Chapter 1

INTRODUCTION

"Change will come about only when people understand the scientific realities of why we need to fight climate change. If you don't get that message clearly, then obviously you are not going to see any change whatsoever."  
- R. K. Pachauri, Chairman, IPCC.

1.1. Climate change - a glocal problem:

It was not without reason the *Time* magazine sounded an alarm - “*Be worried, be very much worried*” in the year 2006. This issue of the famed magazine tried to presage the world public through its cover story on global warming. “Climate change is big news, bigger news than ever before” (*Doulton* and *Brown*, 2007)\(^1\). The year 2006 may be called a watershed year because the issue of global warming gained much media attention which was often ignored by the media. The said story had featured what eventually became the most familiar icon of climate change - a lone polar bear hovering on a floating piece of iceberg, gazing apprehensively at the adjacent ocean. The polar bear’s iconic status could well be gauged by its recurrent portrayal in visual culture adopted by climate-change communicators across the world since then. However, the term global warming had entered the lexicon of mass media since late 1970s when *The Washing Post* carried a front-page story on July 21, 1977 entitled- “*100-Year Trend: Our Summers are Getting Warmer*” (*Sachsman*, 2000\(^2\); as cited by *Neelima* and *Reddy*, 2014\(^3\)). Nevertheless, the United Nations Forum for Climate Change Communication (UNFCC) would like to define climate change thus “climate change means 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 climate variability observed over comparable time periods” (*UNFCC*, 1992)\(^4\).

At present, global warming, also known as climate change, among the scientific circles, is the most debated environmental issue in mass media and political sphere of international dialogue in the UN Summits (*Boykoff* and *Mansfield*, 2009)\(^5\). Global warming is the consequence of enhanced greenhouse gas effect caused by the everyday addition of greenhouse gases (GHG) in the upper atmosphere. Scientists hold that human activities are mainly responsible to a large extant in releasing excess carbon dioxide, another important greenhouse gas, that gets accumulated in the
atmosphere and acts as a blanket to hold back radiated heat from earth. *India Today*, cover story of Dec 2009 mentions that “the world is now releasing 27 billion tonnes of carbon dioxide into the atmosphere every year”. Currently, our environment is beleaguered with a number of serious problems and among these global warming is the most significant ones as it raises overall global temperatures to dangerous levels, leading to melting glaciers, rise in sea levels, weird weather and changing climate patterns (*UNEP*, 1997). But the question still persists - who is responsible for the given imbroglio? Scientists across the globe hold our race guilty for the same. Media holds the key to reduce global warming by creating positive perception among the masses as it can efficiently goad them to action. Mitigation actions will follow the rhetoric only when the public perceives global warming to be an urgent issue that requires concerted efforts by one and all to address it immediately. Unless perception is changed, individual human behaviour would be detrimental to climate change. Perception of climate change may be defined as the sum total of a person’s attitude and awareness towards the issue with complete knowledge of adaption and mitigation measures of climate change. Employing Ban and Hawking’s (2000) opinion it can be said that mass media helps in creation of perceptions of many issues around the world that cannot been see immediately. It is needless to say that media can act as a catalyst by helping spawn positive perception about climate change issues among the masses which will definitely go a long way in mitigation of the problem.

The excessive heating of the earth’s atmosphere caused by a high concentration of greenhouse gases in the atmosphere is known as global warming. It is a term which is generally used to refer to the observed enhancement in the average temperature of the earth’s atmosphere and oceans over the recent decades. Scientific disclosure point out that global mean temperature has risen fastest in the last two decades (*India Today*, Cover Story, 21, Dec 2009). The global mean temperature is reported to have increased by about 0.5 degree celsius to 1 degree celsius, in the last hundred years (*Mishra*, 2009).

Under the above circumstances, the average weather condition of a particular place over a period of time which varies drastically, which is known as climate change. The weather conditions are considerably impacted by temperature fluctuations. Such instability in the normal weather conditions at a particular place may be referred to as
the climate change. The fluctuations in temperature have a significant role in the regulation of water cycle in the environment. A rise in global temperature can modify water cycle pattern. Thus, the gradual rise in atmospheric temperature subject to unnatural heating is called global warming. The said process can also cause most of the ice in the polar-regions and glaciers to melt down and subsequently evaporate. Additionally, increased evaporation of water caused by high temperature may alter the pattern of cloud formation and rains. Earth’s topography might as well play an important role in effecting temperature variations that finally cause air pressure variations. These variations may cause natural disasters like storms, cyclones, tornadoes and hurricanes. However, with global warming becoming a distinct threat, these disasters might happen with increased frequency and magnitude. The given fact could well be gauged from the recent episodes of the tsunami in the Indian Ocean in 2004, Hurricane Katrina in 2005, tsunami in the Japanese islands in 2011 and similar other incidents.

Earth is naturally exposed to greenhouse effect which is essential for creating a climate favourable to the sustenance of most life forms. Gases that cause greenhouse effect are called greenhouse gases (GHG). These gases either occur naturally or are produced on earth primarily due to human activities, particularly by the consumption of fossil fuel. The effect of warming and insulation of the earth, known as greenhouse effect, is caused due to heat trapped by the greenhouse gases. Scientists consider that augmentation in the concentration of greenhouse gases in the atmosphere has been on a steady incline since the industrial revolutions in the late eighteenth century. The natural greenhouse gas effect, in fact, is a process of thermal blanketing of the earth which maintains its temperature around 33 degrees celsius assisting the sustenance of life. Without greenhouse effect, the climate of the earth would become too cold for most of life forms to sustain and survive (Mishra, 2009).

The advent of the Industrial Revolution in the late 1700s boosted up the extensive use of fossil fuels like coal, oil and natural gas. The said process released a lot of heat absorbing gases into the atmosphere. Industrial and commercial activities created massive pollution and the pollutants accumulated over the centuries. According to the modernization paradigms advocated by scholars like Daniel Lerner (1958), Wilbur Schramm (1964) and others, industrially backward nations emulated the path ensued
by the industrialized nations and consequently amplified the natural process of greenhouse effect. Historically, many nations in Asia, Africa and Latin America, which became independent, after the Second World War, subsequently moved towards adopting the western style of industrialized development. Large and small scale industries were set up as part of the development programme. But it went on adversely affecting the environment (Murthy, 2000). Development projects that were recommended by the experts had their own intended and unintended consequences (Abraham, 2010). Besides, the pressure of increasing population throughout the world, along with the continuing process of clearing land for agriculture or for urban settlements have wiped out forests and vegetations that hitherto acted as the ecological sink for some of the greenhouse gases like carbon dioxide were reduced.

In fact, greenhouse gases like carbon dioxide, water vapour, methane, nitrous oxide, chlorofluorocarbons, hydro chlorofluorocarbons and trifluoromethyl sulphur pentafluoride either occur naturally or are produced on earth due to burning of fossil fuels and biomass (Mishra, 2009). These gases are heat-absorbing gases and accumulate in high concentrations in the upper atmosphere, extending up to hundred kilometers above the earth’s surface, and act as glass panels of a greenhouse. These gases allow much of the short-wave solar radiations to reach the earth’s surface but stop much of the long-wave infrared rays from escaping as heat. The greenhouse gases absorb the infrared radiations and re-radiate most of them back to the earth. Thus the temperature of the atmosphere gradually increases causing an unnatural heating effect, which is again the result of global warming (Mishra, 2009).

The earth is getting hotter with each passing day, and weather patterns are substantially altering due to anthropogenic (human-caused) climate change. Notwithstanding, the general public is unaware of what actually causes global warming. It has taken decades for climate change to enter public discourse in even the most superficial manner. Periodic surveys, researches and assessments have proven that the global warming-induced changes in world’s climate are increasing day by day and it has assumed catastrophic proportions.
1.2. Genesis of climate change governance at international level:

In the 1970s and early 1980s, scientists began to comprehend that emitting carbon dioxide into the atmosphere will eventually lead to global climatic change. The amplification of the said concern from people around the world led to the organization of the United Nations Conference of World Leaders on Human Environment holding the First Earth Summit in 1972 at Stockholm in Sweden. The First Earth Summit paved the way for further discussions and debates on issues relating to the environment at the United Nations (UNEP, 1997)\(^{16}\).

Nearly ten years later, nations congregated again to discuss the global environment in the Kenyan capital of Nairobi. Subsequently the United Nations set up the World Commission on Environment and Development (WCED) in 1983, which was led by Gro Harlem Brundtland, the first women prime minister of Norway. Four years later, she published a seminal report which came to be known as Brundtland Report where she coined the term sustainable development. With the submission of the Brundtland Report in 1987, environment became a part of a novel concept called sustainable development. Sustainable development advocates the judicious use of present resources so that future needs are not compromised (Brundtland, 1989)\(^{17}\).

Sustainability became a buzzword in media lexicon soon after the publication of the Brundtland Report. In the meanwhile, the establishment of the UN organ - Intergovernmental Panel on Climate Change (IPCC) in 1988, was a watershed event. Representatives from over 160 countries met at regular intervals to discuss the ways to reduce greenhouse gas emissions.

The United Nations General Assembly convened the United Nations Conference on Environment and Development known as the Second Earth Summit in the Brazilian hamlet of Rio de Janerio in 1992 (UNEP,1997)\(^{18}\) The primary goal of the Summit was to find an equitable balance between economic and environmental needs of the present and future generations and to lay the foundation for global partnership between developed and developing nations, as well as governments and civil society, based on common understanding of shared needs and interests.

The Earth Summit of 1992 will be remembered in the annals of history as it marked the signing of the first international treaty to combat global climate change. It was
adopted as an initiative from the United Nations Framework Convention on Climate Change (UNFCC) during the Earth Summit held in Rio de Janerio. The UNFCC required the participating countries to voluntarily reduce their greenhouse gas emissions (without specific targets and timetables). Since the UNFCC entered into force in 1994, the Conference of the parties (COP) have been meeting annually in different places to assess the progress in dealing with climate change. The COP adopts decisions and resolutions and the successive decisions taken by the COP make up a detailed set of rules for practical and effective implementation of the Convention. However, soon after the establishment of UNFCC in 1992, the world has began to witness drastic changes in the social, political and economic conditions in the wake of liberalization, globalization and privatization of several economies of the world which were hitherto clubbed as closed economies. The US and the EU used to be the biggest greenhouse gas emitters in the twentieth century but now the BRICs countries namely - China, India, Brazil, South Africa and many other nations of the Global South have also become major economic powers and their emissions have increased exponentially. By leaps and bounds the countries of the Global South have also become substantial party to the global GHG emitter’s club. These changes in the global political and economic equilibrium raise questions about whether these shifts need to be reflected in the principle of UNFCC which divides countries into two categories as Annex-I (developed countries) and non Annex-I (developing countries).

In the mean while, the treaty was accepted and signed by more than 150 nations, who attended the Rio Conference. The Earth Summit in Rio de Janerio declared that the ‘only way to have long term economic progress is to link it with environmental protection.’ The Summit led to governments making certain commitments regarding environmental protection acts and ensuring quality standards. Since then, World Environment Day is being observed on the fifth of June every year. Environmental crusaders across the globe got a huge uplift after the Earth Summit. The Summit also converted environment issues into a proper journalistic ‘beat’ in a number of countries (Sarwar, 2010)19.

In December 1997, the countries that met in Rio de Janerio re-convened in the Kyoto city in Japan. More powerful initiative was envisaged with the signing of the famous Kyoto Protocol, an international climate change agreement called for reduction of
greenhouse gas emissions. At the said climate treaty convention, the parties to the United Nations Framework on Climate Change reached an agreement on the historic protocol for reducing greenhouse gas emissions after the year 2000. The protocol called for protecting the environment by improving the way energy is produced and consumed, among other measures.

According to the Kyoto Protocol, the industrialized nations were required to cut their greenhouse emissions to 5 per cent less than the 1990 levels, between the years 2008 and 2012 (Agarwal et al., 2000)\(^2\) and assist the developing countries in avoiding the negative effects of climate change. In addition to the reduction in carbon dioxide emissions, the Kyoto Protocol also asked for limiting the emissions of other five main greenhouse gases produced by human activities. Legally binding targets for 37 industrialized countries and the European Commission, officially known as Annex-I countries, were set. The protocol has been ratified by more than 126 countries in eight years. It is worth-mentioning here that Australia and the USA, two of the largest greenhouse gas emitters, did not ratify the Protocol when it was concluded. Australia has however, ratified it in 2007, but the US has not ratified yet.

In December 2005, representatives from more than ninety countries again met in the Canadian metro of Montreal to discuss ways and means on cutting down the use of ozone - depleting chemicals and greenhouse gasses so as to decrease human induced global warming. It also sought dependence on the consumption of fossil fuels so that drastic emission of carbon dioxide could be arrested globally. According to the Montreal Convention, the level of carbon dioxide in the atmosphere was reported to be highest in the last 650000 years. A number of countries adopted the Montreal Protocol and pledged actions to control the production of ozone-depleting substances. The Montreal Protocol expressed concern over the much-discussed ozone hole which was created subject to the thinning of the ozone layer in the stratosphere. The ozone layer becomes thin when chlorofluorocarbons come in contact with ultraviolet rays and ozone molecules get oxidized to oxygen, creating the so-called ozone hole over the Southern Hemisphere. Unfortunately, the Montreal Conference did not succeed as the two biggest emitters of the world - the USA and Australia refused to cut down their greenhouse gas emissions. It is an irony that international agencies studying climate change have been consistently projecting that the average global temperature
will increase by 1.4 degrees celsius to 5.8 degrees celsius over the period 1990 to 2100 due to unabated greenhouse gas released by human and industrial activities (Agarwal et al., 2000)\(^2\). The sources of greenhouse gases are deeply embedded in industrialized and industrializing countries economies due to their carbon intensive lifestyle. The more a country is a developed country; the more it is releasing greenhouse gases and ozone depleting substances into the air due to its industrial activities. Industrialized countries of the Global North like the United States, European Union, Japan and many others have been emitting these gases for many years since Industrial Revolution. However, developing countries of the Global South like India, China, Brazil and many others are also starting to emit these greenhouse gases as their industrial activity and factories are coming up in large numbers. Not only these economies are home to large number of population on earth whose carbon footprints are increasing every day, but also these countries have a substantial proportion of burgeoning middle class whose lifestyle is in no way inferior to that of the citizens from the industrialized nations.

Another important convention was held under the auspices of the Conference of parties to the UNFCC and parties to the Kyoto Protocol in the Indonesian resort centre of Bali in December, 2007. The Bali Conference proposed to achieve progress on a number of important issues including the setting up of an adaptation fund wherein the signatories would have to pull a part of their GDP in tackling climate change. The issues also included the avoidance of deforestation through Reducing Emissions from Deforestation and Degradation (REDD), Technology Transfer (TT), and Clean Development Mechanism (CDM) (Abraham, 2010)\(^2\).

In the mean while, the Intergovernmental Panel on Climate Change (IPCC) was created to give scientific advice on climate change and mitigation measures to the world leaders. Since then it has been at the vanguard of spreading climate change awareness and assessment through the publication of its series of assessment reports. According to the IPCC reports, there is a great deal of evidence indicating that certain human activities are causing the warming of the earth’s atmosphere. The report says that unless steps are taken to prevent further global warming, the average surface temperature on earth will rise by about 1 degree celsius to 3 degrees celsius by the year 2100 (IPCC, 2001)\(^2\).
The Intergovernmental Panel on Climate Change (IPCC) has been conducting important climatic researches studies that are published on a periodic basis. It has scores of scientists from a plethora of countries who study and analyze the meteorological changes and provide a collective picture of global warming and other changes in the climatic systems. These reports are held in high esteem for their authenticity by politicians, government and public alike and serve as policy guidelines for the international community to adopt mitigation measures. The signatories to the Kyoto Protocol and international treaties like UNFCC are mandated to adhere to the recommendations made by the concerned panel. The fact that IPCC’s activities are increasingly acquiring greater significance could well be gauged from the joint awarding of the Noble Peace Prize in 2007 to the body and Albert Arnold Gore. The award was given for their efforts in building up and disseminating greater knowledge about man-made climatic change, and to lay the foundations for the measures that are needed to counteract such changes. This development took place only after two decades following James Hansen’s, one of NASA’s top climate scientists, testimony to the US Congress that the unprecedented heat wave, drought and forest fires of 1988 were the results of human induced global warming (Leiserowitz, 2006). Coincided with the establishment of IPCC in 1988 and James Hansen’s deep-seated assertion that he was “99 per cent certain” that the warmer temperatures were the consequences of fossil fuel use by mankind across the globe created media pandemonium like never before (Boykoff, 2008, as cited by Shao, 2012) has resulted in wider percolation of awareness of the term global warming in the public sphere.

Regardless of decades of scientific research and consensus on anthropogenic (man-made) causes of global warming, many countries are not willing to contribute their bit in cutting down greenhouse gases so as to arrest climate change. Despite the fact that rising carbon emissions is the cause of global warming, some nations have done better than the others, but no nation has effectively reduced greenhouse emissions notwithstanding the guidelines of the Kyoto Protocol. It is indeed perplexing that no nation has a base of citizens who are sufficiently socially and politically engaged in response to climatic change (Norgaard, 2006). Although, climate change is one of the most important challenges afflicting survival of mankind at the present times, it is unfortunately neither considered to be a serious issue by the mass media nor by masses. The United Nations Conference on Climate Change held at Durban from
November 28 - December 09, 2011, delivered a breakthrough on the international community’s response to climate change. During the summit the world leaders agreed to a new global climate change regime that will come into force starting 2020. The principle of equity found its place as life was resuscitated back into Kyoto Protocol, which will continue to be in force beyond 2012.

It is important to recall what the IPCC had published in its 2007 report about the seriousness of climatic changes:

*The rapidly increasing levels of greenhouse gases in the atmosphere are causing global temperatures to rise at a rate that is unprecedented in modern human history. They are also causing changes in weather patterns, altering rainfall and the timing of the season resulting in global climate change (IPCC, 2007)*.

Climate change is becoming more and more a global problem, but is not one that has evenly distributed causes or effects. Climate change is not limited to a particular continent, or part of the world. It has an effect on all nations, developed or developing countries; rich or poor; in northern or southern hemispheres (*Kazi and Bhamare, 2013*). Industrialized nations bear the historical responsibility for the burning of fossil fuels necessitated for the industrial processes since the past couple of centuries. There continues to be a huge difference between the level of carbon dioxide emitted by the industrialized nations and the less developed countries. Despite its overriding consequences, climate change is also the least understood problem amongst the masses. If left unchecked, climate change is expected to usher in disaster on many human and natural systems - including increased floods, droughts and extreme weather events, lesser productivity from large areas of existing farmland, migration due to climatic changes and conflict over dwindling resources.

The forecasted change is larger than any change in the climatic condition of earth in the past 10,000 years as carbon dioxide emitted by a nation ultimately goes up and affects other nations as we share common global atmosphere. Even though there is a consensus among the scientific community, but there are skeptics backed by the vested interest oil companies who are spreading deliberate uncertainty about the issues of climate change in the mass media. Armed with decades of research, many
experts believe that global warming would cause uncountable devastations if not combated well ahead of time. Global warming induced natural disasters like cyclones, storms, hurricanes, floods and droughts are getting intensified. It may also cause cloud bursts, avalanches, landslides, mud-flows and earthquakes. Tropical diseases such as yellow fever, malaria, filaria and dengue may spread to wider areas. Many animal and plant species may become extinct because of warmer temperatures disrupting their habitats or breading pattern. The rising sea level could cause inundation of land in the coastal areas leading to a huge loss of lives and property worth millions globally. Massive flooding in the coastal areas may cause grave socio-economic damages to vulnerable countries like India, Bangladesh, Japan, Australia and many low-lying island nations in the world. It may also cause large scale displacement of people which may further aggravate problems of environmental refugees. Due to drastic the sea-level rise(SLR) many a low-lying island-countries like Sri Lanka, Maldives, Mauritius and many a coastal cities around the globe are already facing severe problems causing a massive loss of life and properly of tens of millions in these nations. Not very far, the Andaman and Nicobar Islands and Lakshadweep Islands in the Indian Ocean are not immune to sea level rise. In this context, fears articulated by scholars from the George Mason University like Thaker (2012)\textsuperscript{30} are not without any iota of worry for our country even as the Indian Network for Climate Change Assessment (INCCA) has expressed its grave concern for the issue nearly four years ago:

\begin{quote}
About 20 per cent of the population of India lives in the coastal areas that stretch more than 7,500 km, with a large percentage of these people living in coastal mega-cities, such as Mumbai, Chennai, and Kolkata. Over the last 20 years, sea level along the Indian coast has been rising at the rate of about 1.3 millimeters/year (INCCA, 2010)\textsuperscript{31}.
\end{quote}

Although scientists have been studying the effects of greenhouse gases in the atmosphere since the nineteenth century, it was not until 1957 that scientists at the Scripps Institute of Oceanography in California suggested that carbon dioxide emissions from human activities might be dangerously changing the global climate. Even as the literature provides diverse definitions of climate change, for example United Nations Framework Convention on Climate Change (UNFCCC) defines
“climate change as a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods”. The study borrows the definition provided by the Intergovernmental Panel on Climate Change (IPCC) which says that climate change means “change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity” (IPCC, 2007)\textsuperscript{32}.

Scientists are of the opinion that there is a connection with greenhouse gases and global warming as the former and carbon dioxide lead to rise in atmospheric temperature. Greenhouse gases are those types of gases which absorb thermal radiation emitted from the earth’s surface, thereby acting as a blanket to keep the planet warm (Mishra, 2009)\textsuperscript{33}. The main greenhouse gases are water vapour and carbon dioxide, which exist naturally in the atmosphere, in addition to fossil fuel emission generated carbon dioxide on a daily basis across the world. However, while the natural greenhouse effect is necessary for supporting life on earth, the enhanced greenhouse effect, also referred to as the human-induced climate change or global warming has been pointed out as a potentially damaging outcome of the increased amount of carbon dioxide gases in the atmosphere since the Industrial Revolution (Whitmarsh, 2005)\textsuperscript{34}.

Until recently, some people advocated ‘wait and watch’ and argued that no action should be taken against global warming until we know exactly what effects it will have on the environment. However, scientists have proven that major atmospheric changes have already taken place and that these changes will damage the environment drastically in the near future. Furthermore, we do not know if these changes are permanent or only temporary. One fact is for sure - the longer we delay action against global warming, the more difficult it will become to take effective steps to counter the menace. In order to prevent further global warming, we have to immediately reduce carbon dioxide emissions by 50 per cent to 70 per cent. Experts say it would be impossible to do this in a short span of time. However, even if it is possible to keep amounts of carbon dioxide emissions below danger level, the world would still
experience an increase of more than 2 degree celsius in the earth’s temperature (Agarwal et al., 2000). To achieve the goal, we have to reduce worldwide carbon dioxide emissions gradually until they are much lower than the current level.

The unresolved question arises subsequently - even if a wide range of energy-efficient products were to be designed to reduce carbon dioxide emissions (e.g., hybrid electric vehicles, CFL electric bulbs) and even if the efficacy of a greenhouse gas reduction policy could be expected, the ultimate goal of stabilizing atmospheric greenhouse gas concentrations will never be achieved if individuals, societies, and governments choose not to take actions to modify personal carbon intensive behaviours. So the crucial question remains to be answered - Why would individuals and societies be willing to take actions to mitigate the problem? Are they motivated enough to think for the welfare of the earth? Will the individuals realize that climate change is a man-made disaster?

The Global North is responsible for a much larger proportion of the past anthropogenic emissions that are now causing climate change compared to the Global South (Chapman and Kumar et al., 1997). Having already taken off in the industrialization process, nations of the Global North are the largest emitters of carbon dioxide than the Global South. This is the case especially since the Industrial Revolution, when steam power produced by burning coal and wood, as well as other industrial practices began to become more prevalent in the late eighteenth century in the UK and the USA. Further energy-intensive developments in industry and transportation also found their beginnings in the North. For instance, constituting only 5 per cent of the world’s population (Leiserowitz, 2007a), the USA is the world’s largest emitter of carbon dioxide, the primary heat-trapping gas. Studies by the International Energy Agency with estimates of the year 2008, point to a disquieting fact that with its growing population and growing economy China emits 25.4 per cent; Americans emit 17.8 per cent or 5.40 metric tons per capita of carbon dioxide each year due to their higher standard of livelihood (IEA, 2011). By comparison, the average Japanese citizen emits 2.55 tons per capita per year, while the average Indian emits less than 0.29 tons per capita per year in this regard (IEA, 2011). However, the study by International Energy Agency (IEA) furthers says that India’s emissions are likely to rise up to 8.7 per cent in 2012 which will push the
country ahead of Russia to become the fourth largest emitter behind China, the US and the EU.

These striking differences in the emission patterns by the developed and developing countries are at the bottom of the much contested North - South divide which perpetuates the dispute in terms of international efforts in climate change governance and delays in adopting the prescription of the Kyoto Protocol. Elucidating the origin of the impasse, Pandey (2014)\textsuperscript{40} mentions:

\begin{quote}
The countries that have the greater stake at UN global climate change negotiations are important in terms of fossil fuel consumption and possession of reserves that are the backbone of their economy and mode of life. Some countries such as the US and China have major challenges in maintaining their supplies of fossil fuels and in developing other forms and alternative sources of energy. Saudi Arabia has always stood against any legally binding agreement that would prevent it from exploiting its oil wells, which have long been the most important source of its national income. The US, Russia and China are the leading producers and consumers of world energy. India and China rely on coal as their primary source of commercial energy (Pandey, 2014)\textsuperscript{41}.
\end{quote}

There has been a difference of opinion between Global North and Global South on committing to legally binding cuts in greenhouse emissions so as to arrest climatic changes. The IPCC had stated that if global temperatures had to be prohibited from going up beyond the danger mark of an additional two degrees celsius, then industrialized nations in the Global North would have to cut their greenhouse gas levels between 25 and 40 per cent below 1990 levels by 2020. On the contrary, most countries including the US and Australia are willing to pledge an emission cut of mere 5 to 17 per cent of 2005 levels (\textit{India Today}, Dec 2009). As per the Kyoto Protocol, the industrialized countries that form the so called Annex-I nations were also to lend money to the poor nations to help them adapt to the adverse effect of climate change. Apart from this the developed countries in the Global North were also to impart clean technology that would have helped developing countries in the Global South to lessen their emission levels. Of late, the Annex-I countries have raised issues
about intellectual property rights and now talk of only information sharing rather than technological knowhow with the non Annex-I countries.

The developed countries of the Global North seek to maintain their status quo in business - as usual psyche. Rather they want to dissuade the developing countries of the Southern hemisphere from aping path of industrialization followed by them once upon a time as carbon intensity is linked to energy used to produce every dollar of the GDP. Hence, calling upon the developing countries to cut down their emissions when they are yet to take off industrially, is a bone of contention. The Global South believes in securing their right to development for its citizens by exploiting petroleum - based resources in industrial activity, whereas the Global North wants to impose emission reduction targets, overlooking their own contribution to the problem. Neither the Global North is ready to curtail its relative opulence and nor are the Global South ready to deviate from poverty alleviation programmes. This is why the Global South alleges it to be a political vendetta by the Global North to stop them from becoming developed by embarking on the path of industrialization riding on the scarce fossil fuel resources available to the world. For instance, the US’ main argument is that Kyoto Protocol does not bring China and India into the domain of Annex-I nations even if both are considered to be largest emitters of greenhouse gases in the world. The following quote of the former Indian Prime Minister Manmohan Singh at Delhi Sustainable Development Summit in New Delhi on 3rd February 2011 simple illustrates this sentiment:

*Our view has been that those who have been primarily responsible for the buildup of greenhouse gases and who also have the greatest capacity to act should bear the brunt of the responsibility. Developing nations are obviously much less culpable, and have a much greater need for continued growth. These countries should be helped to achieve sustainable development paths. “*

But the ethos of climate change governance requires ‘combined environmental protection efforts’ as global warming is a global problem and it does not matter where carbon dioxide is emitted because eventually it ends up and gets accumulated in the common atmosphere. Obviously, the Global South has an interest in improving its material situation; whereas, the Global North wants to impose emission reduction
measures. This North - South divide has derailed many climate change conventions and accords adopted in Copenhagen, Cancun, Durban, and Doha conferences.

1.3. Climate change in Indian scenario:

It is time Indians get concerned about climate change and global warming. Climate change is likely to have tremendously adverse impact on the Indians, as the country is vulnerable to the worst types of climate change induced natural disasters. Not all possible consequences of climate change has been fully understood by the scientific community, but the three main categories of impacts on India are those on agriculture, sea level rise leading to submergence of coastal areas and increased frequency of extreme natural events (Jyoti Parikh and Kirit Parikh, 2002)⁴². Examples could be taken of the Indian Ocean tsunami in 2004 and Uttarkhand flash floods in 2013. India is one of the most vulnerable countries to the effects of climate change (Cruz et al, 2007)³³ and each of events poses serious threats to India. It is worth mentioning that India accounts for a meager 2.4 per cent of the world’s total geographic area of 135.79 million sq. km. Yet, India is home to a massive 16.7 per cent of the world population, being the world’s second highest populated country with a population of more than 121 billion (MoEF, 2009⁴⁴; Dutt et al, 2012⁴⁵). Another study reported in 2007 mentions that there has been a steady rise in greenhouse gas emissions - rising from 682 Metric ton carbon dioxide (CO₂) in 1990 to 1342 Metric ton CO₂ in 2004 with an enormous population rise all over the world in the recent decades (Watkins et al, 2007)⁴⁶. Under such a condition it is but natural that energy consumption in the country is bound to increase by leaps and bounds to newer heights over the period of time (MoEF, 2007⁴⁷; Dutt et al, 2012⁴⁸).

From the standpoint of India, as predicted by IPCC reports, a mere 2 degree celsius increase in average temperature would be excruciating for the general populace as the country is situated on the tropic of cancer. It may also give rise to newer vector-borne diseases like malarial infestations, neurological and digestive disorders, skin irritations and diseases of the eyes, throat and respiratory tract (Mishra, 2009)⁴⁹. According to World Health Organization, malaria is the most destructive disease on earth. Globally more than 1.5 million people die annually due to malaria. India has the largest disease burden of malaria (IFRC, 2005)⁵⁰. Global warming may also have
adverse impact on aquatic life as well as on terrestrial flora and fauna, leading to mass scale deaths of animals and birds akin to the repetition of the *Silent Spring*.

Subject to sea level rise, there will be a large number of environmental refugees displaced from the low-lying coastal regions of the country. People dependent on coastal fishery and agriculture are likely to be adversely affected in the event of intrusion of saline water into ground water. If a one-meter sea-level rise were to take place today, it would displace more than 7 million people in India (*Parikh and Parikh, 2002*)\(^{51}\), *Aggarwal* and *Lal*, 2001\(^{52}\). The study further reveals that 35 per cent of the land mass in Bangladesh may be submerged by a one-meter rise in sea-level. In the event of such a natural catastrophe, millions of people in Bangladesh are likely to be displaced and many of them could spill over to India via bordering states, especially Tripura as the state shares geographical, linguistic and cultural proximity with Bangladesh. Historically, Tripura has been home to a host of people from the neighbouring country. This happened twice - first in the aftermath of India’s independence in 1947, and on the second occasion, it was when Bangladesh was liberated from the clutches of Pakistan in 1971s.

Since the beginning of the twenty-first century, major natural disasters like the Orissa Cyclone, Andhra Pradesh Cyclone, Indian Ocean Tsunami and flash floods in Uttarkhand have created havoc time and again in the country. Climatologists are of the opinion that the increased occurrence of extreme events due to climate change was only imminent (*IFRC*, 2005)\(^{53}\). Cyclones of severe intensity will affect the poor countries like India which has long coastlines and cause huge loss of property and lives for tens of thousands of people (*Aggarwal* and *Lal*, 2001)\(^{54}\). As per media reports, cyclone Phailin, for instance, caused an estimated $4.15 billion of damage to the agriculture and power sectors in Odisha alone. The human suffering and devastations that accompany such extreme events in a poor country like India will be beyond the tackling capacity of the country (*Revi*, 2008)\(^{55}\), whereas in advanced countries like the US, similar events may not lead to much death and hardship due to the socio-economic safety net available to the people of those countries.

In a comprehensive study of the impact of climate change on agricultural crop productions in India, *Kumar* and *Parikh* (2001)\(^{56}\) estimated that the GDP and welfare of India will be adversely affected in the event of imminent climate change in India.
This is obvious considering that the IPCC (2001) has projected a temperature rise of 2.5 degree celsius to 4.9 degree celsius in the near future. Kumar and Parikh (2001)\textsuperscript{57} have also predicted that there may be an average reduction of 32 per cent to 40 per cent in rice yield and 41 per cent to 52 per cent decrease in wheat production. Consequently, the GDP of India would dive by 1.8 per cent to 3.4 per cent. Kumar and Parikh (2001)\textsuperscript{58} are additionally of the opinion that for a developing country like India, these are very large changes which may cause significant human misery as the country is ill prepared to tackle climate change induced problems.

Agricultural practices may also get hampered due to the cascading effects of global warming. Irony is that about half of India’s 1.25 billion people are engaged in agriculture for their livelihood and are dependent on summer monsoon rains. Meteorological scientists and several researchers in India believe that climate change is a contributory factor to the changing weather patterns like late arrival of monsoon and its lesser intensity. Growing seasons for food crops and vegetables in India and other tropical countries have become shorter and food price inflation is creating havoc in India (Lal, 2007)\textsuperscript{59}. Furthermore, growing circumstances for semi-aquatic crops like rice which is a staple food in India may become difficult due to water stress, causing food shortages in many areas of the country (Kumar and Parikh, 2002)\textsuperscript{60}. Climate change may also lead to crop failure in a number of ways leading the world towards long spell of famines and poverty as most of the corn and pulses are harvested in monsoon season. Global warming may also cause failure of the Asian monsoon leading to serious damage to various ecosystems like mangrove-swamps, coral reefs and coastal lagoons. Also problems of ocean acidification cannot be ruled out in the wake of massive global warming.

1.4. Media and climate change:

It is also pertinent to mention that media matters a lot in any discussion of climate change communication. The reduction of individual carbon footprint and creation of a congenial international climate change policy regime largely depends upon public attitudes, and public attitudes in turn, can be influenced by the mass media in several ways (Dirikx and Gelders, 2008)\textsuperscript{61}. Climate change communication literature reveals that media can influence both public opinion and policy outcomes at all levels
whether it be in national or international spheres \cite{Pavone2010}. The media is a mechanism of information diffusion in the society and it has been a diffuser of information regarding climate change ever since the mid twentieth century. The mass media has documented the rising significance of environmental issues over the past few decades. A great deal of what most people hear about issues such as the greenhouse effect, global warming, ozone depletion, water and air pollution, and environmental threats like global climate change is likely to come from the media \cite{ShanahanMorganStenbjerre1997}.

Another significant study intended at understanding media’s role in the public perception of climate change was conducted by Fortner \cite{Fortner2000} and his colleagues. They have also assessed individuals’ keenness to take action to reduce global warming. Their results showed a fair degree of willingness to take actions such as supporting environmental education programmes and installing energy efficient light bulbs, but low levels of willingness to take action to support increases in gasoline prices or use of public transportation \cite{Fortneretal2000}. In similar vein, Pavone \cite{Pavone2010} implores the fact that mass media was already diffusing climate change information as early as 1930s when he mentions that the New York Times (15th May, 1932) carried a story on that reported - “The earth is steadily growing warmer...what will happen to man if climate conditions are thus changed?” In 1950s coverage had long-drawn-out the possibility of anthropogenic or man-made climate change decades before the issue began making inroads at the UN conferences and summits. However, climate change did not attract much political and public attention in 1960’s and 1970s until James Hansen, a NASA scientist created a media storm by his testimony of 99 per cent surety of global warming before the US Senate in 1988 \cite{Leiserowitz2003, Shao2012}.

The late 1990s not only saw an increase in the frequency of climate change reporting, but the perspectives also became varied as controversies regarding the science of climate change were also given equal space to accommodate ‘skeptics’, thanks to the journalistic principles of ‘balanced reporting’. The late 1990s was also a watershed period in dissemination of climate change information with the advent of the internet which made possible online, instant publication of research reports and findings of the international research agencies working on global warming issues. Information was
no longer confined to the research labs; it began percolating in the civil society. In the mid 2000s, the quantity and quality of global climate change coverage rose at exponential rates - from back pages to front page, from odd time slots to prime time slots. However, stories related to climate change were mainly coloured with disaster frame, as several natural disasters occurred worldwide during this period. Increase in the intensity of record breaking hurricanes and tropical storms placed climate change in newfound focus and western media outlets covered it almost on a daily basis. The devastation caused by Hurricane Katrina - one of the costliest hurricanes in the US history, is a case in point which propelled the frequency of climate change reporting to a new high and a new norm.

In the above context, Boykoff and Rajan (2007) are of the opinion that a few key factors like journalistic norms, influence of policy makers and scientists, and choices of the public that shape or mediate the creation of media reports on climate change. They have argued that there are two categories of influencing elements which work in favour of media coverage. The first is the ‘macro-relations’, like economic considerations, institutional channels, and legal constraints and the second are ‘micro-processes’ which include day to journalistic considerations. With reference to economic considerations, the weak media outlets working in developing countries face considerable financial constraints which impact media reporting on climate change and often they ignore climate change at the cost of political and crime beat. Climate change news has to continuously compete for space and time slots. Lack of financial resources in developing countries deters coverage of complex issues like climate change. Lack of funds in these countries may also impede in training the correspondents who would like specialize in investigative environmental reporting. So the media outlets of the developing countries scarcely cover environmental beat until and unless the story qualifies to be placed into a disaster frame. Climate change issues have a very short term salience because of unwillingness by the media outlets to report on it.

On the other hand, the media outlets in the developing countries are incalculably dependent on the advertisers for their survival and many of the media outlets are in the hands of the capitalists for which their editorial policy does not have press freedom, so they hardly speak against their advertisers like automobile manufacturers,
fast food multinationals or oil companies for action against climate change. Another macro-process that often works in the pursuit to attract ad revenue by the media outlets, they have to run ads of environment polluting companies and have to air those programme that suit the advertisers’ preference with lesser slots for non-revenue earning environmental beat. Thus poor financial resources and a colonial history of weak media institutions in the developing country like India tend to prefer other issues such as crime at the cost of environment; consequently such dynamics hinder media coverage of climate change. India was a closed economy until 1990s, the government run Doordarshan was the only option available to the Indians. But with opening of the economy, private cable television operators invaded the country from the skies and soon television viewing options increased manifold. As the penetration of cable and satellite television channels increased in India, television became a medium of communication with powerful impact upon students, particularly young adults. Many studies conducted in behavioral sciences scientifically proved that television has an impact on its viewers especially on young adults. The emergence of music channels in the line of MTV channel has created significant changes in the attitudes and behaviour of young adults in the country. Page and Crawely (1998)\textsuperscript{70} refers to a Neilsen Report that reported that Indian college student’s watch television programmes on an average 3.41 hours a day and 24.3 hours per week. Time spent by the Indian students in television consumption is twice the amount of time the average full time student spends in the class room. A study conducted by among middle class Indian students reported that boys articulated a preference for news, sports and quizzes programmes on the TV, while girls favoured mythological and Hindi serials.

Researchers like Pavone (2010)\textsuperscript{71} mentions that this phenomenon has been at the root of perennial dramatization of climate change issues, especially in the US, by presenting a debate over climate change science which has been established as fact by the scientists. McComas and Shanahan (1999)\textsuperscript{72} also emphasize that media reporting is as important an element in shaping the climate change debate as exogenous factors such as natural disasters.

Mediated messages about climate change are pervasive. Media’s proactive role can drive specific policy action for climate change adaptation and mitigation. If the national media is vigorously aligned with climate change, it can push for more timely
policy agenda for climate change adaptation and mitigation measures. Literature has revealed that increased coverage of climate change over the past decades has rendered the issue more salient for the public across the world. It is also worthy to mention that media has a significant role in bringing international aid in combating climate change. For instance, Mozambique floods in the year 2000 can be referred to as an example of the power of the television visuals. Pavone (2010)\textsuperscript{73} mentions that as soon as the global media gained access to the area and covered the destruction with strong visuals of the cyclone which rendered thousands of people homeless, generous flow of aid started pouring in to the area. The broadcast media, especially television images helped mobilize foreign aid, medicines, rescuers and other emergency resources in an unprecedented manner to Mozambique. However, Pavone (2010)\textsuperscript{74} laments that due to lack of media coverage, in the case of Orissa cyclone in the year 1999; the humanitarian aid mobilized was several times lesser despite the greater severity of the cyclone in Indian. This instance implies that media advocacy can influence a great deal in garnering national and international support for climate change governance.

Not only does the television perform a significant role of a powerful catalyst in the crusade against climate change, but also set an agenda among the masses in the society. Equally commendable is the role of film media in this regard. Leiserowitz (2004)\textsuperscript{75} mentions that the issues of climate change made its impressive entrance into the public sphere with the release of “The Day After Tomorrow” - a 2004 Hollywood blockbuster movie. In this context, Leiserowitz (2004)\textsuperscript{76} further reports that the movie had a significant impact on climate change risk perceptions, theoretical understanding of the issue, behavioural intent, policy priorities and even voting intentions of moviegoers compared to survey respondents who did not see the film. In fact, the movie had generated a kind of media tempest and debate as scientists, politicians, advocacy groups and political pundits debated the scientific accuracy and political implications of the movie on public perception of the science of global climate change. A similar study conducted in the UK found that viewing the film “The Day After Tomorrow” increased public concern (Reusswig, 2005\textsuperscript{77}; Lowe, 2006\textsuperscript{78}). Several studies of the movie indicate that the mass media platforms like movies “The Day After Tomorrow”, “An Inconvenient Truth” and “Live Earth” can go a long way in launching issues like climate change into the public sphere (Leiserowitz, 2004\textsuperscript{79}; Reusswig, 2005\textsuperscript{80}; Lowe, 2006\textsuperscript{81}; Leiserowitz, 2007b\textsuperscript{82}). Commenting on the
significant role of media as a launch-pad for scientific issues like global climate change among the public, Reusswig (2005)\textsuperscript{83} observes that:

\begin{quote}
It is doubtful that the creators of the United Nations Framework Convention on Climate Change (UNFCC) had Hollywood on their minds when they drafted Article 6, which asks for improved communication and education on the issue of climate change. But the entertainment industry seems to have done quite a lot for the public awareness of climate change.
\end{quote}

Thus media coverage not only can inform the public but also stimulate public opinion in favour of policy legislations aimed at combating climate change. The media can, in fact, shape the perception of the public about climate change issues and compel individuals to action and demand policy action from their government to address the problem. In tune with the above, Bord et al (2000)\textsuperscript{84} find that increased understanding of the climate change issue motives people towards action. Krosnick et al (2006)\textsuperscript{85} argue that if the public has access to knowledge about climate change, it may bring increased certainty about the phenomenon which in turn increases assessments of national seriousness about climate change, which in turn increases policy support. It has been established that the public relies on the media to gain information about issues like climate change; in this process, the media also renders the role of an educator. This is why Boykoff and Boykoff (2004)\textsuperscript{86}; Boykoff and Rajan (2007)\textsuperscript{87} argue that media reporting is central to the framing of climate change in the public psyche. The authors mention that when individuals are unaware of the causes of climate they are unlikely to develop effective solutions to address it. Stamm et al (2000)\textsuperscript{88} have mentioned that the problem of climate change may be less salient to individuals who they do not understand it and these individuals value environmental problems lower than other issues. Hence, mass media’s coverage of climate change issues significantly shapes people’s perspectives and can impact people’s behaviour. The press and the public can demand a lot from the government to arrest carbon dioxide emissions globally. Climate change interventions is the need of the hour and there is no room any leeway for ‘wait and watch strategy’, as the Guardian, carried a news story (23\textsuperscript{rd} October, 2007) which mentions about a scientist who reported -
global warming is stronger than expected and sooner than expected” (cited by Gavin, 2009).

1.5. Social significance of the study:

Literature mentions that there are two major approaches for countering climate change: adaptation and mitigation. While adaptation approach aims at reducing the impacts of weather- and climate related events such as floods, droughts and storms that affect the most vulnerable countries through capacity building which involves large financial allocations, which only solvent governments can afford. Mitigation approach, on the other hand aims at a significant reduction of the greenhouse gases (GHGs) through awareness generation. If small acts by private individuals help cut excessive carbon dioxide emissions, global warming can be arrested drastically. Herein, lies the role of mass media and other sources of information that can easily pass on the message among the public. However, both the approaches are very much valuable for responding to climate change.

Literature also reveals that public perception of global warming or climate change illustrate a mass communication problem (Stamm et al, 2000) that requires concerted actions from all the stake holders of the society to get the public involved in responding to climate change immediately. Global warming is a global problem and it does not matter where carbon dioxide is emitted or how much is being emitted by rich or poor countries, because ultimately it ends up in the shared atmosphere of the world. Surveys of public understanding on environmental issues have exposed that although people are aware of this problem in a general sense, understanding of particular causes, possible consequences and agreed solutions to climate change are limited. Hence, the significance of the present dissertation is enumerated as under.

First, much of the research into climate change studies conducted to date has been mostly in the US, the UK, or Western context. There is need for a India - based study so that the perceptions of Indians can be detected and possible measures for combating climate change could be suggested or implemented in India where carbon dioxide emissions are on the rise as the country is on its path of development.
Secondly, climate change has been widely recognized as one of the most important problem facing the planet earth on the current international environmental agenda. Although the extent and timing of effects are uncertain, climate change is believed to have implications in several areas including food and water supply, energy production and use, ecosystem and species-survival, human health and social, political and economic stability (Stern, 2007). The developing countries like India will be hard hit by climate change impact (Revi, 2008).

Thirdly, since people generally have little direct contact with issues revolving climate change or global warming, it is likely that many rely on the mass media as a primary source of information on this topic (Wilson, 1995). The problem of inappropriate communication, first identified by Kempton (1997), still remains pertinent. Kempton’s study (1997) and results of several other surveys (e.g. Whitmarsh, 2008; Leiserowitz et al, 2011) have found that awareness remains low despite of information boom, and action is insufficient in mitigation of climate change.

Fourthly, the topic of climate has generated considerable scientific, media-specific and political debates (Ungar, 2000). As a result of such major events and growing concern regarding climate change issues, although the media around the world have increased the coverage of environmental topics, yet the perception remains considerably low amongst the general populace of developing countries.

Fifthly, very little research has been done in India to gauge the perceptions of the students about climate change and to examine their attitudes and behaviours on climate change issues. This gap in research exists despite the fact that India is one of the fastest growing carbon dioxide emitters in the world which is the cause of anthropogenic climate change. Recently few global warming awareness studies (Leiserowitz and Thaker, 2012) have been conducted in India. But these studies did not consider students as there sample, rather it was based on general population of metropolitan areas. Also no study has been specially conducted in Tripura context. These studies did not provide comprehensive data regarding public awareness of the issue among students and the role of mass media. Barring a few, many studies were global in nature and but not specific to India. In these multinational surveys (conducted in India as well), data was not obtained about people’s media use and its effect on understanding of causes and impacts of global warming and their
willingness to support initiatives to reduce global warming. Public awareness and understanding on issues related to news media use like access to Doordarshan news or private cable television news outlets, local newspapers or national newspapers which are closely linked with climate change perception were not examined. These studies did not examine whether awareness levels vary according to gender, indigenous perception, age, level of education, and urban-rural place of residence in India. There is a need to study the perceptions of students in the world’s largest democracy. Today’s students will be become tomorrow’s leaders and as Moser and Dilling (2007) point out that there is a “need for cross-national, cross-cultural comparisons of climate change communications and social change efforts and of societal responses from different countries.”

Sixthly, much of the research studies conducted abroad were more specific to the cultural context of developed countries, whereas, in Indian context global warming is considered a relatively new communication problem in the context of development paradigm like poverty alleviation, jobs for all which are coupled problems of mass illiteracy and apathy towards nature. Hence, the present study, “Media and Climate Change Issues: A Study of the Perceptions of Post-Graduate Degree Students in Agartala, Tripura” was undertaken as an attempt to fill this gap in the literature.

Seventhly, although there is scientific consensus that global warming is undoubtedly occurring (Corbett and Durfee, 2004), but there is less awareness of it being caused by human activities. As a result there is less agreement about the exact consequences of unchecked global warming and the repercussions of strategies to mitigate negative effects. This allows considerable leeway for public confusion over the causes, consequences and viability of possible solutions to the problem.

Eighthly, significant number of research work has been conducted in the Western countries measuring public understanding of climate change and the role of media in educating them (e.g., Zhao, 2009; Carvalho et al, 2005; Stamm et al, 2000; Mikami et al, 1999; Shanahan, 1993; Bord et al, 1998). But very few studies have been undertaken in India so far on the given problem. No recorded study has so far been conducted in this context that looks into the knowledge, perceptions, beliefs, attitudes and behaviours of postgraduate students in Tripura regarding climate change issues. This would be a pioneering study and would help guide the policy makers.
Almost all research on communication of climate change has focused on western social context and norms, with little consideration of how the issue is being framed in countries like India where the macro-scale normalizing values in the public sphere are different.

Ninthly, India is one of the world’s vulnerable countries to the impact of climate change (Gupta, 2005; Cruz et. al., 2007; Unnikrishnan et al, 2006; NAPCC, 2008; INCAA, 2010; Billett, 2010) and the vulnerability of Tripura cannot be ruled out under such circumstances. With an economy closely tied with its natural resource base and climate sensitive sectors such as agriculture, water and forestry; India may face a major threat because of projected changes in climate (NAPCC, 2008; Gosain, 2006). The State is already beginning to face environmental problems like air and water pollution, water scarcity, erratic rainfall and reduced greenery, threats to human health with increasing number of vector borne diseases (Cruz et. al, 2007; TERI, 2004; Parikh and Parikh, 2002; Parsuraman and Unnikrishnan, 2000). Climate change may alter the distribution of quality of India’s natural resources and adversely impact the livelihood of its people (NAPCC, 2008).

Lastly, the present study would help the policy makers in understanding the problem of climate change and migration (Dasgupta, 2007), as the state of Tripura shares maximum international border with Bangladesh. In the event of any disaster due to climate change and leading to impact of sea level rise, inundation, salinization and erosion, environmental refugees from neighbouring country might migrate into Tripura as the state shares linguistic, cultural and geographic proximity with Bangladesh more than any other state in the Indian Union (Gupta, 2005; Dasgupta, 2007). India has already hosted hordes of refugees from its neighbouring countries not once but twice, in 1947 at the time of India’s independence and again in 1971 with the liberation of Bangladesh. Consequently, it might have to experience huge adverse impact on the livelihoods and long-term health of a large proportion of the population of the country (Shukla, 2003b). Climate change is expected to increase the severity of flooding in many Indian river-basins, especially in Tripura and other adjoining north-eastern states of India (Revi, 2008). Additionally with the melting of glaciers in the Himalayan region and consequent sea-level rise in the Indian Ocean.
due to global warming, intensity of increased riverine and inland floods and coastal inundation will displace tens of millions of people (Revi, 2008). As a result, the future economic wellbeing and the livelihoods of the people of India might be at stake (Shukla, 2003a).

However, few studies have been conducted to decipher the media’s role in spreading awareness among the students. As a result the researcher is interested in conducting a study on post-graduate students’ awareness, beliefs and attitude on climate change in Agartala, the capital of the tiny state of Tripura which is considered to be a biodiversity hotspot in the country and is equally vulnerable to impact of global climate change as any other city of the country.

1.6. Statement of the problem:

Media exposure has a direct impact on the knowledge and perception of an individual. Research suggests that attention to news about global warming increases public knowledge and concern about the issue (Zhao, 2009; Stamm et al, 2000; Krosnick et al, 2006). The power of media to set a nation’s agenda to focus public attention on a few key issues like climate change is immense and well documented (Wilson, 1995). What we know about the world is largely based on media presentation. More specifically, the result of this mediated view of the world is that the priorities of the media strongly influence the priorities of the public. The role of media in agenda-
setting the adaptation and mitigation interventions regarding climate change issues in the society is worth studying. The penetration of both mass media and new media among the youths is an emerging phenomenon in the society. The youths in any country are the most media savvy segments of the population. This study aims to expand the existing framework by exploring the possibilities of understanding the perceptions of educated youths and role of mass media in climate change awareness and mitigation engagement in India. It also endeavours to suggest the possible measures of mitigating the problem of climate change through mediatizing the issue among the educated youth.

1.7. General and specific objectives of the study:

The primary objective of the present study is to examine the level of understanding of the causes, consequences and mitigation efforts regarding climate change issues as perceived by the post-graduate students of Agartala. It is also endeavoured in the study to find out the media habits and preference of mass media among them.

Some of the specific objectives of the study were:

1. To study the perceived knowledge, awareness and practices of the post-graduate students of Agartala regarding climate change issues.
2. To study the interaction of some independent variables like age, sex, caste, parental income, place of birth, medium of instruction, and Environmental Studies with respect to amount of media exposure.
3. To assess the sources of information on climate change among the post-graduate students.
4. To ascertain the perceived trustworthiness of the sources of information the students rely upon.
5. To study the perceived behavioural involvement and effectiveness of certain mitigation actions adopted by the students of Agartala towards tackling climate change issues.
6. To suggest recommendations to the policy makers in this regard.
References


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