

ASSESSMENT OF PUBLIC AWARENESS ON CLIMATE CHANGE IN URBAN COMMUNITY, PESHAWAR, KHYBER PAKHTUNKHWA, PAKISTAN

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ABSTRACT

This study was conducted to observe the public awareness on climate change in urban community District Peshawar during the year 2020. The global Climate change has emerged as a challenge faced by every nation in the world. This has badly affected every country of the world including Pakistan. The natural causes of climate change are not under the control of human but anthropogenic causes can be controlled through adaptation and mitigation measures. The objectives of the study included the assessment of awareness regarding climate change in urban community and to determine measures for controlling climate change. The research survey was conducted based on hundred questionnaire including 25 questions ranging from demographic background of the participants to their level of awareness regarding climate change and the suggestions for measures to mitigate and adapt the effects of climate change. The study results showed that the only 24% participants know about concept of Climate Change. The term climate change is understood differently by different people and therefore they perceive different reasons for this change. 71% were known to the fact that human activities are the driving force behind climate change. 58% showed wanted that both government and organizations to finance the projects for mitigation and adaptation actions. 37% stressed on the need of awareness campaign whereas 44% were in the view that it can be resolved by updating their self with the knowledge of climate change and make the people responsible for contributing to the process to help in mitigation and adaptation. 100% respondents were of the view that governments has not taken serious steps in handling the issue of climate change. Therefore, 58% suggested that the government should prioritize different issues to address and neutralize damaging effects of climate change. The respondents were of the opinion that government should focus on issues like deforestation (12%), urbanization (11%), overpopulation (18%), followed by others including climate change, desertification, pollution, recycling of wastes, and energy projects. It will help in avoiding hazards of the climate change and will promote sustainable development of the country. 100 percent were not satisfied about Pakistan government measures to mitigate and adapt climate change.

Keywords: Climate change, Greenhouse gases, Adaptation, Mitigation, Natural Variability, Awareness.

INTRODUCTION

Climate change has become one of the most serious environmental threats. The impact of global climate change on humans and natural systems is

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expected to be serious. With the accumulation of evidence of climate change and its impacts, people have clearly realized that many causes of climate change are man-made in nature, and their lifestyles, consumption and choices pollute and use resources in unsustainable ways. It is predicted that climate change will have harmful effects on agriculture and fisheries, and may even cause ecosystem collapse (Pandve *et al.*, 2011). There is a serious need to make ordinary people sensitive to global warming and climate change (Pandve, 2007). The motivation for voluntary mitigation mainly depends on people's susceptibility to threats and the severity of climate change or the impact of climate variability, while adaptive changes largely depend on the availability of information related to climate change (Semenza, *et al.*, 2011 & Plouhidis *et al.*, 2011). A preliminary review of the scientific literature and surveys of climate scientists indicate that there is a striking consensus with the main conclusions of the Intergovernmental Panel on Climate Change (IPCC): anthropogenic greenhouse gases are the "majority" of the "clear" warming of the earth's average global temperature "the reason. In the second half of the 20th century (Oreskes Naomi 2004, Solomon *et al.*, 2007). In the past few decades, more and more evidence has shown that the global climate is changing. Now, the scientific community has reached a broad consensus on the reality of man-made climate change. The Intergovernmental Panel on Climate Change (IPCC) concluded in its fourth assessment report (AR4) that since the mid-19th century, the increase in global atmospheric temperature is likely to be caused by human activities (Solomon, Susan, 2007). Within the framework of risk and risk perception, research on the differences between climate change challenges and responses is increasing. There is a growing debate about how to design policies to overcome barriers to effective adaptation that exist in many parts of the world. The key is to understand the decision makers' views on current and future climate change risks, and how to adjust these views to better align with the most likely risk scenarios (Weber 2006; Paeth & Otto, 2009). It is generally recognized that people's perception of environmental risks determines the nature and extent of their response (Adams 1995). The strategy for eliciting the best response to this risk emphasizes effective communication in the appropriate socio-cultural context (Lindell & Perry 2004; Leiserowitz, 2006). In the context of adapting to climate change, attention is focused on raising awareness, aiming to involve communities and individual stakeholders in national (or sub-local) adaptation plans (Etkin & Ho 2007). However, so far, this approach has generally been better educated in rich (developed) countries than in poorer (developing) countries, and it is also most effective in understanding global issues. In addition, top-down community action methods are common in developed countries and can solve national concerns such as water shortages or disease awareness. In developing countries, top-down communication is often ineffective. It is due to the inability of the government to spread the information of concern, because the community usually does not accept such information (Patt & Schröter, 2008; Nunn, 2009). Although developed countries usually put a lot of effort into finding the best way

to adapt to climate change through top-down and bottom-up approaches, few people pay attention to how to better adapt to climate change. Many developing countries (Lane & McDonald, 2005; Mataka *et al.*, 2007). Regrettably, this situation is regrettable because most authorities believe that the livelihoods of (poorer) residents in developing countries are more affected by climate change in the twenty-first century than their counterparts in developed countries (Parks & Roberts 2006; Mertz *et al.*, 2009). Although developing countries have made progress in involving communities in the process of adapting to global change, this level seems to be too slow to effectively respond to related challenges, especially the challenge of climate change. To this end, I am interested in understanding the nature of the difference between climate change risks and perceived risks in fragile conditions in developing countries, in order to develop appropriate solutions to reduce the differences and implement appropriate adaptive response measures (Vedwan & Rhoades 2001; West *et al.*, 2008). The present investigation aimed to assessment of level of awareness regarding climate change in urban community in selected sites of Peshawar and also to measure the awareness concerning climate change in urban community and to find out mitigation and adaptation measures for controlling climate change

MATERIALS AND METHODS

Study area

Peshawar is the capital city of Khyber Pukhtunkhwa. The historical city is located in the vast valley of Peshawar, on the eastern tip of the famous Khyber Pass near the Afghan border and is known as the city gate or borader. In the early days in the city there were many attractions related to cultural and religious heritage. Peshawar is surrounded by tribal areas at three borders. It is located in the eastern part of the Khyber Pass. The total area of this district is 1,257 square km. Peshawar lies between 33° 44' and 34° 15' north latitude and 71° 22' and 71° 42' east longitude. The floodplain / territory, the area between the rivers Kabul and the Budni Nala. Winter in Peshawar begins in mid-November and lasts until the end of March and summer between May and September. Maximum summer temperatures are above 40°C, and average minimum temperatures are 25°C (77°F). The minimum winter temperature is 4°C and the maximum temperature is 18.35°C.

Data collection

To conduct scientific study it needs to follow proper methods for data collection. The methodology was devised keeping in view the objectives of the study. The major and key objective of the study was to assess the awareness regarding climate change in urban community distract Peshawar. For this purpose, study was conducted to collect primary data of study area. 100

respondents were interviewed and the data was collected through a well-designed questionnaire comprising of 25 questions. The questionnaire was first prepared and then tested in the field to increase its validity. After testing in the field the questionnaire was modified according to the local situation. The respondents were interviewed at different places personally at their Hujras. The questionnaires were structured in English and were distributed to the respondents; the respondents fill the questionnaires according to their knowledge to provide the investigators with required information and data. Response was random as it is according to the knowledge of respondents and it was not 100 %. All the questionnaires were collected from the respondents and were arranged for analysis and discussions. Notes were also prepared in the field book where the need was felt of general information about the study area.

Data analysis

The collected data was analyzed statistically and discuss to draw conclusions and formulate suggestions on the basis of the questionnaires on assessment of level of awareness regarding climate change in urban community Distract Peshawar. The analysis was done using simple averages and percentages.

Statistical data analysis

For data analysis, the following software was used: MS EXCEL, PAST, and Sigma Plot. The data were arranged in Excel sheets. The univariate statistics were carried out in PAST software. The figures and graphs were developed in Sigma Plot. Regression models were also used in Sigma Plot.

Sampling procedure

Approximately 10 questionnaires were distributed in each union council. Respondents were given questionnaires after positive consent. The investigators went to different homes selected for data collection and distributed questionnaires among the respondents and respondents were asked if they are willing to fill the questionnaires. Both male and female respondents were approached in different union councils. Selections of respondents were based on their willingness to respond the questionnaires to complete the survey. Both 50% male and 50% female respondents were included in the survey.

Sampling intensity

Two stage random sampling techniques were used. Sampling was done in two stages in those areas which were included in my study area where I have to collect data about assessment of level of awareness regarding climate change

in urban community. In first stage i.e. in union councils selection the sampling intensity was kept as 9.3%. Out of 93 union councils 10 union councils were randomly selected. Then out of each union councils ten respondents/household were randomly selected. Assuming the average number of household in the Union Council as 1000 and the sampling intensity is calculated as 1%. Population of Peshawar is 4269079 (Census 2017) and our sampling intensity is 0.0000234243.

RESULTS AND DISCUSSION

The study “Assessment Level of Awareness Regarding Climate Change in Urban Community”, was conducted in Peshawar to determine the awareness level of community about climate change. It was based on open and close ended questionnaire. The data was analyzed through simple averages and percentages. It was further evaluated and presented through charts and graphs.

Demographic data

Gender wise ratio

The questionnaires were filled from 50 male and 50 female respondents to ensure the even representation of both gender of the community.

Age distribution

Respondents of different age groups were selected for the study. The participants were of age ranging from 16 years to 56 years. Among the participants, 30 percent were of age group 16 to 25 years, 24 percent were among the age of 26 to 35, 21 percent were among the age of 36 to 45 and 25 percent were among the age of 46 to 56.

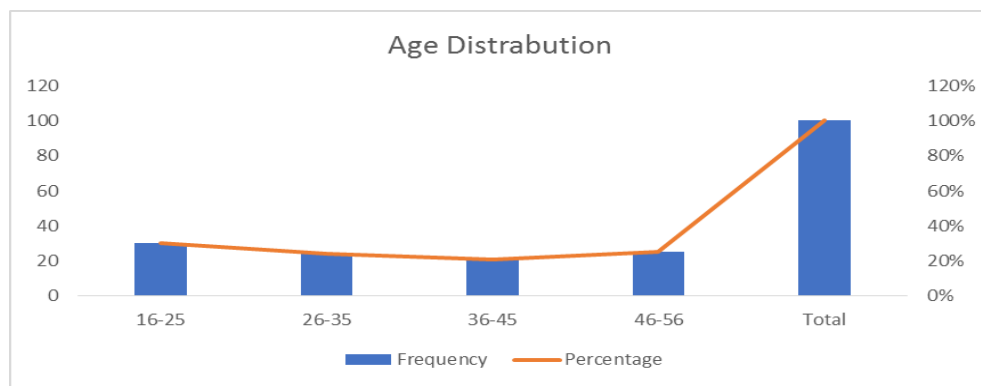


Fig.1. Age distribution of education

The data for the study was collected from 100 respondents. The 24 percent respondents were that of intermediate level, the number of undergraduate participants was 56 percent and 20 percent were of graduate level as show in the below graph.

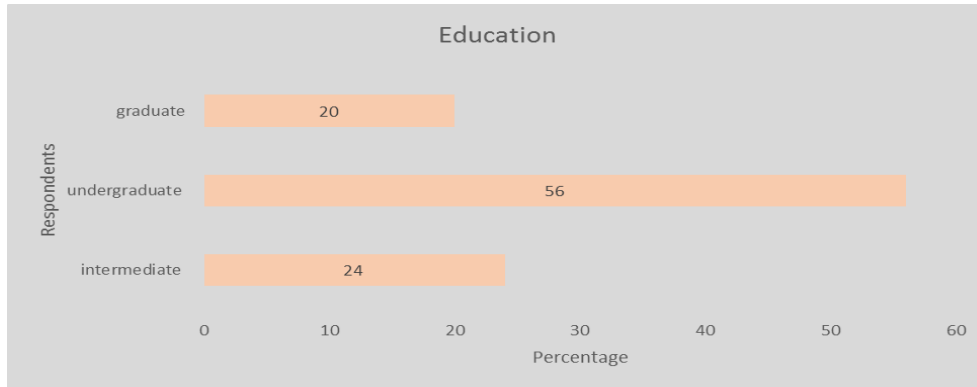


Fig. 2. Qualification wise education

Demography of respondents

Among the 100 participants of the study, 75 percents were from urban and 25 percent were urban with from rural background.

Table 1. Demography of Respondents

S.No	Demography	Frequency	Percentage
1	Urban	75	75%
2	Rural back ground	25	25%
	Total	100	100%

Level of awareness

Awareness campaign at your university

The 27 percent participants responded affirmatively about the awareness campaign at their universities and colleges, while 73 were of the view that there is no proper campaign at their institutional level about the climate change awareness its showed that there is no proper campaign and dissemination of information about climate change in the universities and colleges. Those students who responded in positive were having very little knowledge of climate change and its consequences.

Awareness at school level

Among the respondents 28 percent answered that they were taught about

climate change at their school level and 72 percent were not taught about climate change at their school level. it is concluded that there is no debate and teaching on a large scale about climate change at the school level.

Awareness campaign attended

Among the 27 respondents who responded that awareness campaign was conducted in their universities, 56 percent answered that they have attended climate change awareness campaign at their universities while the remaining 44 percent answered that they have not attended any climate change awareness campaign.

Table 2. Awareness campaign attended

S. No	Answer	Frequency	Percentage
1	Yes	15	56%
2	No	12	44%
	Total	27	100%

From the above results it is concluded that students show lack of interest in attending any awareness campaign about climate change conducted at their universities and colleges.

Meaning of climate change

An open ended question was added to the questionnaire about the definition of climate change. The response of 31 percent was that climate change is a mere change in temperature, while 14 percent replied that change in the environment is the real meaning of climate change. Among the remaining respondents, 27 percent responded that change in weather condition is the meaning climate change, 12 percent responded that climate change means increase in pollution and 24 percent replied that climate change means global warming.

Table 3. Meaning of climate change

S. No	Definitions	Frequency	Percentage
1	Change in temperature	52	31%
2	Change in the environment	24	14%
3	Change in weather conditions	46	27%
4	Increase in Pollution	21	12%
5	Climate change means global warming	24	24%
	Total	167	100%

The above results show that the term climate change is interpreted differently by people. Some people believe that change in temperature means climate change while others believe that change in the environmental condition means climate change. However, some people take a very narrow concept of the climate change and held that increase in pollution is the real meaning of climate change. Among the respondents one fourth defined climate change in terms of rise in global warming.

Sources of information

It was found that 48 percent respondents sought information from internet, 30.4 percent from their school and 21 percent from non-governmental organizations.

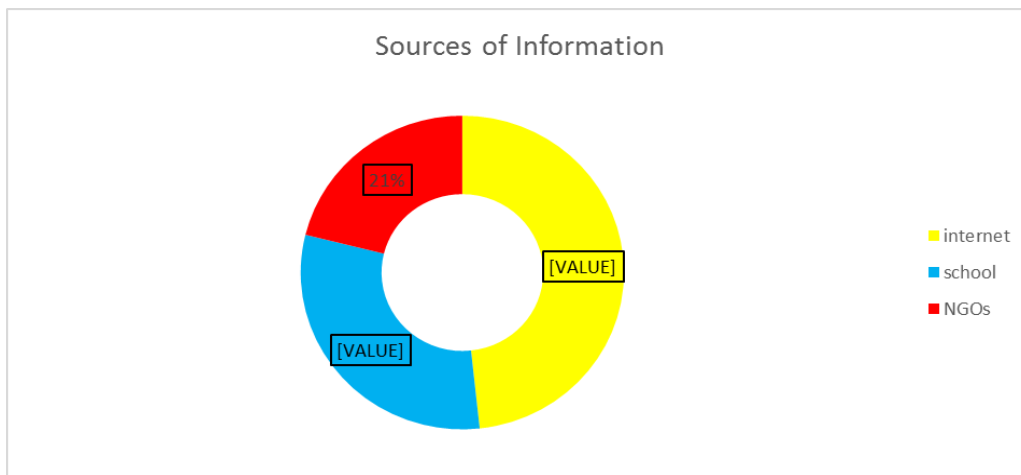


Fig. 3. Sources of information

It is analyzed from the results that majority of the people got information from the source of internet and a few of them got knowledge from schools and Non-Governmental Organizations regarding the climate change.

Awareness about causes and effects of climate change

Green house gases

33 percent of people believed that carbon dioxide is greenhouse gases while 44.7 percent admit that Chlorofluorocarbons is greenhouse gases. However, 3.9 percent people believed that water vapor and 12.9 percent believe that methane is greenhouse gases.

Table 4. Greenhouse gases

S. No	Green house gases	Frequency	Percentage
1	Carbon dioxide	67	33.3%
2	Chlorofluorocarbons	90	44.7%
3	Water Vapors	8	3.9%
4	Methane	36	12.9%
5	Nitrous oxide	00	0%
	Total	201	100%

It is concluded from the results that most of people agreed that carbon dioxide and chlorofluorocarbons are greenhouse gases and a few of them believed that water vapors and methane are greenhouse gases.

Human activities and climate change

The results show that 71 percent strongly agreed that human activities are responsible for climate change while 18 percent people are somewhat agreed. On contrary 11 percent people are not agreed that human activities are not responsible for climate change.

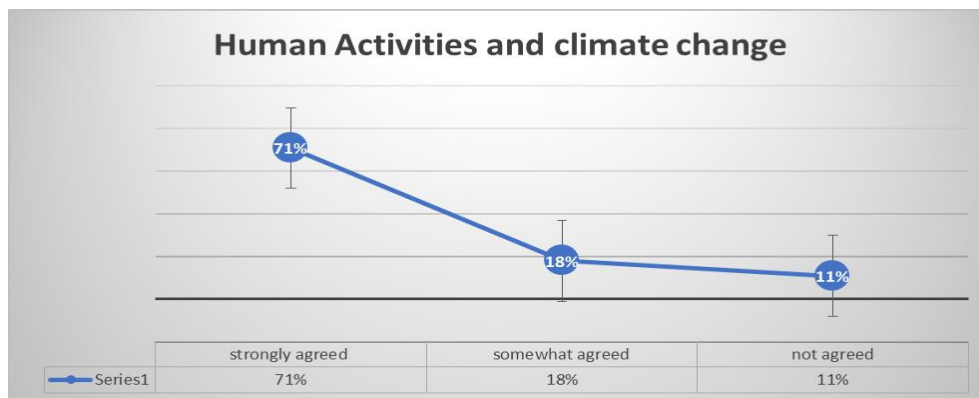


Fig. 4. Human Activity and climate change

The results determined that most of the people are of the opinion that human activities are responsible for climate change in the country. However, a little number of people orated that human activities cannot cause climate change.

Natural variability and climate change

The data demonstrate that 23 percent of people are strongly agreed that natural variability causes climate change while 30 percent are somewhat agreed. Similarly, 18 percent people do not know about the causes of climate change.

Moreover, 9 percent are somewhat disagreed and 30 percent are strongly disagreed that natural variability is reason behind climate change.

Table 5. Natural variability and climate change

S. No	Natural Variability and Climate Change	Frequency	Percentage
1	Strongly agree	12	23%
2	Somewhat agree	14	30%
3	Don't Know	9	18%
4	Somewhat disagree	4	9%
5	Strongly Disagree	11	20%
6	I don't believe that the global climate is changing	-	-
	Total	100	100%

Half of the participants of the survey responded that natural variability is the main cause of climate change while the remaining half of the participants did not consider that natural variability is stimulator of climate change.

Effects of climate change

There are different effects of climate change. About 38.3 percent of the survey respondents were of the view that rising temperature is an obvious and emerging effect of climate change. 11.6 percent people of the conducted study held that sea level rise is the effect of climate change. Rapid droughts and flooding are also the catastrophic results of the climate change. About 16 percent of the people are considering droughts and flooding the effects of climate change. Similarly, 17.2 percent of the participants consider melting of glaciers the direct result of climate change.

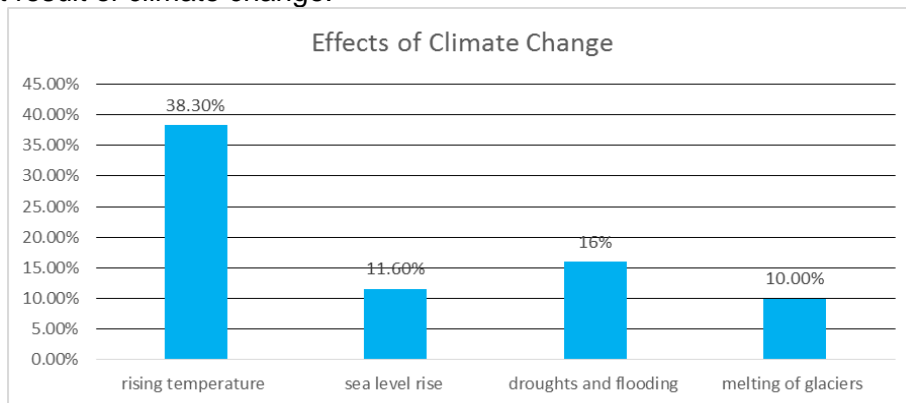


Fig. 5. Effects of climate change

The above figure number 5 shows that people consider sea level rise, drought, flooding, rising temperature and melting glaciers as a major effects appeared due to climate change.

Consequences of climate change in Pakistan

The participants believed that there are different effects of climate change on Pakistan. About 38.3 percent of the survey respondents were of the view that rising temperature is an obvious and emerging effect of climate change. 11.6 percent people of the conducted study held that sea level rise is the effect of climate change. Rapid droughts and flooding are also the catastrophic results of the climate change. About 11.1 percent of the people were considering droughts and 16.6 percent people of the study considered flooding the effects of climate change. Similarly, 10 percent of the participants considered melting of glaciers, 5 percent held that coastal erosion and 7.2 percent of the people considered increasing intensity and frequency of extreme weather events are the direct result of climate change.

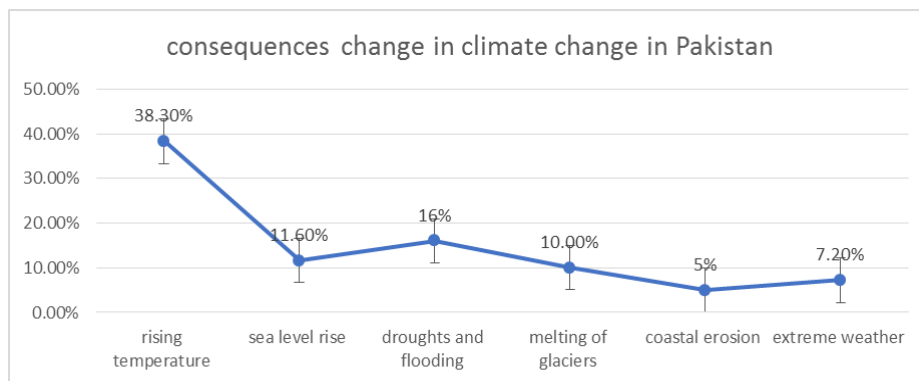


Fig. 6. Consequences of climate change in Pakistan

Figure number 6 shows that people considered sea level rise, drought, flooding, rising temperature, coastal erosion, increasing intensity and frequency of extreme weather events and melting glaciers as a major effects appeared due to climate change.

Vulnerable countries

The data visualize that 68 percent of the people believed that both the developed and developing states are equally vulnerable to the effects of climate change. However, 20 percent participants deemed that developing countries will pay the cost of climate change while 12 percent suppose that developed countries are more vulnerable to climate changes.

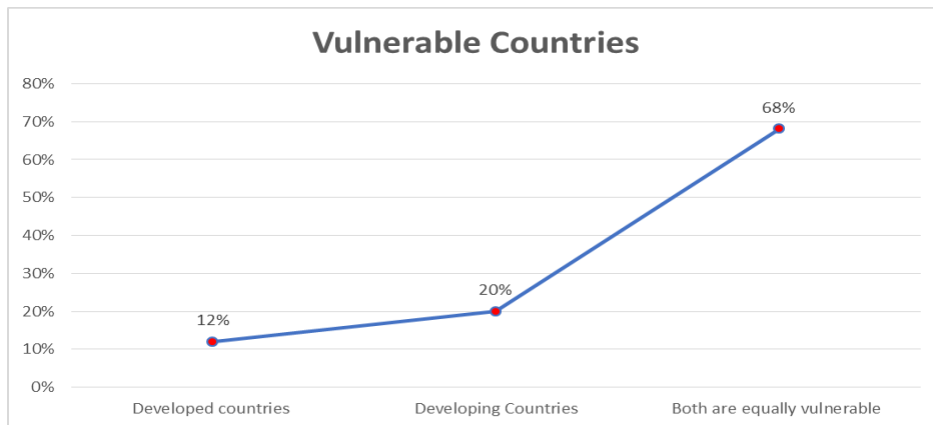


Fig. 7. Vulnerable countries

A question about the vulnerability of different states to climate change was asked in the survey questionnaire. The figure 7 highlights that both developed and developing countries are vulnerable to consequences of climate change.

Climate change social effect

The data collected reflects that 52 percent of the people believed that the society will face the issue of food shortage in the future as a result of climate change. Similarly, 19.3 percent considered the depletion of fresh water as a major consequence of the climate change. The survey results further highlights that diseases and death of the people are also the significant effects of climate change on society.

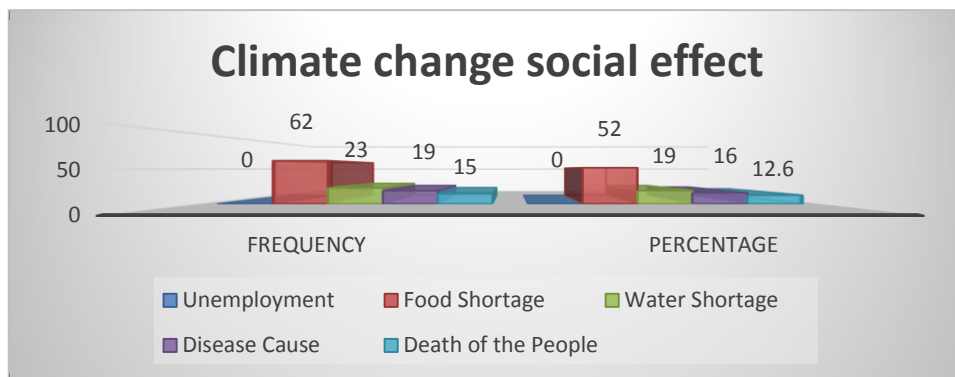


Fig. 8. Climate Change Social Effect

In response of the effects of climate change on society, many people were of the view that climate change will cause food shortage, scarcity of fresh water, death of the people and spreading of various kinds of diseases in the society.

Pakistan’s vulnerability

The data indicates that people were concerned about the growing effects of climate change in Pakistan. About 44 percent of the people believed that northern areas are more vulnerable to the effect of climate change. Similarly, 31 percent of the people deemed that southern region are more vulnerable to the effect of climate change, while the remaining 25 percent considered both regions equally vulnerable to the effects of climate change.

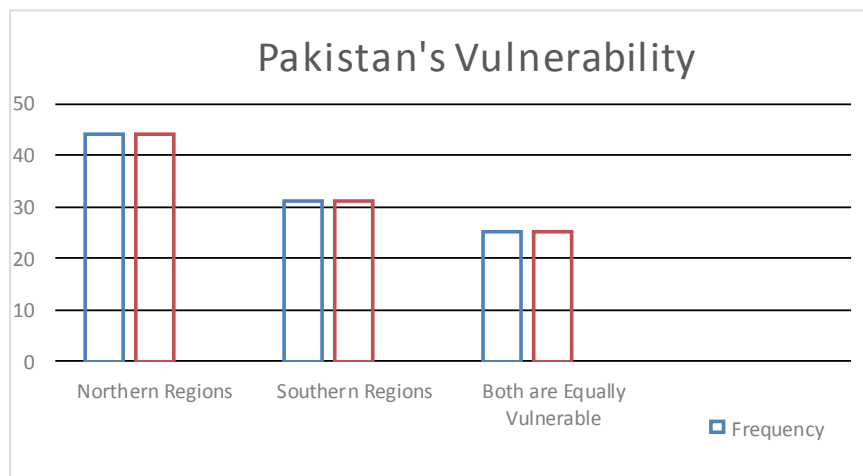


Fig. 9. Pakistan vulnerability

Most of the people under consideration of the study believe that all regions of Pakistan are vulnerable to the effects of climate change. However, about half of the people were of the view that northern regions are more vulnerable to the effects of climate change.

Adaptation and mitigation suggestions

Difference between adaptation and mitigation

The people under study were aware of the concept of adaptation and mitigation. However, they were not able to differentiate between the two concepts. The question in the questionnaire remained unanswered. It showed us that they need more to know about the concept of climate change, its mitigation

and adaptation to cope with the issue effectively and efficiently.

Pakistan's measurement of adaptation and mitigation

In the survey a closed ended question was asked from the participants to know their level of satisfaction about Pakistan measurements for mitigation and adaptation. Table 7 portray the results that 100 percent were not satisfied about measurements taken by Pakistan government to mitigate and adapt climate change.

Table 6. Pakistan's measurement of adaptation and mitigation

S. No	Answer	Frequency	Percentage
1	Yes	00	0%
2	No	100	100%
	Total	100	100%

From the results we come to the conclusion that majority of the residents of Pakistan were not satisfied with steps taken by Pakistani government to mitigate the alarming effects of climate change and bring the issue on its top priorities.

Medium of information

Data give the results in which 68.4 percent participants obtained information about climate adaptation and mitigation from social media while the rest of 13 percent obtained information about climate change adaptation and mitigation from press media, moreover 18.4 from seminar and workshops.

Table 7. Medium of information

S. No	Medium	Frequency	Percentage
1	Social Media (Facebook, twitter, public, etc)	78	68.4%
2	Press Media	15	13%
3	Mass Media	00	0%
4	Seminar and Workshop	21	18.4%
	Total	114	100%

From the results we can assess that there are different mediums of disseminating information in the society about the climate change. However, most of the people were dependent on social media networks for educating themselves about climate change adaptation and mitigation.

Policy measurements

The results from the conducted survey questionnaire shows that about 45.5 percent of the people did not know about the adaptation practices to reduce vulnerability of Pakistan's water resources to climate change impacts, while 16 percent of the participants identified the issue of not adapting practices to reduce to vulnerability of Pakistan's water resources by the authorities. About 8.2 percent and 7.4 percent considered ground water recharge and domestic water conservation promotion as a key to reduce the impacts of climate change on country's water resources respectively.

Table 8. Policy Measurements

S. No	Adaptation Practices	Frequency	Percentage
1	Improved sanitation disposal to prevent contamination of water resources during floods	5	3.7%
2	Ground water recharge	11	8.2%
3	Domestic water conservation promotion	10	7.4%
4	Surface water source protection	0	0%
5	Promotion of industrial and agricultural processes that minimize water demand	0	0%
6	None	29	16%
7	I don't know	61	45.5%
	Total	116	100%

Majority of the people were not having the knowledge of impacts of climate change on water resources. Therefore, they did not suggest any measures to reduce the vulnerability of Pakistan's water resources to climate change impacts and none of them suggested promotion of industrial and agricultural processes that minimize water demand. Similarly, many people were not paying any attention to the consequences of climate change on water resources in Pakistan reasons may be unawareness of the issue; so none of them suggested any measures for Surface water source protection.

Current policies

In the answer to a question asked about the policies currently in place about climate change, 34 percent of the respondents had no knowledge about the policies of the government of Pakistan, while 23 percent had the knowledge but they answered that government policies are not up to the mark to counter the climate changes in the country.

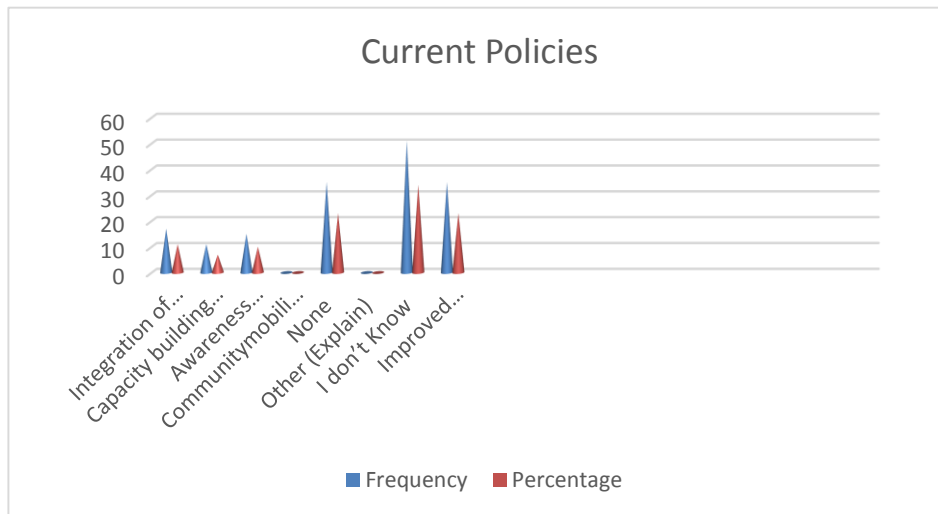


Fig. 10. Current polices

The results indicate that there is no proper legislation for educating the masses about climate changes and its impacts and lack of proper measures to adaptation and mitigation of the climate change. There is no future planning in the country to curb the menace of climate change.

Financing adaptation and mitigation projects

The data shows that people want to mitigate and neutralize climate change effects. About 30 percent of the people wanted the government of Pakistan to take the initiative and finance the adaptation measure to cope with the hazardous effects of climate change. About 28 percent people wanted that developed countries should invest on the adaptation measures and mitigate the climate change effects. On the other side 18 percent of the people wanted that industries should finance the projects for neutralizing and diluting the effects of climate change. About 13 percent of the participants opined that NGOs should come forward in this regard and protect the coming generations from the harmful effects of climate change.

Table 9. Financing adaptation projects

S. No	Financing Adaptation & Mitigation Projects	Frequency	Percentage
1	Pakistan government	62	30%
2	Developed countries	57	28%
3	Donor agencies	16	8%

4	NGOs	26	13%
5	Industries	36	18%
6	No climate change adaptation and mitigation measures are needed for Pakistan	0	0%
7	I don't know	7	3%
	Total	204	100%

The results show that people wanted governments and different organization to take the initiative of financing the projects of neutralizing the effects of climate change. The issue has transnational effects. Therefore, the developed countries should finance the projects of climate change to curb the disastrous issue of climate change. Similarly, NGOs should be encouraged to invest in environmental protection projects for preserving the humanity from the scourge of climate changes and its devastating effects.

Preparedness measurements

The data reveal that 44 percent of the study participants that educating their self with the concept and effect of climate change may help in combating the disastrous effects of climate change. Similarly, 37 percent of the people wanted to promote awareness campaign regarding climate change. While 18 percent of the people emphasized the need of launching community based projects for advocating the problem of climate change.

Table 10. Preparedness measurements

S. No	Preparedness Measurements	Frequency	Percentage
1	Educating Yourself More about Climate change and its Effects	86	44%
2	Promoting Climate Change Awareness Campaign	72	37%
3	Advocating for climate change adaptation integration into community projects	36	18%
	Total	194	100%

Climate change is a global issue and is due to anthropogenic activities of the people. Therefore, people were of the opinion that it can be resolved by updating their self with the knowledge of climate change and promote awareness campaign about climate change in the society.

Priority issues of the country

The data conclude that there are different issues the country is facing and

need the resolution. About 18 percent of the people believed that overpopulation is one of the greatest issues and require resolution on priority basis. Similarly, 11 percent of the participants believed that urbanization and climate change are the emerging issues of the country and the government should take necessary measures to cope with the problem. About 12 percent of the people hold the opinion that deforestation is also one of the major issue and the authorities should work for planting more and more trees. Ten percent of the people believed that desertification, pollution, environmental education and recycling are equally important and should be given equal attention towards its resolution. Similarly, 7 percent of the participants of the survey believed that use of renewable sources of energy is also an important issue and the government should work for switching towards renewable and green energy

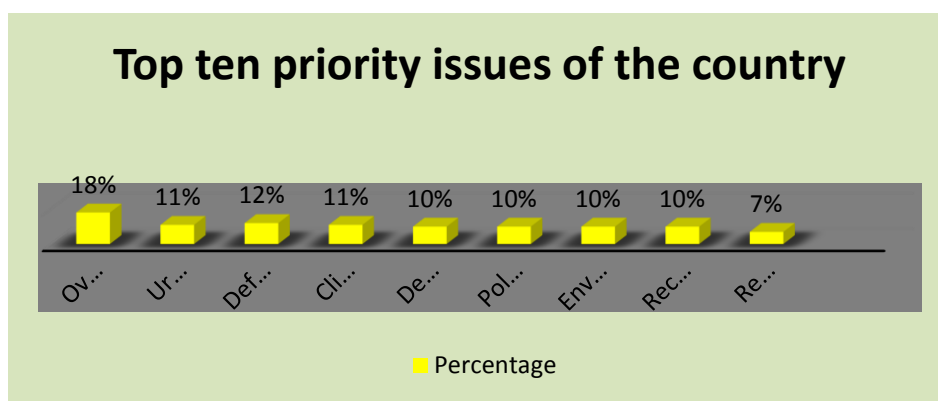


Fig. 11. Priority issue of the country

The question was based on the suggestion of the participants about the top issue of the country. The people opted for more than one issue and suggested that the government should take emergency steps to resolve all the issue once and for all. The resolution of the issue will help in paving the way towards a prosperous, developed and clean and green Pakistan.

CONCLUSIONS

This research is based on the study of assessment of level of awareness regarding climate change in urban community. The survey questionnaire gauged the level of awareness of people regarding climate change, its consequences and the policy recommendation for the government. It has been concluded from the research that people were not well aware of the issue of climate change and its bad effects. They were not educated properly at school level about the climate change. Similarly, there was lack of awareness campaign and education at higher institutional level of education. The little number of people were aware of

the issue had obtained the facts and concepts from various social media networks and other media sources like press media and electronic media. The data showed that the lack of basic knowledge and education about the growing issue of climate change, most of the people were not well aware and they had no idea of the concepts and basic understanding of climate change. Similarly, few people were aware of the fact that natural variability is also causing climate changes. However, the people were not aware of the main causes and reasons behind the rapid and growing issue of climate change. The study revealed that little section of the society was aware of the effects and consequences of the climate change and they were also having very little knowledge of the growing disasters of the climate change. They were of the opinion that climate change is affecting our society, country and the global world. The people were not able to differentiate between adaptation and mitigation. However, they had the concept of the terms. A large section of the society was not satisfied with the measures and policies adopted in this regard. They believed that policies are not up to the mark to cope with the growing issues and consequences of climate change. The participants of the research suggested that the government of Pakistan, NGOs, developed countries, industries and donor agencies should invest in the projects to dilute the issue of climate change. Similarly, the respondents also considered it necessary for the government to take steps for addressing the issues of overpopulation, urbanization, climate change, deforestation, environmental education, pollution, desertification and recycling of wastes.

RECOMMENDATION

Educating the masses about the concept of climate change and its devastating effects through awareness campaign and media programs. Inculcating the concepts of climate change, and related fields such as environmental protection, biodiversity conservation, human activities and ecosystem services in the curriculum at different level of education in education institutions. Government should formulate and implement policies for the protection of environment and climate from degradation and diluting the already dreadful impacts on climate and environment. Encouragement of investment by the authorities, donor agencies and NGOs in environment friendly projects to curb the catastrophic effects of climate change and production of clean and green energy for human use. Coordination and cooperation among different departments and all sections of the society for successful implementation of climate Change projects and policies.

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