

# IMPACT OF CLIMATE CHANGE ON SOCIO-ECONOMIC ASPECTS

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DOI: 10.47750/pnr.2022.13.S08.347

## Abstract

**Background:** Climate change have wide-ranging effects on the environment, and socioeconomic further which may include the water resources, agriculture and food security, human health, terrestrial ecosystems and biodiversity and coastal zones. Some impacts will gradually affect economic processes, such as the effect of increasing temperature on energy demand, whereas others may come as extreme events, such as sudden floods or forest fires. The depletion of natural resources, as a result of increased environmental and demographic pressures, tends to aggravate the severity of climate change impacts. All in all, there are increasing concerns about the rising threats to current income and consumption patterns of households and individuals that earn their livelihoods from these sectors (Foresight, 2011; IPCC, 2012).

**Methods:** The research design of the present study was descriptive in nature. Two sampling techniques namely purposive & random sampling were used for the selection of the respondents in the present study. First of all a zone wise list of Vadodara city was collected from the Health Department of Vadodara Municipal Corporation (VMC) for the mapping of the Vadodara city than the list was divided into 4 different zones with 34 areas with the help of purposive sampling method. The samples size of 10000 were selected randomly (divided equally within four different zones of the city) from each selected areas and the responses were collected from the family member who was ready to give response. For collection of data interview schedule along with observation and discussion were used as a main tool. For analyse of data simple percentages was used.

**Findings:** From the study it was found that there is a variation in terms of problems faced by the respondents in different zones. It is observed that majority (95%) of the respondents stated that their energy consumption (in terms of electricity, petrol/Diesel, LPG/Kerosene) is increasing year by year due to climatic changes. The study reveals that majority of the respondents are facing difficulties for going to work during floods and facing difficulties in managing their daily supply of grocery and also some medical treatments. It is observed that the water logging problem is associated with lack of proper roads, sewerage and drainage system and the areas are situated in below the road line. The study reveals that the rain and flood is affecting the respondents in terms of various kinds of losses which includes the loss of assets, stored grains, children's textbooks, shoes, bags, & electronic devices etc. Wall, door, roof and windows of the houses are also not safe. Some people haven't registered their damages occurred by flood in terms of amount. From the study it was found that in all the zones the major cost was associated with wastage of flood items, repairing charges of vehicle/assets/electrical items, damage of wall etc. The study also shows that 50.38 percent of the respondents from West Zone, 42.70 percent from North and South Zone and 41.67 percent from East Zone. Mentioned that they are managing their extra health related expenses out of their savings. The study also reveals that some of the respondents didn't have any provision in their budget to take medical services and due to this they sold their property or assets in order to bear the expenses for treatment of diseases. On the basis of data it was also found that the rate of purchasing of AC & cooler is also increased year-by-year.

**Conclusion:** On the basis of the study it can be concluded that the climate change is affecting the people of Vadodara in various ways. The socio-economic impacts of the climate is vary from zone to zone due to the sewerage issues, socio-economic condition, and sea level of the area along with geography location of the area. Loss of property, assets, food grains, damage of houses due to flood are the major reasons of economic loss and which is going to affect their quality of life also.

## Introduction

Climate change have wide-ranging effects on the environment, and on socioeconomic and related sectors, including water resources, agriculture and food security, human health, terrestrial ecosystems and biodiversity and coastal zones. Changes in rainfall pattern are likely to lead to severe water shortages and/or flooding. Melting of glaciers can cause flooding and soil erosion. Rising temperatures will cause shifts in crop growing seasons which affects food security and changes in the distribution of disease vectors putting more people at risk from diseases such as malaria and dengue fever. The resulting climate change is likely to have a negative effect on agricultural productivity, particularly in the tropical regions, and to directly impact on poor people's livelihood assets -including their health, access to water and natural resources, homes and infrastructure (World Bank 2010). Climate change has the potential to create a wide range of economic impacts. In all likelihood all sectors of the economy will be affected. Some impacts will gradually affect economic processes, such as the effect of increasing temperature on energy demand, whereas others may come as extreme events, such as sudden floods or forest fires. Impacts may be either negative or positive. For example, agriculture may become more productive or tourism may flourish in areas experiencing higher or lower temperatures. However, in a global level, the negative impacts will generally outweigh the economic benefits. Beside industry specific impacts, the economy as a whole may be at risk in certain areas due to an increase in sea level and an increase in runoff by rivers. Coastal zones usually contain large human populations and a high concentration of economic activities.

World Bank report on Climate Change and Health – Additional 150 million people could be at risk from malaria if the temperature was allowed to increase beyond 2°C. The report points out that “climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth” are projected to increase with global warming of 1.5 degrees Celsius and increase further with 2 degrees Celsius. One can argue that, within the developing world, the adverse effect of climate change will be profound on the poor. The quantitative assessments suggest that the socio-economic setting in which climate change is likely to evolve is more important than the impact that can be expected from the biophysical changes of climate variability. Omprakash Parganiha, stated in his Ph.D. Thesis-2016, In India, and climate change is putting additional stress on ecological and socio-economic systems that are already facing tremendous pressures due to rapid urbanization, industrialization and economic development.

The increase in economic activities and change in lifestyle patterns has caused lot of environmental damage to the earth. It is observed that ‘climate change’ is the most serious environmental issue that the modern world is going to face in the 21st century. Worldwide local climate variability can influence peoples’ decisions with consequences for their social, economic, political and personal conditions, and effects on their lives and livelihoods.

In particular, the way to approximate the different patterns with which changes in climate and weather conditions impact the livelihoods of the households working in agriculture and fisheries or other affected groups, is frequently circumstantial. As a result of global warming, the type, frequency and intensity of extreme events, such as tropical cyclones (including hurricanes and typhoons), floods, droughts and heavy precipitation events, are expected to rise even with relatively small average temperature increases. Changes in some types of extreme events have already been observed, for example, increases in the frequency and intensity of heat waves and heavy precipitation events (Meehl et al. 2007).

The impact of climate change will persist. It is estimated that climate change will affect the basic elements of life around the world like access to water, food production, healthcare and the environment. Millions of people could suffer from hunger, water shortage and coastal flooding, as the world gets warmer. There are certain regions, sectors, ecosystems and social groups, which will be, affected the most by climate change and the consequences of economic globalisation. Managing the impact of climate change, therefore, poses a challenge to governments and societies. Climate change threatens the economy of the United States in myriad ways, including increased flooding and storm damage, altered crop yields, lost labor productivity, higher crime, reshaped public-health

patterns, and strained energy systems, among many other effects. Climate change in India may pose additional stresses on ecological and socioeconomic systems that already face tremendous pressures from rapid urbanisation, industrialisation and economic development. Climate science uses scenario development and forecasting to understand the degree of change in climate that could occur, and the different factors that could affect the degree of climate change. Parganiha, (2016) stated that in India, climate change is putting additional stress on ecological and socio- economic systems that are already facing tremendous pressures due to rapid urbanization, industrialization and economic development.

So keeping in view the above in the present study an attempt has been made to know the impacts of climate change on socio-economic aspects of the people of Vadodara City of Gujarat.

## Need and Significance of the Study

Climate change affects the social and environmental determinants of health (Cinaconi et.al. 2020). Unabated climate change has the potential to cause major social disruption and impact the global economy. In addition, but also related to the last two issues, it will have a serious effect on health, with poor populations bearing the brunt of these negative changes. Climate change mitigation will inevitably alleviate this damage (Louis & Phalkey, 2016). According to Watts et al. (2015), “by undermining the social and environmental determinants that underpin good health, climate change exacerbates social, economic, and demographic inequalities, with the consequences ultimately felt by all populations”. Most vulnerable to the effects of climate change are those who are most marginalized due to social and environmental factors such as socioeconomic status, culture, gender, race, employment, and education (Gamble et al., 2016; Berry et al., 2010).

In developing countries, human beings are already under stress by the increasing problem of population growth, urbanization coupled with mismanagement of natural resources and unhygienic living conditions (Kumar & Ramachandran, 2019). It has been realized that in theory, national assessments should provide important information for the global assessments on regional and local vulnerability. In practice, this has proved difficult to achieve because only a few national assessments have been undertaken. Assessments should be country-driven and reflect local environmental and health priorities (Pan American Publication 2010). Moreover, the global scientific community emphasizes that city dwellers of the developing nations are comparatively more vulnerable to the health impacts of climate change (Barata et al 2011).

Especially in cities of developing countries, where adaptation strategies are not prioritized, initiation of the planning process itself is a prime obligation (Roy 2009). India is one of the developing tropical countries dealing with a variety of health-related issues. Vadodara is the second-largest city in the Indian state of Gujarat, and it is being challenged by increased urbanization and population growth. There is a scarcity of reliable health data to study the effects of climate change and vulnerabilities on human health. As a result, it is necessary to conduct a research on climate change that is both temporally and spatially specific. There is a need to acknowledge the physical and mental health significances of climate change which may be significant to the health community to discern and anticipate patterns of physical and mental illness. A public health approach to this area of study is required to address the encompassing interrelations of social and environmental determinants of health that can accentuate climate change-related risks to the health. There is need to gather data regarding the impact of climate change on directly or indirectly on public health either it is physically, mentally or socioeconomically.

Thus, research is required to assess the adaptation and strategies measure taken by the people to cope with the climate changes and its harmful impacts and to contribute to a preventive approach to local and global environmental sustainability, urban population health, and health equity and focus in the development of climate adaptation strategies. With this framework research would be significant to the health care professionals in anticipating, mitigating, and trying to prepare for climate change-related crises, with the ultimate aim of maintaining demographic health by promoting health systems' capability to cope, adapt, reinforce, and strengthen in the aftereffects of climate change. Proclaiming climate change as a determinant of physical and mental health not only raises awareness of the wide-ranging effects of climate change on health, but it also encourages action. By recognizing the role of jeopardising health conditions while also taking into consideration the actual and

perceived risks and impacts related to climate change, research on the subject could assist in understanding the complexities of climate change and its direct and indirect impact on health attribution. This type of research will be useful in understanding the causes and predictions of climate change, as well as its effects on the environment and health, as well as in developing policy and programs for mental health resources.

## Objectives:

The main aim of the study is to find out the effects of climate change on the Physical, Mental and community health and Socio-economic aspects of the residents of the selected households and to identify the coping strategies adopted by the respondents in overcoming their Physical, Mental and Community health and socioeconomic problems resulting from climate change.

## Research Design:

The research design of the present study was descriptive in nature. Two sampling techniques namely purposive & random sampling were used for the selection of the respondents in the present study. First of all a zone wise list of Vadodara city was collected from the Health Department of Vadodara Municipal Corporation (VMC) for the mapping of the Vadodara city than the list was divided into 4 different zones with 34 areas with the help of purposive sampling method. The samples size of 10000 were selected randomly (divided equally within four different zones of the city) from each selected areas and the responses were collected from the family member who was ready to give response.

A pilot survey was carried out within the two different areas of Vadodara City. Total of 100 interviews were conducted both the areas had sample size of 50 each. The purpose of research was explained and a rapport was built so as to get the true responses. The investigator personally interviewed and collected data. The observations were also recorded by the researcher. For analyse of data simple percentages was used.

## Major Findings:

The major findings of the study are as follows.

From the study it was found that there is a variation in terms of problems faced by the respondents in different zones during floods. The findings of the study shows that in South Zone 89%, in North Zone 87% of respondents are facing difficulties while in West Zone 60% and East Zone 45% of the respondents are facing problems during floods. Although the nature of problems faced by the respondents in all the zones are common but there is a variation with reference to the impact because it is observed that in South Zone and North Zone majority of the respondents are living in an unauthorized land which is encroachment by the them and the areas is situated below the road line and there is no proper drainage facilities is available in the areas.

It is observed that majority (95%) of the respondents in South Zone stated that their energy consumption (in terms of electricity, petrol/Diesel, LPG/Kerosene) is increasing year by year due to climatic changes, followed by 78% in East Zone, 55% in West Zone and 54% in North Zone. With reference to high increment in South Zone consumption it was observed that the major areas are situated in outskirts of the city and areas are getting more breezing 360 than city area during winter and they also need boiling water for bath this was quite increasing their usage of LPG.

The study reveals that 45% percent of the residents of West Zone are facing difficulties for going to work during floods and extreme temperature followed by 35% in North Zone while 32% in East Zone and very less 17% replied in South Zone. It was also found that during floods and esteem heat they're facing difficulties in managing their daily supply of grocery and also some medical treatments. From the study it was found that in South Zone area the respondents of Makarpura area are working at the nearest GIDC in Private Limited companies like ABB,

FAG etc. due to that they have good job opportunities. The residents of Manjalpur area which is also comes under South Zone are mostly from middle class to higher middle class income group. Respondents are well educated and are living in Packka houses/ good societies. The respondents of Maneja area which again comes under South Zone are either landlords or even some of them are working as a farmers having farms houses/land at nearby areas. After discussion with the respondents it was observed that the respondents are facing less problems as compare to other zones because the residents of other areas and zones are from lower-income group, illiterate and their standard of living is also low and most of them are daily wages earner, sweepers, labourers, carpenters and missionary workers etc.

With reference to the water logging issues during floods & rain in the different zones it was found that 37% of the respondents/houses in East Zone are facing flood like situation followed by 34 % in West Zone. It is observed that the water logging problem is associated with lack of proper roads, sewerage and drainage system and the areas are situated in below the road line. In the South Zone areas like Danteshwer, Makarpura, Maneja, and Yamunamil only 361 18% of the respondents are facing problems because they're having proper rainwater drainage facility and also the area is above the road level. It was also observed that in South Zone only one area i. e Pratapnagar area is facing problem because the area is below the road line and there is no proper rainwater drainage system in the area.

The study also reveals that the majority (90%) of the respondents responded that once the flood water entered into their house it stayed from one to five days in East Zone followed by 88% in North Zone, 85% in South Zone and 82% West Zone. The issue was found associated with below the road line level and open drainage line. In South Zones areas like Danteshwar talav, Sattadhar society, Krishna Kunj society, Santram society, in West Zone Moti Bapod talav and Boriya talav are located near talav and during monsoon season talav overflows which creates water logging problem in the areas. The areas of Vishwamitri, Munjmahuda, Subhasnagar (North), Pratapnagar (South), Mirja colony, Parshuram Bhatta (West), and also some colonies of Vishwamitri and Munjmahuda have an open drainage line passing through due to that these areas are usually water logged maximum time during rainfall. The study also shows that in South Zone 4.18 percent of the respondents are having issues of water logging in their house during monsoon especially at Maratha colony in Makarpura.

In North Zone 2.97 percent are having issues of water logging in their house, during monsoons, followed by East Zone 2.81 per cent, and 0.90 per cent in West Zone. According to the respondents "As long as rain continues, the house is filled with water, and after the rain stops, water leaks out. This is what exactly happens throughout the monsoon." 362 The study reveals that the rain and flood is affecting the respondents in terms of various kinds of losses which includes the loss of assets, stored grains, children's textbooks, shoes, bags, & electronic devices etc. Wall, door, roof and windows of the houses are also not safe. Some people haven't registered their damages occurred by flood in terms of amount so in East Zone only 1061 respondents responses are recorded followed by 511 respondents from the West Zone, 409 respondents from the North Zone, and only 178 respondents reported in South Zone.

With reference to the total losses in term of amount, 30.72 percent of the respondents in West Zone, 21.11 percent from East Zone, 19.10 percent from South Zone and 17.60 percent from North Zone reported total losses of below Rs. 500. In North Zone 23.96 percent respondents reported the loss of more than thirty thousand rupees, followed by 18.54 percent in South Zone, 16.59 percent in East Zone, and 11.49 percent reported in West Zone.

It is also observed from the study that in the year 2014 during floods in Ektanagar of South Zone there was even more loses of assets than in 2019 flood. They spend between Rs.1000-3000 (for two wheelers vehicles) and Rs.5000-10000 (for three/four wheelers vehicles) for their vehicle repairing. During 2019 floods Subhasnagar and Mujmahuda areas of North Zone were the most affected areas.

From the study it was found that in all the zones the major cost was associated with wastage of flood items, repairing charges of vehicle/assets/electrical items, damage of wall etc. The study shows that 23.97 percent of the respondents from West Zone responded that they are facing major health issues which are directly or indirectly associated with climate change in West Zone, 23.23 percent 363 reported in South Zone, 14.34 per cent responded in North Zone and only 8.86 percent were recorded in East Zone. The study also shows that due to water logging and unclean surroundings the residents of city often affected by vector borne and waterborne diseases. In some

areas where residents are living in tin roof houses, while extreme temperature are complaining about severe kind of skin diseases.

Residence of Atladra, Jetalpur and Gokulnagar (Kalali) located in West Zone, are having issues of blockage drainage line and contaminated water especially in monsoon due to that frequently they have complaint about health issues like jaundice and skin problems. The respondents of Pratapnagar (South) area used to go to either open toilet or public toilet because their drainage line is totally blocked since so many years and generally they suffered with chikungunya and skin diseases. With reference to the total expenditure occurred for treatment of diseases it was found that in West Zone 80.71%, in East Zone 77.30 percent, in North Zone 61.64 percent & in South Zone 36.53 Percent of the respondents spend less than Rs 5000. The 1.35 % of the respondents from South Zone, 1.06 percent from East Zone, 0.63 percent from North Zone and only 0.13 from West Zone spend Rs. 50000 or above on treatment of diseases like jaundice, malaria, chikungunya, typhoid and many others.

The study also shows that 50.38 percent of the respondents from West Zone, 42.70 percent from North and South Zone and 41.67 percent from East Zone. Mentioned that they are managing their extra health related expenses out of their savings. The study also reveals that some of the respondents didn't have any provision in their budget to take medical services and due to this they sold their 364 property or assets in order to bear the expenses for treatment of diseases like Dengue, Jaundice, Typhoid and Chikungunya. The 5.13% of the respondents from East Zone, 1.51 per cent from West Zone, 1.29 percent from North Zone and 1.28 percent from South Zone has sold their property to manage extra expenses. From the study it was also observed that in East Zone majority of the respondents are from middle to lower middle income group and their main occupation is labourers and daily wages therefore they don't have any provision in their budget.

The study also reveals that in order to manage extra expenses majority (49.36 %) of the respondents from East Zone had to take loan from different sources followed by 45.94 percent from South and North Zone and 13.46 percent from West Zone respectively. Some of them also reported that they borrowed money from their relatives and neighbors for the treatment of their health problems. Another outcome of the study referred to the difficulties faced by the respondents at the time of extra expenses caused by major health issues. The result shows that the 26.01 per cent of the respondents from South Zone reported that their social life is getting affected by the climatic change because they need to bear the extra expense to manage their health followed by 25.21 percent from North Zone, 24.53 percent from East Zone and 22.46 per cent from West Zone. Further data reveals that 33.46 percent of the respondents from West Zone reported that their recreation activities are also affected because they need to manage expenses caused by major health issues which are directly/indirectly connected by climate change followed by 27.35 percent from North Zone, 19.87 per cent from the East Zone and 13.12 percent from the South Zone. 365

With reference to the impact floods and rain water on children's education it was found that 21.16 percent of the respondents of West Zone reported that education of their children is affected during the flood time because textbooks, shoes and bags got massively damaged and again they need to purchase them followed by 20.26 percent from North Zone, 18.43 per cent from South Zone and 14.50 percent from East Zone. The findings of the study also represent that in North Zone 67.91 percent of the respondents mentioned that their electricity charges are increased due to over consumption of electricity during different seasons followed by 66.90 percent from South Zone, 64.61 percent from West Zone and 55.11percent from East Zone.

It is observed that although in North Zone very less percent of the people are using AC and coolers but their electricity charges are high as compare to other areas because of bigger family size their electricity charges are high. The study shows that maximum number of respondents 398 respondents out of 2549 from West Zone are using AC and cooler especially in the areas of Akota Diwalipura, Subhanpura and Tandalja. In South Zone 190 respondents out of 2178 are using AC and cooler while in North Zone out of 2992 only 98 respondents are using AC and cooler during summer season particular in the areas of Dandiyabazar, Karelibaug followed by Same number from North Zone and only 50 respondents out of 2281 from East Zone are using AC and cooler. The study also shows that majority (92%) of the residents had purchased air conditioners and cooler during the year 2016 to 2019. Whereas in East Zone 6 percent of the residents had purchased AC & Cooler during the year 2007 to 2010, in North Zone 76.59 percent purchased during the year of 2016- 366 2019.

As compare to North and East Zone 62.31 % from West Zone and 58.42% from south had purchasing air-condition and cooler. On the basis of data we can conclude that the rate of purchasing of AC & cooler is increased year-by-year. Auxiliary the respondents replied that the usage of electronic appliances were different in each season, the study shows that 100% of the respondents using AC & cooler during summer season only. In West Zone 99.75 percent of the respondents are using the AC and Cooler in summer session followed by 98.42 percent from South and 97.96 percent from North & 100 percent of the respondents from West Zone are using air-condition and cooled during summer season.

## **Recommendations for Policy Making:**

On the basis of the findings of the study the major recommendations for future intervention and policy making are as follows.

### **For Government:**

Government need to make suitable plans with local authorities to deal with the blockage of drainage system. The storage of water in the various pockets of the city leads to pollution, mosquitoes menace, and skin diseases. There is a need to increase number of public toilets and install E-toilets which can be easily accessible and have self-washing technique. The problem associated with household waste management was also identified.

There was lack of common public garbage system near the residents and inefficient pickup facility in the areas, which leads to environmental problems. In this regard the Government should direct the municipal corporation to identify those areas and should established additional garbage disposal bins and initiate regular waste collection so that proper waste management can be ensured. Across Vadodara city approximately more than 12 ponds are developed as a part of smart city but the water is not processed in those ponds which make the water stagnant thereby increasing the risk of water born diseases.

Therefore, there is a need to take action in this regards by sprinkling insecticides or pesticides around ponds as well as construct boundaries surrounding of pound area. As per the responses of the respondents during and after flood generally the rubbish are pile up and for many days the garbage is not disposed correctly which increases the infestation of mosquitoes. People use resources to repel mosquitoes which proves to be very expensive as well as can cause allergies. 368 The department of Sanitation and Hygiene can take immediate action for the issues during/after flood like situation.

Although local Urban Health Centres are working in the city but people are not aware about their functioning. Hence, people tend to approach unqualified doctors and follow home remedies which aggravate the disease. There is a need from the end of the government to ensure the proper functioning of all the Urban Health Centres and make people aware about their functioning. Due to increased prices of LPG gas, economically weaker sections or BPL card holders are left with no choice to use other materials such as wood, coal, diesel, petrol and other reagents which majorly contribute for air pollution. Even the ones using kerosene stoves are in a dilemma that there is no kerosene availability. Hence, the government can take some intervention in this direction too.

### **For Non-Government Organization and Local Authorities:**

Major health issues in the study areas are associated with safe drinking water. It was observed that there was no proper drinking facility. In some areas people were using water supplied by corporation, while in some areas there was scarcity of water therefore, people purchase water jugs. Most of the household were using home remedies for clean drinking water like alum, boiling etc. Here local NGOs and authorities can play a vital role by organizing outreach programmes for appropriate method of filtrations along with to ensure the safe drinking water. As

observed from the findings, majority of the diseases among the residents were caused due to contaminated water and remains of dirt / mud which has flown during floods. It was found that people adopt either home remedies or neglect the symptoms and remain ignorant about it.

Therefore, there is a need to organise health camps by authorities in affected area and awareness can be created for diagnosis and treatment of diseases at early stage. Prior disaster analysis reports revealed that city was not well prepared for facing the disaster. Training related to actions to be taken during disasters could be a powerful tool for creating awareness among citizens. It can be done by NGO's and other local authorities. Also early alarm system needs to be upgraded so that residents can be made aware before flood and necessary precautions can be taken by them. During data collections it was noticed that the most of respondents were not able to realize about how climate change is affecting their health such as malaria, dengue fever, diarrhoea, vomit, cold, high blood pressure and stomach pain. Therefore, before seasonal changes, a grassroots level care and remedial programmes should be designed through all medias, Urban health centre, Primary schools, NGO's, offices etc. Early warning alarm system should be active.

Specific awareness programme should be organized by local authorities or NGO's for people on water conservation and purification practices as well as making provisions for rainwater harvesting technologies in these areas. 8.3. Awareness Generation and Sensitization Lack of understanding for the concept of climate change and its situation was noted during data collection where sanitation and prevention against unexpected climate conditions on their livelihoods was a major concern. It was found that most of the respondents were working on daily wages and their income was too low where basic sanitation practice is not possible for them.

Thus provisions can be made for easy and low budget sanitation and hygiene items and should be available at government subsidised grocery stores. 370 The floods related losses and impact affects people psychologically as a result generating stress. Accordingly it becomes essential to identify specific cases and they must be counselled. Climate change sensitization related key approaches may include campaigns, participatory learning, informal education and formal school-based intervention which can be established.

### **Basic Facilities and Post Disaster Arrangements**

Temporary shelters should be created for people displaced during floods with basic facility of toilets and water supply along with first aid medical facilities. Most of the respondents complained that they haven't received any services or information related to disaster mitigation, as observed during data collection procedure. Hence, disaster management system needs to be upgraded. After floods cleanliness becomes priority for getting life back to normal, as the residents have real concern regarding proper disposal of damage goods. Initiative for proper garbage disposal should be taken care. People face major financial issues due to major loss and damages during floods. It was found that majority of them were not aware about occurrence of floods and how to manage assets before flood. Therefore, there is a need to conduct awareness programme by NGO's and other local authorities. Immediately after flooding the focus should be on repair of damage caused to building and infrastructures. Social media play an important role during a flooding crisis. Citizen or people staying in city share their observations and emotions via social media. Management crisis team can use this information posted on social media to create awareness.

### **Conclusion:**

On the basis of the study it can be concluded that the climate change is affecting the people of Vadodara in various ways. The socio-economic impacts of the climate is vary from zone to zone due to the sewerage issues, socio-economic condition, and sea level of the area along with geography location of the area. Loss of property, assets, food grains, damage of houses due to flood are the major reasons of economic loss and which is going to affect their quality of life also.

## References

1. Adedeji, O. , Reuben,O and Olatoye, O. (2014) Global Climate Change Akpodiogaga-a, P., & Odjugo, O. (2010). General Overview of Climate Change Impacts in Nigeria. *Journal of Human Ecology*, 29(1), 47– 55. doi:10.1080/09709274.2010.11906248
2. Akpodiogaga-a, P., & Odjugo, O. (2010). General Overview of Climate Change Impacts in Nigeria. *Journal of Human Ecology*, 29(1), 47– 55. doi:10.1080/09709274.2010.11906248
3. • APA. *Mental Health and Our Changing Climate: Impacts, Implications, and Guidance*. Washington, DC (2017).
4. Banholzer, S., Kossin, J., & Donner, S. (2014). The Impact of Climate Change on Natural Disasters. *Reducing Disaster: Early Warning Systems For Climate Change*, 21–49. doi:10.1007/978-94-017-8598- 3\_2
5. Barata, M., Ligeti, E., De Simone, G., Dickinson, T., Jack, D. Penney., J., Rahman, M. & Zimmerman, R. (2011). ‘Climate change and human health in cities’, in Rosenzweig, C, Solecki, WD, Hammer, SA, Mehrotra, S (eds.) *Climate Change and Cities: First Assessment Report of the Urban Climate Change Research Network*, Cambridge University Press, Cambridge, UK,,: 179-213.
6. Berry HL, Bowen K, Kjellstrom T. (2010) Climate change and mental health: a causal pathways framework. *Int J Public Health*.55(2):123– 32.
7. Bourque, F., & Cunsolo Willox, A. (2014). Climate change: The next challenge for public mental health? *International Review of Psychiatry*, 26(4), 415–422. doi:10.3109/09540261.2014.925851
8. Braganza, K., Karoly, D. J. and Arblaster, J. M. (2004) ‘Diurnal temperature range as an index of global climate change during the twentieth century’, *Geophysical research letters*, 31(13).
9. Brierley, A. S., & Kingsford, M. J. (2009). Impacts of Climate Change on Marine Organisms and Ecosystems. *Current Biology*, 19(14), R602– R614.