its role in the construction and maintenance of 'taken-for-granted' social institutions and ways of life is consistent with Gramsci's theory of hegemony. Gramsci argued that the ruling elites of a society are often able to secure the voluntary compliance of the masses through the popularization and

acceptance of a worldview that is consistent with their desired agenda. This dominant worldview or paradigm is diffused through the institutions of civil society, such as the media. Gramsci's theory seems to provide an apt description of the role of the DSP in garnering support for the interests of economic elites in modern Western societies. Specifically, the popularization of the perceived desirability of free enterprise, limited government regulation, private property rights, and economic individualism supports the agenda of private corporations, which have emerged as the dominant economic institutions not only in Western societies but also in the emerging global economy.

Subsequently, as observed by Kilbourne et al. (2002), research on environmental issues in the business literature has largely failed to examine the underlying mechanisms that determine environmental beliefs and attitudes. They argue that socially constructed cultural traditions that reflect the dominant worldview or Dominant Social Paradigm (DSP) of a society will play a pivotal role in the determination of individual beliefs and attitudes on social and environmental issues. Though the concept of a DSP was developed by sociology researchers in the late 1970s, and has previously been found to be related to a variety of social and environmental attitudes yet it found its significance in holistic business performances after more than two decades.

Dispensa and Brulle, (2003)have explained that the elements of the DSP may be thought of as socially constructed traditions that legitimate prevailing social, economic, and political institutions, and express a common sense reality regarding the way society works even in case of environment.

Later on, Shafer, (2006) has mentioned that the commitment to the Dominant Social Paradigm (DSP) in Western societies, which includes support for such ideologies as free enterprise, private property rights, economic individualism, and unlimited economic growth, poses a threat to progress in imposing greater standards of corporate environmental accountability. It is hypothesized that commitment to the DSP will be negatively correlated with support for the New Ecological Paradigm (NEP) and support for corporate environmental

accountability, and that belief in the NEP will be positively correlated with support for corporate environmental accountability.

The New Ecological Paradigm scale is a measure ofendorsement of a 'pro-ecological' world view. It isused extensively in environmental education, outdoorrecreation, and other realms where differences inbehavior or attitudes are believed to be explainedby underlying values, a world view, or a paradigm.The scale is constructed from individual responses tofifteen statements that measure agreement ordisagreement.New Ecological Paradigm (NEP) scale,is a survey based metric devised by the US environmental sociologist Riley Dunlap and colleagues. It is designed to measure the environmental concern of groups of people using a survey instrument constructed of fifteen statements.Respondents are asked to indicate the strength oftheir agreement or disagreement with each statement. Responses to these fifteen statements are then used toconstruct various statistical measures of environmental concern. The NEP scale is considered a measure of environmentalworld view or paradigm (framework ofthought). The roots of the NEP are in the US environmental movement of the 1960s and 1970s, inspired by the publication of Rachel Carson's *Silent Spring.* Social psychologists hypothesized that the prevailing world view of the population, called the dominant social paradigm (DSP), was changing to reflect greater environmental concern (Anderson M., 2012).

Meanwhile, Gray (2002) also implicitly recognized the obstacle posed by the DSP to the progress of the social accounting project, noting that "the contradictions and consequences of capitalism are obvious. As is the hegemonic control it maintains over media, teaching, and research agendas as well as of practice. This must be challenged in some manner." Supporters of the NEP, in contrast, recognize the 'contradictions and consequences of capitalism' and the threat it poses to the health of the biosphere. It is suggested here that a more explicit consideration of these competing worldviews has the potential to inform research on social and environmental accountability.

Whilst social accounting enjoyed considerable experimentation and currency in the 1970s it fell off the public agenda in the 1980s, so much so that there was

considerable hostility to the concept during the 1980s and beyond. On the contrary environmental accounting and reporting experienced a much-overdue resurgence during the 1990s it was not until the mid-1990s that social accounting was rehabilitated. At the turn of the century it is of paramount importance that both social and environmental accountings became embedded in organizational convention, custom and law. They were no longer subject to political whim or left to the voluntary action of corporations.

The less acceptance of social accounting was the gain for environmental accounting as various enactments relating to environment, government authorities, social and environmental groups began monitoring and observing of the corporate actions. Such compliance aspects led to the emergence ofthe practice of 'environmental auditing'.

Hoberg (1990) has observed that given the strategic importance of environmental regulation, particularly in conjunction with the concurrent pressure applied by environmental lobbying groups, it is not surprising that firms from environmentally sensitive industries undertake visible proactive actions. Further, it was observed that firms want to be viewed as good stewards of the natural resources they control (Cordano et al., 2004). To illustrate more, Deegan and Rankin (1996) investigated the annual report environmental disclosures for 20 Australian companies prosecuted for environmental violations and find higher levels of positive, as opposed to negative, disclosure for all of the sample firms.

Patten (2000) documents that increase in disclosure of Superfund-related environmental exposures for a sample of U.S. companies were correlated with concurrent increases in the provision of other, offsetting environmental information. Perhaps most directly, however, Patten (2002) later finds that, controlling for firm size and industry membership, companies with worse environmental performance as measured by size-adjusted releases of toxic chemicals tend to include higher levels of positive environmental disclosure in their reports. In these studies, the authors argue that corporations are using disclosure to offset the potentially increased public policy pressures arising from their poorer environmental performance.

Cormier et al. (2004) proposed a model of environmental reporting, in which disclosures are made according to managers' attitudes and perceptions towards various stakeholder groups. More directly, Patten and Trompeter(2003) argue that "firms may believe that by projecting an image of environmental concern and awareness they can reduce the likelihood of having negative government actions initiated or passed." The proactive use of financial report environmental disclosure, because it appears to be aimed at addressing general public perceptions as opposed to being a direct provision of information to policy-makers, can thus be argued as a *constituency-building political strategy tactic*.

2.4. Establishment of Environmental Reporting and Environmental Auditing practice

Rio Tinto (1998) has explored that reporting on the Environment serves many purposes. Although the evidence of excellent reports from individual companies is heartening, the general level and quality of information provided is very variable. Overall, increased comparability is required. The development of a consistent framework for reporting will help to speed up the move to environmental accounting and the provision of useful information. Further legislation may provide an added impetus. Over recent years there has been a swing as companies come round to the view that excellence in environmental performance is an integral part of excellence in business. Early environmental regulations were seen as a costly add-on to production. Now it is realized that, unlike taxes, environmental performance is intimately tied in with efficiency of production.

In 2002, Fortes hasobserved that this view is increasingly being reflected by the disclosure of company responses to environmental matters through the development of environmental reports. The demand for greater transparency and responsibility has developed from increased social awareness of the damage caused by pollution and from the debate about sustainable development. The responsible use of natural resources has become a major social and political issue. As such, it has also developed into a significant factor in business decision-making, and accounting practice now needs to include the measurement and

analysis of environmental costs as part of the information provided to decision-makers.Environmental reporting aims to take the communication of such information to a wider range of interested parties. It provides the basis of a dialogue with stakeholders, which include company management, employees, shareholders, government and society in general.

Traditionally, the cost of exploiting so-called 'natural' capital-air, water or the sustainable productive capability of land-has not been recorded. These have been considered to be 'free goods' and not resources effectively lent to a company or enterprise at a cost. The concept of such assets has not covered the future economic benefit obtainable from someone outside the accounting entity- the company itself. Recognizing such costs leads to the concept of invisible stakeholders, although there continues to be little recognition of their interests.

Xiaomei, (2004) has studied that one way to ensure that environmental reporting is more than a simple 'hype' is to show that its credibility is supported by an independent viewpoint. Verification by third parties may, therefore increase the reliability of the information provided. However, users are skeptical and do not necessarily regard such verification as adding value. They want to know that all the major issues and risks are included and that the report presents a true and fair view- a third party is able only to describe a limited number of identified issues and procedures used by the company and to explain the methods utilized to evaluate their use. In recent years, the requirement for the disclosure of environmental information has become increasingly rigorous on enterprises operating in all countries, including developing countries. As found by Xiaomei, an investigation made by some international accounting services, 65 per cent of the corporations surveyed reported their environmental information in 1994; 77 per cent in 1995; and 85 per cent in 2002.

The above discussed literature reiterates the fact that environmental reporting was reincarnating itself in the form of environmental auditing. Earlierstudies also assert the building of market reputation on following environmental reporting practices. It was observed that corporations with proactive environmental programs have a competitive advantage because their better reputation resonates

favorably with stakeholder groups such as customers, employees, and the public in general (Dechant and Altman, 1994; Russo and Fouts, 1997; Starik and Rands, 1995). Other factors that contribute to the competitive advantage based on environmental sustainability are better technology (Groenewegen and Vergragt, 1991; Shrivastava, 1995a) and sharper political acumen to influence public policy (Starik and Rands, 1995).Shrivastava (1995) has observed that most large manufacturing firms now devote substantial time and resources to environmental management. This is important as it allows industry to contribute to ecologically sustainable development through the application of total quality environmental management processes or through the redesign of products and manufacturing technologies.

Schaltegger and Burritt (2000) have explored that Stakeholder pressure acts upon companies in two different forms- not only are companies expected to effectively manage their environmental performance, but they are also to be made accountable for this performance. Consequently many common denominators in terms of stakeholders' recommendations for corporate environmental management started taking shape in the management. These commonalities include having an environmental policy to govern operations, an environmental system to translate the policy into practice by integrating environmental concerns throughout the different organizational and functional area processes, a commitment to improve environmental performance by continuously researching best practices and reassessing operations, a requirement that contractors and suppliers conform to environmental standards, and an open communication channel to foster dialogue with different stakeholder groups.

It has often been argued that environmental regulation is instrumental to the introduction of better environmental management practices within firms, and that more stringent regulation is needed to further improve such practices (Newton and Harte, 1997; Porter and van der Linde, 1995). However, when devising specific environmental strategies, firms undoubtedly attach importance to other stakeholders than government regulators (Neu, et al. 1998). This suggests the relevance of conducting more inclusive stakeholder management analyses.

The green business literature usually makes a distinction between firms that are compliance driven, and merely aim to meet legal requirements, and those that adopt more proactive environmental strategies, thereby taking into account a variety of forces other than government regulation (Schot and Fischer, 1993). Henriques and Sadorsky(1999) evaluated the perceived importance of different stakeholder groups using data of Canadian firms, and found that in addition to government regulation it is primarily customers, shareholders, and local community groups that affect corporate environmental management practices, especially the content of environmental action plans. According to Mitchell, et al. (1997) the importance of stakeholders is relative, can change over time, and is issue-based. The empirical evaluation was made of the relationship between the level of proactiveness of environmental strategies and the importance attached to stakeholders.

Roadmap of reporting on environment in the private sector

In disciplines that are more closely tied to auditing and accounting, there was also an increase in environmental and sustainable development activity. The following text highlights some of the activities that took place over the 1990s and into the early years of the 2000s. Environmental reporting witnessed a major shift from being practised at the singular organizational level to the corporate level. From being just a practice environmental reporting has now taken the shape of an organizational conduct. Following events have attributed to this journey at international level in the private sector:

- 1989: Coalition of Environmentally Responsible States (CERES) Principles developed a 10-point code of corporate environmental conduct leading to the widespread adoption of environmental principles by companies worldwide, including McDonald's, Dell, GM, and over 65 others.
- 1990: Forest Stewardship Council (FSC) was established. The FSC has certified over 73 million hectares of forestry operations as sustainable in over 72 countries.
- 1990: Global Environmental Management Initiative (GEMI) was formed to develop standards and strategies for corporate environmental

performance whichcreated the Total Quality Environmental Management (TQEM) method in 1993.

- 1992: The Organization for Economic Cooperation and Development (OECD) began conducting peer reviews of the environmental performance of member countries in 1992, and has developed a set of 'Core Environmental Indicators' against which to measure progress.
- 1993: EU Eco-Management and Audit Scheme (EMAS) was developed in 1993, as a management tool for companies and other organizations to evaluate report and improve their environmental performance.
- 1995: World Business Council for Sustainable Development (WBCSD) was established by a merger of the Business Council on Sustainable Development and the World Industry Council for the Environment. The WBCSD now has over 180 corporate members in more than 30 countries, representing 20 major industries.
- 1996: Environmental Management System Auditing (EMSA) The International Organization for Standardization (ISO) developed the ISO 14000 series of Environmental Management Systems in 1996, as well as the ISO 19011 EMS auditing principles. ISO 14001 certification is in widespread use worldwide.
- 1997: Global Reporting Initiative (GRI) was established and is currently used by over 700 companies, the GRI has become the de facto international standard for corporate reporting on economic, social, and environmental performance.
- 1997: The Institute of Internal Auditors (IIA) established the Board of Environmental Auditor Certifications (BEAC) in 1997, USA which issues professional certifications relating to environmental, health, and safety auditing.
- 1998: The World Green Building Council (WGBC) was established which coordinates about eight national Green Building Councils to advance sustainable building practices, and is working with several other countries to develop Green Building Councils.
- 1998: Triple Bottom Line (TBL) was introduced as a method of reporting corporate social responsibility and is rapidly gaining recognition as a tool

for incorporating environmental and social performance into business performance measurement.

- 1999: Dow-Jones Sustainability Index was launched as the world's first global sustainability benchmark tracking the financial performance of leading sustainability-driven companies.
- 2000: International Standards Organization (ISO) developed '14020' standard for 'Eco-labeling' products, helping standardize sustainability claims made on product labels.
- 2000: Social Accountability International (formerly CEPAA The Council on Economic Priorities Accreditation Agency) developed the SA8000 standard in 2000, the first standard with specific performance standards for socially responsible employment practices.
- 2003: Environmental accounts: The UN Integrated Environmental and Economic Accounting, 2003 (IEEA) is a satellite system of the System of National Accounts. It brings together economic and environmental information in a common framework to measure the contribution of the environment to the economy and the impact of the economy on the environment. At least 24 countries regularly use one or more of the four main components of environmental accounts addressed in the handbook.

Auditing the Sustainable Development through Sustainability Reporting

Environmental reporting moved towards more established grounds imbibing specifications of Millennium Development Goals (MDGs). United Nations (UN) motive to achieve sustainable development for future generations was routed through introduction of the practice of environmental auditing in accomplishment of Millennium Development Goals (MDGs). In 2000, 191 countries adopted the UN Millennium Development Goals, a set of specific targets for poverty reduction, health, education, gender equality, environmental sustainability, and global partnerships to be reached by 2015.

- Eradicate extreme poverty and hunger
- Achieve universal primary education
- Promote gender equality and empower women
- Reduce child mortality

- Improve maternal health
- Combat HIV/AIDS, malaria, and other diseases
- Ensure Environmental Sustainability
- Develop a global partnership for development

For the first time in the history of human development environment was positioned in the form of official draft at international forum. In 2002, the World Summit on Sustainable Development (WSSD) was held in Johannesburg, South Africa, as a 10-year follow-up to the Rio Earth Summit of 1992. The WSSD made it clearer than ever that the environment was intertwined with sustainable development. The WSSD's Johannesburg Plan of Implementation also emphasized partnerships, highlighting the fact that governments cannot do it alone (UNCSD, 2013).

Sustainability is about living and working in ways that donot jeopardize the future of our social, economic and natural resources. In business, sustainability means widening the scope of our awareness and managing human and natural capital with the same vigor which is applied to the management of financial capital for better understanding of true cost of each business decision.Chartered Institute of Public Finance and Accountancy's (CIPFA, 2006) definition of 'sustainability' is that it represents a state in which activities provide a good quality of life for all through a just and healthy society, without jeopardizing the environmental system that enables our survival.

The dynamics of fast changing global environment presented major challenges before corporate world to think beyond financial performances and make environmental and social concerns as an integral part of their strategic management policies. So sustainability seems as illusion unless and until it is grounded in non-financial performance indicators like environment and society. This persuaded the stakeholders to ask for reporting and disclosure of non-financial performance indicators. Therefore, the importance of not only measuring and monitoring performance on environmental and social or corporate governance areas but also of bringing disclosure to center of strategic operations

increased significantly. This reporting gradually came to be recognized as Sustainability reporting.

Sustainability reporting includes economic, environmental, and social indicators that help monitor progress towards sustainable practices. Eighty-one percent of senior executives at large U.S.-based businesses report that sustainability practices will be essential or very important to their company's strategic mission (PwC Survey, 2002).That may be because the way a company manages its social and environmental responsibilities influences its financial success (KPMG Survey, 1999).

Kaplan and Norton (1996) have observed that although the Sustainability Reporting Guidelines are not a management system, they can provide companies with an approach to achieving sustainable practices that involve the entire company. Involving the entire company increases the likelihood of achieving successful outcomes. Many initiatives in managerial accounting, such as Total Quality Management (TQM), Activity-Based Costing (ABC), Just-In-Time (JIT) production and distribution systems, and reengineering, appeared promising but did not produce the desired economic benefits. Therefore, role of accountants and auditors in verification of reporting practices followed by corporates gained prominence.

Brocker (2004) has observed that more and more, corporations and other organizations are reporting their 'sustainability' activities—their responsibilities to keep the environment clean, treat people humanly, and achieve economic goals. In fact, sustainability reporting has become a vital part of the information that external and internal decision makers use. For many corporations, sustainability is becoming not just 'a nice thing to do' but a core requirement, enabling them to increase their value and sustain profitability in the long term.

In most instances, sustainability reports cover a company's economic, environmental, and social activities, but not all companies use the same indicators to gauge their activities, and this makes comparison difficult. To address this consistency problem, the Global Reporting Initiative (GRI), an

independent institution, offered sustainability reporting guidelines that help make the reports more standardized (GRI, 2002). The GRI began in 1997 and became independent in 2002. It is an official collaborating center of the United Nations Environment Programme (UNEP) that develops reporting guidelines in collaboration with representatives from business, accounting, investment, environmental, human rights, research, and labor organizations from around the world.

Sustainability reports also help internal users better manage risks associated with environmental and social incidents. Rather than reacting to problems as they arise, managers can engage in proactive strategies to reduce problems. Many corporations report that adopting sustainable practices and reporting them reduces operating costs, improves efficiency, improves their reputation, helps them develop innovative products and services, and integrates risk management (PwC Survey, 2002).

White (2005) has noticed that sustainability reporting is a growing trend that promises to provide a competitive edge for many companies. It may prove to be a valuable tool internally and externally, giving management a means of analysis and stakeholders more transparency. By combining economic, environmental, and social indicators across Kaplan and Norton's Balanced Score Card (BSC), management accountants can produce meaningful financial and non-financial sustainability measures that give decision makers a better view of a company's short-term and long-term profitability as well as long-term viability.

Corporate environmental disclosure in India

Singh R. (2007) studied the potential determinants of environmental disclosure by analyzing the annual reports of top 200 Indian companies and found a positive association of financial performance and size of the firm with environmental disclosure. The study also identified that there is a negative relationship of systematic risk and no relationship for outsider influence with environmental disclosure.

Mukherjee, K. et al (2010) studied the firm characteristics and corporate environmental disclosure practices in India. The aim of the study was to identify the potential determinants of environmental disclosure by Indian companies across the selected 10 industries and the information was obtained from the annual reports collected for each of the companies in the sample for the year ending March 2009.

The study identified that the extent of environmental disclosure varies across the 10 industries as well as across sample companies. Environmental reporting across industries also indicated a wide variation in terms of emphasis on themes and the type of disclosure made. The findings of the study showed influential variables for explaining firms' variation in environmental disclosure. They have concluded that legitimacy, stakeholder and agency theory act together in explaining environmental disclosure practices of Indian companies. The Indian firms disclosed environmental information mainly to act within the bounds of what is considered acceptable and according to the expectations of the stakeholders.

Rachchh, M. and Gadade S. (2015) have studied Environmental reporting by Indian Hospitality Industry. In their study the sample initially included 185 companies. Following the extensive Internet search, 54 companies were found to have corporate websites. The sample of the study consisted of 54 companies. Environmental disclosure of Indian companies was found more of general or qualitative. The quality and level of disclosure found to be not at a satisfactory level. Disclosure of Indian companies restricted to either mandatory or recommended information. However, there was the positive indication of the development of disclosure in Indian companies. The practice of environmental accounting by Indian companies was at low level. Few Indian companies have applied environmental management system. Disclosure of Indian companies restricted to Energy, CSR and technology, as they are either mandatory or recommended in India. On the basis of findings, it has been realized that voluntary reporting may not work in India. However, there is the positive indication of the development of disclosure in Indian companies.

Environmental Accounting in the context of Environmental Auditing

It is pertinent to note that Klaus (2004) has explored that sustainable development cannot be achieved without good governance, and good governance, in turn, is greatly furthered by the valuable work of Auditing work.The Institute of Environmental Managers (Europe based organization whose membership includes many prominent environmental consultants and politicians) lists the lack of formal recognition of environmental management skills and the lack of standards of competence as major issues (Fitzgerald, 1993).

The increasing significance of environmental reporting and auditing in corporate governance led to rising of a very poignant question- 'whose responsibility is it to conduct environmental auditing whether environmentalists, managers, scientists, technocrats or accountants?' Earlier majority of exercise on the front of environment was accomplished by engineers and environmental scientists in the tag of 'Environmental Impact Assessment' (EIA). With the advent and introduction of technology in the environment arena, huge investments and expenditure planning was required by the enterprises. So, the need to manage the environmental accounting aspects was realized at global level.

Environmental audit should not be confused with Environmental Impact Assessment (EIA), and Product and Technology Assessment (PATA). Thompson (1999) has defined Product and Technology Assessment as "a systematic process for identifying and assessing the primary, secondary and tertiary environmental health and safety impacts of products and technologies over their lifetime (from the materials, through use, to final disposal); removing, correcting, or reducing those adverse impacts, and monitoring to assure that implementation of mitigating measures was successful".

Sadar (2000) has noted that an Environmental Impact Assessment (EIA) is "the systematic process of examining the environmental consequences of proposed actions and recommending appropriate remedial measures before making final decisions".

Need of Accountancy for Environmental Audits

'Environmental Accounting' is a management tool addressing all areas of accounting that may be affected by the response of business organizations to environmental issues, including the new area of eco-accounting (Gray et al., 1993). Another definition provided by Burritt for 'Environmental Accounting' is that it is generic name to the field of study highlighting the interrelationships between accounting, accountants, and the ecology.

Li, (2001) has noticed that environmental issues have emerged in recent decades as a major aspect of the discussion of the problems of economic growth and development. Such issues have taken, inter alia, the form of global warming; atmospheric, soil and water pollution caused by industrial activities; the quick decline of forest areas; noise pollution; and radioactive and chemical wastes being dumped into oceans and rivers. All these problems are generally associated with industrialization and economic growth; but is it a necessary condition of economic growth that the environment has to suffer? Not so, it is argued, where prospects of sustainable development are in sight. Consequently, the pursuit of sustainable development as an object of policy is now much in vogue; and governments of different countries have long been engaged in setting up regulatory, voluntary, incentive-based, informational and cooperative instruments of policy geared to promoting sustainable development. This policy trend has heightened concern about environmental accounting theory and practice worldwide.

Fortes' (2002) findings are important in the recognition of environmental accounting as he inter-related direct and indirect costs with environment. He found that environmental costs have two major dimensions: direct and indirect costs. Direct environmental costs impact on the company's bottom line. They may be obscured in overheads or to be overlooked, but analysis of them can help with gaining a more accurate costing and pricing of products. It can also lead to the better management of those costs, resulting in improved environmental performance and benefits- in greener processes, products and services. For example, it may be possible to generate revenue through the sale of waste, to

offset environmental costs. Fortes' intervention is all the more significant as it reiterates the role of accountants in environmental auditing.

Xiaomei (2004) furthered Fortes' advocacy of accountants in environment related issues. Xiaomei stated that Environmental Management Accounting (EMA) can be defined as the identification, collection, estimation, analysis, internal reporting, and use of materials and energy flow information, environmental cost information, and other cost information for both conventional and environmental decision-making within an organization. It uses a series of comprehensive methods to enhance the effective utility of materials, and to reduce the environmental impact and the environmental protection costs by processing the data from financial accounting, cost accounting and material flow balances. The basic measurement used by EMA includes physical units for the consumption and final disposal of materials and energy; and the cost, savings and benefits (in monetary units) arising from environmental related activities.

Lewis (2008) has mentioned in his study that for the professional accountant, the final decades of the 20th century were marked by increasing compliance requirements in terms both of financial reporting and financial audit. The importance of sustainability issues in the context of accounting communication is increasingly recognized in mainstream processes and statements.

The job of auditors was not remained restricted to verification or assessment of financial statements, other documents and activities but extended to verify proper compliance of various applicable laws, rules and regulations as well as propriety of expenditure.

Accountants made increasing attempts in justifying their role and relevance for the coordination of environmental audits as compared to traditional providers of environmental services, the physical scientists and engineers. The key findings of a UK survey carried out by the University of Dundee in 1995 under the title *"The financial auditor and the environment"* substantiate the role of accountant in the following observations:

- For most auditors 'environment' is just another business issue and is treated no differently from any other area of actual and potential risk. For a small minority, the moral dimensions and the longer term implications of sustainability do suggest that environmental issues are qualitatively different from other matters.
- UK businesses and their auditors generally face an uncertain environmental and legislative climate. It is often very difficult to assess from where the next major issue will emerge.
- Most of the big auditing firms have initiated procedures within both their audit manuals and processes and within their training schedules.

However, the majority of auditors do not perceive environmental issues as requiring special attention. They are simply part of knowing clients' businesses thoroughly. The Federation des Experts Compatibles Europeans (FEE) published a report in 1995 entitled *Environmental accounting, reporting and auditing: survey of current activities and developments within the accountancy profession.* The survey covered all the EU member states as well as Iceland, Israel, Norway and Switzerland. The survey showed that a growing number of companies across Europe are disclosing environmental information in their annual accounts or in separate environmental reports. FEE however emphasized that a difference needs to be established between *environmental accounting* (which concerns the treatment of environmental issues in financial statements and within environmental valuations) and *environmental reporting* (which goes further).

In the report of EAAR (1997), it is found that the International Auditing Practices Committee (IAPC) had drafteda Practice Statement which provided guidance for auditors on how to deal with environmental issues in auditing financial statements. Whereas an earlier IAPC draft had a wide scope covering also non-financial audit situations, the draft Practice Statement restricted itself to financial audit issues under the headings -

- consideration of environmental laws and regulations;
- knowledge of the business;
- risk assessments and internal control;

- detection risk/substantive procedures;
- using the work of others;
- management representations;
- reporting.

At this juncture it would be pertinent to notice what Moor and Beelde, (2005) have observed about Environmental Audit and its relationship with Accounting and Financial Management. There are not only similarities but also direct overlaps between financial accounting and environmental management or reporting. Many environmental expenses will be expressed in the financial statements. To guarantee that companies behave responsibly and limit any negative impact they might have on the environment, severe sanctions can be imposed in case of a violation of the environmental regulation. These sanctions, ranging from financial fines to the closing down of factories, can in turn be translated into going concern problems.

Linkage of Environmental Reporting, Environmental Accounting and Environmental Auditing

Johnson(1993) has narrated that Environmental Reporting encompasses both recognition and disclosure; Environmental Accounting encompasses only recognition (the formal recording of environmental outlay in the main body of financial statements) and measurement of those amounts. Questions and uncertainties associated with those outlays create significant challenges for accountants in terms of how to depict environmental outlays when they are made (that is, whether to capitalize or expense them, and how to attribute them to accounting periods), when (and if) to recognize as liabilities, events or conditions that may require future environmental outlays, and how to measure those expected outlays. Often, the difficulties associated with recognition make it impossible, thereby leaving disclosure as the only resource for environmental reporting.

At the same time, environmental auditing should play an important role in supervising the disclosure of environmental information. The concerted approach

would be required to guide the news media and the whole society to support the establishment and improvement of environmental reporting system.

Maltby (1995) has explored that Environmental auditing is distinct from environmental reporting and can be defined as "a management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of helping to safeguard the environment by: (i) facilitating management control of environmental practices and (ii) assessing compliance with company policies, which would include meeting regulatory requirements".

In this framework, the audit is considered to be an instrument for building up an environmental care system or an environmental management system. This includes consideration of emissions and effluents, with their consequences for the environment, energy management, raw materials management, production methods and management, prevention and management of waste, external safety, information, education and participation of employees in environmental management, external information and presentation, and advice given by environmental coordinators and the inspection of the progress.

Environmental audits are, to a large extent, unregulated. Because of this unregulated character, no comprehensive generally accepted principles have been issued that would have a scope comparable to those regulating financial accounting and auditing which is indicative of an internal divide that offers prospects for future research.

Environmental Auditing: Linking the audit theory gap

Power, (1996) has noted that the environmental audit is still in its infancy and the nature of the market and the competencies to operate in it are ill-defined and immature. This has provided an opportunity for divergent professional interest groups to actively promote their own skills and forms of 'know how'. The international accounting profession has been quite vocal, at least in its own literature, in its claims for a central role for accountants in the design and conduct of environmental audits. Such self-promotion can be seen to comprise three

primary strategies that centre on claims of the superior relevance of the financial audit expertise held by accountants for the management of environmental audits.

However, Lightbody (2000) has mentioned that despite these claims, recent empirical studies conducted in Australia and New Zealand indicate that few accounting professionals are actively involved in the conduct of environmental audits. Likewise, there is no broad base of evidence in the literature to suggest that the level of involvement of accountants in environmental audits is substantially greater in other countries.

While not debating the validity of accountants' attempts to claim a direct management role in the conduct of environmental audits, it can be argued that the accounting profession also needs to give greater consideration to other potential contributions it could make to the development of the environmental audit field. In particular, it is identified that an alternative opportunity to drive a focus on the utilization of appropriate audits theory in the development and conduct of environmental audits.

Role of Environmental Auditors

Now the role of environmental auditors became more defined and mechanism of carrying out environmental audit with clarity of vision and purpose was laid down with greater conviction.

As agents to determine the extent to which their organizations have complied with a myriad of environmental regulations, and to identify the means and costs of correcting these violations, environmental auditors can play a key role in helping their companies meet the objective of being environmentally responsible corporate citizens. In addition to highlighting the company's moral obligation to be environmentally compliant, the auditor can also identify the practical consequences of non-compliance. In theory, the impact of state and federal fines and potential negative publicity if a violation is prosecuted should be persuasive when the costs of discovery are weighed against the short-term savings that non-compliance promises (Hogan &Bromherg, 1990; O'Reilly, 1994).

Compounding the decision-making problem is that managers may experience significant uncertainty as to the cost, time, complexity, and effectiveness of potential solutions in addressing the environmental issue (Livesey, 1999).

After the emergence of practice of environmental auditing, debate began on the requisite essential expertise to perform the role justifiably by environmental auditors. Along with, technical experts and engineers the role of accountants and financial experts were to be submerged in the discipline.

Deegan (1998) had found that there are fundamental aspects of audit theory and practice that should underpin basic knowledge in any form of audit. Such elements would constitute a core level of knowledge of, and skills in, audit procedures, processes and techniques (vouching, verification, attestation, etc.) that would enable the conduct of quality environmental audits of whatever nature. While the present environmental audit requirements recognize that such knowledge is essential, there are no environmental audit standards or guidelines (as there are for financial audits) that explicate these core aspects of audit theory and practice. This core knowledge for environmental auditors should also encompass an appreciation that the fundamental goal of an audit is to provide an opinion in which the attestation enables some third party to act with a considerable degree of confidence in the audit report. Again, there is currently no formal source of guidance on such reporting matters. There is thus a significant 'gap' between the brief guidelines provided in the environmental audit standards and the detailed knowledge that is argued to be necessary to enable the conduct of an efficient and effective audit.

While this knowledge 'gap' can be seen to exist within the environmental audit standards, it is only of significance if it can also be demonstrated to exist in practice. As indicated in the previous section, most environmental audits (whether simple compliance oriented audits or more complex environmental management system audits) are conducted primarily by civil engineers and scientists. Do civil engineers and scientists have a sufficient knowledge of, at a minimum, 'core' audit theory and methodology?

ISO 14012 Guidelines for environmental auditing—qualification criteria for environmental auditorssuggests that environmental auditors should gain their knowledge of audit theory through formal education and/or on-the-job training. Audit theory and methodology is of such a nature that it would be expected to be derived from formal education or training, rather than being 'picked up' from on-the-job experience (Lightbody, 2000).

Alin I. et al(2011) have observed that at the national and international levels, only a small portion of accountants and financial auditors are effectively involved in environmental audit as a result of the accountants reserve with regard to the uncertainty coming from lack of a mandatory general framework. Lacking regulations and general reporting frameworks for environmental information determine auditors to avoid the fields where their expertise might prove useful. This can also explain why professional bodies focus this much on developing general frameworks and standards in their publications. An environmental audit requires different types of abilities and as a result, the most reasonable way to organize this type of audit appears to be teamwork, by involving auditors, accountants, engineers or other experts in environmental aspects.

Accountants and Auditors have traditionally not been associated with the conservation or environmental movement. However, as providers of information, reports, and assurance on which business and government decisions are frequently based, they have increasingly been drawn into the environmental arena.

The influence of accountants and auditors comes from their access to financial and performance information. They analyze reports and communicate information on which decisions are based and performance is evaluated. They can encourage greater transparency and informed decisions about the application of resources and the impact of activities on environmental outcomes without distorting existing accounting standards.

In'Guidance on Conducting Audits of Activities with an Environmental Perspective', the Working Group on Environmental Auditing (WGEA) identified

three types of audits in which environmental issues can be addressed. These are audits of financial statements, compliance audits and performance audits.

During an audit of financial statements, environmental issues may include:

- The conservation of renewable and non-renewable resources
- The consequences of violating environmental laws and regulations and
- The consequence of vicarious liability imposed by the State

Compliance auditing with regard to environmental issues may relate to providing assurance with relevant environmental laws, standards and policies, both at national and international (where relevant) levels.

Performance auditing of environmental activities may include ensuring that:

- indicators of environmental related performance (where contained in accountability reports) fairly reflect the performance of the audited entity; and
- environmental programs are conducted in an economical, efficient and effective manner.

To encompass the environmental planning, policies, agenda, accounting, compliance and auditing aspects within the enterprise, the necessity to prepare comprehensive system was felt. This gave birth to the concept of Environmental Management System (EMS), which now-a-days provides a vision and mission document for enterprises.Companies have started preparing the Environmental Policy statements depending upon their operations and activities.

Environmental Management System (EMS) is an evolving area. Industry is in the process of developing Environmental Management System to address the problem of environmental protection. Environmental auditing, an important component of environmental management system, is also in the early stages of its development. Therefore, existing body of knowledge on Environmental auditing is inadequate to provide an understanding of environmental auditing practices and procedures in the manufacturing sector.ISO 14001 defines an EMS as “that

part of the overall management system that includes organizational structure, planning on activities, responsibilities, practices, procedures, processes and resources for developing, implementing, environmental policy." Thus, EMS is a system that enables any organization irrespective of its size, type and setting to-

- manage environmental impacts arising out of its activities, products and services.
- ensure compliance to regulations
- bring continual improvements
- demonstrate high environmental performance to others by conforming to policy, objectives and targets

Environmental aspects are those elements of an organization's activities, products, services or physical resources which may have potentially beneficial or harmful effects on the environment. These may include discharges and emissions, raw materials and energy use, waste recycling, noise, dust, and visual pollution. An environmental impact is the change that takes place from the occurrence of any given aspect. The relationship between the two is causal: an impact is the pollution that would result if an environmental aspect were not properly managed or controlled.Aspects include technical concerns such as potential process, storage, transfer, transportation, utilities, and product impacts.

Research study carried out by Martin (1998) reflects that impacts include emissions to air, water, hazardous waste, soil and groundwater, energy use, material use, cosmetic and nuisance concerns. Aspects are reviewed at the level of the site, plant, department, installation and process. Complaints from third parties should be included in the development of a list of aspects.The reasons why many companies are now prone to adopt EMS are stated as follows:

- improve compliance with legislative & regulatory requirements
- facilitate access to overseas markets
- reduce liability/risk
- helps in attracting a high quality work force
- prevent pollution & reduce waste
- generate a desire to profits in the market towards 'green' products

- improve the internal management methods
- create community goodwill

Further research has elaborated certain areas that need be embedded within EMS framework to be evaluated internally by the organization. These areas where an organization can have Internal Performance criteria are -

- management systems
- employee responsibilities
- acquisition, property management and divestiture
- suppliers
- contractors
- product stewardship
- environmental communications
- regulatory relationships
- environmental incident response and preparedness
- environmental awareness and training
- environmental measurement and improvement
- process risk reduction
- prevention of pollution and resource conservation
- capital projects
- process change
- hazardous materials management
- waste management
- water management (e.g., waste, storm, ground)
- air quality management
- energy management
- transportation

Key areas to be addressed during Environmental Audit

Now a strong foundation has been laid down for environmental auditing as a new and novel branch within the already established structure and framework of accounting and auditing. There emerged a convincing clarity in objectives, domain of execution, role of accountants in environmental auditing as an

important branch of communiqué. The key environmental issues, constraints and limitations which are related to the areas of expertise and specific responsibilities should be dealt within industries and corporate sector, local authorities, State Governments, Central Government and community.

As identified by Shrivastava A. K. (2003), the key areas of primal importance for environmental auditing are-

a) Nature conservation: The conservation of a single local specie or protection of habitat has a role to play in maintaining global biological diversity and in the context of 'sustainable development' both cannot be separated.
b) Energy: World Health Organization's (WHO) report has identified four links between energy supplies and poverty, viz.
    a. respiratory disorders
    b. depression amongst women at home due to shortage of grow light
    c. rise in mortality
c) Land use planning: The interdependence of global ecology, energy use and the form of settlements has long been understood. Built form and layout, density, and zoning, the concentration and dispersal of activities cause to very substantial variations in energy use in buildings and transport.
d) Transport: Transport policy is concerned with level of accessibility or implications, and not directly concerned with measuring accessibility. Accessibility relates to basic questions of individual choice, economic growth and equity.
e) Waste management:

    Many environmental problems caused by waste arise from mere carelessness or casual storage or thoughtless disposal of waste. Yet important role has to be played in the management of refuse collection, transportation, recycling and incineration, etc.
f) Eco-consumerism:It is hardcore fact that, no manufactured goods are without an environmental impact. The present scenario depicts that there is more environment information than ever before about the products available in the market.

g) Community awareness:For implementation and successful achievement of governmental policies and programs regarding sustainable development, motivation and awareness at individual and community level at home and at work is *sine qua non*.

Types of Environmental Audit

According to complexity of environmental components in system, operation or area, the problem is required to be looked with a different perspective and objective of investigation or audit decides the course of auditing and its outcome.

a) Management audit
b) Regulatory Compliance audit
c) Environmental Management System (EMS) audit
d) Waste audit
e) Waste Disposal-Treatment Storage & Disposal Facility audit
f) Waste Transport audit
g) Water audit
h) Energy audit
i) Material Balance audit
j) Environmental Review
k) Pollution Prevention Opportunity audit
l) Due Diligence audit

Understanding Environmental Legislation in India for Compliance Audit

The preamble to our constitution safeguards socialist design of the society and self-esteem of the citizen. The Constitution of India is not a passive but an active manuscript which progresses and nurtures with time. The precise provisions on environment protection in the Constitution are also outcome of this developing nature and advance latent of the central law of the land. In India, the concern for environmental protection has not only been raised to the status of fundamental law of the land, but it is also wedded with human rights approach and it is now well established that, it is the basic human right of every individual to live in pollution free environment.Article 47 of the Constitution is considered to be more important, because it imposes the primary duty on the State to provide public with improved health, raised level of nutrition and ultimately improved

standard of living.The preamble of our Constitution provides that our country is based on “Socialistic” pattern of society, where the State pays more attention to the social problems than any individual problems. Environmental pollution which has emerged as one of the biggest social problems is being regarded as a real problem affecting the society at large and thus State is under an obligation to fulfill the basic aim of socialism, that is, to provide decent standard of living to all which can be possible from pollution free environment (Nanda, S., 2007).

During the Environmental Auditing, legislator aspects are required to be understood by the auditors as a part of Compliance Audit. Tyagi, (2010) has noted that in the early 20th century, scientists of those times founded and developed what was known as ‘Vienna Circle’. Wittgenstien who was liberal among them observed like-“we feel that even when all possible scientific questions have been answered, the problems of life remain completely untouched. Of course there are then questions left, and this itself is the answer. The solution of the problem of life is seen in the vanishing of the problem”.Problems have to be treated as one coexisting with the life. Treating problems as opportunities helps in making our surroundings a better place to live. There have been many instances when problems have made us think afresh and solutions created a better environment.

An independent body is important for effective implementation of environmental regulations. While Central Pollution Control Board (CPCB) and similar State Boards for controlling and prohibiting pollution have been established, the powers granted to them are far from satisfactory and as a result they have become toothless. The industries continue to pollute the environment causing health hazards, but they are rarely punished (NLSIU, 2009).

There is also a lack of participation by the public against pollution. Even the protest by people here and there against industries polluting environment hardly meets with success.Therefore there is an urgent need for making the environmental management system on legal grounds by industries.

The increasing allocations for environmental projects and schemes, either directly or through other social welfare schemes, in the successive Five Year Plans in our country (India) would point to the need for dedicating substantial audit resources for Environmental Audit in the future; as also the need to emphasize value-for-money aspects during such audits. But equally important is the objective of supporting the cause and the efforts of various government and non-government agencies, corporate and non-corporate profit making entities for environmental conservation and protection in the overall interest of generational equity.

There are several environmental laws enacted by the Government. The legislatures' approach to pollution laws has been principally reactive. The Water Act came in the background of the United Nations Conference on the Human Environment at Stockholm.The Air Act, the Environmental Protection Act were enacted in the aftermath of the Bhopal gas disaster, while the rules and notifications were seen as compliance with international obligations. These tasks were undertaken without adequate scientific studies, documenting the threats to health and environment and future challenges. There are legislations in India for environmental protection from industrial pollution. The major environmental legislations presently existing in the country include (Tiwari, 2001):

- Water (Prevention and Control of Pollution) Act 1974.
- The Air (Prevention and Control of Pollution) Act 1981.
- Environmental (Protection) Act 1986.
- Hazardous Wastes (Management & Handling) rules 1989.

The Wildlife Protection Act, 1972

This Act passed in 1972, deals with the declaration of National Parks and Wildlife Sanctuaries and their notification. It establishes the structure of the State's wildlife management and the posts designated for Wildlife Management. It provides for setting up Wildlife Advisory Boards. It prohibits hunting of all animals specified in Schedules I to IV of the Act. These are notified in order of their endangerness. Plants that are protected are included in schedule VI.

The Amendment to the Wildlife Protection Act in 2002 is more stringent and prevents the commercial use of resources by local people. It has brought in new concepts such as the creation of Community Reserves.

The Water (Prevention and Control of Pollution) Act, 1974

The Government has formulated this Act in 1974 to be able to prevent pollution of water by industrial, agricultural and household wastewater that can contaminate our water sources. Waste water with high levels of pollutants that enter wetlands, rivers, lakes, wells as well as the sea are serious health hazards. Controlling the point sources by monitoring levels of different pollutants is one way to prevent pollution by giving a punishment to a polluter. However, it is also the responsibility of people in general to inform the relevant authority when they see a likely source of pollution. Individuals can also do several things to reduce water pollution such as using biodegradable chemicals for household use, reducing use of pesticides in gardens, and identifying polluting sources at workplaces and in industrial units where oil or other petroleum products and heavy metals are used. Excessive organic matter, sediments and infecting organisms from hospital wastes can also pollute our water. Citizens need to develop a watchdog force to inform authorities to take appropriate actions against different types of water pollution.A polluter must pay for his actions.

Forest Conservation Act, 1980

To appreciate the importance of the Forest Conservation Act of 1980, which was amended in 1988, it is essential to understand its historical background. The Indian Forest Act of 1927 consolidated all the previous laws regarding forests that were passed before the 1920's. The Act gave the Government and Forest Department the power to create Reserved Forests, and the right to use Reserved Forests for Government use alone. It also created Protected Forests, in which the use of resources by local people was controlled. Some forests were also to be controlled by a village community, and these were called Village Forests.

The Forest Conservation Act of 1980 was enacted to control deforestation. It ensured that forestlands could not be de-reserved without prior approval of the Central Government. This was created as States had begun to de-reserve the

Reserved Forests for non-forest use. States had regularized encroachments and resettled 'Project Affected People' from development projects such as dams in these de-reserved areas. The need for a new legislation became urgent. The Act made it possible to retain a greater control over the frightening level of deforestation in the country and specified penalties for offenders.

The Air (Prevention and Control of Pollution) Act, 1981

The Government passed this Act in 1981 to clean up our air by controlling pollution. Sources of air pollution such as industry, vehicles, power plants, etc. are not permitted to release particulate matter, lead, carbon monoxide, sulfur dioxide, nitrogen oxide, Volatile Organic Compounds (VOCs) or other toxic substances beyond a prescribed level. To ensure this, Pollution Control Boards (PCBs) have been set up by Government to measure pollution levels in the atmosphere and at certain sources by testing the air. This is measured in parts per million or in milligrams or micrograms per cubic meter. The particulate matter and gases that are released by industry and by cars, buses and two wheelers is measured by using air sampling equipment. However, the most important aspect is for people themselves to appreciate the dangers of air pollution and reduce their own potential as polluters by seeing that their own vehicles or the industry they work in reduces levels of emissions.

This Act is created 'to take appropriate steps for the preservation of the natural resources of the earth which among other things includes the preservation of high quality air and ensures controlling the level of air pollution.

The Environment (Protection) Act, 1986

The Environment (Protection) Act, 1986 not only has important constitutional implications but also an international background. The spirit of the proclamation adopted by the United Nations Conference on Human Environment which took place in Stockholm in June 1972 was implemented by the Government of India by creating this Act. Although there were several existing laws that dealt directly or indirectly with environmental issues it was necessary to have a general legislation for environmental protection because the existing laws focused on very specific types of pollution, or specific categories of hazardous substances or

were indirectly related to the environment through laws that control land use, protect our National Parks and Sanctuaries and our wildlife. However there were no overarching legislation and certain areas of environmental hazards were not covered. There were also gaps in areas that were potential environmental hazards and there were several inadequate linkages in handling matters of industrial and environmental safety. This was essentially related to the multiplicity of regulatory agencies. Thus there was a need for an authority which could assume the lead role for studying, planning and implementing long term requirements of environmental safety and give directions to, as well as coordinate a system of speedy and adequate response to emergency situations threatening the environment.

This Act was thus passed to protect the environment, as there was a growing concern over the deteriorating state of the environment. As impacts grew considerably environmental protection became a national priority in the 1970s. The decline in the environmental quality was evidenced by increasing pollution, loss of forest cover and an increasing threat to biodiversity.

Hazardous Wastes (Management and Handling) Rules, 1989

In exercise of the powers conferred by Sections 6, 8 and 25 of the Environment (Protection) Act, 1986, the Central Government has made the rules relating to 18 categories of hazardous wastes and their management and handling.

Reduce, Reuse, Recycle

Bharucha (2006) has explored that Reduce, Reuse, Recycle, or the 3Rs principle, is the new concept in waste management. But what does it actually mean? Although some waste is inevitable in any society, we must minimize the generation of waste at the source by using minimal resources. Do not use what you do not need. The goal of every society should be to reach a low-waste or no waste society e.g. Fancy packaging of consumer products in two or three layers is not necessary. Use your own reusable cloth/ jute bags instead of plastic bags. The residual waste can be converted into a useable resource. In developed countries waste is used to produce energy. Several technological breakthroughs have recently been made to recover material from industrial waste such as heavy

metals and chemicals such as mercury and nitric acid. Thus the waste does not remain a waste product anymore, but becomes a useful resource e.g. using kitchen wet waste to make compost that can be used as an organic fertilizer, using sewage in a biogas plant to make fuel. One industry's waste could be a valuable resource for another industry e.g. cloth rags from the textile industry are bought and used by paper and other industries.

Environmental Legislation Agencies

The agencies which are involved in formulation and implementation of the environmentallegislations in India are of two types, (a) Ministries and (b) the Regulatory Agencies. Both of these exist at the Central and the State levels. The Ministries are part of the Central/State Governments and the regulatory agencies are autonomous bodies created under the pollution control legislations for implementation of the provisions of these Acts. The regulatory agencies are the Central Pollution Control Board at the National level, the State Pollution Control Board in each State and the Pollution Control Committee in each UnionTerritory. However, legislative measures have been marked by remarkable failures. The laws lacked teeth and the regulatory bodies lacked functional and financial powers (Dam, 2004).

Using an Environmental Calendar of Activities

There are several days of special environmental significant which can be celebrated in the community and can be used for creating environmental awareness viz. 2nd February: World Wetland Day; 21st March: World Forestry Day; 22nd April: Earth Day; 5th June: World Environment Day, etc.

Right to Human Environment

Dube (2010) has observed that right to human environment is an integral part of basic human rights. What one should understand by these words? Is it the clean surroundings, optimum facility, optimum infrastructure, optimum health care facility, healthy food produced either industrial or agricultural productions, enjoyment of common places like Lakes, PublicParks, Greeneries, CleanRiver? Right to human environment is more an issue of environmental governance, than the issue of pollution.Bhopal Gas Leak disaster, Shriram Fertilizer, Vedanta

Mining and Mumbai Oil spill raise several questions regarding the objectives and structures of both Environmental and Corporate Laws of this country. Does the anti-pollution legislations give an appropriate mandate for sustainable development in the country? Secondly, does meaning of pollution and quantification of liabilities have any objective realization towards optimizing the inclusive growth index of the country? Third, does the mandate under anti-pollution legislation effectively ensure the basic human right i.e. right to 'human environment'? Fourth, is there any deficiency in corporate law philosophy which leads to corporate failure towards 'human environment'?

2.5 Literature Gap

The studies on Environmental Auditing practices emerged from United States of America after some disasters affecting the nature on planet Earth and surrounding environment.

At international arena studies on Environmental Auditing practices have been carried out in European countries and few in New Zealand, Australia, China and Singapore. Pertaining to disclosure practices on the performance of Environmental front, studies have been conducted in the recent past based on contents in the various reports published by companies.

With reference to Environmental Auditing practices in India, above literature review reveals that there is still tremendous scope to enhance this practice. Yet the criteria or parameters have not been uniformly identified by the corporates. Even the researchers have little explored this practice from Accounting, Compliance and Auditing perspective.

In the light of the study of above literature review it becomes necessary to make environmental auditing more meaningful and effective for entities in general and companies in particular. Even our ancient Indian scriptures can be studied thoroughly to understand the basics of environment and preservation cum nurturing of our planet Earth on which premise this literature review is built.

Two case studies in the subsequent chapters and a Survey study are conducted not only to fulfill the objectives of this Research endeavor but also to bridge the gap found out during the Review of Literature.

One of the important studies conducted by Deegan C. and Rankin M. (1996) which explored that corporate environmental reporting practices within Australia and other countries are typically deficient and not of a standard to satisfy the information needs of various classes of readers. Akbas, H. E. (2014) has found that company size, industry membership and profitability are important company characteristics that can have influence on the extent of environmental disclosure. According to the results of his study, size and industry membership have a positive and statistically significant relation with the extent of the environmental disclosure, while profitability has a negative relationship. In consistent with the previous studies, finding supports the argument that larger firms disclose more environmental information than smaller firms for the purpose of increasing their legitimacy (Huang and Kung, 2010).

In the present chapter number of opinions and suggestions are highlighted about corporate disclosures of environmental accounting and auditing practices followed by corporates. Literature review also reveals that developed societies and economies like U.K., U.S.A. and Australia are also aware of and show concern about issues related to environment, but developing countries like India ignore such issues of grave concern to mankind and society. These issues are ignored, may be having no direct adverse economic effect on the performance of the businesses. Thus, identified environmental accounting and auditing parameters for corporate disclosure as a part of Annual reports are either ignored or do not get due attention. Hence, the present research endeavor has incorporated detailed study of environmental accounting and auditing disclosure practices in India. Objectives of the present Research work discussed in Chapter One confirm the same:

- to document the environmental accounting disclosure practices of select corporates.

- to study application of ‘Environmental Auditing’ i. e. Assessment or Evaluation with reference to ‘Environmental Disclosure’ practices and its Impact in India.
- to study the objectivity of environmental reporting in India.

To study the corporate disclosure practices and parameters considered as part of environmental accounting and auditing disclosures the next chapter i.e. Chapter Three studies environmental accounting and auditing practices in India by listed companies with the help of Content analysis.

The present literature review divulges the impact of environmental accounting and auditing practices by corporates on its financial performance. Number of research work completed across the globe to check the environmental accounting and auditing practices having impact on financial performance. Previous study of potential determinants of environmental disclosure by analyzing the annual reports of top 200 Indian companies, explored that there was a positive association of financial performance and size of the firm with environmental disclosure. The study also identified that there was a negative relationship of systematic risk. Results of these surveys are producing a concoction of feelings of both positive and no effects of adoption of environmental accounting and auditing practices on financial performance of the businesses. Hence, Chapter Four of the present study has undertaken qualitative research with the help of case study of select three business giants representing environment sensitive industries.

As environmental auditing is still in its infancy, the literature review that highlights its emergence, conceptualization, evolution and institutionalization is the need of the day. The present state of affairs reflects that still the idea is in infancy and has not received a hearty welcome amongst the industry. As such there is a rarity of systematic compiled literature review on environmental auditing, this literature review brings into foray the researches carried out since coinage of the term and how it traversed academically and intellectually, finally emerging as a very significant practice. Therefore, in Chapter Five with the help

of Structured instrument detailed survey study is conducted to expound significant issues on environmental accounting, compliance aspects and auditing practice by gathering opinions of Chartered Accountants, Company Secretaries, Cost and Management Accountants, Researchers as well as academicians.

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