

Sustainable Development and Environmental Problems: Coping with Green House and Climate Change

RAJESH KUMAR

Department of Political Science, Faculty of Social Sciences
Banaras Hindu University (BHU), Varanasi (U.P.) India

ABSTRACT

“Globally increasing temperatures are likely to have impacts on terrestrial, aquatic and marine ecosystems that are difficult to manage. Atomic properties of elements and compounds are prone to change due to fluctuation of surrounding temperature and pressure. General properties of elements and compounds are exhibiting at par with the normal temperature and pressure (NTP). As the cause of global warming, the atomic properties of elements and compounds will not behave normally as in NTP. Their characteristics and applications are subjected to evergreen changing process, since natural temperature and pressure are not remaining constant in case of global warming. While life pattern of the living being will be full of complexity and not guided by any rules in case of global warming. Industries, refineries, excessive electromagnetic wave propagation through air, transport vehicles-road and airways, rapid growth of entertainment equipment like air conditioned (A.C.) machine, refrigerator, television, mobile phone computer etc. are the main cause of increasing environment temperature. To solve this emerging problem, Industrialization (Industry should grow with minimum working space effecting least environmental pollution) and Naturalization (Maximum portion of the earth must be covered with either agricultural green trees or clean water) have to be provided side by side and at the same time people have to minimize using all type of entertainment equipment, otherwise global warming may cause destruction of the world”.

Key Words : Global Warming, Climate Change, Green House Effect, Industrialization, Naturalization, Sustainable development, Environmental Problems, Sustainable Development Goals

INTRODUCTION

In the last 50 years, world has witnessed day an unprecedented increase in population growth leading to continuously rising human needs for meeting day to day life, putting stress on existing resources and severely affecting their carrying capacity. The world had 3.32 billion in people in the year 1965 which were increased to 7.32 billion in 2015. By 2050, this number could rise more than 9 billion (FAO, 2009). Over the decades, worldwide concern on global climate change has become pivotal issue for mankind at various international platforms. The global climate change has emerged as a complex challenge to ecological health, human well-being and livelihood security¹.

Continuously rising anthropogenic CO² emissions, Green House Gases (GHGs) emissions and their impacts are posing the urgent need of combating the problem of climate change. The present paper discusses about the urgent need of intervention by the global academic community and decision making community for tackling the current and future earth challenges of climate change and energy security for sustainable development. This paper provides an optimistic vision to combat with global problems like climate change and maintaining the levels of development by adopting an multidimensional approach of sustainable development and clean energy.

UN has passed resolution to implement Sustainable Development Goals on 25 September, 2015 adopted by 193 countries of the UN General Assembly. Successful

COP 21 Paris Agreement was completed in December 2015. Towards global sustainability, the discipline of social sciences promotes trans-disciplinary research incorporating co-design processes, facilitating engagement with and involvement of different stakeholders together with developing scientific networks under Science Policy Interface (SPI)².

In recent years the entire mankind is confronted with a major challenge, a challenge of survival of the mankind. We are noticing a radical metamorphosis in the entire environment which is putting the mankind to the million dollar question: how long mankind will survive coping with the fast change and decay of the natural resources. Hence the question of sustainable development has come to the forefront.

Human impacts leading to large scale degradation of the environment have aroused global concern on environmental issue in the recent years. At this juncture let us try to understand what is environment and sustainable development. The term 'Environment' refers: what is around something. It can be living or non-living things. Further, it includes physical, chemical and other natural forces. Living things live in their environment. By nature, they constantly interact with it and undergo changes in response to condition in their environment. In the environment, there are interactions between animals, plants, soil, water, and other living and non-living things. The circumstances, objects, or conditions by which one is surrounded. It also refers to the sum total of all surroundings of a living organism, including natural forces and other living things, which provide conditions for development and growth as well as of danger and damage. Now why the question of environment and sustainable development has come into limelight? It is because of the fact of environmental pollution. As we know that the major types of environmental pollution are: air pollution, water pollution, noise pollution, thermal pollution, soil pollution and light pollution. It should be further stated that deforestation and hazardous gas emissions also leads to environmental pollution to a very great extent. During the last one and half decade, the world has witnessed severe rise in environmental pollution. There is no denying the fact that we all live on planet earth, which is the only planet known to have an environment. It is only here where air and water are two basic things that sustain life. It is well known that without air and water the earth would have been like the other planets of the universe – no man, no animals, no plants³.

The biosphere in which living beings have their sustenance have oxygen, nitrogen, carbon dioxide, argon and water vapor. The mother nature has arranged a perfect balance to ensure and help a healthy growth of life in the animal world. This balance does not only help the life-cycles of animals and plants, but it also creates the perennial sources of minerals and energies without which the human civilization of today could not be built. It is for this balance that the human life and other forms of existence have flourished on earth for so many thousands of years. The following factors are responsible for environmental pollution which is a major hindrance to sustainable development. They are:

Industry:

The industries are a major source of environmental pollution. There is no denying the fact that the industries all over the world have brought prosperity and development but at the same time made inroads in the biosphere and have greatly disturbed the ecological balances. The smoke, the swirling gases, industrial effluents and the fallout of scientific experiments have become major health hazards. It has polluted and contaminated both air and water. It has been accepted by all that the improper disposal of industrial wastes is the major sources of soil and water pollution. Again, the chemical waste resulting from industry pollutes the lakes, rivers and seas and soil too.

Solid waste:

The household and commercial waste pollutes the environment due to improper disposal. It has been a major cause of environmental pollution. In fact the household wastes have become a major source of environmental pollution.

Vehicles:

The vehicles emit smoke and constantly pollute the environment. Daily multiplication of vehicles on the road has become a major problem. Emission of black smoke spreads out and mixes with the air we breathe. The hamper smoke of these vehicles causes air pollution to a very great extent. Further, the sounds produced by these vehicles also produces and causes noise-pollution.

Urbanization and Industrialization:

Urbanization and the rapid growth of industrialization have become another major source of environmental

pollution. The environmental pollution reduced from urbanization and industrialization cause great harm to the plant life and in turn causes harm to the animal kingdom and of course the human lives.

Resultant:

As a result of environmental pollution, the life of both human-beings and animals has been greatly affected. The gains of science and technology in the fields of industrial progress have brought with it several hazards to the entire mankind. Even our flora and fauna were found to be threatened with extinction. The smoke left behind the automobiles and other vehicular traffic, the increasing use of synthetic detergents, nitrogen fertilizers and insecticides contaminate both air and water. All these are greatly responsible for environment pollution.

METHODOLOGY

To identify studies for the review, the researchers conducted descriptive study and secondary data was used for the study. Basically, the required material has been derived from various Journals, articles from newspaper, magazines, and web-sites which deal directly or indirectly with the topics related to make in India with real challenges and opportunities were included in the study. After searching the important newspaper and web-sites, relevant information was down loaded and examined to address the objectives of present study.

Aim and objectives of the study:

Securing economic development, social equity and justice, and environmental protection is the goal of sustainable development. Although these three factors can work in harmony, they are often found to conflict with one another. During the latter half of the 20th century economic development for a better standard of living has been instrumental in damaging the environment. We are now in a position whereby we are consuming more resources than ever, and polluting the Earth with waste products. More recently, society has grown to realise that we cannot live in a healthy society or economy with so much poverty and environmental degradation. Economic growth will remain the basis for human development, but it must change and become less environmentally destructive. The challenge of sustainable development is to put this understanding into practice, changing our unsustainable ways into more sustainable ones.

The aim of sustainable development is to balance our economic, environmental and social needs, allowing prosperity for now and future generations. Sustainable development consists of a long-term, integrated approach to developing and achieving a healthy community by jointly addressing economic, environmental, and social issues, whilst avoiding the over consumption of key natural resources.

Sustainable development encourages us to conserve and enhance our resource base, by gradually changing the ways in which we develop and use technologies. Countries must be allowed to meet their basic needs of employment, food, energy, water and sanitation. If this is to be done in a sustainable manner, then there is a definite need for a sustainable level of population. Economic growth should be supported and developing nations should be allowed a growth of equal quality to the developed nations.

The UK Government has recognised four objectives for Sustainable Development. These include social progress and equality, environmental protection, conservation of natural resources and stable economic growth. Everybody has the right to a healthy, clean and safe environment. This can be achieved by reducing pollution, poverty, poor housing and unemployment. No one, in this age, or in the future should be treated unfairly. Global environmental threats, such as climate change and poor air quality must be reduced to protect human and environmental health. The use of non-renewable resources such as fossil fuels should not be stopped overnight, but they must be used efficiently and the development of alternatives should be encouraged to help phase them out. Everybody has the right to a good standard of living, with better job opportunities. Economic prosperity is required if our country is to prosper and our businesses must therefore offer a high standard of products that consumers throughout the world want, at the prices they are prepared to pay. For this, we need a workforce equipped with suitable skills and education within a framework to support them.

Hypothesis of the Study:

In the light of above mentioned problems, the following hypothesis have been taken up for testing, while pursuing the objectives of the study. The biophilia hypothesis also called BET suggests that humans process an innate tendency to seek connections with nature and other forms of life. Edward O. Wilson introduced and

popularized the hypothesis in this book, Biophilia (1984). He defines biophilia as “the urge to affiliate with other forms of life”.

Sustainable-organizing principle for meeting human development goals while at the same time sustaining the ability of natural systems to provide the natural resources and ecosystem services upon which the economy and society depend. The desired result is a state of society where living and conditions and resource use continue to meet human needs without undermining the integrity and stability of the natural systems.

While the modern concept of sustainable development is derived mostly from the 1987 Brundtland Report, it is also rooted in earlier ideas about sustainable forest management and twentieth century environmental concerns. As the concept developed, it has shifted to focus more on economic development, social development and environmental protection for future generations. It has been suggested that the term ‘sustainability’ should be viewed as humanity’s target goal of human-ecosystem equilibrium (homeostasis), while ‘sustainable development’ refers to the holistic approach and temporal processes that lead us to the end point of sustainability.

The concept of sustainable development has been—and still is—subject to criticism. What, exactly, is to be sustained in sustainable development? It has been argued that there is no such thing as a sustainable use of a non-renewable resource, since any positive rate of exploitation will eventually lead to the exhaustion of earth’s finite stock. This perspective renders the industrial revolution as a whole unsustainable. It has also been argued that the meaning of the concept has opportunistically been stretched from ‘conservation management’, and that the Brundtland Report promoted nothing but a business as usual strategy for world insubstantial concept attached as a public relations slogan.

Review of literature:

A review of literature and policy on a range of sustainable development issues. Individual topics of the review are: sustainable development theory; food; procurement; consumption; green jobs and enterprise; the built environment; environmental protection; education; and environmental justice. Although the origins of Sustainable Development (SD) can be traced to the seventies, is in the World Commission on Environment and Development in 1987 (WCED) or “Brundtland

Commission”) that the term is coined and also defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Le Blanc *et al.*, 2012:1).

One of the defining moments for SD was the UNCED, known as the “Earth Summit”, held in Rio de Janeiro in 1992 with the agreement by member States to launch a process to develop a set of sustainable development goals (SDGs) that could be a useful tool for pursuing focused and coherent action on sustainable development (United Nations, 2012:15; Le Blanc *et al.*, 2012:17).

But why sustainable development is significant for rural development? Poverty remains a predominantly rural problem, with a majority of the world’s poor located in rural areas (Dercon, 2009), it is estimated that 76 per cent of the developing world’s poor live in rural areas, well above the overall population share living in rural areas, which is only 58 per cent (Janvry *et al.* 2002; Giovannucci, *et al.*, 2012:6).

Poverty greatly limits the quantity and quality of food that people can purchase. Workers in developing countries often make only \$1 - 2 per day, with relatively less money in those regions, the economic demands for food is less, which in turn results in lower levels of either food production or distribution (Sheaffer and Moncada, 2009:68-70).

In the other hand environmental limitations like soil resources, water and energy turn more difficult the scenario of rural area. Theoretical and conceptual frameworks of Sustainable Development. The Rio Declaration on Environment and Development is the cornerstone of Sustainable Development, a set of 27 principles promoted concepts such as the centrality of human beings to the concerns of sustainable development (Principle 1); the primacy of poverty eradication (Principle 5); the importance of the environment for current and future generations and its equal footing with development (Principles 3 and 4); the special consideration given to developing countries (Principle 6); the principle of common but differentiated responsibilities (CBDR, Principle 7). It also enshrined the two critical economic principles of polluter pays (Principle 16) and the precautionary approach (Principle 15). It introduced principles relating to participation and the importance of specific groups for sustainable development (Principles 10, 20, 21, 22) (Le Blanc, *et al.*, 2012 :1). Twenty years later was celebrated the United Nations Conference on

Sustainable Development (Rio+20), held in Rio de Janeiro in June 2012, was the agreement by member States to launch a process to develop a set of sustainable development goals (SDGs) that could be a useful tool for pursuing focused and coherent action on sustainable development. Other frameworks like the Millennium Development Goals (MDG), are a clear demonstration that world leaders can come together to address the major challenges of our time – not only war and financial crisis, but also poverty (UNRISD, 2010:3; Le Blanc, *et al.*, 2012 :16).

A difference between the MDGs and the SDGs is the degree of agreement that exists among countries on the broad underlying objectives, as well between the contexts of the MDGs and the SDGs is the prevalence of collective action problems at the heart of sustainable development, and the frequent failure of countries at solving those problems (Le Blanc, *et al.*, 2012:17-20).

Key policy goals and dimensions of Sustainable Development. High-level Panel on Global Sustainability of UN in 2012, establish the most uniform and consistent review of principles related with any framework related with SD. It should be universal in character, covering challenges to all countries rather than just developing nations. It should express a broadly agreed global strategy for sustainable development. It should incorporate a range of key areas that were not fully covered in the MDGs. It should be comprehensive, reflecting three dimensions of SD. It should incorporate near-term benchmarks while being long-term in scope, looking ahead to a deadline of perhaps 2030. It should engage all stakeholders in the implementation and mobilization of resources It should provide scope for the review of these goals in view of evolving scientific evidence. In the other hand, during the present research the task to identify a set of measurable indicators was difficult. Because indicators are elaborated starting from the dimensions of sustainable development I found out that there is no uniform criterion among organizations of the number and types of dimensions. 4 In Agenda 21, article 8.6 states that countries could develop systems for monitoring and evaluation of progress towards achieving sustainable development by adopting indicators that measure changes across economic, social and environmental dimensions (United Nations, 1992:Art. 8.6), ironically in further documents UN considers institution like a fourth dimension (United Nations, 2007:39-40). UNESCO considers three dimensions of sustainable development

named before and also political dimension (democracy, politics, decision-making). Jon Hawkes in his book “The Fourth Pillar of Sustainability: Culture’s essential role in public planning”, contributes with ‘Cultural’ dimension for SD, states if a society’s culture disintegrates, so will everything else. Cultural action is required in order to lay the groundwork for a sustainable future.

What have been accomplished, challenges and barriers in implementing SD goals The High-level Panel on Global Sustainability also elaborated a comprehensive analysis about the progress in sustainable development, main indicators are described: Economic growth and inequality: last decades the world’s overall GDP grew by 75 per cent, however inequality has grown continuously. Poverty eradication: the world is comfortably on track to beat the MDG. Forests: the rate of deforestation has decrease; however, the world is still losing forest cover at an alarming rate. Oceans resources: overfishing now being classified as overexploited, or fully exploited, a situation substantially worse than two decades ago. Climate change: annual global CO₂ emissions grew 38 per cent between 1990 and 2009 and would lead to a likely temperature increase 5 Biodiversity and ecosystems: evidence show that most habitats are in decline and the rate of species extinction appears to be accelerating. Gender: women have seen substantial improvements in rights, education, health, and labor opportunities, but there are still persistent differences across all societies. Education: remarkable progress has been made in education worldwide. Globally, literacy rates are improving, but progress is slow. Hunger: global food production has kept pace: today enough food is produced to feed all of us comfortably; however, access to food is another story. The last decades were characterized by dramatic changes in technology that has influenced other spaces of the science, customs and cultural relations, and collateral effects in the environment, that creates new scenarios and challenges: Environmental and Social Costs of the Green Revolution (Institute for Food and Development Policy, 2009). Climate change: is a risk to all countries and individuals. Environmental degradation: expressed as loss of fertile soils, desertification, unsustainable forest management, etc. Changes in the global economy: The interconnectedness of the global economy means that no country is immune to events in the larger global economy. Accountability and responsiveness: authorities at all levels are encountering new challenges from citizens who question whether they

are acting in the long-term public interest. Nature and life support in 2050: Two thirds of world population living under water stresses, global deterioration of urban air pollution (UNDESA, 2012:6). Food security: chronic hunger is fundamentally not an issue of just more food; it is an issue of access. Waste may be the single most important area that can be addressed with relative ease (Giovannucci *et al.*, 2012:8).

Major institutions and players that should be transformed. Continuous changes in world are pushing all institutions concerned with sustainable development to be transformed; non-governmental actors have also become key players in international relations and sustainable development. In the private sector, progressive companies are moving away from the voluntarism of “corporate social responsibility” and towards much harder-edged, genuinely systemic approaches - both in their own activities (such as mainstreaming sustainability in supply chains through the use of standards or joining voluntary emissions trading markets) and in their public policy lobbying (for example, coalitions of companies demanding tougher emissions targets and greater long-term certainty in environmental regulation and pricing). Many global and national civil society organizations and movements are breaking out of single-issue portfolios and searching for more cross-cutting agendas. These organizations have crucial roles to play in influencing and implementing sustainable development at both the national and global levels, as well as the potential to open up more political space for sustainable development. Nowadays a special phenomenon can change not only the attention but also participation of individuals in SD, the explosive growth of social networking technologies is continuing to empower individuals — and to have highly unpredictable political consequences. If used responsibly, these technologies could unlock positive political outcomes, particularly if “crowd sourcing” platforms enable more collaborative, 7 participatory and transparent approaches to governance and decision-making (UN Secretary-General’s High-level Panel on Global Sustainability, 2012 :27).

Key policy recommendations for Sustainable Development. Given the available evidence and scenarios, what can be said of the role of international cooperation in finding solutions to sustainable development challenges? According with Le Blanc a framework for international cooperation that aims to

support sustainable development would necessarily put a heavy emphasis on three dimensions: (i) the need to eradicate poverty and hunger; (ii) the global ecological footprint of humanity; and (iii) the management of global commons. Ideally, such a framework should be adapted to the challenges of the future. The adoption of sustainable development without renunciation of other objectives has translated into resistance from institutions at all levels to fully accommodate sustainable development as a guiding framework for their operations, which has resulted in the creation of dual or parallel “tracks” in many areas. Economic and financial governance has remained firmly outside of the remit of sustainable development. It has continued to function largely untouched by the concepts of sustainable development, both at the international and national levels. UN Secretary-General’s High-level Panel on Global Sustainability, UNDESA (2012) and Giovannucci *et al.*, states the following recommendations for Sustainable Development: Conserve resources and promote renewable energies Innovation Empowering people 8 Education and skills for sustainable development Strengthening institutional governance Integration of goals Recommendations to food security.

Implications of Sustainable Development in Peru is one of the 10 megadiverse countries in the world; it has the second largest Amazon forest, the most extensive tropical mountain range, 84 of the 104 life zones identified in the planet and 27 of the 32 world climates. It is also rich in glacier areas (71% of the tropical glaciers of the world) of utmost importance for human, agriculture, mining and electric power generation consumption. However due to the global warming during the last 35 years glaciers have lost over 22% of their surface, increasing the water stress problem generated by the uneven distribution of the population in the country, as most of the national population is settled on the Pacific side, which only receives 2% of the water resources of the territory. At the same time, Peruvian economy is passing a dream period of successful growth, in 2012 Peru record one of the lowest inflation in the region. The excellent performance of world prices in minerals, the principal resource of Peru, produced an expansion of its international monetary reserves, putting the country in position to afford without problems all its debt; in the other hand the increase of industrial and service activities were traduced in a better collection of taxes. Poverty rates had decreased in the last 7 years from 58.7% to

27.8% (National Institute of Statistics and Informatics), however the inequity distribution of wealth shows one of its greatest contrasts along the Sierra region, the Peruvian highlands with 8.7 million inhabitants (32% of the national population) owns 62.3% of the rural population in poverty, while 22.6% are extremely poor. The Millennium Development Goals have been incorporated as the general framework of the social policy of Peru. The economic growth of Peru has contributed to progress in MDG goal 1 (“eradicate extreme poverty and hunger”); however, it has had no influence on reducing inequalities and extreme poverty, which is still high in the rural areas of our country, where vulnerability to climate change is evident. Regarding to MDG 7 (“ensure environmental and sustainability”) progress has been made between 2004 and 2008 in the legal and political framework. The milestone is the creation of the Ministry of Environment in May 2008. Within the scope of mitigation, progress has been achieved with regard to economic growth that has resulted in the reduction of emissions, such as the promotion of renewable energy and biofuels. Also has been generated, more information regarding with vulnerability and formulation of policies to adaptation; however, these are the first steps toward ensuring environmental sustainability, considering that Peru is highly vulnerable to climate change.

Community Capacity Building for Rural Development and Poverty Alleviation Sustainable community capacity building Among literature related with Community Capacity Building (CCB), Antonella Noya give us an interesting concept, stating that in essence, CCB is a process of enabling those living in poverty to develop skills and competencies, knowledge, structures, and strengths, so as to become more strongly involved in community, as well as wider society life, and to take greater control of their own lives and that of their communities.

However the author warn to lecturers that obscured connotations has also emerged, especially when third parties interests darkens the welfare of the community. CCB is essentially, therefore, not a neutral technical process: it is about power and ideology and how these are mediated through structures and processes. ABCD concepts and model to support sustainable rural development ABCD is a path that leads toward the development of policies and activities based on the capacities, skills, and assets of lower income people and their neighborhoods (Kretzmann and McKnight, 1993:5).

Related to these are additional needs for the development of listening skills, understanding issues of capability and power, learning to step back, learning to ask about what people have done well and learning not to judge, criticize or rush (O’Leary, 2006:6).

An approach of ABCD model used by the Ford Foundation which supports grantees in building assets that individuals, organizations, or communities can acquire, develop, improve, or transfer across generations. These include: Financial holdings of low-income people, Natural resources such as forests, wildlife, land, and livestock that can provide communities with sustainable livelihoods, are often of cultural significance and provide environmental services such as a forest’s role in cleansing, recycling, and renewing air and water. Social bonds and community relations—the social capital and civic culture of a place—that can break down the isolation of the poor, strengthen the relationships that provide security and support, and encourage community investment in institutions and individuals.

Human assets such as the marketable skills that allow low-income people to obtain and retain employment that pays living wages; and comprehensive reproductive health, which affects people’s capacity to work, overcome poverty, and lead satisfying lives. Case of ABCD in community development project: United we can. This is an illustrative case presented by Ann Dale and Lenore Newman, in the Downtown Eastside of Vancouver, a community with intractable problems of drug addiction, mental health issues, persistent poverty and homelessness. The name of the network is United We Can, targeting ‘binners’ who dive into the large blue garbage bins for recyclables to return to retailers for cash. With a first donation of \$150.00 organize a one-day bottle depot in a local park. Their objective was to pay street people to bring in empty cans and bottles which at that time were non-refundable, each of divers were paid a maximum of \$10.00 for their nonrefundable, the activity was a complete success. The Harcourt administration in 1991 expanded the deposit refund system for beverage containers, again, street people lined up for the workshops at local community centers, and binners realized from these workshops that they could create their own deposit system. Over a period of five years, the initial core network evolved to become a legal nonprofit organization. The group approached Van City Community Loan Fund for a line of credit, which was eventually secured; \$12,500 from Van City itself and \$12,500 from a benefactor.

United We Can was established as a formal depot in 1995 in that first year, 4.7 million containers were recycled—putting \$360,000 back into the community through handling fees. The charitable side was created in 1996 and United We Can has evolved into a social enterprise, since this time. Today, United We Can employs thirty-12 three people full-time, most of whom had not been previously employable. The enterprise's annual revenue is 1.6 million dollars, and they recycle 50,000 bottles a day. There are currently four other business streams in development. The Collection Services, with the use of truck and tricycle hauling, is now offering container collection directly from larger volume commercial and residential consumers in the downtown area. This article focuses on the exogenous factors evidence was clear that leadership and his ability to augment his community's linking social capitals. In addition, his outstanding communications skills and his ability to communicate to diverse stake-holders from multiple sectors are also contributing factors. Accomplishments and challenges of ABCD model. Across the world participatory approaches to development such as asset based and livelihood approaches have moved from locally successful projects into scaled up programmes promoted by local regional government and international agencies such as the World Bank (O. Leary, 2006:4). ABCD model has accomplished a wide range of success cases around the world and disparities conditions. Under the scope of sustainable community capacity building, the analysis fulfills the three dimensions of sustainability, as social, economic and environment. However as was mentioned before still remains some challenges including the manipulation of communities, misappropriation of terminology, co-option of activists, conditional funding and state controlled power games such as divide and rule have also emerged.

RESULTS AND DISCUSSION

Climate change and environment: A global issue and local risk:

Global climate change has emerged as a worldwide risk which causes substantial stress on glaciers, agriculture, livestock, biodiversity and water resources. Over the years, climate change has severely altered the productivity in human and natural system which in turn has affected the functioning of environment. Climate change is also the main triggering mechanism behind the increased frequency and intensity of hydro-meteorological

disasters. Worldwide, the percentage of occurrences of flood was highest amongst all disasters (43 %) with 3062 occurrences of the total disasters during the years 1995 to 2015 and drought with 5 per cent. The hydrological and meteorological disasters are causing loss of about US\$250 million every year. The analysis of losses due to natural disasters show that hydrological and meteorological disaster have increased rapidly after 1990's. Between the years 2009 to 2013, floods have caused losses amounting US\$ 5.3 billion in Indian agriculture sector⁴. The global mean temperature increase of 4°C or more above pre-industrial levels would pose severe risks like massive impacts on vulnerable species, fragile ecosystems and their functioning, large risks to global and regional food security, and the day to day natural and human activities (IPCC, 2014). Here we list the 20 countries that emitted the most carbon dioxide in 2016 (the most recent available data):

Climate change: Vulnerability concern of developing countries:

Developing countries are found to be the most vulnerable to the impacts of climate change due to poverty, lack of resources and technology to mitigate the impacts of climate change. Other constraints like social, technological, financial and demographic challenges resulted into further increase in the vulnerability profile of developing countries (UNFCCC, 2007). There is an urgent necessity for strengthening the global cooperation between developed and developing countries by providing technological and economic assistance for reducing the GHG emissions and meeting their energy needs. Effective cooperation is needed to develop capacity building programme and to transfer of green and clean technology and funds for the development of non-renewable sources of energy as alternative sources of energy⁵.

Mother earth has given us bounty of resources which we can exploit and use for our comfort. The brutal and excessive exploration of natural resources led to uneven development posing dangers for the future generation to use natural resources. Thus the concept of using natural resources sparingly came into being which is also known as sustainable development. "Sustainable development is development that meet the needs of the present, without compromising the ability of future generations to meet their own needs." The concept of sustainable development can be interpreted in many different ways, but at its core is an approach to

development that looks to balance different, and often competing, needs against an awareness of the environmental, social and economic limitations we face as a society⁶.

While the modern concept of sustainable development is derived mostly from the 1987 Brundtland Report, it is also rooted in earlier ideas about sustainable forest management and twentieth century environmental concerns. As the concept developed, it has shifted to focus more on economic development, social development and environmental protection for future generations. It has been suggested that “the term ‘sustainability’ should be viewed as humanity’s target goal of human ecosystem equilibrium (homeostasis), while ‘sustainable development’ refers to the holistic approach and temporal processes that lead us to the end point of sustainability.”

On 25 September 2015, the 194 countries of the UN General Assembly adopted the 2030 Development Agenda titled Transforming our world the 2030 Agenda

for Sustainable Development. Following the adoption, UN agencies under the umbrella of the United Nations Development Group, decided to support an independent campaign to help communicate the agreed Sustainable Development Goals to a wider constituency⁷. Known as Project Everyone, the independent campaign introduced the term Global Goals and was supported by corporate institutions and other International Organizations. Because this decision was made without the approval of the member states, it met resistance. In addition several sections of civil society and governments felt the UNDG ignored “sustainability,” even though it was the most important aspect of the agreement. That these term “Global Goals” also refers to several other processes not related to the United Nations was another concern.

The Official Agenda for Sustainable Development adopted 25 September 2015 has 92 paragraphs. Paragraph 51 outlines the 17 Sustainable Development Goals and the associated 169 targets. While The Sustainable Development Goals (SDGs), otherwise

Table 1 : 20 countries that emitted the most carbon dioxide in 2016

Country	1990	2000	2005	2010	2012	2014	2015	2016
Unit	kton CO ₂	kton CO ₂	kton CO ₂	kton CO ₂	kton CO ₂	kton CO ₂	kton CO ₂	kton CO ₂
World Total	22452432	25595733	29771013	33589795	34792575	35688794	35633093	35755322
EU-28	4334975	4053669	4178897	3844938	3653970	3389000	3424778	3431656
China	2305424.70	3638654.00	6184507.50	8938638.00	9973353.00	10546277.00	10461742.00	10432751.35
United States of America (the)	4955640.98	5810500.06	5827092.07	5460226.95	5106466.89	5258401.28	5114424.01	5011686.62
India	655461.62	1064431.15	1262993.90	1843399.10	2086788.40	2328013.44	2419637.23	2533638.05
Russian Federation (the)	2379432.80	1662366.40	1716508.40	1721152.70	1805521.20	1714219.21	1698007.49	1661899.32
Japan	1158222.40	1260277.50	1294091.40	1223125.83	1300326.87	1283477.72	1254799.82	1239592.01
Germany	1003148.97	856420.80	823601.59	799376.52	787320.50	765489.25	765922.93	775752.18
Canada	554684.30	728216.80	722327.70	687784.40	690725.40	701112.57	682765.34	675918.61
Iran (Islamic Republic of)	201720.17	349416.78	465247.32	568823.69	591371.18	635883.43	628611.31	642560.01
Korea (the Republic of)	268056.64	478432.04	512968.34	593505.43	606290.00	598408.69	601322.45	604043.83
Saudi Arabia	167928.92	261055.37	306755.83	421456.86	453717.34	495084.70	512351.30	517079.41
Indonesia	159852.29	294492.34	360821.72	423882.09	442903.75	488439.33	498097.78	530035.65
Brazil	215804.25	333189.77	351654.97	419760.21	452526.97	504455.73	492986.50	462994.92
Mexico	289350.22	377436.96	413256.71	448128.69	478579.01	453612.74	450999.28	441412.75
Australia	276218.11	356572.55	410392.54	419015.14	417773.68	405096.55	419088.15	414988.70
United Kingdom of Great Britain and Northern Ireland (the)	575833.73	544277.89	551170.65	489467.75	462016.61	410403.77	392946.42	367860.35
South Africa	268332.69	307110.79	371592.88	405105.71	384471.73	408201.86	392467.22	390557.85
Italy and San Marino and Holy See (the)	423297.32	452908.02	490573.11	420034.69	392966.89	342017.83	355143.40	358139.55
Turkey	149477.40	226875.39	246104.99	308006.93	337613.74	345166.31	349755.97	368122.74
France and Monaco	376699.66	393651.07	404745.31	377460.88	346465.11	320703.50	324691.46	331533.32
Poland	358699.97	309537.35	306745.98	322226.78	305462.54	288754.31	288937.76	296659.67

known as the Global Goals, are universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. These 17 Goals build on the successes of the Millennium Development Goals, while including new areas such as climate change, economic inequality, innovation, sustainable consumption, peace and Justice among other priorities⁸. The goals are interconnected often the key to success on one will involve tackling issues more commonly associated with another.

The SDGs work in the spirit of partnership and pragmatism to make the right choices now to improve life, in a sustainable way, for future generations. They provide clear guidelines and targets for all countries to adopt in accordance with their own priorities and the environmental challenges of the world at large. The SDGs are an inclusive agenda. They tackle the root causes of poverty and unite us together to make a positive change for both people and planet. "Supporting the 2030 Agenda is a top priority for UNDP", said UNDP Administrator Helen Clark. "The SDGs provide us with a common plan and agenda to tackle some of the pressing challenges facing our world such as poverty, climate change and conflict⁹. UNDP has the experience and expertise to derive progress and help support countries on the path to sustainable development. The 17 SDGs are listed below, together with some of their key facts and figures¹⁰.

Goal 1: No poverty end poverty in all its forms everywhere:

Extreme poverty has been cut by more than half since 1990 however, more than 1 in 5 people live on less than \$ 1.25 a day. Poverty is more than lack of income or resources it includes lack of income or resources it includes lack of basic services, such as education, hunger, social discrimination and exclusion and lack of participation in decision making.

Goal 2: Zero hunger:

End hunger, achieve food security and improved nutrition and promote sustainable agriculture. Globally, 1 in 9 people are undernourished, the vast majority of these people live in developing countries. Agriculture is the single largest employer in the world providing livelihoods for 40 per cent of day's global population. It is the largest source of income and jobs for poor rural households. Women comprise on average 43 per cent of the agricultural labor force in development countries, and over 50 per cent in parts of Asia and Africa, yet they only own 20% of the

land.

Goal 3: Good health and well-being:

Ensure healthy lives and promote well-being for all at all ages. Significant strides have made in increasing life expectancy and reducing some of the common killers associated with child and maternal mortality, and major progress has been made on increasing access to clean water and sanitation, reducing malaria, tuberculosis, polio and the spread of HIV/AIDS. However, only half of women in developing countries have received the health care they need, and the need for family planning is increasing exponentially, while the need met is growing slowly- more than 225 million women have and an unmet need for contraception.

Goal 4: Quality education:

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all Major progress has been made for education access, specifically at the primary school level, for both boys and girls. However, access does not always mean quality of education, or completion of primary school. Currently, 103 million youth worldwide still lack basic literacy skills, and more than 60 per cent of them are women. Target 1 "By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and Goal-4 effective learning outcomes"—shows the commitment to nondiscriminatory education outcomes

Goal 5: Gender equality:

Achieve gender equality and empower all women and girls Providing women and girls with equal access to education, health care, decent work, and representation in political and economic decision-making process will fuel sustainable economies and benefit societies and humanity at large. While a record 143 countries guaranteed equality between men and women in their Constitutions by 2014, another 52 had not taken this step. In many nations, gender discrimination is still woven through legal and social norms. Though goal 5 is the gender equality stand-alone goal, the SDG's can only be successfully if women are completely integrated into each and every goal

Goal 6: Clean water and sanitation:

Ensure availability and sustainable management of

water and sanitation for all. The first two out of eight targets include: “By 2030, achieve universal and equitable access to safe and affordable drinking water for all.” “By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.”

Goal 7: Affordable and clean energy:

Ensure access to affordable, reliable, sustainable and modern energy for all. Targets —By 2030, ensure universal access to affordable, reliable and modern energy services. By 2030, increase substantially the share of renewable energy in the global energy mix. By 2030, double the global rate of improvement in energy efficiency. By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology and promote investment on energy infrastructure and clean energy technology.

Goal 8: Decent work and economic growth:

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all World Pensions Council (WPC) development economists have argued that the twin considerations of long-term economic growth and infrastructure investment weren't prioritized enough: More worryingly, Work and Economic Growth and Technological Innovation and.

Goal 9: Industry, innovation and infrastructure:

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

Goal 10: Reduced inequalities:

Reduce income inequality within and among countries.

Goal 11: Sustainable cities and communities:

Make cities and human settlements inclusive safe, resilient and sustainable.

Goal 12: Responsible consumption and production:

Ensure sustainable consumption and production patterns.

Goal 13: Climate action:

Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy. Nations and other parties negotiating at the UN have highlighted the links between the post-2015 SDG process, the Financing for Development process to be concluded in Addis Ababa in July 2015, and the COP 21 Climate Change conference in Paris in December 2015. In May 2015, a report concluded that only a very ambitious climate deal in Paris in 2015 will enable countries to reach the sustainable development goals and targets. The report also states that tackling climate change will only be possible if the SDGs are met. Further, development and climate are inextricably linked, particularly around poverty, gender equality, and energy. The UN encourages the public sector to take initiative in this effort to minimize negative impacts on the environment. This renewed emphasis on climate change mitigation was made possible by the partial Sino–American convergence that developed in 2015-2016, notably at the UN COP 21 summit (Paris) and ensuing G20 conference (Hangzhou).

Goal 14: Life below water:

Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

Goal 15: Life of land:

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, desertification, and halt and reverse land degradation and halt biodiversity loss.

Goal 16: Peace, justice and strong institutions:

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

Goal 17: Partnerships for the goals:

Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Way towards modern and clean energy:

Clean and modern energy carries immense potential to play a vital role in sustainable development goals like ensuring access to affordable, reliable, sustainable and

modern energy for all and making cities inclusive, safe, resilient and sustainable are among 17 SDGs, provides the insightful vision of global decision and policy making community. Around 60 per cent of GHG emissions. This also set as challenging issue among the top priority list of action plans for combating with climate change at the 21st Conference of the Parties (COP-21) which was held in Paris in December 2015. Development in the area of renewable energy sector can be recognized as one of the substantial possible solution to achieve the targets set at the COP21¹¹. The report of International Energy Outlook provides an optimistic vision of projected patterns of increasing share of renewable energy in energy sector in future, which in itself is a hopeful indicator of substantial reduction in GHG emissions and reliability on conventional sources of energy in the future (Table 1).

A substantial growth in terms of investment in renewable sources of energy has been witnessed by the world over the last decade, which presents sincere growing efforts for tackling the challenges of climate change and energy security for meeting the needs of global new investment for the development of Renewable Energy between the years 2004 to 2015 have shown bright future ahead. A decade back, the development and use of renewable energy used to be confined only in the developed countries of the world because of its expensive technology and high cost of maintenance of the sophisticated technology. In the year 2015, world has witnessed for the first time, a completely new trend, when developing countries outshined the developed nations in terms of global new investment in the renewable energy sector. There is declining drift between the developed and developing countries of the world in terms of investment in renewable energy sector¹².

Targets and indicators:

As of August 2015, there were 169 proposed targets for these goals and 304 proposed indicators to show compliance. Since Rio+20 did not elaborate specific goals a 30-member Open Working Group (OWG) was

established on 22 January 2013 by the decision of the UN General Assembly. The OWG was tasked with preparing a proposal on the SDGs for consideration during the 68th session of the General Assembly, September 2013-September 2014. The OWG used a constituency –based system of representation most of the seats in the working group are shared by several countries. After 13 sessions, the OWG submitted their proposal of 17 SDGs and 169 targets to the 68th session of the UN General Assembly in September, 2014. The Rio+20 outcome document mentioned, “at the outset, the OWG Will decide on its methods of work including developing modalities to ensure the full involvement of relevant stakeholders and expertise from civil society, the scientific community and the United Nations system in its work, in order to provide a diversity of perspectives and experience”¹³.

Major environmental problems:

At present there are host of environmental problems world facing, they should be tackled as early as possible to mitigate the survival crisis as the severe environmental problems are leading towards ending the life on the earth.

Pollution:

Pollution of air, water and soil require millions of years to recoup. Industry and motor vehicle exhaust are the numbers one pollutants. Heavy metals, nitrates and plastic are toxins responsible for pollution. While water pollution is caused by oil spill acid rain, urban runoff, air pollution is caused by various gases and toxins released by industries and factories and combustion of fossil fuels, soil pollution is majorly caused by industrial waster that deprives soil from essential nutrients.

Global warming:

Climate changes like global warming is the result of human practices like emission of Greenhouse gases. Global warming leads to rising temperatures of the oceans and the earth’s surface causing melting of polar ice caps, rise in sea levels and also unnatural patterns of

Table 2 : World net electricity generation by energy source, (trillion kilowatt hours) Projected Patterns (2020-2040)							
Sr. No.	Type of Energy	2012	2020	2025	2030	2035	2040
01.	Renewable	4.73	6.87	7.89	8.68	9.64	10.63
02.	Natural Gas	4.83	5.26	6.30	7.47	8.78	10.14
03.	Nuclear	2.34	3.05	3.40	3.95	4.25	4.50
04.	Coal	8.60	9.73	10.07	10.12	10.31	10.62
05	Liquids	1.06	0.86	0.69	0.62	0.59	0.56

Source: The International Energy Outlook, 2016.

precipitation such as flash floods, excessive snow or desertification.

Over population:

The population of the planet is reaching unsustainable levels as it faces shortage of resources like water, fuel and food. Population explosion in less developed and developing countries is straining the already scarce resources. Intensive agriculture practiced to produce food damages the environment through use of chemical fertilizer, pesticides and insecticides. Overpopulation is one of the crucial current environmental problem.

Natural resource depletion:

Natural resource depletion is another crucial current environmental problems. Fossil fuel consumption results in emission of Greenhouse gases, which is responsible for global warming and climate change. Globally, people are taking efforts to shift to renewable sources of energy like solar, wind biogas and geothermal energy. The cost of installing the infrastructure and maintaining these sources has plummeted in the recent years.

Waste disposal:

The over consumption of resources and creation of plastic are creating a global crisis of waste disposal. Development countries are notorious for producing an excessive amount of waste or garbage and dumping their waster in the oceans and less developed countries. Nuclear waste disposal has tremendous health hazards associated with it. Plastic fast food, packaging and cheap electronic waster threaten the well being of humans. Waste disposal is one of urgent current environmental problem.

Climate change:

Climate change is yet another environmental problem that has surfaced in last couples of decades. It occurs due to rise in global warming which occurs due to increase in temperature of atmosphere by burning of fossil fuels and release of harmful gases by industries. Climate change has various harmful effects but not limited to melting of polar ice, change in seasons, occurrence of new diseases, frequent occurrence of floods and change in overall weather scenario.

Loss of biodiversity:

Human activity is leading to the extinction of species

and habitats and loss of bio-diversity. Eco systems, which took millions of years to perfect, are in danger when any species population is decimating. Balance of natural processes like population is decimating. Balance of natural processes like pollination is crucial to the survival of the eco-system and human activity threatens the same. Another example is the destruction of coral reefs in the various oceans, which support the rich marine life.

Deforestation:

Our forests are natural sinks of carbon dioxide and produce fresh oxygen as well as helps in regulating temperature and rainfall. At present forests cover 30% of the land but every year tree cover is lost amounting to the country of Panama due to growing population demand for more food, shelter and cloth. Deforestation simply means clearing of green cover and make that land available for residential,, industrial or commercial purpose.

Ocean acidification:

It is a direct impact of excessive production of CO² 25% of CO² produced by humans. The ocean acidity has increased by the last 250 years but by 2100, it may shoot up by 150%. The main impact is on shellfish and plankton in the same way as human osteoporosis.

Ozone layer depletion:

The ozone layer is an invisible layer of protection around the planet that protects us from the sun's harmful rays. Depletion of the crucial Ozone layer of the atmosphere is attributed to pollution caused by Chloride and Bromide found in Chloro floro carbons (CFC's). Once these toxic gases reach the upper atmosphere, they cause a hole in the ozone layer, the biggest of which is above the Antarctic. The CFC's are banned in many industries and consumer products. Ozone layer is valuable because it prevents harmful UV radiation from reaching the earth. This is one of the most important current environmental problem.

Acid rain:

Acid rain occurs due to presence of certain pollutants in the atmosphere. Acid rain can be caused due to combustion of fossil fuels or erupting volcanoes or rotting vegetation which release sulfur dioxide and nitrogen oxides into the atmosphere. Acid rain is a known environmental problem that can have serious effect on human health, wildlife and aquatic species.

Water pollution:

Clean drinking water is becoming a rare commodity. Water is becoming an economic and political issue as the human population fights of this resource. One of the options suggested is using the process of desalinization. Industrial development is filling our rivers seas and oceans with toxic pollutants which are a major threat to human health.

Urban sprawl:

Urban sprawl refers to migration of population from high density urban areas to low density rural areas which results in spreading of city over more and more rural land and Urban sprawl results. In land degradation, increased traffic, environmental issues and health issues. The ever growing demand of land displaces natural environment consisting of flora and fauna instead of being replaced.

Public health issues:

The current environmental problems pose a lot of risk to health of humans and animals. Dirty water is the biggest health risk of the world and poses threat to the quality of life and public health. Run-off to rivers carries along toxins, chemicals and disease carrying organisms. Pollutants cause respiratory disease like Asthma and cardiac-vascular problems. High temperatures encourage the spread of infectious diseases like Dengue.

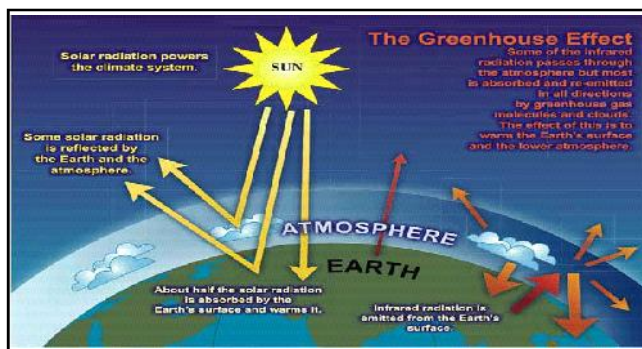
Genetic engineering:

Genetic modification of food using biotechnology is called genetic engineering. Genetic modification of food results in increased toxins and diseases as genes from an allergic plant can transfer to target plant. Genetically modified crops can cause serious environment problems as an engineered gene may prove toxic to wildlife. Another drawback increased use to toxins to make insect resistant plant can cause resultant organisms to become resistant to antibiotics. Greenhouse Gases effect, Global Warming and Climate change are the three major environmental problems which are having far reaching impact on the human lives. These environmental menaces are interrelated and causing serious environmental on the earth.

The greenhouse effect:

Life on earth depends on energy from the sun. About 30 per cent to the sunlight that beams toward Earth is

deflected by the outer atmosphere and scattered back into space. The rest reaches the planet’s surface and is reflected upward again as a type of slow-moving energy called infrared radiation. The heat caused by infrared radiation is absorbed by greenhouse gases such as water vapor, carbon dioxide, ozone and methane, which slows its escape from the atmosphere. Although greenhouse gases make up only about 1 per cent of the Earth’s atmosphere, they regulate our climate by trapping heat and holding it in a kind of warm-air blanket that surrounds the planet. This phenomenon is what scientists call the greenhouse effect. Without it, scientists estimate that the average temperature on Earth would be colder by approximately 30 degrees Celsius (54 degrees Fahrenheit) far too cold to sustain most of our current ecosystems¹⁴.



How do humans contribute to the greenhouse effect?:

While the greenhouse effect is an essential environmental prerequisite for life on Earth, there really can be too much of a good thing. The problems begin when human activities distort and accelerate the natural process by creating more greenhouse gases in the atmosphere they are necessary to warm the planet to an ideal temperature. Burning natural gas, coal and oil, including gasoline for automobile engines, rises the level of carbon dioxide in the atmosphere, upsetting a balance between the release and capture of the gas by plants and algae. Some farming practices and other land uses increase the levels of methane and nitrous oxide. Just exposing soils when plowing leads to carbon dioxide release. Many factories produce long-lasting industrial gases that do not occur naturally, yet contribute significantly to the enhanced greenhouse effect and global warming. Deforestation also contributes to global warming. Trees use carbon dioxide and give off oxygen in its place which helps to create the optimal balance of

gases in the atmosphere. As more forests are logged for timber or cut down to make way for farming however, there are fewer trees to perform this critical function. At least some of the damage can be offset when young forests aggressively re-grow, capturing tons of carbon. Population growth is another factor in global warming, because as more people use fossil fuels for heat, transportation and manufacturing the levels of greenhouse gases continues to increase. As more farming occurs to feed millions of new people, more greenhouse gases enter the atmosphere¹⁵. Ultimately, more greenhouse gases means more infrared radiation trapped and held, which gradually increases the temperature of the Earth's surface, the air in the lower atmosphere and ocean waters.

Global warming and climate change:

“Global warming” describes an average temperature increase of the Earth over time. “Climate change” describes how weather patterns will be affected around the globe. These changes could be manifested in changes in climate averages as well as changes in extremes of temperatures and precipitation. It is likely that the changes will vary depending on what region you are in. “Global change” describes other effects that don't fall into either category, like socioeconomic and ecological impacts. The terms “global warming” and “climate change” are often used interchangeably in news papers and television reporting, but they are really separate things. Global warming refers to the rise in global average temperature¹⁶. Climate change is how the climate of different areas around the globe change over time, mostly due to this global average temperature increase and the changes that result to the water cycle, ice cover on land and in the polar oceans, and changes in land cover. Climate change can also occur naturally due to changes in sunlight. The growth of mountains, and the movement of the continents across the earth over time¹⁷.

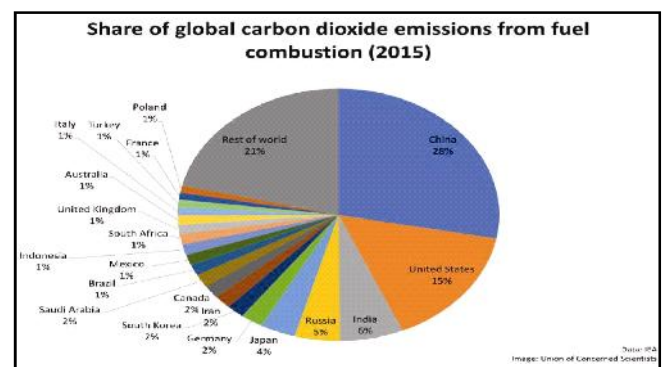
Global warming only describes the increase in global average temperature. The current global average temperature is 59°F (15°C, 288K) and is projected to increase 3-7°F (2-4°C, K) by 2100. It is generally agreed upon that the man-made increase in greenhouse gases due to the burning of fossil fuels is causing or expediting this warming. The rise in global average temperature doesn't mean the temperature will increase by the same amount everywhere. It doesn't even mean that everywhere in the world get warmer¹⁸. It just means

that the average global temperature is increasing. This is where climate change comes in. Today the increase in the Earth's temperature is increasing with unprecedented speed.

To understand just how quickly global warming is accelerating consider this. During the entire 20th century, the average global temperature increased by about 0.6 degrees Celsius (slightly more than 1 degree Fahrenheit). Using computer climate models, scientists estimate that by the year 2100 the average global temperature will increase by 1.4 degrees to 5.8 degrees Celsius (approximately 2.5 degrees to 10.5 degrees Fahrenheit)¹⁹.

Climate change refers to the change in climates around the world over time. This could be due to the effects of the increase in global average temperature among other things. Climate change means more than just a change in temperature, but a change in global weather patterns which could affect precipitation averages and extremes, too. For example, one effect of global warming could be that the northern part of the Northern Hemisphere will likely warm up more than other parts of the globe. This is because the increased temperatures are likely to melt large polar ice fields, replacing the ice with darker open ground. Quickly than the reflective ice did leading to strong heating. Other effects could result in some locations getting more rain while others will be more likely to have long-term droughts. It's not clear how this would affect overall weather patterns, since the reduction in temperature gradient from equator to poles could decrease winds and storm activity, but the higher temperatures could have more energy overall²⁰.

Additional secondary effects of changing temperature and climate are collectively called “global change.” Global change can include ecological changes, geological changes, sea level rise, changes in ocean circulation and societal impacts. These changes result in



the disruption in our “normal” or expected climate that is likely to occur under global warming and the impacts it would have on life and society²¹.

What are the effects of global warming, climate change and the greenhouse effect?:

Scientists agree that even a small increases in the global temperature lead to significant climate and weather changes, affecting cloud cover precipitation, wind patterns, the frequency and severity of storms and the timing of seasons. Rising temperatures would raise sea levels as well, damaging infrastructure and reducing supplies of fresh water as flooding occurs along coastlines worldwide and salt water reached inland. Many of the world’s endangered species would become extinct as rising temperatures changed their habitat, and affected the timing of seasonal events²². Millions of people also would be affected, especially poor people who live in precarious locations or depend on the land for a subsistence living. Food production, processing and distribution can be affected as well as national security. Certain vector-borne diseases carried by animals or insects, much as malaria and Lyme disease, would become more widespread as warmer conditions expanded their range.

Carbon dioxide emission is the serious threat:

Currently, carbon dioxide accounts for more than 60 per cent of the enhanced greenhouse effect caused by the increase of greenhouse gases, and the level of carbon dioxide in the atmosphere is increasing by more than 10 per cent every 20 years. If emission of carbon dioxide continue to grow at current rates then the level of the gas in the atmosphere will likely double, or possibly even triple, from pre-industrial levels during the 21st century²³.

Climate change is going to be inevitable:

According to the United Nations, some climate change is already inevitable because of emissions that have occurred since the dawn of the Industrial Age. While the Earth’s climate does not respond quickly to external changes, many scientists believe that global warming already has significant momentum due to 150 years of industrialization in many countries around the world²⁴. As a result, global warming will continue to affect life on Earth for hundreds of years, even if greenhouse gas emissions are reduced and the increase in atmospheric levels halted.

Sustainable development:

The need for sustainable development is a key to the future of mankind. Continuing problems of pollution, loss of forest, solid waste disposal, degradation of environment, issues like economic productivity and national security, Global warming, the depletion of ozone layer and loss of biodiversity have made everyone aware of environment issues. During the past few years, the concept of “Sustainable Development” (SD) has emerged as the latest development catchphrase. A wide range of non-governmental as well as governmental organizations have embraced it as the new paradigm of development. It is really difficult to lay down the exact meaning of the term. While some writers are concerned with the sustainability of the natural resource base, others with present or future levels of production and consumption. However, emerging recognition of two fundamental errors under-pinning past policies for natural resource issues heralds awareness of the need for a worldwide fundamental change in thinking and in practice of environmental management²⁵. As the term ‘sustainable development’ has been embraced by the political mainstream, its meaning has drifted from its original concern with ensuring future ecological stability towards ensuring sustainable material growth; it is no longer a challenge to the conventional economic paradigm. It must be admitted that there is a wide divergence about the precise meaning of sustainable development. One idea which is increasingly in good currency is that sustainable development requires that the stock of capital that one generation passes on to the next be maintained or enhanced. During the present time, we are speaking about the concept of Sustainable Development. The concept of sustainable development has become a major topic for discussion in the society. Its discussion is not confined to any particular geographical locality, rather it has crossed the boundary of every country and reached up to the level of UNO. It is worthy to note that the term was first popularized by the world conservation strategy in the year of 1980. As a fashionable catchword, ‘sustainable development’ has provoked a large but nebulous literature. In the interests of communication and relevance it is necessary to narrow down the various definitions that have been given and show how a revised conception of sustainable development can be integrated into practical decision making. However, the concept may be defined as a development that meets the needs of the present generation without compromising the capability

of future generation to meet their own needs and requirements (United Nations World Conference on Environment and Development, 1987)²⁶. To be precise, Sustainable development refers to balancing the fulfillment of human needs with the protection of the natural environment so that these needs can be met not only in the present, but in the indefinite future. The term was used by the Brundtland Commission which coined what has become the most oft-quoted definition of sustainable development as development that “meets the needs of the present without compromising the ability of future generations to meet their own needs”. For the sake of convenience we may divide the major areas of sustainable development into four general categories *viz.*, social, economic, environmental and institutional. Sustainable development is development that takes the impact on the environment into account and tries to minimize environmental damage to the maximum possible extent. It should be stated that Sustainable development is generally thought to have three components: environment, society, and economy. It is well nigh impossible to deny the fact that the well being of these three areas is very closely intertwined. As for example, a healthy, prosperous society release resources, safe drinking water, and clean air for its citizens. The sustainability paradigm rejects the contention that casualties in the environmental and social realms are inevitable and acceptable consequences of economic development. It is therefore said that sustainability to be a paradigm for thinking about a future in which environmental, societal, and economic consideration are balanced in the pursuit of development and improved quality of life. In this connection it may be stated that the National Town Meeting on Sustainability (May, 1999) in Detroit, Michigan, established the fact that the term “sustainable development,” although frequently used, is not well understood. We believe that it means new technologies and new ways of doing business, which allow us to improve quality of life today in all economic, environmental, and social dimensions, without impairing the ability of future generation to enjoy quality of life and opportunity at least as good as ours²⁷. Therefore it may be said that the main objective of sustainable development is to make a nice balance between the present and the future with regard to natural resources. In order for development to be comprehensive-it has to successfully balance economic goals with social and environmental. It may further be stated that balancing economic and social development with environmental

protection is at the heart of the notion of sustainable development as set out in the London Communiqué.

As we know that in earlier times it was possible on the part of the human being to migrate from one place to the other because the number of population was much less. But with the advent of civilization, it has become difficult to find any vacant space because of population explosion throughout the world. Accordingly, we are occasionally faced with a million dollar question that do these have any bearing on the future generation? If our reply goes in the positive, then we must now determine what and how much we owe future generation and shall we be responsible for closing all possible option for all the future generation. It is therefore high time to look into the matter and find a proper solution to this vexed problem, otherwise we will be drifting from our responsibilities for the succeeding generation²⁸.

It is witnessed that in today’s society, the communities face several challenges and thronged problems because of the fact of the social, economic, and environmental resources are being damaged to an unparalleled level. It is so because all the elements of the community are deeply interconnected with each other. There are a host of problems that are faced by us in the society. The most important problems that pose a threat to the mankind are: disease, criminal activities, denial of justice, abuse of children (who are buds of the community) shortage of energy, avenues of employment, extinction of rare species, perennial poverty, deforestation, demons of pollution, disintegration of families and many others social and economic problems.

It is of utmost importance that we should be careful about the interdependence of the economic, environment and social justice elements of the world which demand new line of thinking about things and that of taking action that will truly create a future where human society and nature can coexist with mutual benefit and where the suffering caused by poverty and natural resource abuse is eliminated from the surface of the society so that the mankind do not suffer. We must accept that all these are demonic problems with which the society is confronted with. Therefore, the major aim of Sustainable development is improving the quality of life for all of the people of this world without increasing the use of our natural resources beyond the earth are carrying capability²⁹. It should be taken into consideration that sustainable that sustainable development may require different actions in every region of the world, the efforts

to build a truly sustainable way of life require the integration of action in the key areas. It should be taken into account that without integration, sustainable development would be next to impossible. There is no denying the fact that integration of actions and activities are two pole stars in this regard which must be obeyed and adhered by all. Further, there should be a global economic system which should be interlinked and an integrated approach must be fostered for a long term growth and all the nations must be incorporated in the race and we must keep a close vigil so that no nations are left behind in the process of development³⁰. If we fail in this regard, our major objective would be seriously impaired. It is also necessary that sincere attempt must also be taken to conserve natural resources for the future generation and there should be an all out effort to stop pollution in the societal set up. Our prime motive should be social development and at the same time we should be careful so that the cultural heritage, social diversity, the rights and liberties of the people at large are duly honoured and respected and most important of all is that all members of the society must be duly empowered so that they can take active part in shaping of their own future. It is the most important dimension of sustainable development³¹.

Sustainable development is regarded as a parallel consideration for healthy and natural environment, and above all, human well-being. In this great and gigantic job, a variety of areas must be included. Most notable of them are issues of population explosion, change in the climate, economic well being and prosperity, energy generation and conservation, proper use of natural resources, scientific waste management, biodiversity, protection of watershed, improved technology, development of agriculture, safe drinking water supply, freedom from terrorism, global security, clean politics, green conservation and green generation, sustainable cities, proper and healthy community/family relations, observance of human values, and many other areas. In short, all matters that directly affect the people in the society must be taken into consideration³².

Paris agreement:

An Attempt to combat climate change the Paris Agreement is an agreement within the United Nations Framework Convention on Climate Change (UNFCCC) dealing with greenhouse gases emissions mitigation, adaptation and finance starting in the year 2020. The

language of the agreement was negotiated by representatives of 195 countries at the 21st Conference of the Parties of the UNFCCC in Paris and adopted by consensus on 12 December 2015. It was opened for signature on 22 April 2016 (Earth Day) at a ceremony in New York. As of April 2017, 195 UNFCCC members have signed the treaty, 145 of which have ratified it. After several European Union states ratified countries that had ratified the agreement that produce enough of the world's greenhouse gases for the agreement to enter into force. The agreement went into effect on 4 November 2016³³.

The Paris Agreement builds upon the Convention and-for the first time- brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so. As such, it charts a new course in the global climate effort. The global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above preindustrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to strengthen the ability of countries to deal with the impacts of climate change.³⁴ To reach these ambitious goals, appropriate financial flows a new technology framework and an enhanced capacity building framework will be put in place, thus supporting action by developing countries and the most vulnerable countries, in line with their own national objectives. The Agreement also provides for enhanced transparency of action and support through a more robust transparency framework³⁵.

The Paris Agreement requires all Parties to put forward their best efforts through “nationally determined contributions” (NDCs) and to strengthen these efforts in the years ahead. This includes requirements that all Parties report regularly on their emissions and on their implementation efforts. In 2018, Parties will take stock of the collective effort in relation to progress towards the goal set in the Paris Agreement and to inform the preparation of NDCs³⁶. There will also be a global stocktake every 5 years to assess to collective progress towards achieving the purpose of the Agreement and to informed further individual actions by Parties³⁷.

What should be done?:

To lessen those long term effects many nations, communities and individuals are taking action now to reduce greenhouse gas emission and slow global warming

by reducing dependence on fossil fuels, increasing the use of renewable energy, expanding forests, and making lifestyle choices that help to sustain the environment. Whether they will be able to recruit enough people to join them, and whether their combined efforts will be enough to head off the most serious effects of global warming, are open question that can only be answered by further development. The need for change in our daily lives and the movements of our government is growing. Because so many different factors come into play.³⁸ Voting governmental issues, the desire to stick to routine, many people don't Consider that what they do will affect future generations. If humans continue moving forward in such a harmful way towards the future, then there will be no future to consider. Although its true that we be no future to consider³⁹. Although it's true that we cannot physically stop our ozone layer from thinning (and scientists are still having trouble figuring out what is causing it exactly) there are still so many things we can do to try and put a dent in what we already know. By raising awareness in our local community and within your families about these issues, you can help contribute to a more environmentally conscious and friendly place for you to live.

Conclusion:

In spite of the fact that numerous actions worldwide which call for adoption of more sustainable strategies, relatively little has been done on a practical level so far on the pretext that the issue is too complex and not fully understood. At the end it should be stated that sustainable development is a process in which economics, finance, trade, energy, agriculture, industry and all other decisions are implemented in such a manner so that it becomes an important tool to usher into a society which is economically, socially, and environmentally sustainable in all respects. Therefore, the prime objective of sustainable development is to meet the needs of the present without compromising the ability the ability of the future generations to meet their needs by properly maintaining the balance. A proper balance in the use of the natural resources is a must for a proper sustainable development. The UN Secretary General Ban ki moon succinctly expressed, "it encompasses a universal transformative and integrated agenda that heralds an historic turning point for our world." In this regard, the document preamble to 'Transforming Our World: The 2030 Agenda for Sustainable Development' is very

relevant to quote. It has rightly been noted: "We are resolved to free the human race within this generation from the tyranny of poverty and want to heal and secure our planet for the present and for future generations". It continues, "We are determined to take the bold and transformative steps which are urgently needed to shift the world onto a sustainable and resilient path. As we embark on this collective journey, we pledge that no one will be left behind." The Programme of Action which has been undertaken is definitely a novel one for all round prosperity of the entire global society. The Policy Guidance sets out best practice in developing and operating strategic processes for sustainable development, and on how development cooperation agencies can best assist developing countries in such processes, and includes a set of principles which underpin the development of effective strategies in many developing countries. It is therefore sine qua non that all should join their hands for a balanced sustainable development so that the future generations do not suffer and can lead a better life.

REFERENCES

1. Blewitt, John (2015). *Understanding Sustainable Development'* (2nd ed.), London: Routledge, pp. 126-131.
2. Lynn R. Kahle and Eda Gurel-Atay, Eds (2014). *Communicating Sustainability for the Green Economy*. New York: M.E. Sharpe, pp. 98-102.
3. Azapagic, A. and Perdan, S. (2000). Indicators of Sustainable Development for Industry: A General Framework Process Safety and Environmental Protection, **78**, (4) : 122-125.
4. Connelly, Steve (2007). Mapping Sustainable Development as a Contested Concept Local Environment. *Internat. J. Justice & Sustainability*, **12** (3) : 23-26.
5. Dalal, Barry Clayton and Stephen, Bass (2002). "Sustainable Development Strategies : A Resource", Book *Ambio. J. Human Environment*, **31** (5) : 47-58.
6. Hammond, G.P. (2000). Energy, Environment and Sustainable Development: A UK Perspective Process Safety and Environmental Protection. **78** (4) July 2000, pp.48-56.
7. Kaushik, Anubha (1991). "Perspectives in Environmental Studies", Lele, Sharachchandra, M.- "Sustainable development: A critical review. *World Development*, **19** (6) : 154.
8. Meadows, D.H., Meadows, D.L. and Randers, J. (1992).

- Beyond the Limits: Global Collapse or a Sustainable. *Future*, pp. 37-42.
9. Norgand Richard, B. (1988). Sustainable development: A co-evolutionary view. *Future*, **20**(6) : 48-56.
 10. Pearcee, David (1988). Economics, equity and sustainable development. *Future*, **20**(6) : 24-26.
 11. Redclift Michae (1992). The meaning of sustainable development. *Geoform*, **23**(3) : 56-62
 12. Rees, W.E. (199). The Ecology of Sustainable Development. *Ecologist*, **20**(1).
 13. Soubbotina Tatyana, P., "Beyond Economic Growth: An Introduction to Sustainable Development", The World Bank Washington, D.C. The International Bank for Reconstruction and Development/ the WORLD BANK, pp.132-155.
 14. Ahuja, D. and Tatsutani, M. (1990). Sustainable energy for developing countries. *Sapiens*, **2**(1) : 1-16.
 15. Bruce, N., Rogeilo Perez, P. and Albalak, R. (2000). Indoor air pollution in developing countries: A major environmental and public health challenge. *Bull. World Health Organisation*, **78**(9) : 1078-1092.
 16. Burte, H. (2014), The Smart City Card. *Economic & Political Weekly*, Mumbai, **49**(46) : 22-25.
 17. Nussbaum, Martha (2011). *Creating Capabilities: The Human Development Approach*. Cambridge, Massachusetts and London, England: The Belknap Press of Harvard University Press. p. 16
 18. Center for Climate and Energy Solution (2015). *Outcomes of the UN Climate Change Conference in Paris (COP 21)*.
 19. Cohen, B. and Winn, M. I. (2007). Market imperfections, opportunity and sustainable entrepreneurship. *J. Business Venturing*. **22** (1): 29–49. doi:10.1016/j.jbusvent.2004.12.001.
 20. Power, C (2015). *The Power of Education: Education for All, Development, Globalisation and NESCO*. London, Springer.
 21. Dattgupta, O. (2014). Global Integration and Developing Indian "Smart Cities: New Hopes and Challenges", *Internat. J. Innovative Sci. & Humanities Res.*, **1** (2) : 30-42.
 22. Drexhage, J. and Murphy, D. (2010). *Sustainable Development: From Brundtland To Rio 2012*", United Nation Headquarter, New York, pp.161-172.
 23. FAO (2009), FAO's Director-General on how to feed the World in 2050. *Population & Development Revi.*, **35**(4) : 837-839.
 24. Frankfurt School- UNEP Center/BNEF (2016). *Global Trends in Renewable Energy Investment*, pp.24-36.
 25. Froggatt, A. and Levi Michael, A. (2009). Climate change and Energy Security Policies and Measures: Synergies and Conflicts. *Internat. Affaires*, **85**(06) : 1129-1144.
 26. Harris, S. (1991). Natural Resources and Energy- and Sustainable Development. *The Australian Quarterly*, **63**(04) : 400-407.
 27. Brundtland Commission (1987). "Report of the World Commission on Environment and Development". United Nations.
 28. Matthew Richard, A. and Hammill, A. (2000). Sustainable Development and Climate Change. *Internat. Affairs*, **85** (06): 1177-1128.
 29. Ross, A. (2009). Modern Interpretations of Sustainable Development. *J. Law & Society*, **36**(01) : 32-54.
 30. Sen Roy, S. and Singh, R. B. (2001). *Climate Variability, Extreme events and Agreecultural Productivity in Mountain Reasons*", Oxford & IBH Publications, New Delhi, pp.126-320.
 31. Singh, R.B., "Disaster Risk Reduction-Agenda before Academics, Policy makers and Communications", *World Focus*, New Delhi, **37** (05) : 5-11.
 32. Singh, R.B., and Heitala, R. (2014). *Livelihood Security in North-Western Himalaya*. Springer, Tokyo, pp.211-228.
 33. Singh, R.B. and Kumar, A. (2015). *Understanding Climate Change induced Disasters for Sustainable Future Earth: Case Studies of Rajasthan and Uttarakhand Himalaya*. *World Focus Journal*, New Delhi, pp.23-33.
 34. *Issues and trends in education for sustainable development*. Paris: UNESCO. 2018. p. 7.
 35. *Issues and trends in education for sustainable development*. Paris: UNESCO. 2018. p. 8.
 36. Singh, R.B. and Singh, A. (2015). *Urban Environment and Sustainability: Promoting Health and Well being for Smart Cities in India*. *World Focus Journal*, New Delhi, pp.18-23.
 37. Tripathi, S. (2015). *Do upcoming Smart Cities need to provide smart distribution of higher urban economic growth ? Evidence from Urban India*. National Institute of Urban Affairs, New Delhi, pp.01-23.
 38. UNFCCC (2007). *Climate Change: Impacts, Vulnerability and Adaptation in Developing Countries*, United Nations Framework Convention on Climate Change, Bonn, Germany, Available at www.unfccc.int/resource/docs/publications/impacts.pdf.
 39. Victor David, G. (2009). *Recovering Sustainable Development*. *Foreign Affairs*, **85**(01) : 91-103.
