



SOCIO- RELIGIOUS CLIMATE ACTION PLAN TO MODULATE CLIMATE CHANGE AND HUMAN HEALTH

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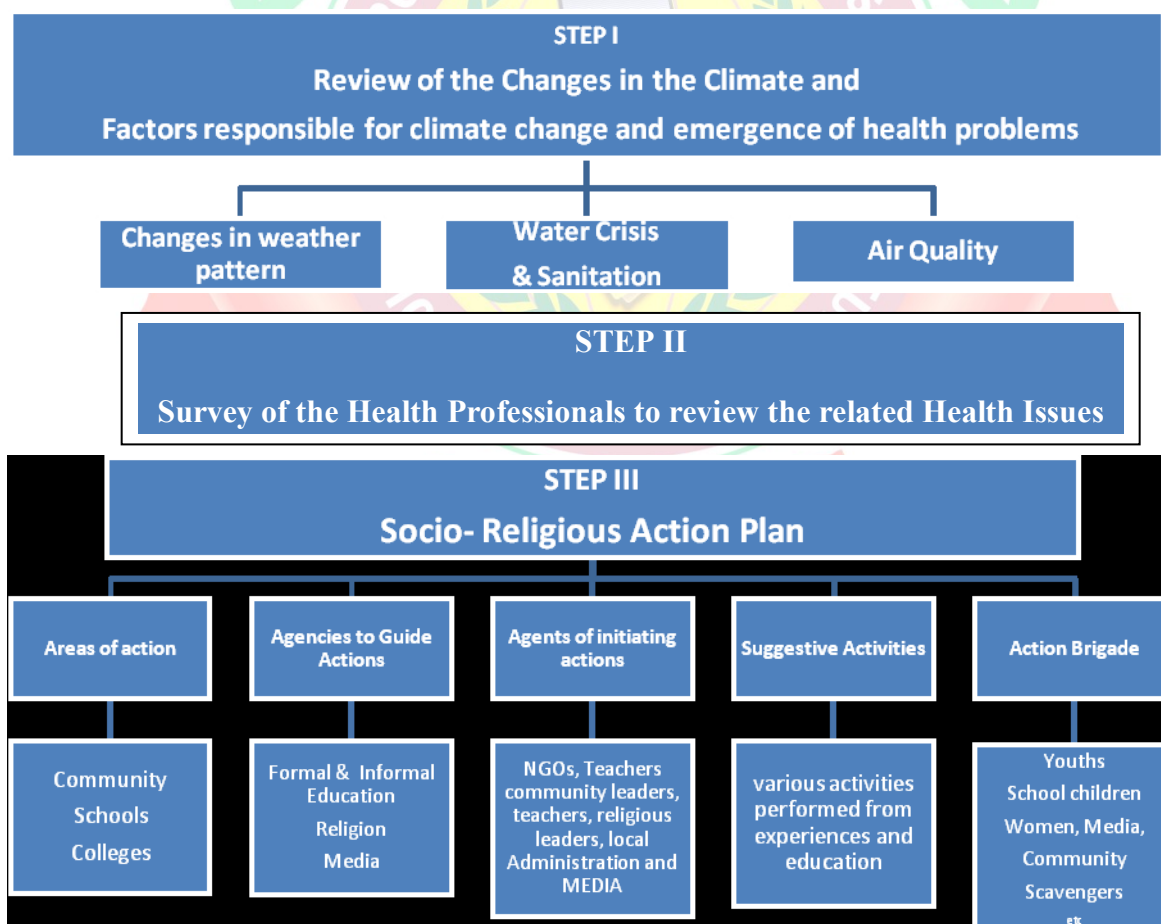
The catastrophic impacts of climate change like fires, floods, earthquakes, droughts, hurricanes, pillar melting; ozone layer depletion cannot be controlled without the commitment and local action on Global Warming. Climate change, being the most important global problem facing the world today, is having adverse effect on human health due to rise in temperature, rise in sea level and rise in humidity. The speed and extremes of climate change are surpassing previous expectations and breaking all previous records. The human health disaster caused by anthropogenic climate change is affecting the global economy, too.

The global conferences like The United Nations Conference in Copenhagen, Denmark; The United Nations Framework Convention on Climate Change(FCCC) in 1992 at Rio EARTH SUMMIT, Brazil; KYOTO PROTOCOL in December 1997 at Japan were landmark to discuss the global problems worldwide. New ideas, new policies, new theories emerged to promote the innovative and eco- friendly technologies for green peace with a belief that engineering, technology and human ingenuity can solve this global problem. What the investigators believed that these global conferences could ignite the desire among policy makers, scientists and technologists but could not ignite the minds of people to change the scenario. To secure a sustainable future, there is a need to change human attitude, culture and consciousness as much as in technology.

The print media, the electronic media, the journals are full of news, reports and research evidences that global warming is a catastrophe on human health and causing natural disaster.

Considering about the precious human life, the investigators felt a need to conduct a survey of the health professionals to review the related public health issues caused due to extreme climate change and to explore the climatic factors cited to be responsible for the emergence of these global health problems. The investigators developed a “Socio- Religious Climate Action Plan” to modulate the climate change by changing the attitude of the people. This action plan was based on local needs, involving local people, saving local natural resources and solving local problems through community based actions. Legal Intervention by filing Public Interest Litigations (PILs) on Air pollution ,The Green Belt, Hospital Waste , Rain Water Harvesting , Violation of Human Rights, failure to protect and provide safe drinking water, River Pollution case, No vehicle zone are also made with the support of NGOs like Janhit Foundation.

SOCIO- RELIGIOUS CLIMATE ACTION PLAN
To Modulate Climate Change and Human Health



**STEP IV
IMPLEMENTATION OF THE ACTION PLAN**

**STEP V
EVALUATION OF ACTION PLAN**

Objectives of the study: The main objectives of the study were: to review the local climate change, to explore the factors responsible for extreme climate change and its effect on human health, to achieve local people's participation, their empowerment in decision making, people's control over natural resources through action and intervention, to protect natural resources and to find solutions to extreme climate change and making it a better place to live in.

Methodology:

Review of Climate Change: In the first phase of the study, extreme changes in climatic conditions were reported through survey and observations. Reports of local metrological department and media were used for interpretation and decision making. On the basis of latest reports it is observed that Meerut is facing the conditions of extreme heat as summertime temperatures that are substantially hotter and more humid than average for location at that time of year. Now a days, due to thrashing of wheat, humid conditions, a "dome" of high atmospheric pressure traps hazy, damp air near the ground creating an inversion layer of smog. Due to this inversion layer effect, weather has reached to a very dynamic zone. Extremely dry and hot conditions are provoking dust storms and low visibility. The reports of local as well as national Metrological Department are quite alarming and indicative of extreme heat in northern India for another two months or so breaking all previous records.

Average Temperature of Meerut in the month of April in last 15 years is shown in the given table breaking all records of 15 to 50 years as an outcome of disastrous change in climatic factors.



YEAR	Temperature o Celsius
1996	36.8
1997	29.2
1998	30.6



1999	37.2
2000	27.6
2001	35.8
2002	35.4
2003	38.0
2004	33.5
2005	35.5
2006	38.4
2007	35.5
2008	36.0
2009	36.8
2010	43.8

Factors Responsible for Climate Change: There are natural factors as well as anthropological factors causing extreme climate change and Global warming.

Natural factors like volcanic eruptions, solar activity, solar variation, orbital forcing and Green House Gases Emission are increasing temperature of the earth's atmosphere, land and ocean causing global warming. Warmer water of ocean causing more hurricanes, increased temperature of atmosphere increases the probability and intensity of drought and heat waves. Water scarcity and water pollution is becoming a great problem for agriculture and health. Many economic consequences are arising due to damage and diseases.

Green House Gases as the main cause of GLOBAL WARMING and threat to HUMAN HEALTH:

1. Methane Gas (CH₄): As glaciers are melting, gases like methane trapped in the permafrost are released, doing more harm to the atmosphere. Besides this, India is the largest population of live stock in the world and as we know, these herbivores produce methane gas in their large intestine by bacterial fermentation. They are largely contributing in the rise of level of methane gas in the environment. There is also a need to focus on the **garbage management** that how dead and decaying organic materials, animal dung etc be decomposed and be utilized in the formation of Bio Gas energy and as organic fertilizers.

2. Carbon di oxide (CO₂): Progress of mankind, transportation, Industrialization , deforestation are some of the major causes in rise of atmospheric temperature due to raise in level of CO₂ emission

1. **Transportation:** International studies have shown that road transportation accounts for 16% of global manmade CO₂ emission. Aimed at local air pollution reduction, many initiatives were taken to move Meerut to a more sustainable way. The following practices have been adopted / suggested with a strong will to check fuel consumption and to reduce the CO₂ emission level in the atmosphere:

- ✓ Initiation and motivation for alternate fuel side with the proliferation of CNG / LPG fuel kits vehicles as factory fitted options.
- ✓ To promote battery operated electric vehicles, the Government offers zero excise and custom duty.
- ✓ To check “Fuel Adulteration” We need to adopt a policy of zero tolerance for such incidence.
- ✓ Building and maintaining sidewalks for smooth traffic.
- ✓ Prohibiting entry of heavy vehicles from morning till evening hours in the city to avoid traffic jams and allow smooth traffic.
- ✓ Separating slow moving traffic (trolleys, bullock carts, rickshaws, bikes etc.) from motorized traffic to enhance rapid transit and thus, checking road jams.
- ✓ Promoting adequate public transportation than private vehicles. The percentage of people acquiring personal modes of transportation has increased tremendously. School authorities have taken a strong decision that children need to come in school buses only.
- ✓ Motivating people for bike riding rather motor bikes or scooters.
- ✓ To check “Vehicle maintenance”, pollution check-up camps should be organized regularly and green cards be issued by the Pollution Control Board with an aim that properly maintained and correctly used vehicles will deliver the desired results.
- ✓ The Road Transport System should consider about the “Age Profile of Vehicles” to check old models vehicles on roads and eliminate inefficient vehicles like cars, trucks, three wheelers, two wheelers etc to reduce the air pollution and sound pollution. Restricted and rejected taxis, tempos and auto- rickshaws in metro city Delhi have become the

great problem of Meerut for the Road Transport system and environment as well. These vehicles are emitting approximately seven times more CO₂ violating the norms of emission.

- ✓ Environmental conservation is no more a matter of choice but urgent need. Government organizations and automobile industries need to blend policies with technologies to develop eco- friendly vehicles for improving air quality, increasing air mobility, reducing traffic congestion and lowering transport and energy cost.

2. Deforestation: Due to urbanization and industrialization, the tropical rain forests are cut or destroyed for expansion of roads or construction of expressways, air ports, buildings etc. or for agriculture leading to ecological imbalance. The plants are the natural green industries to absorb approximately 13 pounds of CO₂ , liberate about 260 pounds O₂ in a year, stop tons of dust particles to mix in the air. These green living industries trap and convert solar energy into chemical energy. The intelligent brain of human beings is destroying these natural industries for establishing concrete buildings for their self motive. The NGOs, local media, community people, school children, youth brigade are on the roads to alarm the Forest department, the constructors, the public of Meerut district for taking strong action against it. The efforts are made:



- ✓ To save the green belts, to take care of existing trees and planting new saplings.
- ✓ To educate and aware people about the importance of green trees.
- ✓ Due to scarcity of water and scanty rain falls, the barks of the trees are drying and eaten up by moths or fungus in the forests. There is a need to water the trees to save them from moths and fungus.



- ✓ After assessing the ground situation of agricultural land of Meerut district where sugarcane is the main crop, it was found that lot of agriculture waste is generated by way of sugarcane leaves followed by cutting of the cane. This was unnecessarily burnt and destroyed causing organic pollution - a source of dioxin, one of the 12 Persistent Organic Pollutants. For meeting this challenge, LADEP technology was developed by the field researchers Mr. Lalit and Mr. Devpal of Janhit Foundation (an NGO of

Meerut) to compost sugarcane leaves which could cater to the nutrient needs of the fields.

- ✓ To identify barren lands and plant the saplings which have dense green foliage.
- ✓ A commitment from every family to plant saplings for the pure air and safe drinking water for their survival and to provide safe future for their generations to come.

3. **Thermal Power:** In previous decade, thermal power generation was 70,000 mega watts. Now, it has increased ten times to bring rise in CO₂ emission level and temperature in the atmosphere. There is a need for fuel substitution policies. There is a call for paradigm shift from coal based to hydraulic power generation, use of renewable energy resources like wind, solar, nuclear power generation. This will help in reducing CO₂ emission level in the atmosphere to a great extent (The ERI, New Delhi). Some of the suggestive measures were decided to save electricity at local level:

- ✓ Replacement of generators by invertors.
- ✓ Use of community generators than individual generators
- ✓ Use of Bio gas energy in rural/ sub- urban areas.
- ✓ Use of CFLs , Solar equipments to save electricity

In the second phase of the study, normative Survey Method was used to review the related health issues caused due to extreme climate change. During interview conducted on general practitioners of Meerut on the subject of extreme climate change and its effects on human health, following facts came to the notice:

1. Extreme Heat: Heat Strokes causing various physical and psychological health Problems

The investigators identified physical and psychological health disorders that may be triggered during heat waves, including symptomatic mental disorders; dementia, mood disorders, neurotic, stress related, and somatic disorders; disorders of psychological development and senility. The survey report suggested that elderly people, infants and children, women and people with chronic medical conditions are more prone to heat stress. People suffer heat-related problems when the body's temperature control system is overloaded. Very high body temperatures may damage the brain or other vital organs. Several factors affect the body's ability to cool itself during extremely

hot weather such as old age, childhood, obesity, fever, dehydration, heart disease, mental illness, poor circulation, sunburn and prescribed drug use and alcohol use. Even short periods of high temperatures can cause serious health problems such as:

Heat Strokes & Heat Exhaustion: Symptoms are heavy sweating, paleness, muscle cramps tiredness, weakness, dizziness, headache, nausea or vomiting, fainting

Heat Cramps: are muscle pains or spasms—usually in the abdomen, arms, or legs—that may occur in association with strenuous activity. A Potassium & sodium salt rich juices and medical attention are required.

Sunburn & Heat Rashes: Long exposure in heat should be avoided because it damages the skin. The skin becomes red, painful, and abnormally warm after sun exposure .Sometimes fluid filled blisters and rashes appear on the skin. Cold sponge, application of moisturizing lotion / or dusting the powder to affected areas, use of umbrellas are more suggestive.

To protect your health in extremely high temperature, the following preventive measures were suggested by the experts:

- Drink Plenty of Fluids (two to four glasses (16-32 ounces) of cool fluids each hour). Avoid very cold drinks and alcohol because they can cause stomach cramps. Replace Salt and Minerals that are lost in sweating.
- Wear Appropriate Clothing and apply Sunscreen: Dress yourself, infants and children in cool, light weight, light colored, loose clothing, shade their heads and faces. Sunburn affects your body's ability to cool itself and causes a loss of body fluids. It also causes pain and damages the skin. Protect yourself from the sun by wearing sunglasses, by carrying an umbrella and by putting on sunscreen of SPF 15.
- Pace Yourself: If exertion in the heat makes your heart pound and leaves you gasping for breath, STOP all activity. Get into a cool area or into the shade, and rest. Stay in an air-conditioned place. Electric fans may provide little comfort, Take a cool shower or bath or moving to a swimming pool/ river is a much better way to cool off. Heat-induced illness can cause a person to become confused or lose consciousness. Take care of yourself and others too. People who are overweight may be prone to heat sickness because of their tendency to retain more body heat. People who overexert during work or exercise may become



dehydrated and susceptible to heat sickness. People who are physically ill, especially with heart disease or high blood pressure, or who take certain medications, such as for depression, insomnia, or poor circulation, may be affected by extreme heat. Closely watch old and infants for signs of heat exhaustion or heat stroke.

- Adjust to the Environment and remember to keep cool and use common sense by avoiding hot foods and heavy meals—they add heat to your body.

2. Effect on Social- emotional Health: Major population displacement after an extreme climatic event would cause social disruption, unemployment, social conflicts, mental unrest and economic burden and uncertainty. All these factors are associated with increased prevalence of mental disorders like anxiety, depression and stress disorders. The extreme events cause immense psychosocial stress especially among vulnerable groups like children, women and elderly. Natural disasters have shown to result in increased domestic violence due to frustration and anger.

3. Effect on Agriculture:

Western Uttar Pradesh in India is the land of agriculture. Extreme changes in the climate and mainly increase in atmospheric temperature directly affects the flowering pattern of the crops which in turn decreases in crop yield. Sometimes droughts and floods destroy the whole crop and thus disturbing the family set up of farmers. These socio- economic impacts lead to mental disorders and sometimes to the suicidal attempts by the growers.

ROLE OF RELIGIOUS LEADERS TO MODULATE CLIMATE CHANGE



Throughout the history, religions are found to be a strong instrument to help people and civilization, to respond to new challenges in light of heritage and moral compass. The leadership of religions is now required to meet the challenges of climate change: a Global problem. A trend of wedding Indian religion with environmental purity is becoming increasingly visible as environmental revivalism. The Hindu religious leaders are taking upon the responsibility of forging environmental friendly practices and save them through their rituals and practical action plans. In Uttar Pradesh and Uttaranchal, the Hindu mythological icons, especially Ganga, Yamuna, Koshi rivers and Hindu Holy sites like Haridwar, Rishikesh, Mathura- Vrindavan are highly revered. The religious leaders through their



sermons and discourse are awakening the people to protect the nature with commitment and strong will.

Sikh religious leaders developed a community based “Green Plan” to check climate change. This five year ECO- SIKH plan concentrates on environment related knowledge dissemination and awareness programs to develop environmental activism. In the Sikh scriptures, it is stated that Air is the GURU to give direction, Water is the FATHER and Earth is the MOTHER. So, it is the duty of every one to serve and save the NATURE. Young and youth Sikh leaders’ brigade is prepared to save the environment.

The Prophet of Jainism says in his sermons that the problem of climate change is because of ecological imbalance that has been wildly disturbed by our present day life-style, particularly by the wanton destruction of the animal and plant life in the civilized societies. When the food chain is disrupted, the large fiber of life on the planet is affected. Being on the top ladder of evolution, we have learned to take things for granted from the nature and in the process have lost the



sensitivity and sense of appreciation and gratitude. The depletion of natural resources has been the root cause of environmental crisis, climate change and Global Warming. It should be every one’s responsibility to save and protect all living beings on the earth. The religious values inspire and motivate people to take action against the environmental problems.

ROLE OF SCHOOLS, COLLEGES AND COMMUNITY PEOPLE TO MODULATE CLIMATE CHANGE:

The Earth Day on 21th April, The World Environment Day on 5th June, The World Water Monitoring Day on 18th September etc. are celebrated by the NGOs ,



schools, media every year to sensitize people that how precious is our Mother Earth and how



important is the environment in which we live. Various activities like debates, poster and painting competitions, slogan writing are organized to explore the creativity and ideas of children and to sensitize them for saving the natural resources. Rallies, campaigns and marches are organized to awaken the governmental agencies, political leaders and local administration to take necessary action against land-mafia, industries etc who have encroached the forest land, agricultural land and green belts, Through formal and informal agencies, the students, youths, women and citizens of Meerut are educated, informed and initiated to take action against the climate change. Workshops, seminars, conferences, exhibitions etc. are organized by the government authorities, NGOs and Schools to provide hands on activities and displays. These events provide an opportunity to be a part of dialogues, discussion and exploration of ways to save the environment and its natural resources. The school children are taken outdoor classrooms i.e. in natural environment to study the availability of water, its natural resources and the purity of water. They have been provided the kits to test and analyze the water quality of the samples taken from the rivers, ponds, lakes, wells, canals and sfrom the hand pumps from their surroundings. These hands on activities make them sensitive of the issues like significance of water, water toxicity, water scarcity and its pollutants etc. Scavengers were also involved in our action group because they were the main agents to manage the garbage. They were trained to separate the biodegradable and non-degradable garbage to decompose properly. Children and youth were the heart and soul of this action plan. They were supposed to be the ambassadors of change. With the help of experts and local administration, programs were designed and implemented with great enthusiasm and commitment. The actions were rigorous and goal oriented. The investigators did not collect any data or applied statistics as a part of its mission. The whole heartedly participation of people in the form of campaigns, rallies, debates, seminars, their urgent actions to save natural resources was convincing, valid and more reliable proof to show change in their attitude and consciousness about climate change and related health issues. During the road shows, street plays, competitions in schools, colleges and speeches from the religious and community leaders, various innovative ideas emerged and suggestions came for saving the EARTH from Global Warming. These were enlisted and reported to media for wider and informative. The present study shows that the consistent, combined and committed human efforts for GHG reductions in Meerut and all over



the world can bring the green revolution and therefore, changing the climate. That may create healthy environment for all living organisms. The investigators created a mass of people, young and old, in Meerut district of western UP India, passionate about climate change and ready for urgent action to improve local and global environment. This enthusiastic and trained Action Brigade is there to generate awareness and prepare Eco- leaders to take effective action against climate change.

To sum up, it is a community based action oriented study without any quantitative data but qualitatively rich in action and experiences. Issues pertaining to water and sanitation, vector-borne diseases, air quality, thermal stress and emergency preparedness for natural disasters were taken into consideration while educating, training or informing the community people for progressive climate change in a sustainable way.

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