

A STUDY ON THE AWARENESS ABOUT THE ENVIRONMENTAL PROBLEMS AND CLIMATE CHANGE AMONG THE UNDERGRADUATES IN MALAD AND GOREGAON IN MUMBAI CITY [INDIA]

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Abstract

Awareness about the environmental issues is a part of education. The world is facing the consequences of extreme climate. Climate change is one of the important challenges of this century. There are various effects of extreme climate change such as erratic weather patterns, flash floods, increasing no of cyclones, increasing water levels which will submerge many small island nations, growing wild fires, droughts etc. The climate change will not only affect the natural or physical world, but it will affect the lives of common people. IPCC reports have predicted that it will lead to the displacement of people from the affected area. The social impacts of climate change are not to be ignored. The farmers, women, children, and people who are living in the vulnerable regions of Asia and Africa will be most affected. There is need to create awareness about various issues. As a part of Viksit Bharat 2047, the Government of India aims to achieve environmental sustainability to maintain a clean and green environment. There are various programmes undertaken by the government to mitigate the impacts of climate change based on restoration, conservation, and resilience. The role of the young generation is very crucial in restoration and conservation of the environment. This study aims at understanding the level of the awareness amongst the undergraduates in Malad and Goregaon suburbs of Mumbai, on various aspects of environmental problems. It will help in preparing the strategy on environmental education through various methods of learning.

Keywords: Environmental issues, Climate change, environmental awareness

INTRODUCTION

Viksit Bharat @2047 is a vision to make India a developed nation by 2047, the 100th year of India's independence. This vision aims at various aspects of development including economic growth, social progress, environmental sustainability, and good governance. The Government of India has launched various projects to achieve the goals of Viksit Bharat. Environmental sustainability is one of the major goals. It is a broad term which includes "the condition of resilience, balance, and connection to allow society (humans) to meet its requirements without passing the capacity of its supporting ecosystem to keep continue the regeneration of the services without harming the biological diversity". (Vos,2007)

Awareness about our environment and ecology is essential for every individual and specially for the students. Environmental education is mandatory component of all the curriculum from pre-primary to the university level studies. The entire world is facing the climate calamities. Climate change is one of the major challenges of this centuries. Intergovernmental Panel on Climate Change [IPCC] 2022 report -Impacts, Adaptation and Vulnerability- Working Group II which is 6th report of the IPCC has described the ill-effects of climate change. This report states that the human induced climate change has caused widespread adverse impacts to the nature and people. It is proven that across all the sectors and regions the most vulnerable people and systems are disproportionately affected and climate extremes have led to irreversible impacts. It is undoubtedly proven that the earth's temperature has increased by 1.1°C after 1800 means after the beginning of the industrial revolution. The major reasons behind the increased temperature are high carbon emissions, deforestation, increasing consumption and growing industrialization. The emissions of greenhouse gases affect the entire eco-system. This will lead to severe climate hazards such as growing sea-level, ocean acidification, heavy precipitation, increasing droughts, increasing no of cyclones, increasing wild-fires, melting of glaciers which will lead to the problem of droughts. At the same time, the entire world will face many erratic climate hazards.

The effects of the climate change are observed on the weather patterns. The erratic weather situations which are also unprecedented will lead to migration, displacement, and other social problems. Due to unfavorable weather conditions, many communities which depend on the nature such as farmers, fisherfolks or many unorganized sector services will have to face uncertainties. The impacts of the climate change are not only physical, but also economic, social, and psychological lives of people. Small islands nations and many countries in Asia and Africa are already suffering and will be more vulnerable than the developed countries in the west. Ghosh Amitav [2016]

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has coined a term 'ecological refugees' for the people who are forced to take refuge in other countries due the ill-impact of climate extremes. The women, old people and children will be mostly affected by the effects of climate change.

The United Nations has launched various projects to create awareness about the ill-effects of climate change and to find out the mitigation measures through climate action projects. United Nations has set 17 sustainable goals and Climate Action is the 13th goal. As a part of educational endeavor, climate action is not only theoretical, but it includes various practical measures. Youth play a major role in Climate action. It is important to understand the reaction of the young generation towards environmental issues. The aim of this research was to understand the level of awareness of the undergraduate students towards the problems of climate change, its causes, effects, and mitigation measures. Apart from understanding the factual knowledge, responses are collected from the students to know their role in reducing ill effects of climate change.

Objectives: 1. To study the awareness among the undergraduate students about the environmental problems and climate change
2. To understand how the young generation will find the measures to deal with the problem of climate change.

Methodology: The researchers developed a questionnaire and circulated it among the undergraduate students living in Goregaon and Malad region of Mumbai City. Questionnaire was prepared in Google form and it contained total 16 questions. It was circulated to the students of various classes through WhatsApp groups. The targeted respondents were 100 and after receiving the responses, the analysis of the responses was conducted and result was discussed.

Result: There were total 100 student respondents, males, and females, belonging to various classes and streams. Following are the details of the respondents.

Streams: B.COM- 37
B. Sc.IT- 48
B.A.F.- 11
B.M.S-04

Class: First Year: 47 respondents
Second Year: 26 respondents
Third Year: 27 respondents

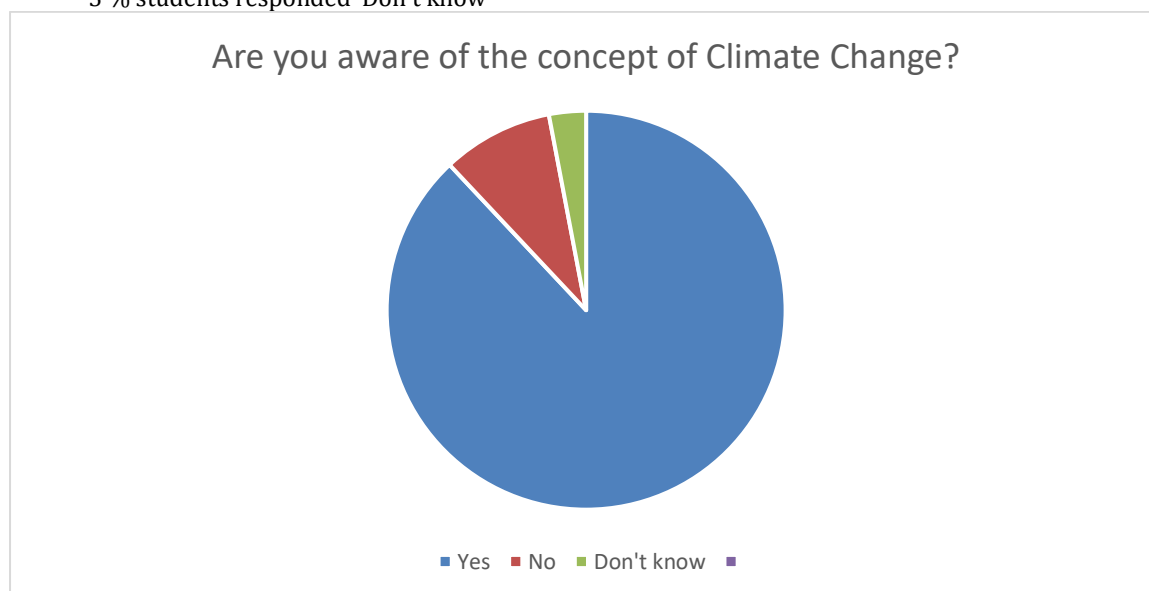
Questions:

1. Have you studied the Environmental Studies/Science in your School or college?

Answer: Majority 89% students answered yes and 11% students answered No. The environmental education is a compulsory subject in all the standards.

2. Are you aware of the concept of Climate Change?

Answer: 88% students responded 'Yes'
9% students responded 'No'
3 % students responded 'Don't know'



It indicates that most of the students are familiar and aware of the concept of climate change.

3. What are the major causes of Climate Change?

Answer: This question had multiple options to answer. Following was the response.

A] Removal of forests: 23% students opted this answer.

B] Manufacturing goods such as cement, steel, iron, electronics, and plastic goods etc., which leads to emissions: 10% students opted this answer.

C] Using modern transportation methods such as cars, buses or vehicles using fossil fuels: 9% students opted this answer.

D] All of these: 52% students opted this answer.

It is very significant to note that the nearly half student respondents were aware of all the causes of Climate change.

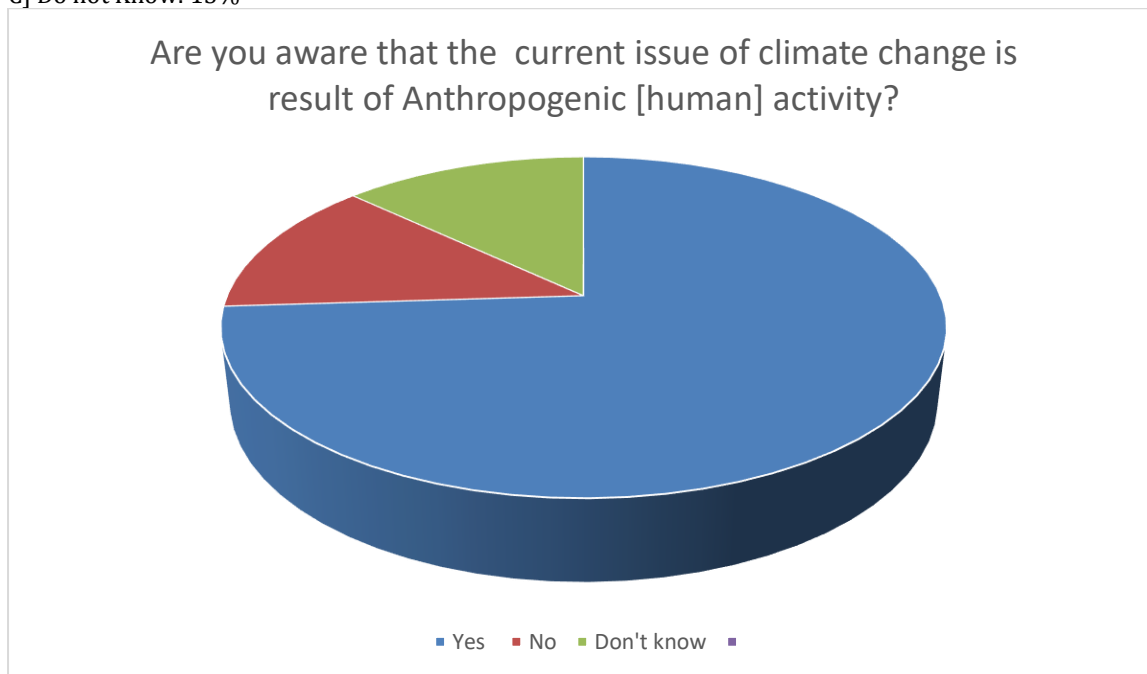
4. Are you aware of the fact that the current issue of Climate Change is the result of Anthropogenic [Human] activities?

Answer: The following was the response of the students.

A] Yes: 74%

B] No: 13%

C] Do not Know: 13%



It is significant to note that most of the students are aware that the current problem of climate change is the result of human activities.

5. What are the effects of Global Warming?

Answer: This answer has multiple options. Following are the responses.

A] Rising sea-level: 14% students opted this answer.

B] Glacier retreats: 8% students opted this answer.

C] Changes in the timing of seasonal events: 21% opted this answer.

D] Rise in the frequency or severity of extreme weather event: 12% students opted this answer.

E] All of them: 45% students opted this answer.

Almost 45% student respondents are aware of the all the effects of global warming.

6. The process through which heat is trapped near earth's surface by substances is known as _____.

Answer: This answer has multiple options. Following are the responses.

A] Global Warming: 51% of students opted this answer.

B] Greenhouse Effect: 35% of students opted this answer.

C] Ecological Imbalance: 10% of students opted this answer.

D] Rising Sea-level: 4% of students opted this answer.

35% student respondents were aware of the concept of Greenhouse Effect.

7. Select Greenhouse Gas out of these:

Answer: This answer has multiple options. Following was the response of the students.

A] Carbon Dioxide: 53% students opted this answer.

B] Oxygen: 29% students opted this answer.

C] Nitrogen: 12% students opted this answer

D] Argon: 6% students opted this answer

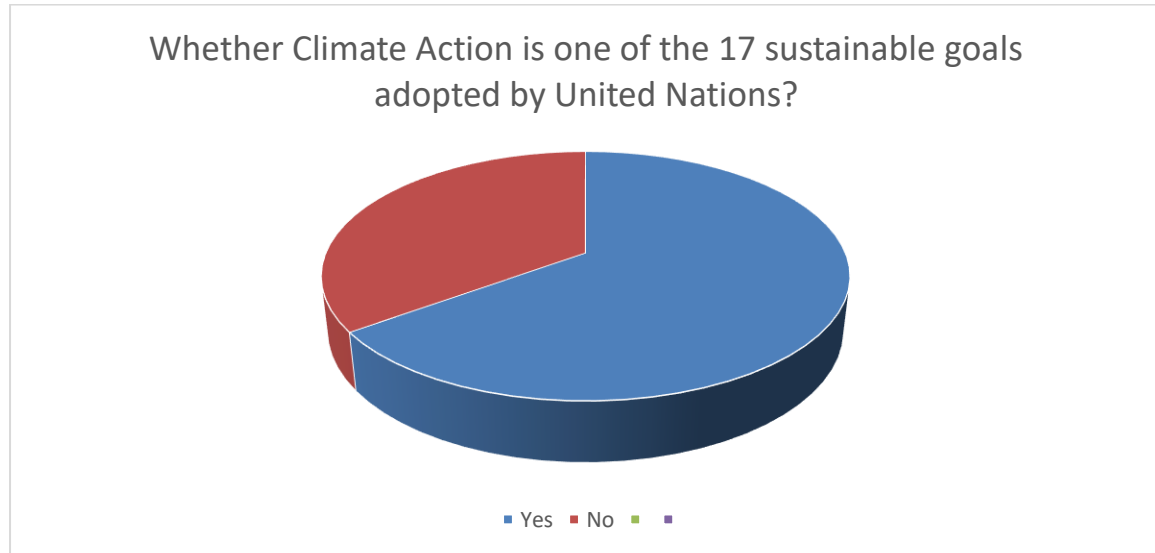
8. Are you aware that Climate action is one of the 17 Sustainable goals adopted by United Nations?

Answer: This question was close-ended one. The following was the response of the students.

A]Yes: 65%

B]No:35%

It is significant to note that most of the students are aware of the sustainable goals adopted by United Nations and climate action is one of them.



9. The major goal of the Paris Agreement adopted at UN Climate Change Conference (COP 21) in Paris, France is to limit the temperature increase to ___ above pre-industrial levels.

Answer: This question had multiple options. Following were the responses of the students.

A] 1.5°C: 48% students opted this answer.

B]2°C: 30% students opted this answer.

C]1°C: 18 % students opted this answer.

D] 0.5°C: 4% students opted this answer.

This answer is very relevant to understand that almost half of the respondents are aware of the goal adopted in the Paris Summit [15] to limit the temperature increase up to 1.5°C.

10. _____ refers to cutting greenhouse emissions as close to zero as possible.

Answer: This question had multiple options. Following were the responses of the students.

A] Net Zero -55% students opted this answer.

B] Mitigation- 22% students opted this answer.

C] Nil Emission-12% students opted this answer.

D] Adoption-11% students opted this answer.

It is very significant to note that more than half student respondents are aware of the concept of Net Zero emission.

11. What are precautionary measures should be taken against the problems of Climate Change?

Answer: This question had multiple options. Following were the responses of the students.

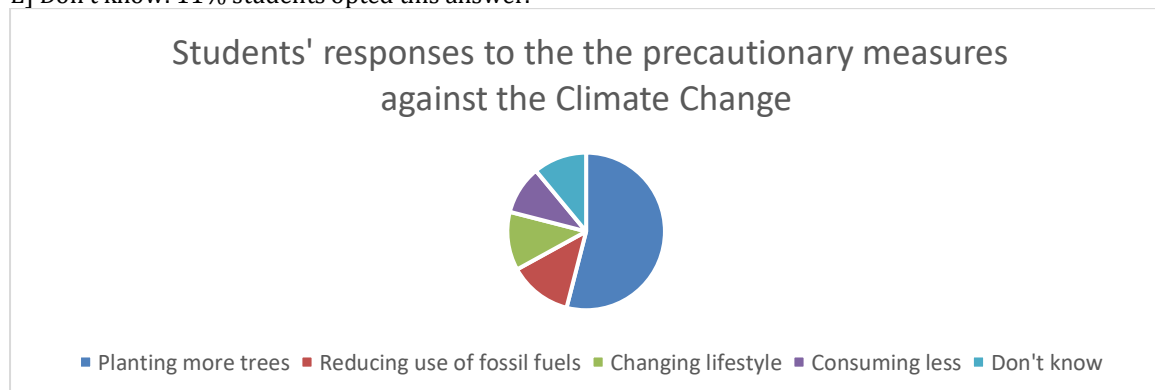
A] Planting more trees: 54% students opted this answer.

B] Reducing use of fossil fuel: 13% students opted this answer.

C] Changing Lifestyle: 12% students opted this answer.

D]Consuming less: 10% students opted this answer.

E] Don't know: 11% students opted this answer.



12. What would be your role in reducing ill effects of Climate Change [Mitigation -reducing risk of loss]
Answer: This question aimed at collecting answers regarding student's responsibility towards the problem of climate change. Students were asked to write their role in reducing ill effects of climate change. This was open-ended question. The following were the responses of the students.
- A] Majority students opined that planting more trees is one of the solutions to the climate change issue. Deforestation and planting more trees can be implemented to reduce this problem.
 - B] Some students opined that reduce, reuse, repair and recycle the things can be an answer to climate change issue.
 - C] Some students mentioned that they do not use personal vehicles and they will not use personal vehicles in future to control emissions.
 - D] Some students mentioned to reduce the use of fossil fuels can be one solution.
 - E] Use of eco-friendly products can be also one of the solutions.
 - F] Boycott over-industrialisation, put more emphasis on environmental sustainability subjects in schools and colleges, control demand and lifestyle, minimize over-exploitation of natural resources.
 - G] Many students suggested to reduce the use of cars and some mentioned that they will start using cycles for short distance.
 - H] One student mentioned to go back to our Indian culture of reusing the materials.
 - I] Changing lifestyle can be an answer to this issue.
 - J] One student mentioned that he will use less energy which will result into less energy loss.
 - K] Many students said that they do not know what would be their role in mitigation of the climate change.

DISCUSSION

In this survey, we found that most of the student respondents were aware of the causes and effects of climate change. These students consist of classes ranging from first year to third year. Various questions related to the causes and effects of climate change were asked to them. Majority students were aware of the concept of the climate change. It was observed that all of them were not aware of the actual causes of climate change such as removal of forests, manufacturing goods emitting various gases, use of fossil fuels and modern transportation methods etc. 52% students answered that all of these are causes. It means 48 students are not aware of all the causes. Students have responded in the similar manner to the effects of Global Warming. 45% students answered to 'All of these' which is the right answer.

The concepts of Greenhouse effect and greenhouse gas also were not very clear to some of them. Net Zero emission question has received 55 % right response. 48% students could answer correctly about limiting the increase in the temperature up to 1.5°C which is the goal of Paris Summit [2015]. 65% students could select the right answer that Climate Action is one of the sustainable goals adopted by the United Nations. The last question was subjective one where students were supposed to write what would be their role in reducing the ill-effects of climate change. This question received various responses. Many students suggested very constructive measures such as reduce, reuse and recycling of the things in day-to-day life. Some students suggested to plant more trees. Some students suggested to start use of cycle for the short distance and reduce the use of cars. Use of eco-friendly products and changing the lifestyle also was a suggestion given by some students.

CONCLUSION

It was observed that most of the student respondents are aware of the overall concept of Climate Change. Almost half of the students could answer the correct answers regarding the causes and effects of climate change. At the same time these responding students are co-relating climate change with deforestation. There is a need to create more awareness about consumption of fossil fuel which is the one of the main causes of global warming. At the same time students should be sensitized about the overall causes of climate change. Students should be also sensitized about the concept of Net Zero emission and Greenhouse Effect. Students should be encouraged to think independently and creatively to be able to shoulder responsibility of any social issue. Climate change issue needs more attention in our curriculum.

Thus, the researchers hereby conclude that environmental awareness should be a mandatory part of education from primary to university level studies. In order of bring the goal of Viksit Bharat @ 2047 into the reality, it is important to implement the right methods of education. The educational methods must be inter-disciplinary and students should be given hands-on-training regarding the climate action. The sustainable development project can be studied from various angles. The implementation of New Education Policy 2020 will bring positive change in education. The next generation will be more sensitive towards various ecological issues and it must be more responsible in its behavior. Right education and training only will help to achieve this goal. We need to start teaching children from very young age to develop them responsible citizens.

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