Climate Change and Pakistan's Policy Response: Challenges and Impacts

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PIDE2018FMPHILFDS36

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2021

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CERTIFICATE

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Declaration

I, hereby declare that the dissertation is submitted to Department of Development studies by me is my original work which I have accomplished after being enrolled for the degree of MPhil at Pakistan Institute of Development Economics (PIDE), and it is not submitted to any other institution previously.

Further, I have acknowledged all those sources from which I have acquired assistance and cited with proper references.

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Date: 26-8-2021

Acknowledgement

All the acknowledgment is for Allah, the most merciful and beneficent, who bestowed me with enormous potential, courage, health, and wealth in accomplishing this thesis. I am especially obliged to my supervisor Dr. Usman Ahmad and Dr Jahangir Ahmed khan who have been supportive throughout to enable me in the completion of this thesis. I am also thankful to my family, friends and my colleagues greatly who also support me to work efficiently and effectively in all fields of my life.

ANEELA WAHEED

Dedication

This research is dedicated to my beloved Parents Mr & Mrs Abdul Waheed Mangrio, my Husband Muhammad Sufyan Qamer and my Son Muhammad Zayan Qamer whose love, affection, encouragement and prayers made me able to get such success.

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Glossary

NCCP	National Climate Change Policy
TFCC	Task Force on Climate Change
GCISC	Global Change Impact Study Center.
Standing Committee	Standing Committees are mini legislature where policy issues are discussed in detail and solutions are proposed. Each ministry had a relevant Committee, which checks the Ministry and holds it accountable for its actions.
Agendas	Agenda items are appeared on the agenda of every regular scheduled meeting. Examples are review of the minutes of the previous meeting; review the agenda of the current meeting, financial reports, status report etc.
Mitigation and adaptation	Mitigation is an intervention to reduce the emissions sources or enhance the sinks of the greenhouse gases. Adaptation is an adjustment in the natural or human system in response to actual or expected Climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities (IPCC 2001)
Act	Acts of Parliament, referred to as primary legislation, are texts of law passed by the legislative body of a jurisdiction (often a Parliament or council). In most countries with a Parliamentary system of government, acts of Parliament begin as a bill, which the legislature votes on. Depending on the structure of government, this text may then be subject to assent or approval from the executive branch.

Contents

Abstract

Climate Change is expected to have an adverse impact on Pakistan. This is ironical for a country, which ranks 135th in the world in terms of global greenhouse gases (GHG) emissions per capita, but ranks 5th in terms of vulnerability to Climate Change. this poses a major threat to all dimensions of sustainable development and has widespread impacts across various sectors and ecosystems such as food, water and energy; forests and biodiversity; coastal and marine environment; as well as on the occurrence and intensity of climate related hazards such as floods and drought. It also carries potential for internal and external conflicts. The study evaluates the present and potential future impacts of Climate Change in Pakistan, and reviews National Policies, identified major determinants of Climate Change in Pakistan, and then analyzed efforts of Parliament in making legislation against Climate Change. The study also evaluates policy objectives of National Climate Change Policy in terms of Agendas and Recommendations in the meetings of Parliamentary Standing Committee on Climate Change under PTI-led government.

Chapter 1

INTRODUCTION

1.1 Introduction

Climate Change is more than real and it happens mainly because of mankind efforts in achieving more and more goods. The rapid expansion of industries has adverse impacts on the air quality. As a result, temperature of the planet has been increasing. Gradual increase of temperature will physically change the entire global within a century. The predicament of climate change has crossed a threshold (magnitude or intensity that must be exceeding for certain reaction) of catastrophe due to which it has been entertained greatly at the table of world politics. Not a single country is safe from this menace (Rehman, Ma, Ahmad , & Irfan, 2021).

However, there have been consequent changes in the climate of our planet, which are engraved in our history. Climate Change threatens the existence of many Islands on the globe and has led to an increased percentage of migrations happening nationally and internationally. In these times of dire need, the significance of climate projections in policy making, resource management, economic activity and technological advancement cannot be neglected. Nevertheless, the rapid changes in the environmental conditions can wreak havoc on the water resources, agriculture, energy, economic, health, industrial and private sectors. Global warming is also an indicator for the changing climatic conditions. These drastic changes lead toward unprecedented wreckage, which results in permanent depletion of natural resources (Chowdhury, Rahman, Abubakar, & Hasan, 2021).

Needless to say, that the Climate Changes pose a great threat to many archipelagic states. As per the report of Pakistan's meteorological department, Pakistan is one of the most vulnerable countries to the effects of the Climatic Change because of its diverse geographical and climatic (Khan, Gao, & Abid, 2020). However, a press release states that despite the fact that Pakistan is ranking 33rd on the list of carbon emitting countries with only 0.8 % emissions, yet it is the 8th country on the list of those who are prone to long term climatic adversaries' effects. It was the fifth most affected back in 2014. Pakistan is beleaguered by the nemesis of water scarcity, agricultural stagnancy, melting of glaciers, variability in monsoon rains, large floods, and extended droughts. According

to (Qaiser, Tariq , & Shahzada, 2012), these evils pose a threat to the economic, water and energy security, which are the essentials of the security of any country. In the circumstances prevailing, Pakistan is challenged to protect itself from the grappling dilemma, provided that prompt actions are required.

Before ending this review about Climate Change, keeping in view the current climate situation, which has been changed due to Covid-19, is unavoidable to mention. Apparently, it has been caused vital damaged in the society in almost all the aspects of life most painful is that it has engulfed the life of millions of humans. But being unfortunate it has arisen as fortunate for our climate change effects, due to rapid increase of this virus lockdown in almost all over the world has been practicing since months so in Pakistan. Hence, this breakthrough of industrial and all other activities has tremendous positive effects on our climate change. Moreover, the Parliament of Pakistan is not conducting any Parliamentary practice to work or research on it further to look into it, as far as keeping concerned with the Parliamentary Practices my research is relevant with the same so the working progress of the standing committee of Climate Change is mandatory to have updated data collection and work progress of responsible ministries and institutes. Although, it's a universal problem but while choosing this topic of research, it was tried to focus on root causes of Climate Change in Pakistan which are directly proportional to the policy making and its implementation, for this researcher will involve all the concerned private, semi and Government departments to prove authentic and quality research.

1.2 Statement of Problem

The rate of change in climate and the nature of the resulting impacts vary across the countries around the world. Pakistan belongs to a region that consists of huge glaciers and fertile agricultural lands. Being an agriculture-based economy, the climatic effects on Pakistan could be of huge economic threat. With the changing lifestyles of the people, the legislations about Climate Change in Pakistan are not fruitful. With the given situation in mind, it is very important to find out the determinants of Climate Change in Pakistan. Moreover, it is also imperative to find out the legislative efforts related to Climate Change in Pakistan, their impacts, and the reason behind the unsuccessful

implementations, which needs to be identified because implementation process is lacking behind in grasping the rising challenges.

1.3 Objectives

Therefore, the main objectives of the research will be:

- To evaluate the determinants of Climate Change in Pakistan.
- Evaluation of Climate Change Legislation enacted by the Parliament of Pakistan.
- Evaluation of the Policy Objectives of National Climate Change Policy for Climate Change Policy Implementation.

1.4 Significance

This study is significant as it takes the issue of Climate Change in Pakistan seriously by focusing on two dimensions. One, this study identifies determinants of Climate Change in Pakistan. And chapter two, it evaluates Climate Change legislation enacted by the Parliament of Pakistan. By doing so, this study provides current understanding regarding challenges of Climate Change in Pakistan. Further, by evaluating critically up to date Climate Change legislation in Pakistan, it also advances Policy understanding regarding Climate Change in Pakistan. In other words, as existing literature on Climate Change in Pakistan mainly covers challenges and determinants, this study also contributes to Policy understanding.

1.5 Structure of thesis

The first chapter offers introduction, second chapter is about literature review while in the third chapter key climate issues in Pakistan are discussed accompanied by impact of Climate Change on Pakistan's economy and critical evaluation of climate polices adopted in Pakistan. Research methodology is described in chapter four while data analysis is given in chapter five. Finally, chapter six will conclude the thesis and offers Policy recommendations.

CHAPTER 2

LITERATURE REVIEW

2.1 literature review

In literature review after considering and defining Climate Change, universally my focus is more on challenges of Climate Change and its Impact on Pakistan. Secondly, specifying it with Policy Response and Legislation in Pakistan such as Policy Objectives of NCCP. Moreover, framework for Climate Change Policy Implementation which has 120 recommendations. Thirdly, Parliamentary discourse regarding Climate Change control in which I will analysis that how gradually or frequently legislation is being conducted on the issue, how many bills have been passed on the same and latest development also to know Parliament Participation in National and International Platforms.

The term Climate Change has many definitions one of which is "A long-term change in the typical or average weather of any region". Global warming is also an indicator of the Climate Change. As the carbon dioxide and greenhouse gasses tend to encapsulate the heat in the atmosphere, these lead to global warming. The emissions of carbon dioxide have increased by 40% ever since the onset of the industrial revolution in the 1700s. The rise in the greenhouse gases has ultimately resulted in the global warming. Studies have revealed that the greenhouse gases also contribute to the depletion of the ozone layer, which is the layer of ozone. To understand ozone layer, one should be able to understand the structure of earth and its various parts, such as Earth's stratosphere and that is important for absorbing most of the Sun's ultraviolet radiation. That is, one of the fundamental role of ozone layer is that, it helps in repelling the ultraviolet radiations from the sun. Across the globe, decreasing snow covers, rising sea levels, melting glaciers, extreme weathers, floods and droughts have convinced people and policymakers that Climate Change threat is real, and it will be catastrophic if no actions are taken to minimize the damage caused by it. Global sea level has risen 6.7 inches in the last century, and the rate has doubled in the last decade. Sea ice in Antarctica and Arctic is declining continually (Qaiser, Tariq , & Shahzada, 2012).

2.2 Determinants of Climate Change at Global and National Level

Earth's climate is significantly affected by human activities as they continue to increases day by day which are called unbalancing radiative. The unbalancing forces are called a radiative force, which includes changes in greenhouses, small airborne particles and the reflectivity of the earth surface. Understanding of past and present climate change and the future projection of climate changes totally depends on the ability of understanding and modeling the physical divers of Climate Change (Ranney & Clark, 2016). They physical determinants of the climate change are human established industrial areas and other human activities are the dominant causes of Climate Change.

However, natural divers such as changes in energy from sun and the cooling effect of volcanic eruptions have small net effect on the climate change. Small airborne particles (Aerosols) caused by human activities have great and profound role in the climate system through radiative effects in the atmosphere and on snow and on the ice-covered surface, which also effects clouds formation. Earth temperature system is determined by the incoming short wavelength, outgoing both short and long wavelength radiations. In the nowadays industrial world radiative fluxes are over controlled by satellite measurement, about (29.4%) of incoming short wavelength energy from sun is reflected back to space and the remaining amount is observed by the Earth. Along with the reflected sunlight earth also loses long wavelength infrared radiation from the surface and atmosphere. Greenhouses in the atmosphere absorb most of the radiations, which leads to the warming of the surface and atmosphere. Output of light energy from the entire disk of the Sun is called solar irradiance, so changes in this directly affect the climate system because the irradiance is earth's primary energy source. The largest variations in total solar irradiance of industrial area follow 11–year cycle since 1978 direct solar observations have been available. However; proxy observations of solar cycles are available from early 1600s (Fahey, Doherty, & Hibbard, 2017).

Although these variations amount to only 0.1% of the total solar output of about 1360, W/m2 12 relative variations in irradiance at specific wavelengths can be much larger. Spectral variations in solar irradiance are highest at near ultraviolet (UV) and shorter wavelengths which are the most important wavelengths for driving changes in ozone layer. Most volcanic eruptions are the minor events, which effects troposphere emissions

they only last for month. The case with explosive volcanic eruptions is different, the explosive volcanic eruption injects significant amount of sulfur dioxide and ashes to the atmosphere, which are the main causes of short time climate effects. The airborne particles which are also called aerosols increases the Earth's albedo by dispersing sunlight back to space, forming negative Radiative Forcing that cools down planets Along with this Radiative Forcing, aerosols coming from volcanic eruptions heat the stratosphere, changing circulation patterns and deplete ozone by increasing surface reactions (Pires, Martins, & Ferraz, 2011).

Airborne particles from both explosive and non-explosive also affects the troposphere by changing in diffuse radiation and through aerosol-cloud interaction, it has been proposed that major eruptions might "fertilize" the ocean with sufficient iron to affect phytoplankton production and, therefore, enhance the ocean carbon sink. The principal well-mixed greenhouse gases which are carbon dioxide, Methane and Nitrous oxide which have atmosphere lifetime of decades or more are the greater contributor to climate change. CO2 emissions sources are cement manufacturing, fossils fuel combustion and land –use change from activities such as deforestation. When finished cement is carbonized sink of atmospheric CO2 is produce. In the industrial era, the CO2 atmospheric growth rate has been exponential; Over the last 50 years, CO2 has shown the largest annual RF (radio Frequency) increases among all GHGs (Fahey, Doherty, & Hibbard, 2017)

Climate Change poses a grave threat to Pakistan. Pakistan being one among the developing countries is endangered by this threat mainly to its socioeconomic and agricultural sector. Pakistan is an Agro-based economic country, which means that water scarcity causes an alarming situation for the country. Water scarcity hampers the food supply which in turn affects the economy of the country. Clearly stated from the above examples, climatic changes have high impact on the country. Despite the fact that Pakistan is a low carbon emitter, two of the world's highest carbon emitters, namely India and China, surround it. Due to their excessive emissions, the atmosphere of Pakistan is being affected adversely. It is to be noted that most of the natural disasters Pakistan has suffered recently have been mainly due to Climate Change. The inundations in 2010 which effected 20 million people were due to the over flowing of water which is caused by melting of glaciers, owing it to the global warming. In Sindh, disasters happen

enormously. There has been a prevailing drought in Tharparkar area. The heat strokes in Karachi in the summers are another example of the heat extremities (Ahmad, Kazimi, & Parvaiz, 2011).

Moreover, the country will be affected badly by global warming, since it lies near the tropical line of the planet. Also, it is situated in the monsoon area. Due to rise in global temperature, the chance of rainfall will increase. Ascribed to more rainfall and melting of the glaciers, the Indus River will fail to accommodate more water. As a result, floods will occur rapidly. They will damage the crops and reduce agricultural production. Furthermore, they will cause some infectious diseases in not only human beings but in animals also. Resultantly they will disturb the livestock and the birds. Also, the sea level will rise which will cause sea intrusion in the coastal areas of Sindh. It will affect the growth of mangrove forests. Similarly, salinity of this ground will increase which will convert the fertile land into barren land. The losses caused by changing climate in Pakistan are measured at 1% of Pakistan's GDP between 2005 and 2013. Pakistan ranks among the top 10 most vulnerable countries.

For instance, water security is the burning issue in Pakistan as water availability to per person in the country has declined from 5260 cubic meters in 1951 to 1032 cubic meters in 2014.According to WAPDA's calculations, by 2020, per capita water availability will be 909 cubic meters. Climate Change adversely affects the agriculture; due to the unpredictable rainfalls, the yield is disturbed. When Pakistan's agricultural stability is threatened, its economy bears the consequences. In Pakistan 5000, glaciers are retreating faster than anywhere else in the world, threatening Indus River flows. The pace of deforestation is rampant in Pakistan, and annually the country losses 4-6 percent of its precious forests (Mohiuddin, Sarkodei, & Obaiduulah, 2016).

More importantly, the precious species of trees in forests all over the country will also be affected by global warming. Most of the forests will gradually eradicate. Some of the species will be blocked, and some will lose their existence. Moreover, trees will also adopt some changes in their physical structure Climate Change affects the population's health as Pakistan's urban air pollution is among the most severe in the world, according to a 2009 World Bank Report. Given the predicament of the climate, Pakistan in confronted by many problems. There has been an increase in the extremities of weathers, which is followed by erratic monsoons. These result in droughts and inundations. These

floods result in erosion of the soils and in turn silt dams, which cause the reduction of water holding capacity of the dams. The Karakorum Himalayas glaciers are melting away due to global warming. Owing to the beautiful gift of carbon soot's deposits from our neighbors, the water inflows from the Indus river system are at risk (Ali & Erenstien, 2016).

The heightening temperatures are a serious threat to the arid and semi-arid regions. These regions become highly water stressed as the water is readily evaporated into the surrounding and reduces the agricultural productivity. Deforestation has also rendered its part to the Climate Change as it causes soil erosion, and reduces the fertility of land. The saline water damages the various crops and the marine life. The coastal areas are at risk due to the rising levels of water. The high temperature in coastal areas also gives rise to cyclones. Last, the denizens of Pakistan are largely affected. Such conditions lead to illnesses and health issues. There are also casualties due to these extremities. Climate Changes also induce immigrations towards colder areas. All the mentioned threats and challenges related to Climate Change are real and already the country is facing issues in terms of Water Security, Food Security, and Energy Security consideration.

a. Tabulated Summary of the Literature review

S.NO	Scholars Name	Title of literary sources	Methodology	Deduced Conclusion
1	(Qaiser, Tariq , & Shahzada, 2012)	Evaluation of a composite drought index to identify seasonal drought and its associated atmospheric dynamics in Northern Punjab, Pakistan	Quantitative method	Decreasing snow covers, rising sea levels, melting glaciers, extreme weathers, floods, and droughts have convinced people and policymakers that Climate Change threat is real, and it will be catastrophic if no actions are taken to minimize the damage caused by it.
2	(Ranney & Clark, 2016)	Climate Change Conceptual Change: Scientific Information Can Transform Attitudes	Based on Seven different Experiments	The unbalancing forces are called a radiative force, which includes changes in greenhouses, small airborne particles and the reflectivity of the earth surface. Understanding of past and present climate change and the future projection of climate changes totally depends on the ability of understanding and modeling the physical divers of Climate Change.

3	(Fahey, Doherty, & Hibbard, 2017)	Physical drivers of climate change.	Qualitative-	Output of light energy from the entire disk of the Sun is called solar irradiance, so changes in this directly affect the climate system because the irradiance is earth's primary energy source. In the industrial era, the CO2 atmospheric growth rate has been exponential; Over the last 50 years, CO2 has shown the largest annual RF (radio Frequency) increases among all GHGs.
4	(Pires, Martins, &Ferraz, 2011).	Potentialities of quantile regression to predict ozone concentrations	Quantile Regression Analysis	The airborne particles which are also called aerosols increases the Earth's albedo by dispersing sunlight back to space, forming negative Radiative Forcing that cools down planets Along with this Radiative Forcing, aerosols coming from volcanic eruptions heat the stratosphere, changing circulation patterns and deplete ozone by increasing surface reactions.
5	(Ahmad, Kazimi, &Parvaiz, 2011).	Human response to hydro-meteorological disasters: A case study of the 2010 flash floods in Pakistan	Descriptive methodology	Pakistan is a low carbon emitter;two of the world's highest carbon emitters, namely India and China, surround it. Due to their excessive emissions, the atmosphere of Pakistan is being affected adversely. It is to be noted that most of the natural disasters Pakistan has suffered recently have been mainly due to Climate Change.
6	(Mohiuddin, Sarkodei, & Obaiduulah, 2016).	The relationship between carbon dioxide emissions, energy consumption, and GDP: A recent evidence from Pakistan	Applied vector error correction (VEC) model on time series data	Climate Change adversely affects Pakistan's agricultural stability. In Pakistan 5000, glaciers are retreating faster than anywhere else is in the world, threatening Indus River flows. The pace of deforestation is rampant in Pakistan, and annually the country losses 4-6 percent of its precious forests
7	(Khan, Khan, Ali, & Ahmad, 2016).	The challenge of climate change and policy response in Pakistan	Qualitative Content Analysis	Pakistan introduced its first policy on climate change in the year 2012 known as National Policy for Climate Change (NPPC). The ministry of climate change officially declared it in 2013. Its main theme is adaption to the climatic conditions. The policy focuses on the different variable of climate change. Different sectors have been shown as much vulnerable to Climate Change and proposed practical measures in terms of adaptation
8	Mallick& Masood, 2011).	Environment, Energy and Climate Change in Pakistan: Challenges, Implications and Required Responses	Qualitative Content Analysis	In 1992 in order to meet the challenges of environmental protection and to control pollution in the country, Pakistan National Conservation Strategy (NCS) was developed, and

				later on in 1997 Pakistan Environment Protection Act (PEPA) was framed
9	UNFCCC (1997)	The Kyoto protocol 1997	Qualitative	Assigned limited number of emission targets which would have been highly effective if the US had ratified it.
10	(Hermwille, Obergassel, Ott, &Beuermann, 2015).	UNFCCC before and after Paris – what is necessary for an effective climate regime?	Content Analysis Content Analysis	Special Climate Change Fund (SCCF) and Least Developed Countries Fund were established in 2001 at Conference of Parties7 (COP). UN has never ceased negotiations on different platforms. The Paris Accord came into force in 2016 ratified by 55countires.Nonetheless; it is evident from the surroundings that Climate Change has wreaked havoc on human life. Despite these, some countries around the globe do not understand the gravity of this issue.
11	(Mumtaz, M. (2018).	The National Climate Change Policy of Pakistan: An Evaluation of Its Impact on Institutional Change	Qualitative research design Content Analysis Semi-structured interviews	Pakistan being a developing country has come up with such a compressive Climate Change Policy states about weaknesses of the NCCP as: "In its [the NCCP] present form it is difficult to implement as the NCCP has not meaningfully involved key stakeholders"
12	(Gazette of Pakistan, 2019).	Ban on (Manufacturing, Import, Sale, Purchase. Storage and Usage) Polythene Bags. Regulations, 2019	Qualitative Content analysis	In 2019, Federal government has approved the Regulation to reduce the use of non-degradable plastics. However, unfortunately, this could not be implemented for so long because of having no alternate some of few reputable businesses while sale n purchase people are using alternates of polythene bags but in small businesses, it is not affordable for them to use alternate bags.

2.3.1 Policy response and legislation to combat Climate Change in Pakistan and around the globe

Climate Change is considered as today's developmental and environmental issue due to its impact on every sphere of human life. To achieve the sustainable development mainstreaming of Climate Change mitigation and adaptation into all development polices, programs and activities. The first step of mainstreaming Climate Change understands the linkage between development challenges and Climate Change of the particular sector. Climate Change due to human activities has seriously threatened efforts

of achieving Millennium Development Goals such as poverty alleviation and sustainable development World Resources Report (WRI 2011). Manmade greenhouse gases are main reason of climate change, which is due to firm activities. Firms have possibility to address Climate Change through innovation, unique capabilities and capacity building Firms actions to posit Climate Change depends on the institutional structures within which they operate. According to institutional theory, informal and formal extra organizational mechanism International Standard Organization (ISO) certification to address HGH pollutants, which establishes expected behavior standards, which will effect, firms responses. In 1992 in order to meet the challenges of environmental protection and to control pollution in the country, Pakistan National Conservation Strategy (NCS) was developed, and later on in 1997 Pakistan Environment Protection Act (PEPA) was framed (Mallick & Masood, 2011).

Main recommendation of this organization was Environmental and protection Act in federal and provinces' need environmental lawyers to enforce the Pakistan Environmental Protection Act through environmental tribunal. Secondly, for scientific analysis of life support system Environment Protection Act (EPAs) needs to work in collaboration with government and academic science. Government needs to ensure that every citizen is responsible for protecting the environment, so EPA has to work along with law enforcement agencies and technical research institutes to implement Pakistan Environment Protection Agency PEPA in each province and training different personal for conducting Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) for public and corporate sector development projects (Mallick & Masood, 2011).

The response to Climate Change is mitigation and adaption. Adaption refers to adjusting the variables to curtail vulnerability by the construction of infrastructure that can withstand the harsh condition and cope with disasters. Mitigation refers to the amelioration of the prevailing circumstances. Reduction in the trapping of gases in the atmosphere is effective by carbon sinks. Forests and soils alleviation act as carbon sinks. The pants absorb carbon for photosynthesis. Climate Change seems to be an inevitable fate of the country. The impacts are evident in the shape of increasing catastrophes and disasters reining over the country. These minor but increasing factors are affecting the natural ecosystem of the county. However, as a reaction to the circumstances prevailing,

awareness campaigns have begun to edify the masses of the detrimental conditions of the country. Due to the realization of the broad spectrum of climate change impacts across many areas of socioeconomic development, the Government of Pakistan intensified its efforts to formulate an appropriate policy response in order to prevent the country from the destructive impacts of changing climate.

The seriousness of the government is evident as in 2005; the government had set up a committee known as PMCCC Prime Ministers Committee on Climate Change. Since 2005 in every Government's standing committees, climate change or control committee is being formulated to ensure the performances of all responsible authorities. The main objective of this committee was the linkage of the ministerial agencies with that of the meteorological committees. It was also an initiative to edify the masses about the destructive effects and threats of the Climate Change to the national integrity. In the year 2008, a sagacious move was made by the planning commission of Pakistan, and established the formation of a Task Force on Climate Change (TFCC). The task of TFCC was "to produce facts about threat and challenges of climate change, contribute in the formulation of NCCP so as to support Pakistan's government to achieve sustainable economic growth. However, Pakistan introduced its first policy on climate change in the year 2012 known as National Policy for Climate Change (NPPC). The ministry of climate change officially declared it in 2013. Its main theme is adaption to the climatic conditions. The policy focuses on the different variable of climate change. Different sectors have been shown as much vulnerable to Climate Change and proposed practical measures in terms of adaptation (Khan, Khan, Ali, & Ahmad, 2016).

2.3.2 Policies and Regulations to Mitigate Climate Change

Fortunately, or unfortunately the year 2019-2020 is the revolutionary years for environmental health of the glob due to pandemic of Covid -19 as of this writing, global cases of the corona virus have exceeded killing of millions of people. Environmentalists across the globe are showing concerns about pandemic, including the UN Environment chief, and are of view that environment and climate change are the only two positive aspects global pandemic. The pandemic has caused enormous losses in terms of human lives but decrease in human activities, stricken lockdown have reduced the emission of GHG, and carbon, which thickened the ozone layer since the depletion cause of ozone layer, is mainly due to unstrained human activities.

Undoubtedly, many conventions and accords are signed in the hopes of improving the dilemma of weather changes. The first amongst there is from the UN, which is the UNFCCC (United Nations framework convention on climate change). It was adopted in 1992 and became effective in 1994. UNFCCC has always played its role and regular reports regarding the climatic changes. The Kyoto protocol (1997) assigned limited number of emission targets, which would have been highly effective if the US had ratified it. Special Climate Change Fund (SCCF) and Least Developed Countries Fund were established in 2001 at Conference of Parties7 (COP). UN has never ceased negotiations on different platforms. The Paris Accord came into force in 2016 ratified by 55countires.Nonetheless; it is evident from the surroundings that Climate Change has wreaked havoc on human life. Despite these, some countries around the globe do not understand the gravity of this issue (Hermwille, Obergassel, Ott, & Beuermann, 2015).

2.4. Role of policymaking process and climate change

2.4.1 Policy objectives of National Climate Change Policy

Pakistan national Climate Change policy was formulated in 2012 and operationalized in 2013. Yet it needs further analyses and examination to identify un-addressed measures in the policy. For analysis to be systematic and organized policy documents need to evaluate against criterion set by NCCP proposes 120 policy measures, which are covering different areas, and stresses most on development sectors, which are agriculture, transport, health of human, energy, forestry and preparedness for disaster. It also focuses on raising awareness to transfer technology and capacity building and institutional strengthening.

Along with all of these NCCP also put its efforts on the regional and international cooperation for Climate Change, to get some share in climate financing and fight for the positive change along with the world(Mumtaz, 2018).Pakistan being a developing country has come up with such a compressive Climate Change Policy states about weaknesses of the NCCP as: “In its [the NCCP] present form it is difficult to implement as the NCCP has not meaningfully involved key stakeholders”. Some of the weakness has also being identified which stresses that NCCP need more study not to identify its weakness but to validate the studies that have taken place for the NCCP.

The first policy objective is about pursuing sustainable economic growth. Second policy objective is focusing on the integration of Climate Change policy with other interconnected national polices such as national water policy, national forest policy etc. The third policy objective is focusing on pro-poor and gender-sensitive adaptation and mitigation. The fourth objective is about ensuring water, food and energy security against climate change challenges. The fifth policy objective is interested in disaster management such as minimizing risks due to both frequency and intensity of extreme events. The sixth objective is dealing with improvement in inter-ministerial decision making as well as coordination mechanism on Climate Change the seventh policy objective emphasizes on the need of finance related to climate change. The eight-policy objective is about generating incentives for both public and private sector investment related to adaptation measures. The ninth policy objective focuses on enhancing skill, awareness, and institutional capacity of relevant stakeholders. Finally, last policy objective is interested in promoting conservation of natural resources and long-term sustainability. That policy has about 120 recommendations, which are quite commendable. However, there have not been any actions. If it were to take effect, it would have proven to be beneficial. Nonetheless, Framework for Implementation of Climate Change Policy (CCP) was also formulated in 2013 (Ahmad, Kazimi, & Parvaiz, 2011).

2.4.2 Framework for Climate Change Policy Implementation

The Framework for the Implementation of the Climate Change Policy is a follow-up of the NCCP. The first objective of this document is to mainstream all the concerns related to climate change. The second objective is to include Climate Change concerns into decision making at both federal and provincial level. This document creates and necessitates supportive environment for both integrated and climate compatible development process. As per the framework, different sectors are vulnerable to climate change and needs adaptation and mitigation actions. Policy actions have been identified regarding capacity building, institutional strengthening, and promoting Climate Change awareness in relevant sectors. However, still the framework has not been used in sectors that are more specific as guiding document for decision making related to Climate Change.

The shortcoming lies in specific timeframes and targets defined in those policy documents. As an example, one of the priority goals in the Framework for

Implementation 2013 regarding pursuance of massive a forestation and reforestation programs for enhancing the country's forest cover could have possibly suggested what actions would be taken after 2 years if the supposed "massive" a forestation is not pursued. A review mechanism for monitoring progress on the mentioned goals should be included in the policies. Quoting the same example, specific targets set all provinces to complete a forestation campaign for a specified number of trees in their respective provinces and a monitoring and evaluation mechanism for review on the completion of timeframe would ensure implementation of policies. Concrete action plans with budget allocations would increase chances of effective implementation.

Environment is a provincial subject under the 18th Amendment. Coordination between federating units and capacity building of provincial environmental bodies is important to address the issue of Climate Change that affects us all. National Climate Change Policy Implementation Committee Implementation has somewhat improved due to establishment of Environmental Protection Agency. Environmental Impact Assessments of projects are conducted, and public hearings are arranged under it to learn the views of civil society and stakeholders. Pakistan is now producing 1000 MWs of electricity through renewable energy sources and this provides an opportunity to invest more in renewable. Khyber Pakhtunkhwa government's one Billion Tree Tsunami campaign and federal government's Green Pakistan Programme (2016) for planting of 100 million trees in five years are positive signs for the country. Review and progress reports of such projects should be regularly updated and monitored for the awareness of and input from public.

2.4.3 Parliamentary Discourse regarding Climate Change control

The Parliament of Pakistan being cognizant of the importance of Climate Change on the lives and livelihoods of the masses has taken a great interest in this issue. On the legislative front, the Parliament passed Pakistan the recent Bill named Pakistan Climate Change Bill 2016 passed by The Standing Committee of the National Assembly (NA) on Climate Change is milestone development towards attempting to secure the people from the scourge of rapidly changing climate. The bill envisages constituting Climate Change Authority, which will be directed by Climate Change Council. The main function of this council is to ensure a proper framework for adaptation to reduce the impacts of Climate Change will provide a framework for reducing and adapting to the changes caused due to

climate change on different sectors of the economy. Under Pakistan Climate Change Bill 2016, the establishment of Pakistan Climate Change Fund is significant as there are shortages of funds in dealing with Climate Change (Khan & Yaseen, 2017).Moreover, on the oversight front, the Parliamentarians hold the executive accountable on a multitude of issues pertaining to Climate Change. Both houses of the Parliament have Standing Committees to oversee the work undertaken by the Federal Ministry of Climate Change. Furthermore, Climate Change is regularly raised through oversight tools like question hour, calling attention notices by the legislators.

2.4.5 Latest Developments

The Paris ACCORD has been ratified by Pakistan. It shows Pakistan's keen interest in the betterment of the environment. Its Nationally Determined Contribution (NDC) report, which derives its strength from Pakistan's vision 2025, projected a steady increase in emissions by 2030 due to the ambitious plans of the government to invest in energy, communication and industrial infrastructure (Hermwille, Obergassel, Ott, & Beuermann, 2015). The vision 2025 policy document envisages addition of 25000 MW to the national grid by 2025 to meet energy shortages. In this regard, for this project almost $40 billion are required to cut down emissions by 20% until 2030. A reduction of up to 20 percent in the projected emission figures for 2030 would require an investment of approximately US$ 40 billion, and Pakistan will need 7-14 billion USD per annum from international grants to meet its adaptation needs. Improving Irrigation and Water Management is on the top priority in mitigation efforts Pakistan plans to undertake, as this has a high emission reduction potential. Energy contributes to 46% of the total emissions from Pakistan; agriculture stands second with 43% and industrial sector at 5%. An emission from energy and industrial sector is expected to increase exponentially as the development agenda is implemented and CPEC Projects are completed. Pakistan needs to boost up its efforts in resolving this dilemma. Once the efforts come into the acknowledgement of the international society, Pakistan will receive bellicose aid from them. Country should step up its mitigation process in the hopes of improvement of the country. Pakistan's Cabinet has approved the Climate Change bill under which a Pakistan Climate Change Council would also be formed. Provinces will implement projects prepared under the authority. These positive developments underscore Pakistan's willingness and resolve to effectively address climate related issues.

At COP22, Pakistan's participation enabled the country to highlight achievements and efforts made in addressing Climate Change, vulnerabilities that Pakistan faces, and financial needs were communicated. Among other achievements, National Sustainable Development Strategy has been developed in Pakistan on 19th February 2016. Pakistan has also enacted the National Energy Efficiency and Conservation Act, 2016.

Moreover, Non-degradable plastics and burning of plastics are a serious issue in Pakistan that cause significant environmental pollution. Policy which deals with prohibition on use of non-degradable plastics finally reward/penalty mechanism on it by imposing ban on usage of plastic bags in 2019, Federal government has approved the Regulation namely; Ban on (Manufacturing, Import, sale, Purchase, storage and usage) Polythene Bags Regulation on 2019 on 1607-2019.Under these Regulations, Polythene bags have been banned in Islamabad w.e.f 14th August 2019.An SRO (Statuary Regulatory Orders). Under the Pakistan Environmental Protection Act 1997 has been issued on 22nd July 20 19.But unfortunately this couldn't be implemented for so long because of having no alternate some of few reputable businesses while sale n purchase people are using alternates of polythene bags but in small businesses it's not affordable for them to use alternate bags (Gazette of Pakistan, 2019). However, it is clarified by the Ministry of climate change that no institution has been allowed to use polythene bags with or without affixing green or red stamps.

CHAPTER 3

CLIMATE CHANGE AND POLICY ISSUES IN PAKISTAN

Over view on Climatic Changes and its implications for Pakistan.

Climate Change is the change in weather patterns over the long period, which should be at least for 2 to 3 decades. The change in temperature, humidity, and precipitation patterns are subjected to various issues in our life style. Some changes are natural but most of the climatic changes are human induced and is the consequence of changes in human life style. Human induces changes are increase of CO2 emission to the atmosphere, increasing number mechanical products, which also cause heat and emissions and deforestation, which releases the stored amount of capital stock in terms of carbon emission sequestered. Key issues of Climate Change are declining water for drinking, frequently occurring Glacial Lake Outburst Floods GLOFs and extreme weather conditions, which are caused by the rising daily average temperature, loss of humidity and drastic changes in pattern of rain and wind blow. The change in climate has caused certain economic cost to the societies living in Pakistan. Change in climate has reduced agriculture productivity, and frequent floods, which causes land erosion and flow of fertile land surface. This cost to agriculture sector has been increasing over the year to changing climate and lack of awareness on climate adaptation and mitigations in common masses**.**

3.1 Major climatic issues in Pakistan.

The major climatic problems, which became public issues in last few decades are, reducing in agriculture inputs from the nature or change in the flow of natural inputs to the agriculture sector of Pakistan. Reduction of agricultural productivity in terms of yield per hectare. The changing has an impact on water flow in the rivers of upstream areas, which impact the long-term productivity of energy sector from hydel sources and Pakistan is one of the energy deficient countries, which cannot afford expensive energy. Climate Change has caused GLOFs, which are extensively damaging to humans living the northern areas of Pakistan. The increase in average temperature leads to cricks in ICE bergs, which cause the down flow of huge amount of ice, which takes many rocks with it

and flew away all the houses with it in shape of floods. Climate Change has an indicator, which is the change in rain pattern over long time. This indicator is quite destructive in nature towards certain species and human life sources. Farmers cannot understand the most advance level data on changing climate and always miss up with right to cultivate and harvest, which causes lower output. Awareness on climate change is still a challenge and issue of Pakistan. Climate Change issues are mostly associated with funding and financing, which are dependent on skillful climate fund negotiators and unfortunately, in Pakistan institutional set up, is quite weak to support the climate related actions. Pakistan is one of the top climate vulnerable countries lists, which means we have to face certain cost due to changing climate. The people living on coastal line are no doubt going face the brinks of Climate Change. The sea level is rising and it will cause a mass level of migration due to unaffordable conditions at coastal lines of the country.

Pakistan biggest nightmare is security issue related to Climate Change, which are water security, energy security, food security, and national security, with specific focus on boarders' lines defense. Change in climatic conditions towards extreme meteorological conditions can cause significant amount of economic cost to maintain and preserve the boarder lines security. An incident occurred in GB, where GLOF hit army soldiers during their movement on uphill posts. This GLOF was triggered by the increasing average temperature and we as a country faced significant human loss of 200 men in few seconds of time. The climatic issues are quite many in Pakistan but issue that is more special is the denying population, who still does not care about the quality of inputs used in the production and emits significant greenhouse gases to the atmosphere. This is what makes the pas of Climate Change faster and irreversible.

Pakistan has issue of laws implementation related to Climate Change because the records are quite weakly managed in formal institutions. This has restricted the Pakistan readiness for climate change. Records are tempered as well not intentionally but because of lack of proper training on data management. Finally, Pakistan is one those unfortunate countries, where democracy has become the worst form of government due certain influences from power carrying institutes and organization. Weak democracy is never ever a good sign for fairness and transparency in national responsibilities.

Take away points

- Agriculture has been adversely taken by the Changing Climate and extreme weather conditions in Pakistan.
- Energy security is the key climate issue due to expected impacts on water flow and hydel power production.
- Food security is at stake due to agriculture weaknesses to cope with changing climate in Pakistan.
- Weak institutional set up has cause certain detritions in implementation of climate-oriented policies in Pakistan.
- Lack of skills in professionals to avail climate related funds offered to developing countries.
- Other nations causing huge amount of carbon to atmosphere creates and externality towards Pakistan's struggle against climate.

3.1.1 Climate trends in Pakistan

Much work has been done on Climate Change and their trends in Pakistan. Conducted by studies Global Impact Change Studies Center (Khan" & Ali, 2019)and Pakistan Meteorological Department (Hussain, Liaqut, & Siddiqui, 2020). The discovery of these studies and Analysis shows that Pakistan's Climate is changing.

3.1.2 Temperature trends

Average annual temperature in Pakistan okay with the global trend rose 0.6 ° C to the last century However the speed and nature of change has been variation by country and over time for example, in northern Pakistan the rise in temperature is almost 0.8 C° compared to 0.6 C° in the southern. Besides it was higher in the second semester than in the first semester of last year century. The rate of warming has increased in recent decades, which reflects an increase of about 0.24 ° C in a decade between 1960 and 2007 compared to 0.06 ° C in the previous decade.

3.1.2 Precipitation trends

The trend of average annual rainfall is also recorded increased in Pakistan over the last century. It is estimated 25 percent better than in the previous century (Erguler & Shakoor, 2009). In 2005, growth will be general wet events even in the country. Forty-one of the

54 weather stations reported an increase in rainfall. In terms of forecasting, the current generation of global rotation General Circulation Model (GCMs) is less reliable for forecasting precipitation. Global Change Impact Study Center (GCISC) observation of the results of all 13 GCMs in scenario A2 and 17 GCMs scenario (Ul Islam, Rehman, & Munir , 2009) shows that there is rain in northern and southern Pakistan likely to grow in summer and fall in winter with is significant change in annual rainfall.

The issue of Climate Change is quite broad in terms of reporting certain aspects of climate change in case of Pakistan. However, Pakistan is an exception in terms of lack political well and organizational capacity to cop Climate Change, is the most important issue of the country. Climate Change has posed a significant threat to Pakistan's economy as well as to the life of some specific regions. The major Climate Change issues are the understanding of impacts of Climate Change among common masses, actions on climate-oriented policies, weak institutional set up to flow with Climate Changes goals, the issue of food security and energy security. Both the last issues are extremely un-avoidable and extremely important for welfare and economic growth of Pakistan. It is recommended to government should follow up with most important adaptation and mitigations.

3.2 Impact of Climate Change on Pakistan's economy over time or from the last two decades

Pakistan is very vulnerable to negative effects Climate Change. Maplecroft Vulnerability Index (2010), Climate Change puts Pakistan 16th among 170 nations in the world. The country moved vulnerability index since 2010, when it was ranked 29th. Global Climate Risk Index German watch ranks Pakistan eighth among more than 180 nations of the world He gave Pakistan his first year in 2010. It's pretty ironic a county that has very little impact on the global greenhouse gas (greenhouse gas) and ranks 135th in the world per capita Greenhouse gas emissions.

3.2.1 Economic

Pakistan's economy has been negatively affected due to Climate Change, where the role of government policy is most important but unfortunately, quite missing in case of Pakistan. Climate Change impacts are reported in various disciplinary research studies. In the meantime, from 2010, onwards, total five repeated floods bring about more than US$25 Billion of economic loss in damages to different sectors like agriculture,

irrigation, public infrastructure, health and educational facilities, etc. (Government of Pakistan Climate Change Division Pakistan, November 2013).

The relationship between economic growth and Climate Change is negative in case of Pakistan. Negative impacts on economy are triggered by the rise in temperature and change in rainfall patterns. Sea level rise due to Climate Change has cost significant amount of lives and major migrations to survive. (Farooqi, Bari, & Khan, 2005) It is argued that urban heat island phenomenon has caused certain changes in temperature, which has caused significant economic cost to urban population in terms of increasing demand for AC and other cooling technologies. Coastal areas are highly vulnerable to changing climate which will further increase the economic cost of government organization in rescuing and supporting the floods effected population over the years. The impact of Climate Change is reported on agriculture, where the studies shows that yield of agriculture fields has been reduced and it has also reduced the exports of agriculture goods, which exhibits negative or adverse implications of Climate Change. The same has shown it worst side in terms of floods due to excessive rainfall, which cost humongous economic value of goods and service in 2010 and 2015. The impacts of climate change on Pakistan economy can be categorize with respect sector specific effects. Energy sector has been affected adverse in last few years due to extreme weather conditions, where towers and polls of electricity are on the ground, almost every month, which takes specific economic cost to the economy. Climate Change in last 20 years have threatened water security of Pakistan, which plays important role in production goods and services.

Studies have shown that water table has gone down in last decade. Energy cost to the country due to Climate Change has increase over the last few years, where heavy rainfall causes floods and it directly affects the infrastructure of Oil and Gas and Electric energy supplies in the country (Rehana & Athar, 2017). The inconsistency of rainfall has augmented geologically, across seasons, and annually in Asia over the past few decades. Declining inclinations in precipitation designs along Pakistan’s coastal areas and dry savannahs have also been pragmatic Intergovernmental Panel on Climate Change (IPCC, 2007).

According to Pakistan Meteorological Department, Pakistan experience dry climate. Humid conditions prevail but over a small area in the North. Majority of Sindh and most of Baluchistan, major parts of the Punjab and central parts of Northern Areas receive less than 250 mm of rainfall in a year. These changes in climatic conditions lead to change in economic gains from certain activities in Pakistan. It is argued that reducing Pakistan's carbon emission to 1990s target level of emissions, Pakistan need to sacrifice the significant percentage of GDP. Estimate shows that 4 percent GDP growth is expected to decline, if certain level of emissions is restricted from the atmosphere. Studies show that Pakistan has accounted for significant economic losses due to Climatic conditions. In2015, the agriculture and infrastructure sectors were highly affected. In one year of 2010, these economic losses over passed 9.6 Billion dollars. The cumulative loss from flood to Pakistan is almost reached to 25 Billion dollars. Furthermore, extreme weather variations, growing residents, and development are also contributory to safety problems, counting, on but not restricted to the issues of adequate food, production stream, and deficiency regulator. United Nations forecasted that world's population is expected to increase from 7.2 Billion today to 8.1 Billion in 2025. These days the prediction is almost correct, we have over taken the target level of population growth. Likewise, Pakistan is also facing the same situation of increasing population and Climate Change impacts on economy.

3.2.2 Social impacts

Climate Change also has social impacts, such as adverse health effects; get people moving e loss of income due to their extreme naturalness such as floods and droughts or sea level rise as such, it can also jeopardize hundreds of jobs; may turn out food price inflation and increase the number of people risk of food security and hunger; and causes migration, civil unrest and conflict. Individual abilities, Pakistani community, and society the response to these risks are based on a combination of these natural, human, social, economic, and physical factors. For example, coastal communities and small farmer's higher risk. Rural houses built of mud and the materials transmitted are more at risk than the best quality homes in urban areas. Even the poor have problems is due to an increase in the cost of living due to a decrease in food increased security, rising and increasing healthcare costs energy prices. Community - wide surveys in three selected areas (Badin

Sindh region, Rajanpur in Punjab and Khuzdar in Balochistan) show that communities have experienced significant climate change

Discoveries studies show that Climate Change is already here environmental problems are growing in all three areas and are likely to increase in scale in the future. The voting report states: "Poor and marginalized communities tend to be the most vulnerable Climate Change and reduced resilience to weather-related disasters due to lack of access to information and resources to reduce risks. Expected effects the impact of Climate Change will continue to increase vulnerability, inequality and exposure to hazards (Oxfam 2009). According to the communities that responded to the survey, they were warmer uneven temperatures, rainfall, and shortening the growing season, which has serious implications for food security. That is why it is very important that decision-makers do so consider these factors when developing the Climate Change policy or accommodation. The main climate the social impacts caused concern health, extreme climatic conditions events, conflicts, and security.

3.2.3 Environmental and biophysical impacts

Climate Change also has serious effects on environmental / biophysical conditions, such as change ecology and habitat. There are greater risks to Pakistan's coastal and marine environment. Forests and biodiversity; and other vulnerable ecosystems, such as pastures, degraded lands and mountain ecosystems. Coastal and marine environment Pakistan, with a coastline of about 1,000 km, is classified based on the work of United Nation Environmental Programme (UNEP) oceans and coasts "Particularly exposed to impacts sea level rise (GOP 2003). National Institute for Marine Research, based on stored sea level rise data for 2006 the last hundred years in Karachi show the rise of the sea the level off the coast of Pakistan is about 1.1 mm per year, the figure is relative to global forecasts sea level rise to 90 cm by 2100. Main effects sea level rise poses a risk of erosion, the edges of the streams of the Indus estuary were severely impaired.

The coast of Makran suffers in the same way where erosion is seriously threatened by property, coastal farmland, and habitats. The effects of the rising sea stop on the immediate coast. With the rise of the sea level is increased risk of riverbank crossings and floods adjacent lands may occur higher than the estuaries. This effect, which would be particularly evident during drought conditions, can affect all biodiversity e critical

ecosystems such as mangroves, coral reefs, and coastal lagoons. This has an impact on food production due to the loss of key nursery areas increase storm floods and storm damage continue to penetrate the ground by treating waste and nutrients recycling activities and wildlife habitat.

The impact of Climate Change on economy of Pakistan can be reported based on sector specific impacts as well as based on regional impacts. There are studies, which reports Climate Change impacts on Pakistan with respect to agro zones in Pakistan. The conclusion on Pakistan climatic cost and losses is incomplete without highlighting the impact on agriculture, energy and water sector in Pakistan. Economy is supported by the ecosystem but changes in these issues can contribute to economic losses directly and indirectly. Direct hits of floods caused significant expenditures and indirect impacts on agriculture and other sectors are mostly undertaken through adaptation against changing climate. It is therefore, concluded that Pakistan has faced negative implications of Climate Change, otherwise there are some specific economic gains, which are coming because of changing climate but negligible impact does not compensate the damage of Climate Change in Pakistan. The cost of living is increasing in Pakistan due to intensive climatic conditions in cities as well as in mountainous regions of the country. Cost of Air conditions is increasing because of urban heat island phenomenon and cost on migration is the consequence of changing climate in mountainous regions of the country. The impact of Climate Changes are different, variant and unfortunately, highly expensive in some regions.

3.3 Critically evaluation of climate policies adopted in Pakistan

Pakistan Climate Change Policy is quite dynamic and rich in terms of the problems it can encounter. As the weather changes in Pakistan a lot ecosystems changes and causes an economic activity. Pakistan enjoys a substantial degree of assortment in terms of climate and weather conditions. The northward and northwestern high mountain series are tremendously cold in the midwinter while the summer months from April to September are very pleasant. The massive grasslands of the Indus Valley are extremely hot in summer and have cold weather in winter. The coastal band in the south has significantly hot temperate climate. There is a wide-ranging shortage of rainfall and water associated with changing climate. In the plains, the annual average rainfall ranges from 13 cm in the

northern parts of the lower Indus plains to 89 cm in the Himalayan region. Rains are monsoonal in origin and fall late in summer and on average rainfall is 76 cm per annum in Pakistan. Pakistan government adopted first climate policy in 2012, when first National Policy on Climate Change came into action in response to high variations in the climatic conditions of the economy. The policy was focused on key sectors of economy, where energy, food, water, and health were the most important issues against Climate Change in Policy document. The policy provided adaptation against rising temperature, flooding and extreme weather conditions.

Adaptations against Climate Change in agriculture sector includes changing in cultivation time by the farmer community, addition of extension worker in the farmer services, and the protection walls constructed to reduce the land erosion and save the fertile land surface. These strategies were adopted in agriculture sector. Hybrid seeds and effective drip irrigation system was used to tackle the extensive need of water in agriculture sector. Drip irrigation system improves the water use at field and reduced the losses of water due to in efficiency of canal water system. During the times of droughts, the drip water system can help to keep the crops green by providing it continuous supply of water and minerals. Pakistan has adapted various options to reduce the impact of Climate Change on health, where certain health problems are associated with changing climate and Pakistan has an eye over it in terms of regulating the health policy aligned with Pakistan changing climate.

Climate Policy also highlights the importance of Pakistan's forestry. The impact of Climate change may also be seen on changes in forest area, yield deviations, and changes in species configuration and distribution. Considering the forest sector policy against Climate Change. It is quite a vibrant policy that can have a significant impact on the reversible impact of Climate Change; 1 Billion trees plantation has increased the forest cover of Pakistan by 2 %. This Policy is the best adaptation Policy against climate for long run restoration of forest and greenery in the economy of Pakistan. Temporary migrations against coasted sea level rise are one of the local government adaptation policies against Climate Change.

The weakness of Pakistan is on the institutional level, which restrict Pakistan's readiness against Climate Change. Because none of the Climate Change policies has ever been

practically well planned that can restore the impacts or can reduce the impacts on poor people of Pakistan. Migration against climate change need housing projects, which can help people of coastal regions to access low budget houses and projection against Climate Change migrations. In this example, we can focus particularly the city of Karachi, which could be affected by coastal erosion and inundation through sea level rise. The climate policy of Pakistan has also commented on protection of livestock and biodiversity in Pakistan, which is on brink of extinction and continuously facing the losses. It is observable in Pakistan that policy actions are always facing certain challenges and restriction to get in to the mainstream of the human life across all the Provinces and Districts. Ineffectiveness of policy can be explored in two dimensions, where one is implementation issues and second encounters the acceptability issues in policy design.

Implementation issue are associated with structure of government and state laws and regulations, corruption and lack of well to act upon the basic requirements to sustain in the competitive world.

In Pakistan, the duration of government for a party is only 5 years, which is not in favor of governing party to implement long-term policies and Climate Change is one the most important long-term policy-oriented phenomenon. This creates a gap in policymaking and implementation. Second is the problem acceptability issue of a policy for some communities, where government implements it for welfare of economy and local forest holders do not accept the ban on its cutting and influencing, sometime locals are dependent on forest and government restrict them for using it, which creates a gap in policy implementations and corrections against Climate Change in Pakistan. Other issues of policy ineffectiveness lie after the announcement of a ban or policy, which encounters the issues of monitories, evaluation and expertise, which can improve it, further. I believe Pakistan, should try to localize the policies against Climate Change by indulging the locals for protection forests and maintaining it for future generations.

Pakistan is a developing country, which might face the problems of financing against the impacts received by the local farmers and forest stakeholders. Climate Policies in Pakistan can help the world by protecting the pristine environment of the earth but incentives and correct policy actions with proper implementation needs financial support. If the country is supported well and monitored well in terms of climate funds, it believes

the Policy ineffectiveness in Pakistan can be reduced to level of its efficiency for mitigations and adaptation against the changing climate. None of the policy is workable until some incentives or penalties are associated to turn on the behavioral changes in the targeted communities.

CHAPTER 4

RESEARCH METHODOLOGY

4.1Methodology

In this study, qualitative research method, secondary sources of data, desk research format, and thematic analysis are the chosen ingredients for methodology. Thematic analysis should be the grounded or foundational method for qualitative analysis, as it gave core skills to have different types of qualitative analysis. Many of the Authors have used thematic analysis in their studies, as this is not a new method to analyze, as it is used to assist researcher for analysis. Others are of the view that thematic analysis is a method in its own right. Thematic analysis being qualitative research method is used across a wide range of epistemology and research questions. It is a method used to describing, organizing, identifying, analyzing, and reporting themes found within data set. A precise thematic analysis can give you trustworthy and good results (Ranney & Clark, 2016). Research methodology is a systematic study used in research. It is a guide to a researcher who explains how to do research. Qualitative research methodology is useful and readily applicable to answer qualitative research questions. It is sort of a scientific study in which the researcher accepted several steps to investigate research problems with the logic behind them. So, it is important that the researcher studies and understands the research methodology and methods.

4.2 Research design

Research design is defined as a plan that aims to study and solve research questions or problems. Plan means a complete research plan or program. In addition, it also provides an overview of "how" to solve a search problem using certain method. Simply put, the research question can be answered research project. Therefore, a framework includes methods and techniques that are the researcher selects the study to combine the various components into a single file in a logical way.

Research design is an umbrella meaning, “a researcher’s plan used to answer a research question. Research design is a general direction Research & Development. Recently, quality has attracted a lot of attention in the social sciences and other related professions Qualitative research methods are applicable when a researcher wants to gain an in-depth

understanding of research problem. Qualitative research produces a lot of information in a study that obey the case study by comparing it with quantitative research methods.

Qualitative research is both a method of interpretation and a natural method in itself approach. This means that in this study, the phenomenon has usually been studied in a natural way. Occurring phenomenon. In short, this study examines the phenomenon like humans the meanings attached to it. Therefore, various interrelated methods are used in this study to obtain solid results from the phenomenon in question. Desk research format is the chosen research design for this study. The rationale behind using this research design is nature of the study as study is interested in describing the Parliamentary discourse and the state policy response with reference to Climatic Change**.**

4.3 Data collection method and tools

Both primary and secondary data sources have been used in this research study. For primary data, I have been attending meetings of Standing Committees and conducted few interviews with key informants on Climate Change such as Members Committee and Chairperson on at National Policies and progress of the Standing Committee for Climate Chang.

For secondary data, I have used different secondary sources relevant to Climate Change. Many secondary sources such as past peer-reviewed research articles, national and international reports on climate change, official reports and documents on policies, and in particular reports prepared by Ministry of Climate Change and Parliamentary standing Committee on climate change in Pakistan. The following National reports and policy documents have been reviewed to collect relevant secondary data.

- Pakistan Energy Yearbook (2019),
- Pakistan's Intended Nationally Determined Contribution. (2016-2017).
- Task Force on Climate Change. (2020),
- National Climate Change Policy. (2012)
- Framework for Implementation of Climate Change Policy. (2014)
- Pakistan Climate Public Expenditure and Institutional Review. (2015)
- Climate change Act document

4.4 Sampling technique

Generally, sampling technique can be categorized into two sampling technique i.e., Probability sampling and non-probability sampling. In Probability sampling, researcher starts with a complete sample frame and equal probabilities are attached to each eligible individual throughout the sample selection process. In this way, as every individual has a chance to participate in sample section process, therefore can easily generalize the obtained results. On the other hand, results obtained from using non-probability sampling are not generalizable as researcher starts with an incomplete sample frame and cannot include all the eligible individuals throughout sample selection process (Taherdoost , 2016).

However, one of the advantages of non-probability sampling is that it requires less resource and time and is suitable for this research study. Convenient sampling is perhaps the easiest method of sampling, because participants are selected based on availability and willingness to take part. Thus, the researcher has used non-probability sampling technique by choosing convenient sampling so that respondents may tell the rationale behind the efforts and their results that achieved in result of policy making for Climate Change (Gaganpreet, 2017).

a .Sample size

Although my sampling size was not five, it was planned up to 15-sample size in which Members Standing Committee on Climate Change, environmental experts, and other governmental and non-governmental organizations. However, due to Lock Down researcher reduced the size

b. Population frame

Population frame of the research is basically Parliament House National Assembly, then Global Change Impact Study Center GCISC.Although concerned departments, Ministries, Non-Government Organizations, and industries were part of population size but Covid 19 Pandemics results minimize the frame.

c. Time horizon

Furthermore, longitudinal time frame has been used for this cross sectional study.

4.6. Ethical Considerations

Ethical considerations will be including ensuring the quality and integrity of research, seeking informed consent, respecting the confidentiality and anonymity of research respondents and ensuring that participants will participate in the study. As the research methodology of this study is qualitative, in nature and in qualitative research everything is subjective and interpretation of findings is completely based on the perspective of the researcher. In this regard, researcher has tried his best to commit ethically to this research study.

4.7. Data Analysis

Data analysis helps to find the hidden meanings of words that speak from people's mouths and actions observed by the field researcher. Therefore, data analysis is a tool that helps the researcher understands and deepens the researched phenomenon. This study presents content and thematic analysis of the three research objectives. Reason to select thematic analysis was to state the facts in form of answers to the research questions in organized manner. In more specific terms, via thematic analysis researcher has identified major determinants of Climate Change in Pakistan, different legislations related to Climate Change passed by Parliament, and policy objectives of National Climate Change Policy. This analysis is based on both primary data sources i.e., Interviews, and secondary data sources.

CHAPTER 5

DATA ANALYSIS

Overview

This chapter is divided into four sections based on the series of study objectives. Analysis in the first section is largely based on content analysis of Climate Change Related Parliamentary Legislations. That is, to identify the main determinants of Climate Change and to evaluate Climate Change legislation enacted by Parliament in Pakistan, researcher offers content analysis of document related to Climate Change Parliamentary Legislations. However, analysis in the third section is based on reviewing global literature as well as critically analyzing important Agendas and Recommendations proposed in the meetings of Parliamentary Standing Committee on Climate Change. Finally, in the last section, researcher presents interview findings from five key informants to cross check findings from available literature.

Composition of the present Parliamentary Standing Committee on Climate Change

The constitution of the Parliamentary Standing Committee on Climate Change is shown below, it's Pertinent to mention before Elected Chairperson of the Committee an election used to be held as a First Meeting of the Parliamentary Standing Committee of the present Governments in which after voting of all members chairperson is to be selected.

- Total no of Members of the committee =21,
- Ms. Munazza Hassam is the elected Chairperson of the Committee.
- Total no of meetings held in present Government till date = 21
- Total no of Bills moved till date=02
- Total no of Bills passed till date=01

s.no	Name of the Bill	status
01	"The Global Change Impact Study Center (Amendment) Bill 2019"	Passed
02	"The Pakistan Environmental Protection (Amendment) Bill 2019"	Pending

All the details of the members are given at the end in appendix list.

5.1 Determinants of Climate Change in Pakistan

Global scientific community assumes man-made contribution to the Climate Change as the prime determining factor of global Climate Change. In 1992, the United Nations Framework Conventions on Climate Change (UNFCCC) revealed the fact that Greenhouse gases (GHG) are the major contributor to the global changing climatic conditions (Benhelal, Shamsaeib , & Rashida, 2019).This convention has directed many member countries to reduce GHG, and in the convention it has been proposed that the production of Carbon dioxide (CO2) has increased significantly and the world is becoming largely dependent on fossil fuels as the prime source of energy. Apart from energy production, clearing land for agriculture production, industrial process, and deforestation are the major contributor to GHG, and determines Global Climate Change (Pires, Martins, & Ferraz, 2011).

5.1.1 Usage of Energy Efficient Technologies

American physicist Arthur Rosenfeld invented energy efficiency technology when OPEC when the Organization of Arab Petroleum Exporting Countries declared an oil embargo. In Pakistan, the scenario is not different, the country is struggling to meet its energy demand via supplying almost 58% of energy based on fossil fuels, and biomass fuel (Tahir, Rafique, & Aalamgeer, 2010).Energy demand in Pakistan is constantly increasing mainly due to the excessive growth in population. As per the reports of Task Force on Climate Change (2020), the total amount of greenhouse gas emission for the year 2020 was recorded over 650 million of tons. In addition, according to Pakistan Energy Yearbook (2019), the largest contributor was CO2 54% while methane stands second in 34%. Many other sectors contribute to GHG emission in the country. For instance, apart from energy sector that contributes 51% of GHG in Pakistan, agriculture sector through the process of clearing-land and increasing livestock farming contributes 39% of GHG emission, while industry only contribute 6% and finally deforestation with 3% of GHG emission (Pakistan's Intended Nationally Determined Contribution Report, 2016-2017).

Pakistan is utilizing conventional methods of energy production in terms of oil, gas, and coal, and approximately 70% of energy are being produced through non-renewable resources. Going through these statistics one can argue that energy sector in Pakistan is

largest source of GHG emission and thus an important determining factor of Climate Change in the country (Asif, Rashidi, Bhutto , & Shah, 2011).

Others sectors such as Agriculture sector in Pakistan roughly contribute 40% of total GHG emission. More specifically, the total amount of agriculture related GHG emissions are 174.6 Million tons and more than 50% were Methane gas. In this regard, three factors have been enlisted. First, 45.5% of emission is credited to agriculture soils because of clearing more and more land for agriculture use, 45.1% emission are explained by enteric fermentation, and the lowest 6.5% of the emissions are originated from management to live stock (Ijaz & Goheer, 2021). Thus, GHG emissions from agriculture sector also largely determine Climate Change in Pakistan.

5.1.2 Net Forest Cover of the Country

Deforestation also determines Climate Change in Pakistan. In the race of deforestation in Asia, Pakistan's rate of deforestation rate is alarming and secured second highest rate of deforestation. For instance, in Pakistan tree area as total % of land area has declined from 3.6 in 1990 to 1.8 in 2018. Similarly, Pakistan is facing annually 4-6 loss of valuable forests while carbon dioxide emissions are increasing annually at the rate of 8-10 percent. Deforestation reduces the capacity to absorb CO2 and thus cutting down trees for land use determines Climate Change in Pakistan.

5.2 Climate Change Related Parliamentary Legislations

A major vulnerability in Pakistan is the inability of Parliament to make laws related to Climate Change as making laws related to Climate Change is a provincial subject. Thus, Parliament in Pakistan is contending Climate Change via not making laws but only through policy and acts. In technical terms, Policy and acts are not equivalent to Laws, but have varying connotations and specific meanings (Khan & Yaseen, 2017). In this regard, so far Parliament in Pakistan has not passed any law aimed at combating climate change rather has advanced, Pakistan Energy Efficiency and Conservation Act, National Climate Change Policy (NCCP), Global Change Impact Studies Centre Act, and Climate Change Act (CCA).

5.2.1 Pakistan Energy Efficiency and Conservation Act (2011)

In the Post-18 Amendment legislative portfolio, Pakistan came with its first act as policy response to Climate Change, which aimed at improving energy efficiency and related

institutional development in the country (Nachmany, Fankhauser, Davidová, & Kingsmil, 2015).This act has specifically created and mandated National Energy Conservation Council, National Energy Conservation Authority, and National Conservation Energy Fund. The provision of this act has specified some functions such as Initiating, catalyzing, coordinating, and implementation of all the energy conservation programs in various sectors of the economy. In addition, this act encourages initiating research and development programs in renewable energy (Mirza, Bergland, & Afzal, 2014).

National Energy Conservation Council has been regarded as 'Custodian' of national-energy-related-po1licies in Pakistan. The council main functions are to ensure efficiency in planning, management, and utilization of energy in different sector of the economy. Other specified functions of the council in this act are, to coordinate, supervise, and execute the various provisions of this act, to enhance awareness and dissemination of energy related information, and to direct National Energy Conservation Authority in the conduct of research and development. In addition, the Council is liable to provide recommendations to the federal government about policy measures related to energy conservation (Rafique & Rehman, 2017).

5.2.2 National Climate Change Policy (2012)

National Climate Change Policy is a deliberate effort of Pakistan's government to counter various existing and emerging climate change related threats in Pakistan. This policy has identified different vulnerable sectors and proposed practical policy measures in terms of adaptation and mitigation. These sectors include water, agriculture, coastal areas, forestry, biodiversity, and other vulnerable ecosystems. Certainly, adaptation efforts to changing climatic conditions are paramount in the country because Pakistan's global contribution to the Greenhouse Gas has never been alarming (Zahid & Junaid, 2018). However, still NCCP document contains different objectives which are aimed at prioritizing mitigating efforts to changing climatic conditions. For instance, adaptation efforts are efficient in the sectors of water resources, agriculture, forestry, coastal areas, biodiversity and vulnerable ecosystems, while mitigation efforts to climate change would focus on energy sector, transport, industry, and town planning (National Climate Change Policy, 2012).

There are numerous challenges to the implementation of NCCP in Pakistan. For instance, institutional overlap and uncertainty about roles and responsibilities are posing serious challenges in implementing policy measures proposed in NCCP. For instance, lack of provincial commitment in implementing NCCP due to institutional overlap between federation and other federating units. In an uncertain environment, without specifying proper roles and responsibilities between federation and provinces, it would be really hard to implement proposed policy measures in NCCP (Caudhry, 2017). Secondly, inter-sectoral engagements are necessary to counter climate change but lack of expertise and skills in various government departments have created enormous challenges to take advantages of inter-sectoral engagements (Khan, Khan, Ali, & Ahmad, 2016).In addition, inadequate Climate-Change-Finance in Pakistan despite its vulnerability to Climate Change has not attracted international donors so far and efforts need to be taken in order generate much needed funds (Chandio, Jiang, Akram, Adeel, & Irfan, 2021).

5.2.3 Global Change Impact Studies Centre Act, 2013

Global Climate Change Impact Study Center was established in 2002 and served as Secretariat to the Prime Minister Committee on Climate Change. In 2013 when Parliament approved this act, this center received the status of a national entity. Section 4 of the act describes functions of the center. The primary function of the center is to ensure acceleration in research work to analyze climate change and its effects on the socio-economic sector. Other functions specified in the act are capacity building as well as ensuring availability of relevant information to assist policy makers from different vulnerable sectors.

Section 10 of this act describes the establishment of a fund called Global Change Impact Study Centre Fund. The fund will be comprised of financial allocation by the center in the annual budget, donations, gifts, grants, or loans from federal and provincial governments, or other institutions or states with the approval of the federal government. This is a flaw in institutional flow of procedures because for such grants the permission of the federal government is required. This will create a bureaucratic bottleneck inflow of procedures. Section 19 of this act describes that with the approval of federal government the center may cooperate with international institution related to climate change research and development. Section 22 that no legal proceedings shall be made against the center,

board and the other members of the center will create opportunities for lack of accountability at a higher tear. In addition, the powers to make rules should be under the jurisdiction Parliament and not of Board. GCISC is engaged in studying the impact of Climate Change on glaciers in the Himalayan region (Caudhry, 2017).

5.2.4 Climate Change Act 2017

Under the Paris agreement, Pakistan has come forward with its first legislation regarding Climate Change, known as the Climate Change Act 2017. Three institutions came into existence as the result of this act:

(a) Pakistan Climate Change Council

(b) Pakistan Climate Change authority and;

(c) Pakistan Climate Change Fund.

a. Pakistan Climate Change council

The establishment of the Pakistan Climate Change Council comes under section 3 of the Climate Change Act 2017. The council shall be established by the prime minister and shall be presided by the prime minister or any other person nominated by the prime minister. The council shall have the representation from the leadership of all related areas of the country. The members of the council will include chief ministers, of all provinces and the leaders of disputed areas as well. It is admirable that all stakeholders will be given the chance to discuss the policies and that can be applied throughout the country. He also provides the addition of the members of civil society into the council. This indicates that future policies will be more comprehensive. However, it is mandatory for the council to meet at least twice a year and there is the upper limit of the meetings of the council. It is a major concern that only two meetings per year and occasional trends in policymaking will turn this council into a dead letter (Sarim, 2018).

Section 4 presents the functions and power of the council. The primary function of the council is to monitor the enforcement of the Climate Change Act 2017, to provide strategic guidance for the execution of United Nations Sustainable Development Goals (SDGs), to approve monitor and execute Pakistan's obligations regarding climate change towards international agreements and to consider the National Climate Change Report (Pakistan Climate Change Act, 2017). There is a lack of disciplinary measures in the context of Climate Change legislation. The purpose of this council is less executive and

more of providing strategic dimension regarding the decision-making process regarding Climate Change (Pakistan Climate Change Act, 2017)

There is also a lack of clarity on how the council plans to hold those responsible for not following the guidance regarding Climate Change. In addition to that, there is a dearth of policy in the realms of self-accountability. If the members of the council are found guilty of not following measures that are necessary under this act, there is no clear guidance on how these constituents will be held accountable (Pakistan Climate Change Act, 2017) Moreover, there is a lack of representation of youth in this council. The larger chunk of the population of Pakistan is youth. It also under the guidelines of United Nations Sustainable Development Goals that youth should be given a direct representation in the policymaking, as the ultimate impact of the policies will be on the public.

b. Pakistan climate change authority

The establishment of Pakistan Climate Change authority comes under section 5 (2). The primary objectives of this authority are to exercise the power and perform the functions assigned under Climate Change act 2017. This authority can be sued. It can enter into contracts, can acquire assets, loans, and can take sou motto when required. This is more of a corporate body, constituted by technocrats, academics, professionals, industrialists, and agriculturists. Establishment of such a corporate body is a good signal in the Climate Change regime of the country. However, strict merit-based appointments are the essence of such good signals. The tradition of favoritism and political allocations of the professionals can halt all efforts to reduce disasters caused by Climate Changing future.

Moving forward, section 8 describes the functions of the authority. The significant functions of the authority are the formulation of adaptation and mitigation policies, plans, and programs at both federal and provincial levels to halt the disasters. The technical areas of the Paris agreement treaty also fall under the functions of this authority. As it is one of the functions of this authority to compile and submit the Nationally Determined Contributions to the United Nations Framework Convention on Climate. This creates a gap for lack of accountability because the Pakistan Climate Change Council members do not have the authority to check the findings of Pakistan Climate Change Council. Research and development regarding Climate Change and educational and awareness campaigns regarding Climate Change are the functions of this authority. If these

functions are executed perfectly, the fight against Climate Change will reach until the root level (Sarim, 2018).

Section 10 gives powers to the authority to execute the functions under this act. One of the significant powers of the authority is to get into partnerships with public and private development organizations. However, in order to establish partnerships with the entities of foreign regions, executive permission is required. This is a hindrance in the organizational flow of procedures and can damage the overall proceedings of the authority. In addition to this, Islamabad based centralized authority is less efficient in making contracts with other development organizations as compared to multiple and specific authorities spread across all over the country.

c. Pakistan Climate Change Fund

In order for the Pakistan Climate Change authority to undertake its functions, section 12 presents a formulation of a fund. This section of the act shows that grants, aids donations and money as a gift can be a pool to finance the functions and power of PCCA. This highlights a problem that all sorts of foreign aids from foreign government or organization shall require permission from the government. This generates a hazard inflow of institutional procedures. This is also the problem with Pakistan climate change authority, which creates a bureaucratic bottleneck on the road that leads to the stoppage of inevitable disasters caused by Climate Change(Pakistan's Intended Nationally Determined Contribution, 2016-2017).

5.3 Analysis of NCCP Objectives

In the preamble of NCCP document, it is mentioned that adaptation efforts are of primary importance because Pakistan is highly vulnerable to the adverse impact of Climate Change. Certainly, adaptation efforts to changing climatic conditions are paramount in the country because Pakistan's global contribution to the Greenhouse Gas has never been alarming (Zahid & Junaid, 2018). However, still NCCP document contains different objectives, which are aimed at prioritizing mitigating efforts to changing climatic conditions. For instance, adaptation efforts are efficient in the sectors of water resources, agriculture, forestry, coastal areas, biodiversity, and vulnerable ecosystems, while mitigation efforts to climate change would focus on energy sector, transport, industry, and town planning (Caudhry, 2017). In addition, objectives of NCCP also covers

different other domains such as disaster preparedness, capacity building, institutional strengthening, technology transfer and international cooperation.

As far as implementation of NCCP, objectives are concerned, different policy measures related to adaptation, mitigation, disaster preparedness, capacity building, institutional strengthening, technology transfer and international cooperation have been proposed in the Framework for Implementation of NCCP document. However, NCCP objectives have been summarized into seven main objectives (Waqas, Tan, Muhammad, & Ham, 2020). The author has enlisted these objectives as Institutional Capacity Building, Water Security, Integration of National Policies, Natural Disaster Management, Natural Resource Management, Social Sector Development and Health and Climate Change Finance. Under the current government, Parliament's standing committee on Climate Change has been successful to arrange sixteen meetings, and we have summarized each meeting in order to analyze these objectives by focusing on the agendas and recommendations in the meetings.

5.3.1 Institutional Capacity Building

Institutional capacity building as NCCP objective focuses on enhancing the awareness, skill and institutional capacity of relevant stakeholders (National Climate Change Policy, 2012). To achieve this specific objective, different policy measures have been proposed in the NCCP document. In this regard, there are total twenty-five policy measures that have been proposed for strengthening institutional mechanism and capacity building. However, in the meetings, the committee has discussed only three out of twenty-five policy measures as Agendas of their meeting and proposed suitable and practical recommendations. For instance, the third policy measure proposed for strengthening institutional mechanism and demands an improvement in inter-ministerial/inter-departmental decision making and coordination mechanism to address Climate Change related challenges. Agenda 10 in the meetings have discussed this specific policy measure where the committee informed recent coordination between Ministry of Climate Change and Ministry of information that a consensus was built to spread awareness through different video messages on social media about reducing the use of plastic bags.

Another policy measure for strengthening institutional mechanism and capacity building focuses on technical and financial support for national Climate Change science related

institutions such as GCISC and other universities. In this regard, the committee has discussed the engagement between Global Change Impact Study Centre and Provincial Agriculture research institute in its no 11 Agenda, in order to develop and build resilience in the farming sector. More specifically, the committee invited Provincial Agriculture institutes to present discuss issues related agriculture sector in the next meeting. Different provincial agriculture institutes have been invited to present research on issues in farming sector**.** In agenda 28, the committee has postponed the GCISC (Bill) 2019 but passed in Agenda 33 with slight amendments. Similarly, representatives of GCISC have briefed the committee in Agenda 16 about farming sector issues, and the committee recommended that GCISC should collaborate with all agricultural research institution in order to build resilience in the farming sector.

To increase awareness among different stakeholders related to climate change, proposed policy measures in NCCP document are conducting nation-wide surveys to understand stakeholder's knowledge regarding climate change, and develop national climate change efforts to increase awareness among different Climate Change stakeholders.

Moreover, in Agenda no 3 the committee has discussed these policy measures to increase awareness about water security, ban of Oxo-degradable and plastic bags, and to inform the fact that glaciers are melting 6-7 inches every-day. The committee has proposed media campaigns to discourage the use of plastic bags in the capital and across the country. Similarly, in Agenda no 7 the committee in order to increase awareness among local farmers has discussed new concepts of farming and challenges related to farming sector. In this regard, the committee has proposed campaign to sensitize farmer's agriculturists and timely dissemination of authentic information with farmers including the launch of dedicated application. The members also suggested inviting farmers and their associated bodies for input over this matter. The members also stressed to educate farmers through media and app regarding rapid climate changes.

5.3.2 Water Security

One of the major consequences of climate change in Pakistan is that, it has increased variability in the water cycle and damaged ecosystem by causing uncertain and extreme whether events. Thus, water management is crucial to manage climate change related challenges in water sector as per capita availability of water has declined to 1000 cubic

meter in 2016 from 5260 cubic meters in 1951 (Stewart, Ahmad, & Podger, 2020). Glacier-melt and monsoon rains are freshwater resources of Pakistan and both of these resources are vulnerable to climate change. The following policy measures have been proposed for water management such as, Water storage and infrastructure, Water conservation strategies, integrated water resource management, enhancing capacity and Awareness Raising (Framework for Implementation of Climate Change Policy, 2014).

5.3.3 Integration of National Policies

The integration of climate change policy with other national polices can contribute a lot in dealing with challenges related to climate change. Such integration of national policies allows developing countries to achieve sustainable development by integrating development, adaptation and mitigation polices (Pilato , Sallu, & Gaworek-Michalczenia , 2018). For climate compatible development, the objectives related to development, adaptation, and mitigation should be properly addressed in national policies. In this regard, one of the objectives of NCCP is to integrate NCCP with other inter-related national policies. For instance, NCCP must be integrated with other inter-related national policies such as National water policy, National Power Policy, National Disaster Management Policy, Agriculture Policy, and Industrial Policy. There are many barriers to the integration of Climate Change and other inter-related policies. Lack of proper information and limited resources are the two often-cited barriers in this regard. In Pakistan, these barriers to the integration of Climate Change and other inter-related policies are limited institutional capacity, along with financial, technical, and human resources, are hindering the implementation of these policies (Waqas, Tan, Muhammad, & Ham, 2020).

In Agenda No 11, the committee has informed about recent engagement between Global Change Impact Study Centre and Provincial Agriculture Research in order to develop and build resilience in the farming sector. The committee invited Provincial Agriculture Institutes to present discuss issues related agriculture sector in the next meeting. Different Provincial Agriculture Institutes have been invited to present research on issues in farming sector. In Agenda No 12, the committee has informed about recent coordination between Ministry of Climate Change and Ministry of information in which a consensus was built to spread awareness through different video messages on social media about

reducing the use of plastic bags. In this regard, the Committee emphasized to increase awareness about Climate Change in Islamabad via sharing share books and video messages on social media about reducing the use of plastic bags. Similarly, in Agenda No 13, the committee has called for secretaries of forest department in all Provincial Government to get briefing over planting trees along highways. In Agenda No 36, the committee has a detail briefing about Government Policy on Electric Vehicles in Pakistan. The committee recommended that tax duty on the conversion of fuel engine to the electric engine should be permanently wave off. Similarly, in Agenda No 37, the committee has discussed complains against OGRA that petrol pumps on motorway and along with motorway interchanges are charging 16% extra, especially on payment through credit or debit card. In this regard, the committee has recommended certain recommendations, which are as follows. The committee directed that petrol pumps must enhance their standards and stop charging extra amount. The committee directed OGRA to resolve issues rose by members regarding substandard fuel and extra charges. The committee has also suggested OGRA to launch campaign regarding awareness on usage of facemask and gloves during COVID 19.

5.3.4 Natural Disaster Management

Natural-climatic-disasters appear frequently with changing climatic conditions and therefore climate change polices should complement disaster risk management (Zubair, 2013). Climate Change increases both the frequency and intensity of Natural-climatic-disasters such as extreme whether events, floods, droughts and heavy rain, and can only be minimized through immediate adaptation efforts (National Climate Change Policy, 2012). It is mentioned in both scientific and non-scientific studies that Pakistan is already facing Climate Change impacts in the form of natural hazards, floods, droughts, and heavy rains. For instance, the total monetary losses of Natural-climatic-disasters in terms of floods between 2010-2014 lies around US$18 billion (Pakistan’s Intended Nationally Determined Contribution, 2016-2017).

One of the main objectives of NCCP is to minimize Natural-climatic-disasters via adaptation and preparedness measures. There are total twenty-two different policy measures have been proposed in NCCP document, in order to minimize Natural-climatic-disasters by admitting the fact that destructions related natural hazards could not be

prevented immediately. For instance, allocation of resources to implement National disaster risk management framework is highly significant and one of the policy measures mentioned in NCCP document emphasizes the availability of proper allocation of resources. Another policy measure is to develop appropriate monitoring mechanism for the development of glacial lakes in more vulnerable parts of the country. Other policy measures emphasize on the improvement of flood forecasting, drought monitoring, early warning system, and public awareness regarding Climate Change. The third agenda was same previously included in the capacity building subject of the meeting in which, committee has built consensus on the ban of Oxo-degradable and plastic bags, and informed members regarding the fact that glaciers are melting 6-7 inches every-day. In this regard, the committee has proposed media campaigns to discourage the use of plastic bags in the country. The committee has also informed the members about the first ever funding on glaciers Green Climate Funded Project on GLOF-11 and "Recharge Pakistan Project" that can significantly contribute to the issue of melting glaciers. Similarly, in 7th Agenda, the committee in order to increase awareness among local farmers has discussed new concepts of farming and challenges related to farming sector. In this regard, the committee has proposed campaign to sensitize farmers/ agriculturists and timely dissemination of authentic information with farmers including the launch of dedicated application. The members also suggested inviting farmers and their associated bodies for input over this matter. The members also stressed to educate farmers through media and app regarding rapid Climate Changes.

In Agenda No 14, the committee has assured to increase public awareness in times of flood and disaster management. The committee suggested that information mechanism should be improved between District administration and Local parliamentarians to increase public awareness. The committee directed DCO has to coordinate with Local parliamentarians in times of flood and disaster management. Similarly, In Agenda No 17, the committee has invited representatives of GCISC to get briefing about the current projects of Climate Change. The Committee recommended that Agriculture universities across Pakistan should present their researches on climate change ministry's website.

5.3.5 National Resource Management

Sustainable management of natural resources such as Forests, Land quality and water is critical and more challenging particularly in the face of changing climatic realities. Both viability and sustainability of natural resources are being threatened by Climate Changes infrastructure development, innovation in extraction technology, and product-market-expansion has destabilized natural resource base in Pakistan (Waqas, Tan, Muhammad, &Ham, 2020). In the past two decades, forestry sector has shown greater vulnerability in response to changing-climatic-conditions, and the country has experienced raging deforestation due to poverty, population explosion, and government negligence in protecting forests. The current status of forestry sector in Pakistan is inadequate in terms of managing future possible climatic threats, and both adaptation and mitigation efforts are crucial to control deforestation (Pakistan's Intended Nationally Determined Contribution, 2016-2017).

As far energy sector is concerned, strategies related to energy production are not sustainable in the country and requires mitigation efforts to manage Climate Change related challenges (Solangi, Tan, Mirjat, & Ali, 2019). The common application of Non-renewable energy strategies is intensifying Climate Change related challenges in transport sector, as transport sector is the primary consumer Non-renewable energy sources in Pakistan. Transport sector consumes two-thirds of total energy production from non-renewable energy sources and exacerbates climate change related challenges in the country (Shirwani, Gulzar, Asim, & Umair, 2020).

In this regard, one of the main objectives of NCCP is to promote conservation of natural resources. Different policy measures have been proposed in an attempt to control deforestation in Pakistan. For instance, enhancement of scientific research to understand the relationship between Climate Change and forest sector in Pakistan, to minimize the damages and to build resilience of forest ecosystem, to bring an improvement in both governance and management of forests in Pakistan, and to intensify mass awareness and build capacities of institutions and professionals on Climate Change adaptation.

In Agenda No 6, the committee has introduced Green Pakistan Program and broadens its scope to Billion tree projects. The committee has ensured the proper record regarding the plantation of trees and asked the secretary to identify areas, number, and type of trees to

be planted. In Agenda No 23, the committee has called for the secretaries of forest from provincial government in order to get briefing over planting trees along highways. In Agenda No 18, the committee has shared with the members that the government for the plantation of 3.29 Billion trees in four years has approved an amount of Rs.125 Billion. In Agenda No 20, the committee has noticed of restaurants-construction in the premises of Margalla Hills National Park as they are posing threats to biodiversity. The Committee directed to call CDA in next meeting for preventing restaurants-construction in the premises of Margalla Hills National Park. The Committee has also suggested that National Parks and zoo should be handed over to climate change instead of CDA.

Similarly, in Agenda NO 26, the committee has informed the members about the approval of allocation for Zoo in the capital city. Secretary of climate change made sure that Islamabad wildlife management Board will be formed and will be operational within three months. In its Agenda No 39, the committee has discussed Billion tree program planted in KPK, two-stroke engines presently operative, lack of safety measures in locally manufactured vehicles. The committee directed climate change ministry to provide a report of Billion tree program. The committee has also recommended ministry of climate change to write a letter to all the provinces to enhance token tax of stroke engines and to make a proper mechanism to examine emissions tests of all vehicles before collecting annual token tax. The committed directed Ministry of Industries and Production to bound local vehicle manufactures to install safety measures without any additional charges.

5.3.6 Social Sector Development and Health

Social sector development is difficult to attain without considering the three dimensions of sustainable development such as society, economy, and environment. In Pakistan, changing-climatic-conditions are threatening both safety and health of the masses and requires immediate mitigation efforts. Socio-economic protection of the masses can be achieved by integrating polices related to employment, empowerment, health, food security, clean water and transport with Climate Change Polices (Waqas, Tan, Muhammad, & Ham, 2020).In this regard, Pakistan’s federal government has increased climate-related expenditure by 7.6% in 2016 compared to climate-related expenditures in 2015. Social sector development in Pakistan is challenging for various reasons. There is a

consistent mismatch between economic growth and population growth in Pakistan. As a result, growing urbanization, energy insecurity, and greater search for better employment opportunities have posed enormous challenges for achieving social sector development in Pakistan (Pakistan's Intended Nationally Determined Contribution, 2016-2017).

For these reasons, one of the main objectives of NCCP is to develop social sector in Pakistan by providing safety and health security to the masses. Since climate change is mostly affecting poor communities as livelihoods of poor communities largely depends on natural resources, therefore policy measures for social sector development encourages poverty reduction in Pakistan. For instance, one of the policy measures ensure access of poor communities to new technologies related to crop production and another policy measure demands integration of poverty reduction polices with climate change polices. Similarly, authentic information regarding vulnerabilities of poor communities can contribute a lot to reduce these vulnerabilities and therefore assessment of climate related vulnerabilities has been proposed as another policy measure.

The committee has discussed this specific objective of NCCP and its related policy measures in its eight different agendas. For instance, In Agenda No 4, the committee has introduced Zig Zag methodology for traffic in order bring 70% reduction is fuel consumption. In this regard, the committee has imposed Section 144 of the Code of Criminal Procedure for two months and recommends that no other method would be used after 31st July, 2019 other than Zig Zag methodology. In its Agenda No 8, the committee made special focus on stabilizing greenhouse gas concentrations with reference to Pakistan commitment to United Nations Framework Convention on Climate Change (UNFCCC). In this regard, a visit should be arranged to physically monitor the pollution assessment equipment installed in Pak-EPA office in H-8. The committee re-raised concerns over use of low quality fuels including diesel in vehicles that cause 43% of pollution and directed to invite concerned officials from Ministry of Petroleum in the next meeting.

In Agenda No 9, the committee has evaluated waste management status in the capital and suggested Oil refineries should be invited to make a proper assessment of measures taken for desulphurization. Similarly, in Agenda No 21, the committee has reconsidered the measures taken for desulphurization and smoothing flow of traffic. The committee

suggested for the installation of safe advertising billboards and screens should on the roadsides to make sure the smooth flow of traffic. In its Agenda No 23, the Committee has suggested to have a meeting with senate committee for Desulphurization of diesel and up gradations to Euro-iv & v technology in Pakistan.

5.3.7 Climate Change Finance

In order to manage severe climatic conditions, there should be an efficient climate governance structure so as to harmonize development spending with climate change polices (Rehman, Ma, Ahmad , & Irfan, 2021). The recent growth in global finance climate has incentivized integration of climate change policies with other national policies. For various reasons, climate finance has emerged as distinct incentive for developing countries to integrate other national polices with climate change related polices. In 2013, developing countries have received almost $34 Billion flows related to climate finance from developed part of the world (Caudhry, 2017).

Over the time, Pakistan has improved its climate governance structure by initiating different policy measures, and signing different climate related international protocols. Pakistan is signatory to the UNFCCC which enables the country to avail financial and technical assistance. For instance, between 2011-2015, Pakistan has received $398.8 million in terms of climate finance from Asian Development Bank. To promote climate-related development, Pakistan's government has initiated multiple efforts by integrating climate budgeting with policy and planning. As a result, Climate Change is now being recognized in long-term national plans, annual economic surveys of Pakistan, and public-sector development program (Pakistan's Intended Nationally Determined Contribution, 2016-2017). In 2015, federal government has reserved 7.6 percent of total federal expenditure for climate-related expenditures (Pakistan Climate Public Expenditure and Institutional Review, 2015). Similarly, in 2016 the federal government has reconsidered its allocation to finance climate-related expenditures.

To maintain sustainable climate finance in the country, different policy measures have been proposed in the Framework for Implementation of Climate Change Policy documents. To secure adaptation funding from international donors, adequate efforts need to be taken by implementing adaptation plans mentioned in NCCP. Other policy

measures encourage establishing Pakistan climate change fund in order to finance climate-related expenditures.

In Agenda No 1, the committee has examined budgetary proposals of the ministry related to the Public-Sector Development Program (PSDP) for the year 2019-20. All the projects of the year are directed to the ministry of Finance to allocate the required budget. The committee directed that all the projects should be completed within the time in accordance with prescribed rules and procedure. In Agenda No 18, the committee has informed that an amount of Rs.125 Billion has approved by the government for the plantation of 3.29 Billion trees in four years. The committee has suggested Provincial and district record of the plantation should be provided to the committee. In addition, in Agenda No 26, the committee has informed that PM has approved the allocation for Zoo in the capital city. In this regard, secretary of climate change made sure that Islamabad wildlife management Board will be formed and will be operating within three months.

5.4 Interview findings

In this section, researcher presents and analyzes the main findings to obtain through interviewing five key respondents listed below:

1. Chairperson standing committee for Climate change, Ms. Munazza Hassan
2. Secretary for ministry Climate change, Ms. NaheedDurrani
3. ShahidaRahmani (PPPP). Reserve seat (women) Sindh
4. Mr. Rai Muhammad Murtaza Iqbal NA- 149 (Sahiwal -lll) Punjab
5. Muhammad Adnan (senior scientific officer, GCISC)

5.4.1 Local and Global determinants of Climate Change

The determinants of climate change are those potential factors that cause or contribute to changing climatic conditions in a region. In Pakistan, these determinants are not quite different from the rest of the world. It has been understood during the interview with our respondents that domestic determinants of climate change are quite same to their global counterparts. One of the respondents proclaimed that these determinants cane be enlisted as,

"Deforestation, industrial emissions, transport emissions, energy sector emissions and life style of the upcoming generations, which is busy enough that it can have serious implication for changing climate". (Respondent 1)

It is only because Climate Change is global in nature. The Climatic Changes in Pakistan can have observed by looking into the temperature growth over the years, rainfall patterns change and most importantly the frequency of occurring extreme events in the forms of floods, storm and etc. For most of the experts, determinants of climate change in Pakistan are not so much different from outer world but yes, somehow it differs because what cause a climate of a country to change is carbon emissions, deforestation and overutilization of resources. One of the respondents argue that,

"Humanity's increased use of fossil fuels such as coal, oil, and gas to generate electricity, running cars and other forms of transport, and power manufacturing and industry. Deforestation, because living trees absorb and store carbon dioxide, increasingly intensive agriculture which emits greenhouse gases like methane and nitrous oxide." (Respondent 3)

Deforestation causes two ways emissions into the atmosphere, in first way it is burnt and carbon releases but in second way, the carbon storing unite or machine/plant tree is removed from the ground and sequestration stops. This way the deforestation is major influencing factor or determinants of Climate Change in Pakistan as well as in the other parts of the world.

At household level the energy choice is also one of the most important determinants of the country's climate. Because the choice of energy is certainly most connected phenomenon with the quantity of emissions, which provides breeding grounds to changing climate. The Climate Change in Pakistan is not only caused by these factors contributed by the Pakistani society but the emissions caused by the other fellow countries, are also causing acceleration in the changing climate for region. One of the respondents pointed out that,

"The growing economies such as India, Bangladesh and China largely determine the changing climatic conditions in the region and as a result country like Pakistan are facing severe climatic conditions. (Respondent 2)

In other words, apart from greenhouse gas emission and deforestation, some other factors are unique to Pakistan and largely determine changing climatic conditions in Pakistan. In this regard, one of the respondents argued that,

"The growing concerns for Climate Change in the country are due to lack of proper policy implementation as the country has recently introduce national level of climate change and it takes enormous time to reap the benefits of national level policy reforms". (Respondent 5)

It has been understood based on the findings of different interviews that major determinants of Climate Change in Pakistan are related to greenhouse gas emission in energy, transport and manufacturing sector, deforestation, high rate of greenhouse gas emission in regional emerging economies, and lack of proper policy implementation against Climate Change.

5.4.2 Parliament's progress in legislation related to climate change.

Improvement in the parliamentary environment for better policy actions is one of the most important phenomenon, and crucial for sustainable growth. The parliament in Pakistan has already enacted several policies and acts such as National Climate Change Policy, Climate Change act and other national level water and energy related policies. One respondent sees an important interaction between Climate Change impacts and economy.

"One can observe that parliament is quite indulged in discussion on Climate Change impacts and causes and it's important for the economic prosperity of the country." (Respondent 5)

The parliament is taking regular and serious notices on deforestation issues, water distribution issues, and limits of carbon footprints in different sectors. It is quite interesting to see that Pakistan has provincial level Climate Change Policy and national level of Climate Change Policy; these policies are the outcomes of Parliamentary efforts and actions towards climate change in the country. In this regard, one of the respondents are of the view that,

"Though, the country has enacted Climate Change policy at both provincial and national level, but still inter-provincial arrangements are negligible. For me, policy should be data oriented and without having updated data related to Climate Change concerns, it would be hard for any type of policy to achieve its objectives." (Respondent 3)

Among these adaptations are more urgent than mitigation polices for Pakistan. Because climate has changed and floods will hit the coastal regions of the country. It is more important to adopt against these floods and adopt new technologies in agriculture flied in terms of climate resilient seeds and crops. In other words, Climate Change related policies need to focus more on adaptation against climate change by changing the cropping patterns and cultivation and harvesting times of the crops, aligning it with rainfall patterns and temperature difficulties. In this regard, one of the respondents expressed his views,

"National Climate Change Policy in Pakistan is quite evidence base policy, which shows that water resources conservation and modern irrigation techniques are firmly the most important aspects that can help the country farmers and residence to cope against climate change." (Respondent 2).

The role of Climate Change Act (2017) enacted by Parliament of Pakistan is critical for achieving policy objectives proposed by NCCP. There were different factors behind the legislative development in terms of CCA (2017) i.e., obligations related to international treaties, national requirement as more than 20 Million displaced due to floods, and changing geo-politics. One of the respondents added that,

"International image building as well as obligations mandated by international treaties played an effective role behind this legislative development." (Respondent 1)

The enactment of CCA (2017) has automatically established Climate Change Fund, which is an important development because without sufficient amount of resources no country can fight the battle against Climate Change. The role of Climate Change fund thus is critical in achieving policy objectives against climate change. Climate Change Act plays an important role in reducing the impacts of climate change in terms of economic cost and hardships faced by the households and companies. On national level, government has introduced NCCP, which promotes forestation and argues on agriculture adaptations and industrial emission mitigations. The policy has also identified most efficient action points to tackle the Climate Change.

5.4.3 Eighteenth Amendment and inter-provincial engagements for a Successful implementation of NCCP objectives.

Pakistan is lacking laws related to Climate Change, as climate change is a Provincial subject after eighteenth amendment to the constitution. For that specific reason, federal government cannot pass Climate Change laws on national level and instead enacted several policies and acts. Consequently, international Provincial engagements are negligible and create obstacles for a successful implementation of NCCP objectives. For instance, one of the respondents proclaimed that,

"The CCA (2017) announces federal level ministry which centrally provides funds and carried out tasks instead of giving autonomy to provincial and district level government"(Respondents 3).

Each respondent endorsed the role of interprovincial arrangements and engagements for a successful implementation of NCCP objectives during interview. Apart from that, institutions are playing important role in regulating the economy of Pakistan. Institutions are improving in Pakistan over the years as the data of institutional quality index from WDI indicates that Pakistan has made significant improvement in terms of institutional quality score in last few years. However, it is debatable that institutional structure in Pakistan is complex and causes significant hurdles in the process of implementation. One of the respondents pointed out that,

"In Pakistan there is a system which is dependent on multiple parties and financing sources and significant amount of institutions are associated with each and every policy, during the making process and implementation process" (Respondents 5).

It is quite complex to understand how a policy design is acceptable to opposition parties, which show politics on each policy and rule of law for their own ease of doing services. The institutional structure is yet bounded together with zero transparency. In this regard, one of the respondents are of the view that,

"Objective of the policy depends on the needs of society and there is a tendency that whenever a party rules and try to provide any service in the region, the opposition plays their rule in creating hurdles and making issues out of small problems". (Respondents 4)

These restrictions and barriers cause delay in implementation of several policy objectives. The example of diameter Bhasha dam can be cited in this regard. This dam was one of the climate adaptation and flood impact mitigation strategy but high amount of parties

opposing this project for the sake of vote production on differentiating a lam stance the opposing party says it will cause floods if it breaks, which doesn't seem a scientific argument but a political argument in major.

In addition, climate financing from green climate funds also known as global climate fund is achievable through the access of ministry of Climate Change but it makes it hard to access these funds and these funds are provided for the cost of adaptation and mitigation. These are security purpose hurdles but it restricts provinces to access the GCF and can receive compensation for the adaptation they do. One of the respondents argued that,

"Institutional structure can be designed for the ease of adaptation and mitigation, which brings upon the most need fund in the range of access for most vulnerable ones in the community". (Respondents 2).

The process of registration and lack of incentives that can drive the intentions are also factors that are associated with institutional structure to deal with Climate Change in Pakistan.

5.4.4 Role of the implementation of NCCP objectives in minimizing the negative effects of Climate Change in Pakistan.

The progress of National Climate Change Policy implementation can be seen in terms of increasing expenditure and attracting foreign investments, which are two positive signs against Climate Change across the country. In particular, the historically biggest ever national level project against climate change, 'Billion Tree Tsunami project' which reshaped the forest cover of Pakistan and increased the forest cover by 2 percent at once, which is extremely worth appreciating and one of the national climate change policy's objective. According to one of the respondents,

"Billion Tree Tsunami project enables the country to opt for international donations which are extremely important for the successful implementation of NCCP objectives". (Respondents 1).

Other objectives like irrigation efficiency, climate resilient seeds, and climate smart agriculture are also in progress towards final stages, where drip irrigation schemes are offered to farmers and government installs solar for forming activities, all these indicates

that national Climate Change Policy is in action against changing climate in Pakistan. In this regard, one of the respondents argued that,

"In KPK province of Pakistan, solar panel project installation with drip irrigation installation has been completed and results of rehabilitation of agriculture business make it more economical for the country and community." (Respondent 4).

The implementation of NCCP objectives are practically very helpful against climate change impacts. Negative impacts of Climate Change are floods, excessive rainfall and droughts, which can be mitigated through adaptation and mitigation and national policy of Climate Change is exactly doing it in Pakistan all across the provinces and federal areas. In this regard, one of the respondents are of the view that,

"Adaptations against floods make it less costly for households in remote areas because of NCCP. It helps farmers to save their lands from erosion and loss of fertile soil which is top soil and this fertile soil is formed in long period of time." (Respondent 5).

Crops cultivation and harvesting times changes are also adopted due to training and information provided under NCCP in Pakistan, which has helped farmers, in terms of saving their crops from extreme weather conditions. On the other hand, mitigation side is long-term aspect of this policy to help common people in society. It helps in reduction of Climate Change acceleration and will give us more time to keep up with existing infrastructure and technique.

CHAPTER 6

CONCLUSION AND POLICY RECOMMENDATIONS

6.1 Conclusion

In the last two decades, climate change and its impact on various socio-economic sectors appeared to be more than real in Pakistan. As per the report of Pakistan's meteorological department, Pakistan is more vulnerable to changing climatic conditions because of its diverse geographical and climatic features. Despite Pakistan is a low carbon emitter, it is surrounded by two of the world's highest carbon emitters, namely India and China and due to their excessive emissions, the atmosphere of Pakistan is being affected adversely, and the impacts are evident in the shape of increasing catastrophes and disasters reining over the country.

For instance, Global Climate Risk Index 2020 ranks Pakistan among the top 10 most vulnerable countries, as per capita water availability in Pakistan has decreased from 5260 cubic meters in 1951 to 1032 cubic meters in 2014, and the total losses caused by changing climate conditions in Pakistan are about at 1% of Pakistan's GDP between 2005 and 2013. In just two decades, from 1995-2015 Pakistan's overall emissions have gone up by almost 123% and almost 90% of these emissions are credited by energy and agriculture sector. Future projections for the period 2015-30 show a steady increase in emissions due to the ambitious plans of the present government to spark economic activity through large-scale investments in energy, communication, and industrial infrastructure.

In this regard, this research study evaluates the causes behind rapid climate change and policy response with a particular focus on the role of Parliament in mitigating climate-changing Pakistan. We have identified major determinants of Climate Change in Pakistan, and then analyzed efforts of Parliament in making legislation against Climate Change. We have also analyzed Policy objectives of National Climate Change Policy in terms of agendas and recommendations in the meetings of Parliamentary Standing Committee on Climate Change.

Global Scientific Community assumes man-made contribution to the Climate change as the prime determining factor of Global Climate Change and has identified energy

production, clearing land for agriculture production, industrial process and deforestation are the major contributor to GHG, and determines Global Climate Change, and Pakistan is no exception in this regard. For instance, apart from energy sector that contributes 51% of GHG in Pakistan, agriculture sector through the process of clearing-land and increasing livestock farming contributes 39% of GHG emission, while industry only contribute 6% and finally deforestation with 3% of GHG emission.

A major vulnerability in Pakistan is the inability of Parliament to make laws related to Climate Change as making laws related to Climate Change Provincial subject. Thus, Parliament in Pakistan is contending Climate Change via not making laws but only through policy and acts. In technical terms, Policy and acts are not equivalent to Laws, but have varying connotations and specific meanings (Khan & Yaseen, 2017). In this regard, so far Parliament in Pakistan has not passed any law aimed at combating Climate Change rather has advanced, Pakistan Energy Efficiency and Conservation Act, National Climate Change Policy (NCCP), Global Change Impact Studies Centre Act, and Climate Change Act (CCA).

National Climate Change Policy concentrates on adaptation efforts are of primary importance because Pakistan is highly vulnerable to the adverse impact of Climate Change. However, still NCCP document contains different objectives, which are aimed at prioritizing mitigating efforts to Changing Climatic conditions. For instance, adaptation efforts are efficient in the sectors of water resources, agriculture, forestry, coastal areas, biodiversity, and vulnerable ecosystems, while mitigation efforts to Climate Change would focus on energy sector, transport, industry, and town planning (Caudhry, 2017). However, we have analyzed NCCP objectives in terms of Institutional Capacity Building, Water Security, Integration of National Policies, Natural Disaster Management, Natural Resource Management, Social Sector Development and Health and Climate Change finance by focusing on the agendas and recommendations in the meetings of Parliamentary Standing committee on Climate Change.

Institutional capacity building as NCCP objective focuses on enhancing the awareness, skill, and institutional capacity of relevant stakeholders. To achieve this specific objective, different policy measures have been proposed in the NCCP document. However, in the meetings, the committee has discussed only three out of twenty-five

policy measures as Agendas of their meeting and proposed suitable and practical recommendations. Agenda 10 in the meetings have discussed this specific policy measure where the committee informed recent coordination between Ministry of climate change and Ministry of information that a consensus was built to spread awareness through different video messages on social media about reducing the use of plastic bags.

Another major consequence of Climate Change in Pakistan is that, it has increased variability in the water cycle and damaged ecosystem by causing uncertain and extreme whether events. The committee has informed in its Agenda no 3 the first ever funding on glaciers Green Climate Funded Project on GLOF-11 and "Recharge Pakistan Project" that can significantly contribute to the issue of melting glaciers in the country. In Agenda No 13, the committee has called for the resubmission of national water policy and asked to share reports regarding 'Bhasha and Dasu Dams' and suggested that the rainwater harvesting should be started to uplift water table in the country. Similarly, in Agenda No 14, the committed has assured public awareness in times of flood. In terms of water conservation, the committee has proposed strict measures to stop water pollution in its Agenda No 27 and to increase water storage capacity the committee has discussed clean water capacity of Rawal Dam, Islamabad in its Agenda No 32. The committee has suggested dredging process of Rawal Dam to enhance its water storage capacity in the future.

For climate compatible development, the objectives related to development, adaptation, and mitigation should be properly addressed in national policies. In this regard, one of the objectives of NCCP is to integrate NCCP with other inter-related national policies. In Agenda No 11, the committee has informed about recent engagement between Global Change Impact Study Centre and provincial Agriculture research in order to develop and build resilience in the farming sector. In Agenda No 12, the committee has informed about recent coordination between Ministry of Climate Change and Ministry of information in which a consensus was built to spread awareness through different video messages on social media about reducing the use of plastic bags. Similarly, in Agenda No 13, the committee has called for secretaries of forest department in all provincial government to get briefing over planting trees along highways. In Agenda No 36, the committee has a detail briefing about Government Policy on Electric Vehicles in

Pakistan. The committee recommended that tax duty on the conversion of fuel engine to the electric engine should be permanently wave off. Similarly, in Agenda No 37, the committee has discussed complains against OGRA that petrol pumps on motorway and along with motorway interchanges are charging 16% extra, especially on payment through credit or debit card. In this regard, the committee has recommended certain recommendations, which are as follows.

6.2 Policy Recommendations

1.Amajor vulnerability in Pakistan is the inability of Parliament to make laws related to Climate Change as making laws related to Climate Change is a provincial subject, therefore there is a genuine need for inter-provincial and inter-sectoral engagements to successfully implement both adaptation and mitigation polices related to Climate Change,i.e. Transport, agriculture and forest sectors came under Provincial Jurisdiction and without proper inter-provincial engagements we cannot sustain these sectors against climatic threats.

2. Provincial governments have constantly ignored the role of local governments in different sectors such as forest, water, irrigation, and land management. There is a genuine need to increase local government's representation in decision making related to Climate Change via provincial legislation.

3. Parliament should need to more focus on data-driven legislation in Pakistan, as currently there exists sufficient amount of data related to Climate Change activities within different Provincial and Federal departments. The need of data driven climate actions is due to the vulnerability of Pakistan against frequent climatic calamites in terms of flood, drought, water shortages, and air quality.

4. To control deforestation in northern part of the country, Parliament should legislate and ensure the availability of cheap natural gas in northern part of the country.

5. A more targeted approach is required to create awareness about climate change and the root causes of climatic calamities in Pakistan. Parliament should need to develop more targeted strategies, like to create awareness in farming sector via the provision of adequate information regarding recent research and development. In this regard, Parliament through the help of GCIC can arrange regular presentation by inviting farmers and their associated bodies.

6.3 Limitations of the study

Initially, for the research all the concerned private, government departments, semi government departments, NGO's, and environmental experts were included but due to Covid-19 and its associated lock-down researcher restricted research to only working progress of Parliamentary standing committee on Climate Change and GCISC. Unfortunately, during Covid-19, even Parliament of Pakistan was not conducting any Parliamentary practice for legislation or research on the subject of Climate Change which was highly beyond my expectations, as far as keeping concerned with the Parliamentary Practices my research was relevant with the same so the working progress of the standing committee of Climate Change was mandatory to have updated data collection and work progress of responsible ministries. Furthermore, death of few political elites due to Corona lead the notifications of ceiling the Parliament house, in that phase the practices of standing committees were totally came to an end due to quorum point outs, after few meetings cancellation none of the meeting was scheduled for a long period. Secondly, it was equally difficult to manage interviews due to pandemic of Covid19, not even single person was willing to give time. It created a halt whiles my data collection via interviews. Finally, putting best researcher managed hardly few interviews of very short length answers, rest they provided me their progression reposts relevant to my questioner. Thirdly, my data collection via documents made difficult because 70% staff of the Parliament was on official off due to Covid19. Covid-19 badly affected my research quality, otherwise researcher could have produced better results.

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Appendices

Questionnaire

1. Despite Pakistan's lower contribution to Greenhouse gases, why Pakistan is facing severe threats in terms of climatic calamities. What do you think about the major determinants of climate change in Pakistan, and how they are different from global-level climate change determinants?

2. How do you see the progress of parliament in making legislation related to climate change? What were the potential factors behind this legislative development in terms of Climate Change Act 2017[1]? How is CCA helpful in achieving the policy objectives of NCCP?

3. How 18th Amendment to the Constitution, which provided provincial autonomy in matters, including climate change would affect in achieving objectives associated with centrally structured Climate Change Act (CCA)[2]? How do you weight inter-provincial engagements for a successful implementation of National Climate Change Policy objectives in Pakistan?

4. What are the numerous challenges to the implementation of National Climate Change Policy objectives in Pakistan?

5. How do you see the progress in the implementation of NCCP objectives? How is the implementation of NCCP objectives helpful in minimizing the negative effects of climate change in Pakistan?

Agendas and recommendations proposed in the meetings of Parliamentary standing committee on climate change.

[1]a) International treaty obligation, as some of the scholars are of the view that International image building aside and fulfilling just a hollow obligation mandated by the international treaty. b) Changing Geopolitics., c) National requirement or Actual need for CAA (More than 20 million displaced due to

[2]Contrary to the spirit of the amendment to the constitution and rather than empowering provincial governments and the district commissioners on the ground, the CCA set up a federal level ministry which centrally provided funds and carried out tasks.

Agenda	Recommendations
Proper examination of Budgetary proposals of the ministry related to The Public-Sector Development Program (PSDP) for the year 2019-20.	All the projects of the year are directed to the ministry of Finance to allocate the required budget. The committee directed that all the projects should be completed within the time in accordance with prescribed rules and procedure.
Proper examinations of efforts to control Vehicular emissions in the capital, to save endangered species and stop illegal haunting, and to increase awareness about climate change among youths via edition in curriculum.	The committee recommended that the Ministry should take all the measures to prevent illegal hunting in order to save endangered species. The committee directed the ministry to convey all the information about climate change to the public and to certify laboratories for analysis.
To build a consensus on the ban of Oxo-degradable and plastic bags, and to inform the fact that glaciers are melting 6-7 inches every-day.	Media campaigns to discourage the use of plastic bags should be initiated. Duty on electric cars should be reduced. The committee informed the first ever funding on glaciers Green Climate Funded Project on GLOF-11 and "Recharge Pakistan Project" that can significantly contribute to the issue of melting glaciers
To introduce Zig Zag methodology for traffic in order to bring 70% fuel reduction.	Section 144 of the Code of Criminal Procedure was also imposed for two months initially and no other method would be used after 31st July 2019.
To appraise survey report on Markhor and Murgzar animals	Coordination between WWF and WCF must be done before report submission on Markhor and Murgzar. Reliable data on a number of licenses issued on the killing of Markhor and Murgzar should be provided.
To introduce Green Pakistan Program and broaden its scope to billion tree projects.	Proper record regarding the plantation of trees should be shared with the committee. The members asked the Secretary to identify the areas, number, and type of trees planted.
To increase awareness among local farmers about new concepts of farming and challenges of climate change.	Campaign to sensitize farmers/ agriculturists and timely dissemination of authentic information with farmers should be made sure (including launch of dedicated application). The members also suggested inviting farmers and their associated bodies for input over this matter. Members stressed to educate farmers through media and app regarding rapid climate changes.

To stabilize greenhouse gas concentrations Pakistan signed United Nations Framework Convention on Climate Change (UNFCCC)	A visit should be arranged to physically monitor the pollution assessment equipment installed in Pak-EPA office in H8. The committee re-raised concerns over use of low quality fuels including diesel in vehicles that cause 43% of pollution directed to invite concerned officials from Ministry of Petroleum in the next meeting.
To appraise waste management system.	Campaign should be initiated to discourage and ban the use of plastic bags. The date proposed for imposition of ban on the use of polythene bags in Islamabad is 14th August 2019 and propylene bags were suggested as the best substitute.
To integrate provincial secretaries/representatives for briefing on the implementation status of recommendations made by Committee meetings in 2016.	Provincial representatives including Sindh Institute of Oceanography as well as Sindh based representatives of WWF-Pakistan, officials from Ministry of Petroleum and Ministry of Maritime Affairs should be invited to the next meeting.
To inform the engagement between Global Change Impact Study Centre and provincial Agriculture research in order to develop and build resilience in the farming sector.	The committee invited Provincial Agriculture institutes to present discuss issues related agriculture sector in the next meeting. Different provincial agriculture institutes have been invited to present research on issues in farming sector.
To inform the committee about recent coordination between Ministry of climate change and Ministry of information in which a consensus was built to spread awareness through different video messages on social media about reducing the use of plastic bags.	The Committee emphasized to increase awareness about climate change in the Capital via sharing share books and video messages on social media about reducing the use of plastic bags.
To call for secretaries of forest department in provincial government in order to get briefing over planting trees along highways	The Committee recommended calling secretaries of forest department and government of all provinces in next meeting to get briefing over planting trees along highways. The committee also invited CDA in next meeting to brief plantation in the capital
To assure public awareness in times of flood and disaster management	The committee suggested that information mechanism should be improved between District administration and Local parliamentarians to increase public awareness. The committee directed DCO has to coordinate with Local parliamentarians in times of flood and disaster management.

Tor resubmits Water-Policy 2017 for further consideration.	The committee recommends Water policy 2017 should be submitted for consideration. The Committee asked to share reports regarding Bhasha and Dasu Dams and suggested that the rainwater harvesting should be started to the uplift water table.
To protect Agriculture sector from the adverse impact of climate change by improving the feedback mechanism in farming sector as differents research studies of Global Change Impact Study Centre (GCISC) suggest.	The committee recommended that GCISC should collaborate with all agricultural research institution in order to build resilience in the farming sector.
To get a briefing from the representative of GCISC about the current projections of Climate change.	The Committee recommended that Agriculture universities across Pakistan should present their researches on climate change ministry's website.
To brief the committee that an amount of Rs.125 billion has approved by the government for the plantation of 3.29 billion trees in four years.	The committee suggested Provincial and district record of the plantation should be provided to the committee.
To inform the committee those native trees will be planted instead of decorative in billion trees project.	The committee recommended that GCISC should collaborate with all agricultural research institution in order to build resilience in the farming sector.
To take notice of restaurants-construction in the premises of Margalla Hills National Park as they are posing threats to biodiversity.	The Committee directed to call CDA in next meeting for preventing restaurants-construction in the premises of Margalla Hills National Park. The Committee suggested that National Parks and zoo should be handed over to climate change instead of CDA.
To brief the committee about the measures taken for desulphurization, and smoothing flow of traffic.	The committee suggested that Oil refineries should be invited to make a proper assessment of measures taken for desulphurization. The committee suggested for the installation of safe advertising billboards and screens should on the roadsides to make sure the smooth flow of traffic. The committee suggested that local manufacturing of electric cars should be encouraged.
To brief the committee that 1.2 million trees have been planted in Islamabad.	The committee suggested that to increase the planation efforts across the country

To advance a meeting with Senate Standing Committee on Climate change on the Desulphurisation of diesel in the country.	The Committee decided to have a meeting with senate committee for this in order to get recommendations on measures to be taken for Desulphurization of diesel. Ministry of petroleum OGRA and concerned organizations are also directed to be there in above meeting am present a plan and time for the upgradations to Euro-iv & v technology.
To discuss the status of environmental pollution in the country.	The committee invited environmental departments of all provinces in next meeting to discuss the status of environmental pollution in the country. The provincial government should take steps to ban crops burning in order to save the country from pollution. The committee suggested legislation to ban tier burning in Punjab. Brick kilns should be updated technologically to reduce pollution. Strict actions should be taken to control dust in surrounding areas of Hayatabad by the government of KPK.
To inform the committee that PM has approved to provide solar stoves to manage fuel issues especially in hilly areas.	The committee suggested that Environmental Protection Agency to take measures against the issue of dust which is being created around Hayatabad. Forest department of KPK should present a report on tree plantation or cutting trees in KPK and to involve an MNA from swat during the inspection.
To inform the committee that PM has approved the allocation for Zoo in the capital city.	Secretary of climate change made sure that Islamabad wildlife management Board will be formed and will be working in 3 months. Forest department of Rawalpindi should submit a report on planting trees around.
Strict measures should be taken to stop the water pollution and other losses of nature due to the sewerage of restaurants constructed in Magalla hills.	The management plan for the land of Margalla Hills National Park should be formed.
To inform the committee about the postponement of two bills namely The Pakistan Environmental Protection (Amendment) Bill, 2019 and The Global Change Impact studies center (Amendment) Bill, 2019.	The committee suggested Ministry of Climate changes to give a presentation on the electric vehicle policy.
To submit lease agreement and rent collection report of restaurants situated in MHNP Metropolitan Corporation Islamabad (MCI) and CDA	The Committee asked the Metropolitan Corporation Islamabad (MCI) and CDA to submit the lease agreement and rent collection report of restaurants situated in MHNP. The committee asked the chair CDA to attend the next meeting as he was absent in previous meetings.

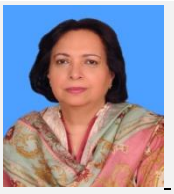
To inform the committee of introducing Septic Tanks in Margalla to control pollution.	The committee suggested that septic should be built according to the standards of Pak-EPA.
To inform the committee about the absence of Chairman CDA AND Mayor MCI in the meeting.	The committee directed the Secretary to issue summons to the chairman CDA and Mayor MCI.
To brief the committee on the status of previous recommendations in solid waste recycling program and to discuss clean water capacity of Rawal Dam, Islamabad.	The committee recommended that solid waste recycling program should also be started in Sindh and Baluchistan. The committee suggested dredging process of Rawal Dam to enhance its water storage capacity.
To pass Global Change Impact Study Center (Bill) 2019 with slight amendments and approve the Public-Sector Development Program (PSDP) for the financial year 2020-21.	The committee directed Ministry of Climate Change to provide data of planted trees and fund allocated for this purpose. The committee directed the Secretary Forest (Punjab) to provide detail and quantum of Plantation in Nankana Sahib.
To appoint a sub-committee under rule 224 under the Convener ship of Engr. Sahib Hussain	Sub-committee was appointed with ToR. The Committee directed Ministry of climate change and forest departments of all four provinces to brief in detail regarding research conducted on suitability of planted trees. Committee showed concern on increasing population and decreasing cultivable area. The committee also Directed Ministry to brief on Electric Vehicle in next meeting.
To issue environmental protection order to the restaurants located MHNP under PAK-EPA act. .	The Committee determined that it was the duty of CDA to launch proper mechanism of wastage dirty water. Committee directed CDA to fix their boundaries. The committee directed CDA to inquire into the matter of adopting proper mechanism for wastage and sewerage water by restaurants. (Approx. 14 years have passed but why they have not adopted yet). Committee directed CDA and MCI to determine the boundaries
To brief the committee about Government Policy on Electric Vehicle in Pakistan.	The committee recommended that tax duty on the conversion of fuel engine to the electric engine should be permanently wave off. The committee directed petroleum division that when the whole world has converted their fuel to Euro V since 2014 then why we are still thinking. The committee directed Minister of Climate Change to brief on this issue in detail in the upcoming meeting. The committee directed the Ministry of Industries and Petroleum must attend the next

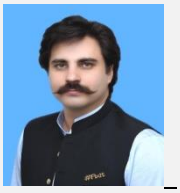
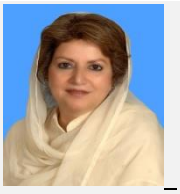
	meeting.
To discuss complains against OGRA that petrol pumps on motorway and along with motorway interchanges are charging 16% extra, especially on payment through credit or debit card.	The committee directed that petrol pumps must enhance their standards and stop charging extra amount. Committee directed OGRA to make sure that complaint number is displayed at every petrol pump. The committee directed OGRA to prepare detail briefing for next meeting. Committee directed OGRA to resolve issues rose by members regarding substandard fuel and extra charges. Committee directed OGRA to launch campaign regarding awareness on usage of facemask and gloves during COVID 19.
To brief the committee about Electric Vehicles policy in Pakistan.	The committee directed that task of electric vehicles may be shifted to Ministry of Climate change by Ministry of Industries and Production. The committee-expressed concerns regarding disposal of expired batteries of electric vehicles was shown and it was instructed to destroy them as per international standards. The Committee directed that all recharging points must use solar energy for the charging of electric vehicle batteries. The committee informed that Government will purchase 1000 electric buses and 1000 electric trucks, in which 200 will be imported as electric vehicles while 800 will be locally assembled.
To discuss Billion-tree program planted in KPK, two-stroke engines presently operative, lack of safety measures in locally manufactured vehicles.	The committee directed climate change ministry to provide a report of Billion-tree program. The committee recommended ministry of climate change to write a letter to all the provinces to enhance token tax of stroke engines and to make a proper mechanism to examine emissions tests of all vehicles before collecting annual token tax. The committed directed Ministry of Industries and Production to bound local vehicle manufactures to install safety measures without any additional charges.
To brief the committee about the present depth of Rawal Dam.	The committee suggested Sindh Waste Management must not dump garbage near populated areas and a required person from the SWM should attend an upcoming meeting.

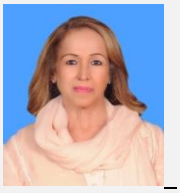
	The committee directed the Ministry of Climate Change to provide all the executed multilateral national agreements in the next meeting. The committee Directed provides EPA rules including related Acts of the committee within a week.
To brief the committee about the production and sale of petrol have been upgraded to Euro- iv and V.	The committee suggested that given briefing by Petroleum, division was sub-standard and there was no one to answer the questions. The Committee directed the Petroleum Division to prepare briefing again for the next meeting.

MEMBERS OF STANDING COMMITTEE

Climate Change

S.No.	Name	Party	Contact No./Email	Constituency #	Picture
1.	**Ms. Munaza Hassan (Chairperson)**	PTI	---	RS (Women)	
2.	Dr. Haider Ali Khan	PTI	0946-745333, 0300-5749444	NA-2	
3.	Mr. Afreen Khan	MMAP	0300-3968667	NA-11	
4.	Mr. Khial Zaman Orakzai	PTI	051-9215211-13/0332-9555555 & 0300-0553139	NA-33	
5.	Mr. Tahir Sadiq	PTI	0321-5738416, 0592-702031	NA-55	
6.	Mr. Rai Muhammad Murtaza Iqbal	PTI	0405-486333, 0334-6423028	NA-149	
7.	Syed Mustafa Mahmud	PPPP	042-35833124-5, 0300-9509820	NA-178	

8.	Mr. Zulfiqar Bachani	PPPP	0300-8251299	NA-224	
9.	Engr. Sabir Hussain KaimKhani	MQMP	0300-9379456	NA-226	
10.	Mr. Muhammad Alamgir Khan	PTI	0333-2424420	NA-243	
11.	Ms. Tahira Aurangzeb	PML-N	N/A	RS (Women)	
12.	Ms. ShaistaPervaiz	PML-N	N/A	RS (Women)	
13.	Ms. Rubina Irfan	BAP	N/A	RS (Women)	
14.	Ms. Naureen Farooq Ibrahim	PTI	N/A	RS (Women)	
15.	Ms. ShahidaRehmani	PPPP	N/A	RS (Women)	

16.	Ms. Zahra WadoodFatemi	PML-N	N/A	RS (Women)	
17.	Ms. Romina KhurshidAlam	PML-N	N/A	RS (Women)	
18.	Ms. Musarrat Asif Khawaja	PML-N	N/A	RS (Women)	
19.	Ms. Andleeb Abbas	PTI	N/A	RS (Women)	
20.	Dr. Seemi Bukhari	PTI	N/A	RS (Women)	
21.	**(Minister In-charge)**		N/A	Ex-Officio Member	HYPERLINK "http://www.na.gov.pk/en/imgs/"