Spread the Word, Change the World

Climate Change Awareness Drive

Youth Resource Guide

This booklet aims to guide the youth of the Mumbai Metropolitan Region about the basics of climate change - its impacts, and the role of youth in climate change mitigation or adaptation. The book also provides information about youth groups and their activities, offers information on green education and green jobs, lists courses on climate change and related subjects from India and all over the world and provides details about organizations and private companies offering green jobs.

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This guide has been compiled and produced with financial support
from **Mumbai Metropolitan Region – Environment Improvement Society**

Abbreviations

AYICC	African Youth Initiative on Climate Change
CO_2	Carbon Dioxide (Gas)
EDF	Electricite de France
EPA	Environmental Protection Agency (USA)
GHG	GreenHouse Gases
IPCC	Inter-Governmental Panel on Climate Change
NAPCC	National Action Plan on Climate Change
NGO	Non-Governmental Organization
TERI	The Energy & Resources Institute
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
USNRC	Unites States National Research Council
WMO	World Meteorological Organization

About Youth Resource Guide

The booklet aims to provide the youth with knowledge of global and national Climate Change related developments. Climate Change is one of the most talked about topics in today's world. Mumbai and its surroundings are at great risk due to climate change. Sea-level rise, extreme rainfall or scanty rainfall and environmental degradation are some of the key Climate Change related impacts that the Mumbai Metropolitan Region (MMR) is likely to face. It is a long lived issue which not only the current generation but also the coming generations will have to deal with. Their involvement is of utmost importance. Youth represents 42% of Mumbai's population. They can play a vital role in bringing change in attitude, lifestyle and communication of Climate Change related impacts to a larger section of the population in the metropolitan area.

This book guides the youth on climate change basics, its impacts and role of youth in Climate Change mitigation and adaptation. The book also provides information about youth groups and their activities. It provides information on green education, including national and international courses related to Climate Change. In addition, a list of organizations and private companies offering green jobs has also been provided.

"Today we need a global solidarity on Climate Change, the defining challenge of our era. Twenty years from now, let our children and grandchildren look back upon this day and say: 'Yes, that is where it began.' A revolution. A turning point. A moment when we turned away from a past that no longer works, toward a more equitable and prosperous future."

*— **Ban Ki-moon**, United Nations Secretary-General*
Opening statement to the High-Level Segment of
the United Nations Climate Change Conference
Poznan, Poland, 11 December 2008

This booklet is developed as part of the program for creating awareness on Climate Change
To know about this program and for more resources, visit:
www.mmr-ccrt.org.in

Contents

1 Climate Change Basics

The Earth's climate is not static, and has changed many times in response to a variety of natural causes. In these last few decades, rate of change is rapid and it is attributed mainly to anthropogenic (human induced) activities emitting large quantity of green house gases, causing global warming.

To understand climate change, it is important for us to understand the earth's climate system which is a complex and interactive relationship of the atmosphere, land surface, snow, water bodies and living beings amongst other factors. The climate system evolves in time due to internal dynamics or external factors called 'forcings'. The external forcing includes natural phenomenon as well as human induced changes that alter the composition of the atmosphere.

Energy through radiations from the sun powers the climate system. About 30% of sunlight that reaches the atmosphere is reflected back to space due to clouds, aerosols, snow, ice and desserts. The rest of the energy is absorbed by the Earth amounting to 240 Watt per Sq/m.The global mean surface temperature of the earth is about 14^0C. This is due to the presence of gases which act as a partial blanket for the long wave radiation coming from the surface. This blanketing is known as 'natural green house effect'. This makes life possible on Earth. Without the natural green house gas effect, the average temperature at the Earth's surface would have been -18^0C, i.e., below the freezing point of water. Human activities contribute to climate change by causing changes in the atmosphere through emissions of green house gases, aerosols and cloudy conditions.

The atmosphere is mainly composed of nitrogen, oxygen, and argon. The remaining gases are referred to as trace gases. The primary greenhouse gases include Carbon dioxide (CO_2), Methane (CH_4), Nitrous Oxide (N_2O). Some of the others include Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulphur Hexafluoride (SF_6).

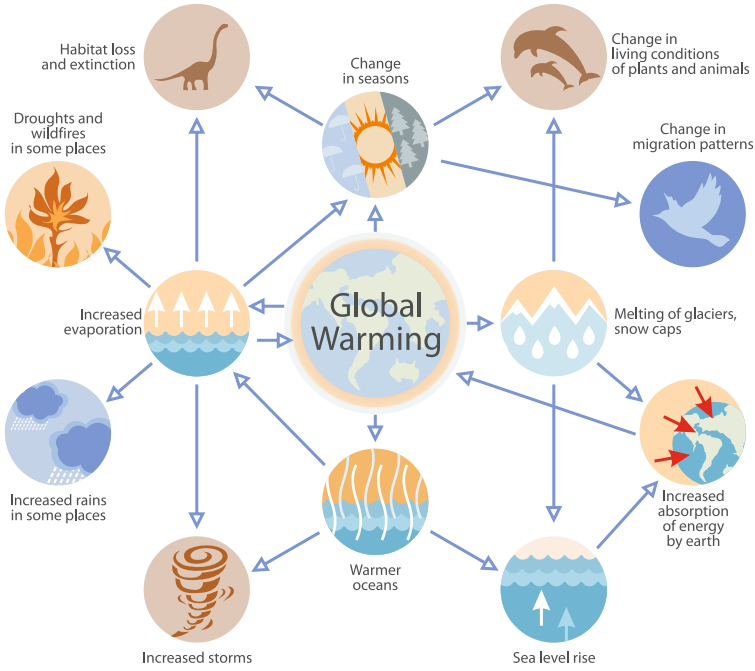
These gases are emitted through a number of human activities including burning of fossil fuels, which releases the stored carbon into carbon dioxide. Each of the greenhouse gases has a 'Global Warming Potential (GWP)'. CH_4 has a GWP of 25 times that of CO_2, but CO_2 has a longer life and greater quantity of existence.

Release of greenhouse gases, especially CO_2 in the atmosphere is warming the planet. This phenomenon is called 'Global Warming'. Because of this warming trend the climate is changing. The global average temperature has risen by 0.6^0C since 1900.

Global warming has a number of impacts on all of us, which may be direct or indirect. (See Figure 1 overleaf). The most evolved of civilizations have collapsed due to environmental factors; thus fighting climate change through understanding the phenomenon, its causes, possible interventions and adaptations, should be taken up on a priority.

Figure 1 : Impacts of Global Warming

Adapted from : *http://epa.gov/climatechange/kids/basics/concepts.html*



2 Climate Change Terminologies

Adaptation

Adjustment in natural or human systems to a new or changing environment. Adaptation to Climate Change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Various types of adaptation can be distinguished, including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation. (IPCC 2001)

Atmosphere

It is the gaseous envelope surrounding the Earth's surface. The dry atmosphere consists almost entirely of nitrogen (78.1% volume mixing ratio) and oxygen (20.9% volume mixing ratio), together with a number of trace gases, such as argon (0.93% volume mixing ratio), helium, radiatively active greenhouse gases such as carbon dioxide (0.035% volume mixing ratio), and ozone. In addition the atmosphere contains water vapour, whose amount is highly variable but typically 1% volume mixing ratio. The atmosphere also contains clouds and aerosols. (EPA 2012)

Carbon Dioxide

Carbon dioxide is a naturally occurring gas, and also a by-product of burning fossil fuels and biomass, as well as land-use changes and other industrial processes. It is the principal human caused greenhouse gas that affects the Earth's radiative balance. It is the reference gas against which other greenhouse gases are measured and therefore has a Global Warming Potential of 1. (EPA 2012)

Carbon Footprint

It can be defined as the accounting of the greenhouse gases (GHG) that are emitted into the atmosphere each year by a person, family, building, organization, or company. This is may be a resultant of the consumption of fossil fuels through various activities like transport, electricity consumption, product/material consumption and municipal solid waste generation amongst many other activities. The values of GHG emissions are expressed in terms of CO_2 equivalents which help estimate the carbon footprint.

Climate

Climate in a narrow sense is usually defined as the "average weather," or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands of years. The classical period is 3 decades, as defined by the World Meteorological Organization (WMO). These quantities are most often surface variables such as temperature, precipitation, and wind. Climate in a wider sense is the state, including a statistical description, of the climate system. (EPA 2012)

Climate Change

Climate Change refers to any significant change in the measures of climate lasting for an extended period of time. In other words, Climate Change includes major changes in temperature, precipitation, or wind patterns, among others, that occur over several decades or longer. (EPA 2012)

Glacier

A multi-year surplus accumulation of snowfall in excess of snowmelt on land and resulting in a mass of ice at least 0.1 km^2 in area that shows some evidence of movement in response to gravity. A glacier may terminate on land or in water. Glacier ice is the largest reservoir of fresh water on Earth, and second only to the oceans as the largest reservoir of total water. (EPA 2012)

2 Climate Change Terminologies

Global Warming

It refers to the recent and ongoing rise in global average temperature near Earth's surface. It is caused mostly by increasing concentrations of greenhouse gases in the atmosphere. Global warming is causing climate patterns to change. However, global warming itself represents only one aspect of Climate Change.

Greenhouse Effect

It is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. Some of the heat flowing back toward space from the Earth's surface is absorbed by water vapor, carbon dioxide, ozone, and several other gases in the atmosphere and then reradiated back toward the Earth's surface. If the atmospheric concentrations of these greenhouse gases rise, the average temperature of the lower atmosphere will gradually increase. (EPA 2012)

Greenhouse Gas (GHG)

Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include, carbon dioxide, methane, nitrous oxide, chlorofluorocarbons, hydrochlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride. (EPA 2012)

Heat Waves

A prolonged period of excessive heat often combined with excessive humidity. (EPA 2012)

Parts Per Million (ppm)

Number of parts of a chemical found in one million parts of a particular gas, liquid, or solid mixture. (EPA 2012)

Radiative Forcing

It is a measure of the influence of a particular factor (e.g. greenhouse gas (GHG), aerosol, or land use change) on the net change in the earth's energy balance.

Vulnerability

It is the degree to which a system (natural or human) is susceptible to, or unable to cope with, adverse effects of Climate Change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity. (IPCC 2001)

Mitigation

An anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases. (IPCC 2001)

Weather

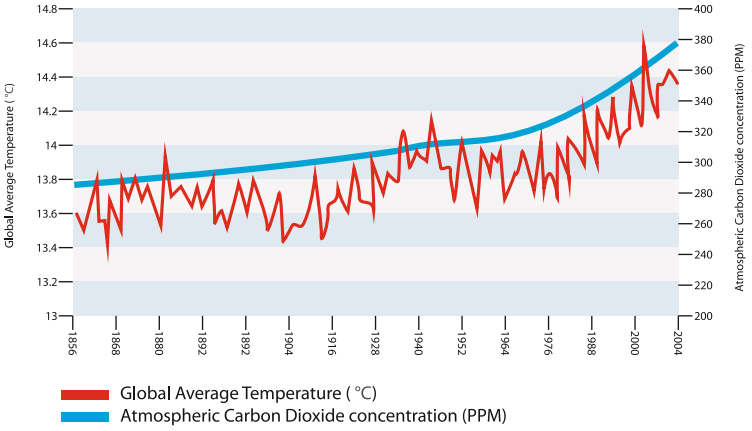
It is the atmospheric condition at any given time or place. It is measured in terms of; wind, temperature, humidity, atmospheric pressure, cloudiness, and precipitation. Weather can change from hour-to-hour, day-to-day, and season-to-season.

3 Evolution of Climate Change

The development of the climate change issue initially took place in the scientific arena as a greenhouse problem. The greenhouse warming theory was put forward first in 1896 by a Swedish chemist Svante Arrhenius. In the early 1960s, scientists in Mauna Loa, Hawaii established that the atmospheric concentrations of CO_2(primary greenhouse gas) are increasing. This was shown through the so-called Keeling curve (See Figure 2). Thereafter, there were many more computer models on global warming predictions.

Figure 2 : Rise in Global Temperature and CO_2 in Atmosphere

(Source: Website of Live Smart British Columbia. Accessed from : *http://www.livesmartbc.ca/learn/change.html*, Nov 2012)



In 1970's organizations like World Meteorological Department (WMO) and United States National Research Council (USNRC) concluded that the earth is warming and its effects are likely to be seen in the coming century. Figure 2 shows the observed CO_2 increase from 1850 to 2004. The regular drop and highs in the CO_2 observations is due to change in seasons. The First World Climate Conference in 1979 and a major workshop on climate change held at Villach, Austria, in 1985 attracting participation of policy makers proved unsuccessful. This was just the beginning of the climate change regime with debates, discussions, meetings and conferences with involvement of government policy-makers, scientists, and environmentalists. These helped increase scientific evidence, raise international concern about the issue so as to take steps towards global action.

Climate change related talks have evolved a great deal since 1985 and thisevolution of the international climate change debate and actions therein, have been captured in the chart that follows.

3 Evolution of Climate Change

1985

Villach Conference

- Significant climate change highly probable
- States should initiate consideration of developing a global climate convention

CO_2 level : 346.04 ppm

Extreme Cold in North America

1988

Toronto Conference

- Global CO_2 emmisions should be cut by 20% by 2005
- States should develop comprehensive framework convention on the law of the atmosphere

CO_2 level : 351.56 ppm

Drought in USA

1988

IPCC Formation

- Scientist given a mandate to asess the state of scientific knowledge on climate change, evaluate its impacts and come up with realistic solutions

CO_2 level : 351.56 ppm

Floods in Bangladesh

1990

IPCC
1st Assessment Report

- Increasing accumulation of greenhouse gases in the atmosphere would "enhance the greenhouse effect, resulting on average in an additional warming of the Earth's surface" unless measures are adopted to limit the emissions of these gases.

CO_2 level : 354.35 ppm

Andhra Pradesh cyclone

1992

RIO Earth Summit

- 154 signatories aim to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous interference with the climate system to 1990 levels by 2010

CO_2 level : 356.38 ppm

Hurricane Andrew in Florida

IPCC 2nd Assesment Report

- The balance of evidence suggests a discernible human influence of global climate
- Air temperature has increased by between 0.3 and 0.6°C since the late 19th century

CO_2 level : 360.8 ppm

Floods in Netherlands

IPCC session

- European environment ministers propose industrialized nations reduce their emmisions 15 percent below 1990 levels by 2010
- IPCC chair says eventually developing nations will also have to reduce their emmisions

CO_2 level : 361.71 ppm

Wildfires in Indonasia

1995 **1995** **1996** **1997** **1997**

UNFCCC
1st Conference of Parties

- Signatories acknowledge that UNFCCC is inadequate without country-specific commitments and agrees to negotiate emission reduction targets for industrialized countries

CO_2 level : 360.8 ppm

Heavy snow in Chile
(-14.5° C)

UNFCCC
1st Conference of Parties

- US along with other 100 countries agrees to legally binding targets and timetables to reduce emissions, but also proposes and international emissions trading scheme

CO_2 level : 362.59 ppm

Cyclone Olivia in Australia

Kyoto Protocol

- More than 150 countries sign the Kyoto Protocal, which binds 38 industrialized countries to reduce greenhouse gas emissions by an average of 5.2 per cent below 1990 levels for the period of 2008-2012

CO_2 level : 361.71 ppm

Typhoon Paka in Guam

UNFCCC
6th Conference of Parties

- Canada, U.S. Japan and Australia try to exploit loopholes in Kyoto's Flexibility mechanisms
- The European Union and many small island states try to restrict cedit to actions that actually reduce emissions

CO_2 level : 369.52 ppm

Floods in Mozambique

Kyoto Protocol

- The Kyoto Protocol becomes international law after Russian ratification pushes the emissions of ratified Annex1 countries over the 55 per cent mark

CO_2 level : 379.8 ppm

Floods in Mumbai

Stern Review

- Review on economics of climate change
- Tos stable the emissions level in 20 years would cost approximately 1% of the global GDP

CO_2 level : 383.76 ppm

Heat wave in UK

2000 **2001** **2005** **2005** **2006**

IPCC 3rd Assesment Report

- Average surface temperature is projected to increase by 1.4 to 5.8 Celsius degrees over the period 1990 to 2100 and the sea level is projected to rise by 0.1 to 0.9 metres over the same period.

CO_2 level : 371.13 ppm

Flash floods in Pakistan

Montreal
1st Meeting of Parties

- Parties agree that a second phase of the Kyoto Protocol will be negotiated
- No deadline for finalizing the amended protocol is agreed to

CO_2 level : 379.8 ppm

Drought in Amazon

Bali Conference

- Parties agree to road map that will steer governments through a round of talks aimed at ensuring that a new agreement will be concluded during the Copenhagen summit

CO_2 level : 383.76 ppm

Cyclone Sidr in India and Bangladesh

2007

2007

IPCC
4th Assessment Report

- Warming of the climate system is unequivocal
- World temperatures could rise by between 1.1 and 6.4°C during the 21st century
- Sea levels will probably rise by 18 to 59 cms

CO_2 level : 383.76 ppm

Wildfires in San Deigo USA

Copenhagen Summit

- Copenhagen Accord recognizes the scientific case for keeping temperatures rises to not more than 2°C but does not include commitments on emissions reductions

CO_2 level : 387.38 ppm

Drought in Kenya

2009

2009

G8 Summit

- G8 countries agree that limit of 2°C of average global warming should not be exceeded
- GHG emissions should be reduced by at least 50 percent by 2050 and from developed countries 80 percent or more

CO_2 level : 387.38 ppm

Floods in Karnataka and Andhra Pradesh

Durban Summit

- Developed country governments and 48 developing countries affirmed their emission reduction pledges up to 2020

CO_2 level : 361.71 ppm

Floods in Thailand

2010

2011

Cancun Summit

- Parties agree to cooperate establishment of green climate fund
- Adaptation to be given equal importance as mitigation

CO_2 level : 361.71 ppm

Flash floods in Ladakh

4 Climate Change in India

India has a unique climate system dominated by the monsoon with major physiographic features; the Himalayas, the central plateau, the western and eastern Ghats and the long coastline of more than 7500 km, making it more vulnerable. India's economy is dependent on its natural resource base and climate sensitive sectors such as agriculture, water and forestry. Climate Change may alter the distribution and quality of India's resources and adversely affect the livelihood of its people. It would also lead to sea level rise, extreme rainfall, retreating glaciers, storm surges and cyclones, bringing the lives of over a billion people at risk. In the current scenario of economic growth and climate risks, it is extremely critical for India to take timely action to reduce its vulnerability to the impacts of Climate Change.

What are the possible impacts of projected Climate Change in India?

Parameter (What?)	Changes projected (How much?)
Water Resources	• A decline in total run-off for all river basins, except Narmada and Tapti • A decline in run-off by more than two-thirds anticipated for the Sabarmati and Luni basins • Due to sea level rise, the fresh water sources near the coastal regions will be impacted by salt water intrusion from the sea.
Agriculture and Food Production	• Greater loss expected in the Rabi crop • Wheat production reduces by 4-5 million tonnes with every 1°C rise • Rice production decreases by 6% for every 1°C rise • Significant effect on the quality of fruits, vegetables, tea, coffee, and basmati rice • Lower yields from dairy cattle and decline in fish breeding and harvest • Increase in temperatures would be useful for growth of certain crops such as coconuts
Health	• Spread of disease vectors such as malarial mosquitoes may increase to new areas • Transmission windows, that is, months when mosquitoes are active would increase to 12 months in 9 states with a rise in temperature by 3.8°C and relative humidity by 7%
Forest	• The expected increase for the States of Jammu and Kashmir and in Rajasthan is 3-5 months • Under one of the scenarios, 68% of the forests areas would experience shift in forest types by the end of the century • Increase in the area under xeric scrublands and xeric woodlands in central India at the cost of dry savannah in these regions

Parameter (What?)	Changes projected (How much?)
Vulnerability to Extreme Events and Sea Level Rise	• About 40 million hectares of land is flood-prone, including most of the river basins in the north and north-eastern belts, affecting about 30 million people each year • Projected increase in the intensity of tropical cyclones pose a threat to the heavily populated coastal zones in the country (compiled from multiple sources)

India's Action Plan for combating Climate Change

India has formulated its own plan to combat Climate Change through the National Action Plan on Climate Change (NAPCC). The plan identifies 8 mission areas which will be a part of the fight against climate change. The 8 missions and their description given below:

Solar Energy

- India, a prime location for solar power
- Scaling up existing solar applications through supportive regulations and incentives
- Capacity to reach as high as 60,000 MW by 2030

Enhanced Energy Efficiency

- Indians pay the highest energy prices
- Nine energy intensive sectors identified and efficiency benchmarks set
- Launch of an Energy Conservation Building Code (ECBC) in 2007 which encourages the design of 30% more energy efficient buildings
- Major drive to popularize highly efficient compact fluorescent lamps

Himalayan Ecosystem

- Fill in gaps in knowledge about the ecology of the Himalayan region by using India's space capabilities for climate studies
- Understanding and adapting to the retreat of Himalayan glaciers, which are the primary source of fresh water for much of the country

Sustainable Agriculture

- The plan aims to support climate adaptation in agriculture through the development of climate resilient crops, expansion of weather insurance mechanisms and agricultural practices

Water

- With water scarcity projected to worsen as a result of climate change, the plans sets a goal of a 20% improvement in water use efficiency through pricing and other measures

Green India

- Expansions of forest cover from 23% to 33% of India's territory
- Afforestation of 6 million hectares of degraded forest land

Strategic knowledge for climate change

- Climate science research fund, improved climate modeling and increased international collaboration
- Encouraging private sector initiatives to develop adaptation and mitigation technologies through venture capital funds

Sustainable Habitat

- Extending the existing Energy Conservation Building Code
- Urban waste management, recycling and power production from waste
- Strengthening the enforcement of automotive fuel economy standards and using pricing measures to encourage the purchase of fuel-efficient vehicles
- Incentives for the use of public transportation

To know more about NAPCC and its relevance to the MMR, access the '**Booklet on NAPCC and the MMR**' available on **www.mmr-ccrt.org.in**

5 Youth and Climate Change

The world's population is young, with some 2.2 billion people under the age of 18. The youth have unique insights into solving problems in their communities, and often play a key role in the survival of their families in the event of natural disaster (UNICEF 2009).

Climate change will affect everyone but with different intensities. It will have differential impacts in different parts of the world. It will hinder growth and development. The cost of mitigation and adaptation will increase significantly if action is procrastinated.

As mentioned earlier, climate change will increase the number of extreme events drastically. Regions with poor sanitation and waste management system would face major problems. The water availability would also be affected due to change in rainfall patterns, leading to floods or droughts across different regions. Access to clean water being critical in maintaining one's health, if water is compromised so is our health. Higher temperatures will also increase occurrences of diseases. Cooler places may experience heat waves due to increased temperatures which will also affect the general health and well being of people. India's agriculture is monsoon dependent and any change in the rainfall patterns due to climate change would affect the food security of the country.

How does it affect the youth?

The relationship between climate change and conflict is complex but derives primarily from reduced economic security, increased resource scarcity (especially in areas economically dependent on natural resources), and the circumstances surrounding displacement (UN 2010).

The major impact for youth will be their livelihoods. Today unemployment rates are high and with increasing poverty and climate change the rates are likely to increase. The adaptation and mitigation sectors of climate change are opportunities for the youth.

Major negative impacts will be faced by rural youth dependent on agriculture and fisheries. Huge migration from rural to urban areas will take place. Migration is an adaptation measure. But if the urban areas are not able to cope with the increased influx of people this adaptation measure would not work. Thus maintaining the livelihood of rural as well as urban youth is important. Involving the youth would be useful as they have an important role in outreach and action.

What can the youth do?

Youth can be the change that this world needs. The enthusiasm and the combination of achieved modern knowledge and acquired traditional knowledge can be their contribution.

Some of the key steps to be followed are:

- Change of consumption and lifestyles – Less is More
- Educate people about climate change
- Developing careers in green jobs
- Form action groups or join existing groups which volunteer for climate change related activities.
- Guide others towards green and sustainable jobs.

At an individual level, it is pertinent that the youth strive to bring about significant changes in their lifestyle and consumption patterns, which are largely unsustainable currently. They can shift to sustainable or low carbon practices such as using public transport, conserving electricity and reducing the amount of waste generated in their day to day activities individually for a start, The various resources and tools created under this Climate Change Resource Toolkit such as factsheets, posters, powerpoint presentations, booklets, carbon footprint calculators etc. are a good starting point for understanding climate change and various actions that can be undertaken by various people, individually as well as collectively.

Youth worldwide have taken various initiatives at individual and community level to combat climate change. Some of the important initiatives which have been documented are as follows:

Initiatives by youth

The case studies discussed here are from India, Africa, and USA. Some are local initiatives which if implemented at many places can have a positive collective impact. The major initiatives seen worldwide are activism based. The youth mobilization is a huge part of the activism. There are youth groups who, through such campaigns have forced the governments and corporate sectors to change the way they operate. There are few initiatives which have taken place on grass root levels to combat climate change. The impact of groups working on grass root level is more appreciable than the activists. The youth can mobilize other youth as well as people of other age groups also, and thus, their works should not just be limited to youth by elevating others also.

Youth initiative on Green Jobs by Santa Fe YouthWorks

YouthWorks is a non-profit, community-based organization that creates opportunities for disconnected youth and families in Northern New Mexico to become engaged and valued members of their communities.

A case study was done by Climate Leadership Academy Network for the Green Boot Camp on YouthWorks of Santa Fe, April 2010. YouthWorks' innovative programs are creating green collar job opportunities for Santa Fe's disadvantaged and minority youth, ages 14-28, who face high barriers to employment including skills gaps, limited education, and discrimination.

YouthWorks addresses many youth related issues, one of them being global warming and climate change. YouthWorks currently has three green collar job training programs:

EnergyWorks is a residential energy efficiency auditing program. Trained three-person YouthWorks crews conduct an energy audit and provide simple energy-saving installations for low- and moderate-income households at no cost to the homeowner. The program is run in partnership with the Santa Fe Housing Trust, the Sierra Club, Santa Fe Community College (SFCC) and the City of Santa Fe. In the first six months of the pilot, over 150 homes were served.

Green Collar Jobs Pre-Apprenticeship program, started in 2008, is a program that combines education, skills training and on-the job experience. Participants take a common community college course, and select additional courses based on their career interests. To make sure that training graduates have the skills they need, YouthWorks sends case managers to speak directly to prospective businesses. Participants are then placed in apprenticeships with wages (subsidized to make them affordable for local businesses). In 18 months, the program serviced 50 people and 25 businesses.

The WIRED Green Building program is a pilot project launched in 2009 that combines on-site green jobs training with education. Youth participants work with a local contractor to build a home for Habitat for Humanity, using green building techniques, while also attending GED courses at Santa Fe Community College (SFCC). The program was funded by the Department of Labor's Workforce Innovation for Regional Economic Development (WIRED) Program.

In 2008, Santa Fe's Economic Development Department began talking about how to align economic development and the Sustainable Santa Fe Plan. Developing a local green workforce emerged as a priority, as did investing in youth. YouthWorks relies on other organizations to help deliver its green jobs programs, which expands its capacity, but also creates challenges. One key to holding these relationships together was keeping focused on what each partner needs. For instance, the Energy Works program is a partnership among the Santa Fe Housing Trust, the City, and Santa Fe Community College.

Further information is available on **http://santafeyouthworks.org/**

Youth initiative on climate change adaptation by African Youth Initiative on Climate Change (AYICC)

The African Youth Initiative on Climate Change (AYICC) is an umbrella youth network that was conceived in 2006 in Nairobi Kenya, during the 2nd International Conference of Youth held before the UNFCCC, COP 12. This initiative has continued to connect, share knowledge, ideas, experiences, skills and strategies on youth action around the continent on climate change mitigation and adaptation. It has been identified by African youth as providing an effective platform in order to address regional challenges at international gatherings, such as the UNFCCC COP process among others.

Key youth organizations and countries that have been involved and continue to play a major role in the initiative in AYICC are: JVE Togo, AYICC Kenya, YEN Zambia, Energy Crossroads East Africa, Rwanda, Ethiopia, GYCCC Ghana, Nigeria youth climate Coalition, South Africa, Children for Children Organization- Gambia, Ethiopia, Morocco, Sierra Leone, REJEFAC-Cameroon, Benin, Algeria, Zimbabwe, Malawi and Rwanda among many others.

The members of the African Youth Initiative on Climate Change (AYICC) address the bigger picture of climate change by appreciating its links with sustainable development. In this regard, the AYICC will link climate change and poverty reduction targets, especially in terms of utilizing appropriate and ecologically viable strategies. Thus ensuring both positive developments and avoiding the negative impacts of climate change.

One such example is a study carried out by Dr. Fouad Bergigui of AYICC, Contribution to the assessment of climate change vulnerabilities within the livestock sector in North Africa, the case of Morocco.

This study compiled the data for climate change projections for Morocco and its impacts on fodder crops and vegetables that will suffer from climate change. The impacts of climate change were then analyzed causing changed pastoral crop densities , health, society, economy and animal breeds.

Recommendations were given for citizens and at policy level. This case study was presented at CCDA-I Conference, 19 October 2011, Addis Ababa, Ethiopia.

Further information is available on **http://www.ayicc.net**

Youth Sensitization by Tata Power Club Enerji

Club Enerji, is an Energy Conservation Club that focuses on bringing about a first-hand realization of the energy crisis. This informal Energy Conservation Club comprising schools and school children, youth, parents, teachers and the society at large has been formed to spark off an initiative for curbing energy-wastage through active measures, and also popularizing the importance of this mission among fellow citizens. The club is active in Mumbai, New Delhi, Ahmedabad, Pune, Jamshedpur, Lonavla, Belgaum, Haldia, Bengaluru and Kolkata.

NMIMS University, Juhu, and St. Xavier's College in Mumbai, are a part of the youth group. The students of these colleges are members to the club and they help spread awareness and conduct activities. The website provides a footprint calculator, energy saving tips and energy calculator. Any person can be a member of this organization. The ideas are shared on the website and thus it gets promoted.

The Project has 3 phases:

Phase-I (Sensitization)

- Tata Power sensitizes schoolchildren of Grades VI to VIII from various schools, about energy conservation through audio-visual presentations and by a guided trip to the Tata Thermal Power Generating Station. Sessions are also carried out for youth in colleges, teachers and parents to make them understand about:
- The importance of energy conservation, and the country's dependence on electrical power.
- Increasing demand for energy and the gap between demand and supply.
- Impact on the environment.
- Safeguards to prevent wastage of power in everyday life.
- The enormous amount of capital, resources and manpower required to generate electricity for the country.

The company then:

- Instructs them on the interpretation of Electricity Bills, and conservation through energy-efficient use of domestic appliances.
- Explains and emphasize the role of awareness in the individual, the family and the community.
- Involves students in an exercise to monitor and reduce energy bills in their homes by adopting the energy conservation methods suggested.
- Selects a team of Energy Champions from each school.

Phase-II (Impact Assessment)

- This phase of the Project is focused on sharing the understanding acquired through Phase-I with others in the community. The process involves:
- Sharing of information on energy conservation with at least 2 others.
- Students undertaking this awareness drive help the target families to bring down their electricity bills.
- Electricity bills are monitored over 3-6 months to assess effectiveness.
- Every student attempts to recognize and curtail wasteful usage of energy in their schools and homes.

Youth Sensitization by Tata Power Club Enerji

Phase-III (Peer Group Education)
In this phase, 3-4 school teams with demonstrated commitment to energy conservation are identified to form a peer group to carry out the sensitisation process in other schools. Tata Power provides the expertise, information and tools necessary for the campaign.

Further information is available on
http://www.clubenerji.com/the-energy-club/purpose-of-the-club.asp

Climate Change awareness initiative by Indian Youth Climate Network

The Indian Youth Climate Network (IYCN) is a network of young people in 18 states who are concerned about climate change & environment issues.

Started in 2008, IYCN was registered as a society in 2009 with representation from 8 states of India and today IYCN has 19 chapters in different states and offices in 7 locations with outreach to thousands of youth in colleges, schools, corporations and institutions in India.

The purpose of IYCN is to bring the voice of Indian youth on the global platform as South Asia is one of the most vulnerable regions affected by potentially catastrophic climate change & environment issues. IYCN provides technical, financial and administrative support to increase youth participation in protection of the environment of India as well as establish consensus on what role India should play in the global debate of climate change.

IYCN's leaders and program members are "informed youth" who have been:

- Following environmental & climate change policies and making recommendations at state, national and international platforms
- Running campaigns aimed at public awareness on climate change impact & causes. In this process, the chapters have been mobilizing & informing thousands of Indian citizens while making Guinness records and receiving awards
- Implementing on-ground projects such as composting & community waste management, rural energy projects, lake clean-ups, herbal/ medicine gardens, etc.

The major focus areas are education and empowerment, community involvement, campaigning, policy level suggestions, energy efficiency, waste management and eco-audits.

Anyone can become a member of IYCN by paying a minimal fee. For students the fee is Rs. 500 and for professionals it is Rs. 1000. The members can be coordinators or volunteers. The members can also start a new chapter if one does not exist in his/her city. The chapters conduct workshops, seminars, activities to do ground work and spread awareness regarding climate change.

Further information is available on **http://www.iycn.in/**

Youth Connect

Youth Connect is TERI initiative with Veolia Environment Institute and Oak Foundation.

Youth Connect is an online platform that provides you an opportunity to:

- Share your initiatives and ideas that will help in reducing our carbon footprint,
- Speak about what you have done or seen around you that deals with climate change,
- Formulate your point of view about key issues of concern,
- Respond to the viewpoints of others.

The website provides a platform to become a climate campaigner, communicating climate change impacts and ways to fight it. The member can share his/her green ideas, pledge to be carbon free, and read blogs of climate change aware citizens.
It also provides basic information about climate change, its impacts, the protocols, upcoming conferences etc.

Further information is available on **http://youthconnect.climateofconcern.org/**

6 Climate Change Education

Climate change is not only something which a person should be informed about, but it is also to ensure that the society is re-mobilized and re-oriented towards sustainable practices through quality education. Without educational interventions, the above mentioned youth initiatives will fail. Higher education plays an important part in development of the society. Thus, climate change can be studied as a part of higher education to obtain green jobs and to help society develop sustainably. Some of the national and international courses are listed below with some basic information about the course.

National Courses

India has woken up to the challenge of climate change and is in the process of providing higher education in this field. Some of the deemed as well as government education institutes now offer climate change based courses. The courses are as follows:

Note : All information, including fees, is based on the information made available by the institutions in the public domain.

Climate Change Courses

CEPT University

City	Degree	Course	Time Duration	Fees (Rs)
-	Certificate e-course	Climate Change and Urban Environment	6 months	15,000

Key Features :
Climate science and urban environment and their relation with energy, transport and waste sectors. India' s role in climate change

Web Links:
http://www.cept.ac.in/

-	Certificate e-course	Climate Change: Mitigation and Adaptation Strategies	6 months	16,000

Key Features :
Basic concepts of climate change, climate and sectors (agriculture, industries, urban development and infrastructure), mitigation cases, community based adaptation, capacity building and implementation

Web Links:
http://www.cept.ac.in/

Ahmedabad	Certificate course	Energy Management & Renewable Energy Systems	6 months	15,000

Key Features : Energy systems, policy interventions for sustainable energy practices, energy markets and energy-efficient built forms

Web Links:
http://www.cept.ac.in/

IITM-Pune*

Pune	M.Tech/ PhD	Atmospheric sciences	2 years/ max. 4 years	15,000

Key Features :
Cloud Physics, Atmospheric Electricity, Monsoon Meteorology, Boundary Layer Meteorology, Micrometeorology, Atmospheric Modelling, Satellite Meteorology and Remote sensing applications

Web Links:
http://www.tropmet.res.in/How_to_Join_IITM.pdf

*Universities offer PhD in the mentioned areas

Climate Change Courses

Centre for Environment Education (CEE) and Gujarat University

CEE
Centre for Environment Education

City	Degree	Course	Time Duration	Fees. (Rs)
Ahmedabad	M.Sc	Climate Change and Impacts Management	2 years	80000

Key Features :
Climate change adaptation and mitigation, sustainability and communication courses

Web Links:
http://www.ceeindia.org/cee/MEC-CC.html

Ahmedabad	Diploma (Distance education)	Environmental Education (Green Teacher)	1 year	4800 to 5700

Key Features :
Basics of environment for teachers of primary and high school education

Web Links:
http://www.ceeindia.org/cee/greenteacher-2012.html

The Energy and Resources Institute (TERI)*

New Delhi	M.Sc	Climate Science and Policy	2 years	1,78,970

Key Features :
Climate change policies and laws, energy, wildlife, climate modelling, resource management, climate change mitigation and adaptation

Web Links:
http://www.teriuniversity.ac.in/

New Delhi	M.Sc	Environmental studies and resource management	2 years	1,78,970

Key Features :
Laws, energy, wildlife, climate modeling, resource management and environmental science

Web Links:
http://www.teriuniversity.ac.in/

New Delhi	Ph.D	Natural resource management	3-5 years	-

Web Links:
http://www.teriuniversity.ac.in/

*Universities offer PhD in the mentioned areas

Climate Change Courses

City	Degree	Course	Time Duration	Fees. (Rs)
IISc*				
Bangalore	M.Tech	Climate Science	2 years	2,66,000

Key Features :
Atmospheric dynamics and thermodynamics, ocean dynamics, cloud physics, radiative heat transfer and climate, satellite meteorology and numerical modelling of climate

Web Links:
http://caos.iisc.ernet.in/

-	E-course	Environmental management	4 months	8000 to 15000

Key Features :
Environmental design, economics; GIS, EIA

Web Links:
http://wgbis.ces.iisc.ernet.in/energy/distance_education_courses/

IIT / IISc				
-	E-course	Aerosols and the Earth's Climate	43 hrs	Free web access

Key Features :
Basics of atmospheric sciences and effects of aerosols on climate

Web Links:
http://nptel.iitm.ac.in/courses.php

-	E-course	Atmospheric Thermodynamics & Cloud Physics	42 hrs	Free web access

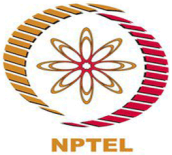
Key Features :
Spatial variation of properties of the atmosphere, properties of gases and the laws that govern them, role of water vapour and its phase changes, atmospheric stability, formation of clouds and atmospheric convective systems.

Web Links:
http://nptel.iitm.ac.in/courses.php

*Universities offer PhD in the mentioned areas

Climate Change Courses

IIT / IISc



City	Degree	Course	Time Duration	Fees. (Rs)
-	E-course	Radiation Heat Transfer	42 hrs	Free web access

Key Features :
Blackbody radiation, radiative properties of surfaces, Kirchoff's law, configuration factor , gas radiation, Planck and Rosseland mean absorption coefficient, radiation in furnaces, radiative equilibrium, interaction between conduction, convection and radiation

Web Links:
http://nptel.iitm.ac.in/courses.php

-	E-course	Statistical Methods in Climate Science	43 hrs	Free web access

Key Features :-
Probability theory, Probability Density Functions (PDF), Derived Distributions, Moments - Population vs. Sample, Distributions of Sample Statistics and Confidence Intervals

Web Links:
http://nptel.iitm.ac.in/courses.php

-	E-course	The monsoon and its variability	40 hrs	Free web access

Key Features :
Monsoon and its variability on different spatial and temporal scales, cloud systems in the tropics, tropical dynamics as well as of phenomena such as El Nino to which it is linked.

Web Links:
http://nptel.iitm.ac.in/courses.php

Kerala Agricultural University

Thrissur, Kerala	M.Sc. (Integrated)	Climate Change Adaptation	5 years	-

Key Features :
Agriculture based climate change adaptation

Web Links:
http://www.kau.edu/Education.htm

Energy Courses

Allahabad Agricultural Institute Deemed University

City	Degree	Course	Time Duration	Fees. (Rs)
Allahabad	P.G.Diploma / M.Tech	Renewable Energy	1 year/ 2 years	1,36,000/ 2,72,000

Key Features :
Energy types, renewable energy technologies, rural technologies, building energy and waste utilization

Web Links:
http://www.aaidu.org/

The Energy and Resources Institute (TERI)*

New Delhi	M.Tech	Renewable Energy Engineering and Management	2 years	1,78,970

Key Features :
Energy systems, renewable energy technologies, rural technologies, building energy, waste utilization and environmental implications of renewable technologies

Web Links:
http://www.teriuniversity.ac.in/

New Delhi	Ph.D	Energy and Environment	3-5 years	

Key Features :-

Web Links:
http://www.teriuniversity.ac.in/

New Delhi	P.G.Diploma (Distance Learning)	Renewable Energy	2 years	93,950

Key Features :-
Energy systems, renewable energy technologies, rural technologies, building energy, waste utilization and environmental implications of renewable technologies

Web Links:
http://www.teriuniversity.ac.in/

*Universities offer PhD in the mentioned areas

Social & Developmental Sciences and Economics Courses

Tata Institute of Social Sciences

City	Degree	Course	Time Duration	Fees. (Rs)
Deonar, Mumbai	B.A	Social Work, with Specialization in Rural Development,	3 years	1,76,800

Key Features :
Courses on Human Growth and Development, Environment and development, rural development, agriculture and other life skills, disaster management

Web Links:
www.tiss.edu

Deonar, Mumbai	M.A	Development Studies	2 years	63,600

Key Features :
Participatory, self-sustaining and people-centred public policies, developmental research and climate change related development studies

Web Links:
www.tiss.edu

Deonar, Mumbai	M.A	Disaster Management	2 years	73,600

Key Features :
Relationship between environment, livelihood and disasters, institutional building and governance, inequalities and social exclusion, local knowledge systems

Web Links:
www.tiss.edu

Bhrathidasan University

Thiruchirapalli	P.G Dip	Clean Development Management	1 year	5000

Key Features :
CDM regulation, protocols and carbon finance

Web Links:
http://www.bdu.ac.in/academic.php

Social & Developmental Sciences and Economics Courses

	City	Degree	Course	Time Duration	Fees. (Rs)
Indian Institute of Management (IIM)	Ahmedabad	MBA	Agricultural Business Management	2 years	1,20,000

Key Features :
Carbon finance for agricultural management

Web Links:
http://www.iimahd.ernet.in/programmes/pgp-abm.html

The Energy and Resources Institute (TERI)*	New Delhi	M.A	Public policy and sustainable development	2 years	2,53,370

Key Features :
Environmental economics, laws and legislations pertaining to climate change and infrastructure management

Web Links:
http://www.teriuniversity.ac.in/

	New Delhi	M.A	Sustainable development practice	2 years	2,53,370

Key Features :
Environmental economics, laws and legislations pertaining to climate change and infrastructure management

Web Links:
http://www.teriuniversity.ac.in/

Sharda Group of Educational Institutions	New Delhi	MBA	Renewable Energy Resources and Energy Management	2 years	1,24,050

Key Features :
Business administration with specialization in Renewable Energy resources

Web Links:
http://www.sgei.org/

International Courses

The European nations are more active and involved in climate change activities. United Kingdom has the maximum number of climate changed based courses. Focus here is not only on the climate change studies but also on carbon and energy sectors. United States of America has a few direct climate change based courses but the earth sciences courses have included major climate change subjects. The Australian universities also have some good courses.

Climate Change Courses

	Country	Degree	Course	Time Duration	Fees
Cambridge University	UK	M.Phil	Earth Sciences*	1 year	£19,377

Key Features :
Climate science and oceanography along with the regular earth science courses

Web Links:
http://www.admin.cam.ac.uk/students/gradadmissions/

Cardiff University	UK	PhD	Climate and Biodiversity*	3 years	£15,000

Key Features :-

Web Links:
http://www.cardiff.ac.uk/earth/postgraduate-research-phd/

University College of London	UK	M.Sc	Climate Change	1 year	€ 15,500

Key Features :
Climate Dynamics, Models in Environmental Science, Past Climates, Anthropocene, Climate Modelling, Coastal Change, Environmental GIS, Impacts of Climate Change on Hydro-ecological systems, Terrestrial Carbon: Modelling and Monitoring, Science and Politics of Climate Change and Surface Water Modelling

Web Links:
http://www.ucl.ac.uk/prospective-students/graduate-study/degrees

*Universities offer PhD in the mentioned areas

Climate Change Courses

	Country	Degree	Course	Time Duration	Fees
University of Dundee	UK	LLM	Climate Change, Energy, Law and Policy	1 year	€ 16,600

Key Features :
Masters in Law with specialization in climate change laws, legislations and policies on global level

Web Links:
http://www.dundee.ac.uk/postgraduate/courses/cepmlp_llm.htm?cepmlp_cclp

UK	M.Sc	Climate Change Economics and Policy	1 year	€ 16,000

Key Features :
Inter-disciplinary perspective taking economic, legal and political aspects into consideration. Analyze, synthesize and evaluate key theoretical concepts related to climate change and their practical applications to the energy sector.

Web Links:
http://www.dundee.ac.uk/postgraduate/courses

University of East Anglia	M.Sc	Climate Change	1 year	£14,700

Key Features :
Interdisciplinary knowledge of climate change science, society and policy. The course content equips our graduates for careers in areas as diverse as government agencies, business consultancies and academia

Web Links:
http://www.uea.ac.uk/env/courses/

UK	M.Sc	Climate Change and International Development	1 year	£11,900

Key Features :-
International policy frameworks on climate change; Adaptation and Mitigation choices and pathways; Adaptation and National Responses; Linking climate change mitigation and development, carbon markets; climate change and poverty reduction, trade-offs and synergies; Local responses to extreme events and disasters; adaptation and mitigation

Web Links:
http://www.uea.ac.uk/dev/courses/

Climate Change Courses

Country	Degree	Course	Time Duration	Fees
UK	LLM	Global environment and Climate Change Law	1 year	€ 14,400

University of Edinburgh

The University of Edinburgh School of Law

Key Features :
Interdisciplinary knowledge of the legal issues and techniques related to environmental protection and the management of natural resources, with special emphasis on climate change

Web Links:
http://www.law.ed.ac.uk/pg/taught/llmglobalenvironmentandclimatechangelaw.aspx

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University of Exeter

UNIVERSITY OF EXETER

UK	M.Sc	Climate change and risk management	1 year	€ 14,500

Key Features :
Present and future climate changes and their economic and social impact; the program explores the relationship between climate, hazards and risk, with an emphasis on applying scientific knowledge to environmental management problems, and is of direct relevance to careers in insurance, industry and research into climate and hazard modelling and risk assessment.

Web Links:
www.exeter.ac.uk

UK	M.Sc/M.Res	Climate change Impacts and feedback	1 year	€ 12,600

Key Features :
Climate change science as well as cultural and societal responses to climate change, in climate change science; climate futures; cultures of climate change; ice and sea level; landscape dynamics and climate variability; past climate and natural variability; the carbon cycle and terrestrial feedbacks.

Web Links:
www.exeter.ac.uk

Climate Change Courses

	Country	Degree	Course	Time Duration	Fees
University of Exeter	UK	M.Phil/ PhD	Environment , energy and resilience	4 years(full time), 7 years (part time)	£12,300 / £14,100

Key Features :
Understanding the impacts of living with environmental change, the uncertainties of environmental change for energy and food security, and the diverse responses needed to foster behaviours, practices and policies that promote sustainability and resilience.

Web Links:
http://geography.exeter.ac.uk/postgraduate/phd/environmentenergyresilience/

Heriot-Watt University	UK	M.Sc/ PG Diploma	Applied Mathematical Sciences With Climate Change Impacts Modelling	1 year/ 9 months	£11,270

Key Features :
Climate Change: Causes and Impacts, Climate Change: Mitigation and Adaptation Measures, Mathematical Ecology, Modelling and Tools

Web Links:
http://www.postgraduate.hw.ac.uk/courses/

University of Liverpool	UK	M.Sc	Environment and Climate Change	1 year	£14,850

Key Features :
Introduction To Environment and Climate Change, Laboratory Methods and Techniques In, Environmental Reconstructions, Politics of the Environment, Climate Processes and Variability, Project Design and Management, Tackling Environmental issues

Web Links:
http://www.liv.ac.uk/study/postgraduate/taught/

Climate Change Courses

Newcastle University

Country	Degree	Course	Time Duration	Fees
UK	M.Sc	Planning for Sustainability and Climate Change	1 year	£11,165

Key Features :
Academic and planning skills through evaluation, analysis and research, planning frameworks, planning for climate change theory through planning for climate change, science, climate change and environmental justice, renewable energy resources, application and practice issues through the reflexive practitioner, spatial strategies project, planning practice and climate change.

Web Links:
http://www.ncl.ac.uk/postgraduate/taught/

UK	M.Sc	Hydrology and Climate Change	1 year	£14,320

Key Features :
Water environment and its management in the context of climate change, through theoretical, practical and computational training.

Web Links:
http://www.ncl.ac.uk/postgraduate/taught/

University of Sussex

UK	M.Sc / P. G. Diploma	Climate Change and Development	1 year	£8,600

Key Features :
Climate Change Science, Ideas in Development and Climate Change, Challenges in Climate Prediction, Climate and Energy Policy, Climate Resilient Development, Critical Debates in Environment and Development, Innovation for Sustainability, Low-Carbon Development. MSc students are required to do a research project also.

Web Links:
http://www.sussex.ac.uk/study/pg/2012/taught/3931/25105#tabs-1

UK	M.Sc / P. G. Diploma	Climate Change and Policy	1 year	£10,270

Key Features :
Natural and social science, interactions and interdependencies. Climate change and the consequences for our life support systems including water, food and ecosystem services, and the complex socio-economic dimensions of policies for both the transition to a low-carbon economy and for adaptation in key sectors. MSc studentsarerequired to do a research project also.

Web Links:
http://www.sussex.ac.uk/

Climate Change Courses

Wagen-ingen University

Country	Degree	Course	Time Duration	Fees
UK	M.Sc	Climate Studies	2 years	€1,750

Key Features :
Course targets students who wish to focus on the scientific insights in facing climate change and on social economic implications of climate change.

Web Links:
http://www.mcl.wur.nl/UK/

Columbia University

USA	M.A.	Climate and society	1 year	$ 54,000

Key Features :
Dynamics of climate variability and change; Regional climate and climate impacts; Quantitative models of climate-sensitive natural and human systems; and the Integrative Seminar: Managing Climate Variability and Adapting to Climate Change.

Web Links:
http://www.columbia.edu/cu/climatesociety/director.html

University of Maine

USA	M.Sc	Quaternary and Climate Studies	2 years	-

Key Features :
Quaternary studies with climatology, glaciology and climate modelling, Climate and the Earth System, Climate, Culture and the Biosphere

Web Links:
http://climatechange.umaine.edu/graduate/about

University of Miami

USA	PhD	Climate and Climate Processes - Carbon and Climate	2 years/ variable	$29,880/ $29,880 per year

Key Features :
The program ranges from direct observation to theoretical and numerical modelling of the earth-atmosphere system.

Web Links:
http://www.rsmas.miami.edu/about-rsmas/

Climate Change Courses

	Country	Degree	Course	Time Duration	Fees
University of Miami	USA	M.A.	Weather, Climate & Society	2 years	$29,880

Key Features :
Relationship between weather, climate and societal impacts. The financial consequences resulting from natural and anthropogenic climate change, rising sea levels, and extreme weather events pose important scientific and socioeconomic challenges, both in terms of urban planning and managing the financial risks associated with these changes.

Web Links:
http://mps.rsmas.miami.edu/degree-program/weather-climate-society/

Stockholm University	Sweden	M.Sc	Quaternary Science and Climate Development	2 years	€ 15,900

Key Features :
Climate and environmental changes, in different time-scales, and in different geographical regions. Knowledge about natural and anthropogenic climate changes is important for the understanding of the development of the Earth during the Quaternary Period.

Web Links:
http://sisu.it.su.se/search/info/NKVKO/en

	Sweden	M.Sc	Atmospheric Sciences, Oceanography and Climate	2 years	€ 15,900

Key Features :
Integrated view of the components of the climate system in the atmosphere and the ocean, large-scale wind and current patterns that redistribute heat globally, physical and chemical processes that regulate cloud formation and the Earth's radiative balance.

Web Links:
http://sisu.it.su.se/search/info/NMOKO/en

ETH-Zurich	Switzerland	M.Sc	Atmospheric and Climate Science	2 years	€ 3,176

Key Features :
This degree program covers weather and climate phenomena in all their dimensions, from the molecular to the global, from rapid developments to those which develop over millions of years.

Web Links:
http://www.iac.ethz.ch/

Climate Change Courses

	Country	Degree	Course	Time Duration	Fees
University of Australia	Australia	Master	Climate Change	1 year	A$ 30,096

Key Features :
Climate change impacts, vulnerability and adaptation, climate change economics

Web Links:
http://www.crawford.anu.edu.au/degree_programs/content/master/climate_change.php

United Nations University - Institute for Sustainability and Peace	Japan	Credited course	Building Resilience to Climate Change	5 weeks	$ 1500

Key Features :
Science, Impacts and Vulnerability, and approaches to Adaptation. Practical training on remote sensing and GIS software will be provided in conjunction to the courses

Web Links:
http://isp.unu.edu/grad/credited/cecar/index.html

	Japan	Credited course	Climate, Energy and Food Security	15 once a week sessions	JPY 20,000

Key Features :
Interconnected themes of climate, energy and food security, and to familiarize them with the extent of the challenges facing the Asia Pacific region as well as the global community

Web Links:
http://isp.unu.edu/grad/certificate/dmha-cefs/courses_cefs.html

World Bank	-	Certificate e-course	Investment Planning Towards Low Carbon, Climate Resilient Development	26 days	Free

Key Features :
The objective of this course is to teach policymakers, planners and climate change practitioners how to design and finance strategic plans and programs for low carbon and climate resilient development that go beyond a project-by-project approach.

Web Links:
http://einstitute.worldbank.org/ei/course/

Climate Change Courses

World Bank

THE WORLD BANK
Working for a World Free of Poverty

Country	Degree	Course	Time Duration	Fees
-	Certificate e-course	Cities and Climate Change Leadership	18 days	$200

Key Features :
This e-learning course discusses how cities and urban regions can lead climate actions and mainstream climate mitigation and adaptation into their development plans. Its overall objective is to encourage city leaders and decision makers to undertake climate actions suitable to local needs.

Web Links:
http://einstitute.worldbank.org/ei/course/

-	Certificate e-course	Climate-Smart Agriculture through Sustainable Land-Water Management	15 days	$200

Key Features :
This course provides practical knowledge about how climate change is likely to impact agriculture, food production and security, and what actions can be taken to increase productivity, and build resilience to mitigate the negative impacts of climate change, as well as contribute to reducing greenhouse gas emissions through practicing climate-smart agriculture, both in policies and practices.

Web Links:
http://einstitute.worldbank.org/ei/course/

-	Certificate e-course	Parliaments and Climate Change	25 days	Free

Key Features :
This course encourages participants to examine the impacts of climate change on social and environmental development and their relationship to national economies over the long term

Web Links:
http://einstitute.worldbank.org/ei/course/

-	Certificate e-course	Negotiating Climate Change: from Durban and beyond	8 weeks	$800

Key Features :
This online course will develop participants' understanding of the climate change policy framework, by building an appreciation of the science, causes and impacts of climate change, the history of the policy making process and the UNFCCC framework, and will also consider the pertinent challenges currently faced by diplomats and international decision makers

Web Links:
http://einstitute.worldbank.org/ei/course/

Climate Change Courses

	Country	Degree	Course	Time Duration	Fees
UNEPFI	-	Certificate e-course	Climate Change: Risks and Opportunities for the Finance Sector	3 weeks	$700

Key Features :
A general introduction to climate change, the science and impacts, and key international and regional policies in place to tackle it i.e. the Kyoto Protocol and the post-Kyoto discussions. Climate Risk, Climate change and the energy economy, Carbon finance and the Kyoto Mechanisms, Emissions trading

Web Links:
http://www.unepfi.org/training/climate_change/index.html

UNESCO-IHE	-	Certificate e-course	IWRM as a tool for adaptation to climate change	10 weeks	€ 600

Key Features :
Understanding the concept of Integrated Water Resources Management in relation to Climate Change, climate system and the hydrological cycle, impact of climate change on society risk and uncertainty, adaptation in relation to water and climate change

Web Links:
http://www.unesco-ihe.org/Education/Non-degree-Programmes/Online-courses/

Carbon & Energy Courses

Cranfield University

Country	Degree	Course	Time Duration	Fees
UK	M.Sc	Carbon Capture and Transport	1 year	£16,000

Key Features :
Carbon Capture Technologies, Carbon Transport Technologies, Management for Technology, Risk and Reliability Engineering, Process Plant Operations, Power Generation Systems, Process Measurement Systems, Advanced Control Systems, Process Simulation and Design, Computational Fluid Dynamics

Web Links:
http://www.cranfield.ac.uk/students/courses/

UK	M.Sc	Energy Supply for Low Carbon Futures	1 year	£16,000

Key Features :
Energy security, carbon emissions and climate change, energy pricing and affordability

Web Links:
http://www.cranfield.ac.uk/students/courses/

University of Edinburgh

UK	M.Sc	Carbon Finance	1 year	£17,200

Key Features :
For professionals in the carbon market and climate change investment field and focused on the business opportunities and financial flows driven by society's response to climate change.

Web Links:
http://www.business-school.ed.ac.uk/msc/carbon-finance

UK	M.Sc	Carbon Management	1 year	£15,750

Key Features :
Designed to create the next generation of carbon managers, auditors and expert advisors, this course gives students a detailed understanding of climate science and economics and provides a broad and integrated understanding of carbon management.

Web Links:
http://www.business-school.ed.ac.uk/msc/carbon-management

Carbon & Energy Courses

	Country	Degree	Course	Time Duration	Fees
University of Glasgow	UK	M.Sc	Applied Carbon Management	1 year	£12,250

Key Features :
High-quality investigations in the context of carbon management, analyse the ethical considerations relevant to carbon management in an occupational or professional context , apply the tools employed for tackling greenhouse gas emissions, evaluate the effectiveness of different strategies employed to tackle greenhouse gas emissions

Web Links:
http://www.gla.ac.uk/postgraduate/taught/

Heriot-Watt University	UK	M.Sc / P. G. Diploma	Carbon Management in the Built Environment	1 year	£11,270

Key Features :
Climate Change, Sustainability and Adaptation, Low Carbon Building Design, Human Factors of the Built Environment, Spatial Planning, Energy Systems and Buildings, Environmental and Energy Economics, Corporate Social Responsibility and Built Environment Professional Practice

Web Links:
http://www.postgraduate.hw.ac.uk/courses/

	UK	M.Sc / P. G. Diploma	Renewable Energy Development	1 year	£12,000

Key Features :
Economics of Renewable Energy, Environmental Processes, Renewable Technology Integration, Development Appraisal and Development project

Web Links:
http://www.postgraduate.hw.ac.uk/courses/

Imperial College of London	UK	M.Sc	Sustainable Energy Futures	1 year	£24,500

Key Features :
It produces an integrated view of future energy supply, demand and distribution that encompasses technological, environmental, economic and security aspects. It develops highly skilled individuals in cross-cutting energy analysis and technologies.

Web Links:
http://www3.imperial.ac.uk/pgprospectus/

Carbon & Energy Courses

	Country	Degree	Course	Time Duration	Fees
Kings College London	UK	M.Sc	Carbon: Science, Society & Change	1 year	£15,140

Key Features :
Carbon Science Society and Change examines how the carbon cycle functions and explores both natural and human influences. Investigate how strategies for adjustment can range from behavioural change and conservation, market based approaches or environmental management.

Web Links:
http://www.kcl.ac.uk/

Newcastle University	UK	M.Sc	Clean Technology*	1 year	£14,320

Key Features :
Environmental management and sustainable development in an industrial context. It covers the environmental issues surrounding industrial processes, including the legislative framework, and explains how to minimise pollution and resource usage whilst operating a productive company

Web Links:
http://www.ncl.ac.uk/postgraduate/taught/subjects/sustainability/

	UK	M.Sc	Low Carbon Transport Engineering*	1 year	£14,320

Key Features :
Low carbon transport engineering with a focus on the application of mechanical, materials and manufacturing engineering principles, Land transport technology with managing sustainable and innovative transport engineering projects and organisations.

Web Links:
http://www.ncl.ac.uk/postgraduate/taught/

University of Southampton	UK	M.Sc	Energy and Sustainability (Energy Resources and Climate Change) *	1 year	€ 14,460

Key Features :
Live issues surrounding energy, the sustainability agenda and climate change, the research project may provide the opportunity to work with one of the many industrial partners of this programme in order to gain valuable research and development skills.

Web Links:
http://www.southampton.ac.uk/postgraduate/pgstudy/programmes/

Carbon & Energy Courses

	Country	Degree	Course	Time Duration	Fees
University of Sussex	UK	M.Sc	Energy Policy for Sustainability*	1 year	£13,400

Key Features :
Sustainable energy systems in both the developed and developing world. Scientific, technological, economic and political dimensions that are complex, multidimensional and interlinked, innovation and diffusion of renewable and energy efficient technologies, ensuring energy security and balancing multiple economic, social and environmental objectives.

Web Links:
http://www.sussex.ac.uk/study/

The University of Queensland	Australia	PG Diploma	Energy Studies (Carbon Management)	1 year	AUD$ 14,800

Key Features :
Program equips the next generation of energy leaders, managers and decision makers with the skills and knowledge to address the challenges at the nexus of energy, climate change and sustainability. Policy and economics in the context of clean energy generation and carbon management.

Web Links:
http://www.uq.edu.au/study/

Nanyang Technological University	Singapore	M.Eng	Master of Engineering in Clean Energy (Clean Technology and Environment)	1 year	S$10,660

Key Features :
This ongoing programme is conducted on activated carbons, fuel reforming and processing based on thermo chemical methods, recycling of metal oxide through partial oxidation using reducing gases, hydrolysis of sodium borohydride for hydrogen generation.

Web Links:
http://www.ntu.edu.sg/

Carbon & Energy Courses

Erasmus University

Country	Degree	Course	Time Duration	Fees
Netherlands	PG Diploma course	Urban Management Tools for Climate Change	3 weeks	€ 2,500

Key Features :
Local climate change plans, manage urban design and environmental infrastructure, in particular energy, transport, housing and water.

Web Links:
http://www.ihs.nl/umtcc/

Netherlands	PG Diploma course	Green Cities for Eco-efficiency - (ECO cities course)	3 weeks	€ 2,500

Key Features :
Green city concept, elements and tools, environmental performance of a city, development of projects, programs and policies to improve the environmental performance of cities making them greener.

Web Links:
http://www.ihs.nl/umtcc/

Aalborg University

Denmark	M.Sc	Sustainable Cities	2 years	€ 13,448

Key Features :
Climate, energy and environmental fields. Knowledge and skills to conduct technical, economical and societal transition processes needed to find sustainable ways to lower the impact on urban living.

Web Links:
http://www.en.aau.dk/

University of Freiberg

Germany	M.Sc	Renewable Energy Management	2 years	€ 420

Key Features :
Focus is designed to close the strategic gap between the technical aspects of renewable energy and the vision of sustainable development. Program designed from analysis of the potential, international employment market and the qualifications it requires.

Web Links:
http://www.zee-uni-freiburg.de/

Carbon & Energy Courses

World Bank

THE WORLD BANK
Working for a World Free of Poverty

Country	Degree	Course	Time Duration	Fees
-	Certificate e-course	Energy Sector Strategies to Support Green Growth	15 days	$400

Key Features :
Broad spectrum of energy sector strategies, including both renewable energy and energy efficiency. In-depth analysis on energy systems planning.

Web Links:
http://einstitute.worldbank.org/ei/course/

-	Certificate e-course	Carbon Monitoring in CDM Afforestation/Reforestation Projects	15 days	$400

Key Features :
Preparing for Project Monitoring, Monitoring Forest Carbon Stocks, Monitoring Project Emissions and Leakage, Calculating and Reporting Carbon Emission Reductions.

Web Links:
http://einstitute.worldbank.org/ei/course/

-	Certificate e-course	The Clean Development Mechanism and Joint Implementation: Navigating the Kyoto Project-Based Mechanisms	28 days	$400

Key Features :
All aspects of the Kyoto Protocol's project-based mechanisms, governance of these mechanisms; start a CDM or JI project, and understand the CDM and JI project cycles, corresponding rules and procedures.

Web Links:
http://einstitute.worldbank.org/ei/course/

-	Certificate e-course	Low Carbon Development	30 days	$400

Key Features :
Introduction to Low Carbon Development Planning; Overview for Policymakers; Power; Household; Transport, climate change mitigation, concepts surrounding low carbon development planning on an economy-wide basis.

Web Links:
http://einstitute.worldbank.org/ei/course/

Carbon & Energy Courses

World Bank

THE WORLD BANK
Working for a World Free of Poverty

Country	Degree	Course	Time Duration	Fees
-	Certificate e-course	CDM Programme of Activities: Challenges and Opportunities	10 days	Free

Key Features :
Understand the Rationale for Developing PoA Understand Rules and Structure, Identify Potential Sectors where PoA can be effectively applied, Understand Financial Issues and Contractual, arrangements, Identify possible linkages with other policy instruments.

Web Links:
http://einstitute.worldbank.org/ei/course/

United Nations Institute for Training and Research (UNITAR)

unitar

-	Certificate e-course	Introduction to a Green Economy - Concepts, Principles and Applications	7 weeks	$600

Key Features :
Green economy, social, environmental and economic benefits of advancing a green economy, examples of successful green economy investments, initiatives and projects principal challenges and opportunities for greening key economic sectors, national planning processes in support of a green transformation.

Web Links:
http://www.unitar.org/event/

Earth Sciences Courses

Country	Degree	Course	Time Duration	Fees
UK	M.Sc	Environmental Change and Management*	1 year	£15,150

Oxford University

Key Features :
Environmental Issues and Driving forces, environmental management. Electives like climate justice, global environmental change and food security, social responses to climate change; Balance, bias and complexity in climate change journalism; Climate change – science, impacts and adaptation; Cities, sustainable transport and mobility

Web Links:
http://www.eci.ox.ac.uk/teaching/msc/course.php

University of California

USA	M.A.	Global Climate and Environmental Change	2 years	$9,885

Key Features :
Collect, analyze, and interpret, climate records from glaciers, lakes, trees and sediments in the Sierra Nevada Mountains based out of the University of California White Mountain Research Station. Individual Research Project written up as a Thesis.

Web Links:
http://earthscience.ucr.edu/gcec.html

Columbia University

USA	M.A.	Earth Resources Engineering	2 years	$ 44,160

Key Features :
Alternative energy and carbon management, Climate risk assessment and management, Environmental health engineering, Integrated waste management, Natural and mineral resource development and management, surficial and colloidal chemistry and nanotechnology, Urban environments and spatial analysis, Water resources and climate risks, sustainable energy, Integrated solid waste management

Web Links:
http://bulletin.engineering.columbia.edu/graduate-progams#joint

Earth Sciences Courses

Harvard University

Country	Degree	Course	Time Duration	Fees
USA	M.A.	Environmental Sciences and Engineering	2 years	$ 41,726

Key Features:
Science of the atmosphere, oceans, and the earth's surface and hydrosphere: dynamics chemistry, biology and engineering.

Web Links:
http://www.seas.harvard.edu/academics/graduate

USA	M.A.	Environmental Science and Public Policy	2 years	$ 41,726

Key Features:
Scientific and technical issues and an appreciation for the relevant economic, political, legal, historical and ethical dimensions of either natural or social science relating to the environment.

Web Links:
http://www.espp.fas.harvard.edu/icb/

Stanford University

USA	M.A.	Earth, Energy and Environmental systems	2 years	$13,350

Key Features:
Energy and environment studies with electives such as Engineering Geology and Global Change, Climate Change, Climate Variability, and Landscape Development.

Web Links:
http://www.stanford.edu/dept/

USA	M.A.	Earth Systems	2 years	$13,350

Key Features:
Earth systems with electives such as Engineering Geology and Global Change, Climate Change, Climate Variability, and Landscape Development.

Web Links:
http://www.stanford.edu/dept/

Note:
The fulltime courses offered in UK can be converted to part-time courses also.
The part-time courses will be of 2 years and the fees will be two times the full time course
*Programs can be converted to PhD

7 Climate Change Careers

Climate change has opened many doors for new kind of career opportunities globally as well as locally. People of many diverse backgrounds can contribute to climate change solutions. Climate change has to be understood from science, engineering, economic, social and developmental perspective. Research on climate change impacts is a major area of opportunity. Many governments are working in this direction. People from social and economic backgrounds can opt for adaptation related works. Engineering and sciences also have a prospect in mitigation activities. Carbon and energy areas require engineering and management backgrounds. This sector is mainly under private sector. The NGO's and governments are mainly working on mitigation and adaptation activities. They are also involved in policy development. Some of the organizations working in this area in India have been given below.

Organization	Areas of Work	City	Weblink
ARUP	Environmental engineering, sustainability solutions, green buildings, freshwater resource planning	Mumbai	www.arup.com/
Ashoka Trust for Research in Ecology and the Environment (ATREE)	Forests and governance, land water and livelihoods, ecosystems and global change	Bangalore, New Delhi, Guwahati, Gangtok	atree.org/
Asian Development Bank (ADB)	Development projects in areas of climate change, environment, carbon management and society	Bangalore	www.adb.org/
Atkins	Green buildings, CDM coordination, carbon management, climate change, waste management, transport, sustainable supply chain management, renewable energy	Gurgaon, Bangalore	www.atkinsglobal.com/
Barefoot college	Solar energy, Water, Education, sustainable livelihood	Ahmedabad	www.barefootcollege.org
Centre for Environment Education (CEE)	Sustainable livelihoods, water and sanitation, eco-tourism, biodiversity conservation, disaster preparedness, education	Mumbai	www.ceeindia.org/cee/index.html
Centre for Environmental Research and Education (CERE)	Carbon footprint mapping, environmental awareness, green procurement, sustainability reporting	Mumbai	www.cere-india.org/

Organization	Areas of Work	City	Weblink
Centre for Science and Environment (CSE)	Climate change, Air pollution, water management, education, industry and environment	New Delhi	cseindia.org/
CHF international	Disaster management, climate change risk mitigation, alternative energy	Pune, Nagpur, Bangalore	www.chfinternational.org/india/
Clean Air Initiative	Air Quality and Climate Change, Clean Fuels and Vehicles, Green Freight and Logistics, Low Emissions and Urban Development	New Delhi	cleanairinitiative.org/portal/index.php
Consortium for DEWATS Dissemination (CDD) Society	Decentralised Wastewater Treatment Systems (DEWATS), Community Based Sanitation (CBS), Decentralised Solid Waste Management (DESWAM) , City Sanitation Planning for Provision of Decentralised Basic Needs Services (DBNS), Decentralised Water Supply Systems (DEWASS), Decentralised Renewable Energy Systems (DERES).	Bangalore, Nagpur	cddindia.org/
Department of Environment, Maharashtra	Environment protection, waste management, climate change	Mumbai	envis.maharashtra.gov.in
Development Alternatives	Green jobs, community empowerment, low carbon solutions	New Delhi, Bangalore	www.devalt.org/
DNV	Climate change, risk management, sustainability	Mumbai, Ahmedabad, Bangalore, Chennai, Goa, Hyderabad, New Delhi, Pune	www.dnv.in/
Ecosphere Spiti	Eco-Tourism, biodiversity conservation, organic agriculture, sustainable habitats	Spiti, Faridabad	www.spitiecosphere.com/

Organization	Areas of Work	City	Weblink
EMBARQ	Sustainable transport, sustainable housing	Mumbai	www.embarq.com
Emergent Ventures	Carbon consultants, sustainable solutions, clean energy	Gurgaon	www.emergent-ventures.com/
En3	Green buildings, corporate sustainable solutions, building simulation	Bangalore, Chennai, Mumbai	www.en3online.com/
Enerarch	Green buildings, renewable energy	Mumbai	www.enerarch.com/
Environmental Design Solutions	Green buildings, climate change, policy development	New Delhi	www.edsglobal.com/
Environmental Management Centre LLP	Climate change, Environment, eco-cities, waste management, remote sensing & GIS, Knowledge dissemination	Mumbai	www.emcentre.com
Environmental Planning Collaborative (EPC)	Environmental planning, sustainable transport, watershed management	Ahmedabad	www.epc.org.in/
ERM India Pvt. Ltd	Air and climate change, environmental impact assessment, performance and assurance, risk management	Gurgaon, Mumbai	www.erm.com/
ExNoRa	Awareness, Capacity building, Solid waste management, water management	Chennai	www.exnora.org
Foundation for Ecological Security	Forest, Environmental restoration, rural livelihoods	Rajasthan, MP, Orrisa, Gujarat, Karnataka, AP	fes.org.in/
GIFT	Water, green buildings, transport, solid waste management, district cooling system	Gandhinagar	giftgujarat.in/home.aspx

Organization	Areas of Work	City	Weblink
GIZ	Climate change mitigation and adaptation, sustainable urban mobility	New Delhi	www.giz.de
GreenPeace	Climate change negotiations, climate change activism, sustainable agriculture, Natural resource conservation	Bangalore, Delhi, Chennai, Cochin, Goa, Hyderabad, Kolkata, Mumbai, Pune	www.greenpeace.org/international/en/
Gujarat Energy Research and Management Institute (GERMI)	Environment and Solar solutions	Gandhi-nagar	www.germi.org
ICLEI	Climate change, water management, sustainable solutions, energy efficiency, green procurement	New Delhi	www.iclei.org/
IL&FS	Transport, water and waste water, environment, climate change, tourism, education	Mumbai, Bangalore, Kolkata, Chennai, Delhi, Gurgaon	www.ilfsindia.com/
Indian Institute of Human settlements (IIHS)	Climate change mitigation & adaptation, environmental planning, governance, human development	Bangalore	www.iihs.co.in/
Indian National Trust For Art and Cultural Heritage (INTACH)	Eco restoration, Natural resource management	New Delhi, Mumbai	www.intach.org/

Organization	Areas of Work	City	Weblink
Integrated Research and Action for Development (IRADe)	Energy, climate change and environment, agriculture, urban infrastructure	New Delhi	www.irade.org/
International Institute for Energy Conservation (IIEC)	Clean energy, climate change, energy efficiency, sustainable habitat, training and capacity building	Mumbai, New Delhi	www.iiec.org/
McKinsey and Company	Sustainable transport, sustainable cities, carbon management, risk management	Bangalore, Chennai, Gurgaon, Mumbai	www.mckinsey.com
MITCON India	Energy efficiency and conservation, Renewable energy, Climate change	Pune	www.mitconindia.com
National Environmental Engineering Research Institute (NEERI)	Environment science and engineering research, natural resource conservation	Nagpur	www.neeri.res.in/index.php
Parisar	Natural environment conservation, sustainable agriculture, Sustainable transport, environmental planning	Pune	www.parisar.org/
Pradan	Natural resource management, forest based livelihood, livestock development, microenterprise development	New Delhi	www.pradan.net/
Shakti sustainable Energy Foundation	Energy efficiency, transport, climate policy	New Delhi	www.shaktifoundation.in/
TARU	Disaster management and climate change, rural water supply and sanitation, natural resource management, energy	Gurgaon, Gandhi-nagar	www.taru.org/

Organization	Areas of Work	City	Weblink
The Energy Resources Institute (TERI)	Climate change, sustainable transport, environment, green buildings, renewable energy	New Delhi, Mumbai, Bangalore	www.teriin.org/index.php
The Green Futures Foundation	Environment education, afforestation, waste recycling,	Pune	green-futures.org/
The Louis Berger Group	Natural resource management, sustainable livelihood, disaster management, energy, environment, water, green buildings	Chennai, Gurgaon, Hyderabad, Mumbai	www.louisberger.com/
United Nations Development Programme (UNDP)	Development projects in areas of climate change, environment and society	New Delhi	www.undp.org.in
United Nations Environment Programme (UNEP)	Climate change, Disaster management, ecosystem management, environment governance, resource efficiency	New Delhi	www.unep.org/
Watershed Organization Trust (WOTR)	Climate Change adaptation, Alternate energy. Watershed management, health and nutrition, community based rural tourism	Pune	www.wotr.org/
Winrock	Climate change, Forestry, environment, energy, ecosystem services, agriculture sustainable development	New Delhi	www.winrock.org/
World Bank	Development projects in areas of climate change, environment, carbon management and society	New Delhi	www.worldbank.org/en/country/india
World Business Council for Sustainable Development (WBCSD)	Energy and climate, green buildings, sustainable mobility, water, forestry	New Delhi	www.wbcsd.org

Organization	Areas of Work	City	Weblink
World Institute of sustainable energy (WISE)	Sustainable energy, energy conservation, Clean technologies	Pune	www.wisein.org/
World Wildlife Fund (WWF)	Biodiversity conservation, climate change and energy, sustainable business, sustainable fisheries, sustainable forestry, agriculture	New Delhi	www.wwfindia.org/
Young Environmentalists	Water, lake development, air, pollution, eco-materials, environmental awareness	Mumbai	www.youngenvironmentalists.com/

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This booklet is developed as part of the program for creating awareness on Climate Change
To know about this program and for more resources, visit:

www.mmr-ccrt.org.in

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