



## Climate Change and Pakistan's Environmental Policy in the Light of International Obligations

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### ABSTRACT

Climate Change is a global threat having its impacts on every sector of life. Although the causes stem from the industrialization of developed countries but the impacts of Climate Change are not restricted to only developed countries. The research deals with outlining the major gaps that hinder the implementation of international obligations. It starts from elaborating the major impacts that climate change pose to Pakistan such as ecological, agriculture, and health related. It also outlines the legislation done by Provinces and Federal Government to tackle this issue. In last, the major reason is explained and a suggestion of Cooperative federalism is also given, which can help figure out better laws and their implementation throughout Pakistan.

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## 1. Introduction

Climate change is an undeniable fact. According to the Intergovernmental Panel on Climate Change (IPCC) fifth assessment report, mankind is to blame and is responsible for this unsustainable condition. Evidences are there that indicate that Climate change is happening all around the planet with a significant pace. A rapid change in snowfall and rain patterns, increasing sea-level, rise in temperature, melting glaciers are some of the indices that indicate Climate Change (Singh & Onkar, 2012; Weitzman, 2009). It poses irreparable loss and grave threats to all over the world (Leiserowitz, 2005). Both human and environmental systems are threatened by the impacts of climate change (Walker, Adger, & Russel, 2014). Many countries in the world, particularly developing ones, are more vulnerable to climate change.

Keeping in view the climate conditions demography of South east Asia, Pakistan is more prone to the negative impacts of climate change (Kelkar & Bhadwal, 2007/2008; Rattan Lal, 2011). Such negative impacts are affecting the livelihood of low-income households (Morton, 2007). The region of south Asia is one of the most *disaster-prone regions* (Rattan Lal, 2011) in the world amounting to various reasons, most importantly climate change. It severely affects the agriculture productivity of the region, as some plants and crops are temperature sensitive, and increase in temperature causes retardation in plant growth.

Climate change is occurring and has a negative impact on Pakistan. Pakistan is geographically placed in an area where the effects of climate change are being felt severely (Malik, Awan, & Khan, 2012). Pakistan is extremely vulnerable to the effects of climate change (Wassmann, et al., 2009). It is among the top ten most vulnerable countries (Attar-Rahman & Shaw, 2015). The major concerns of Pakistan pertaining to climate change are

very grave, for instance there has been a rapid increase in the variability of monsoons, the severe water shortage in semi-arid and arid regions are facing extreme difficulty as the production of livestock and agriculture is very stressed. Moreover, carbon soot deposits and global warming caused by the industries are impacting the glaciers of Pakistan (Hindu Kush-Karakoram-Himalayan glaciers). The water inflow of Indus River system is also in danger, as the quantity of water is dismally low. The salinity of water is also increasing and affecting the mangroves, marine life and coastal agriculture situated in Indus delta region.

## **2. Effects of Climate Change in Pakistan**

Pakistan is an agrarian economy, and having such an economy it is very much vulnerable to the consequences of climate change. Although the share of Pakistan in global green-house gas emissions is very low and minimal, but its impacts on Pakistan are very harsh. Prolonged droughts, early and long summers, hot winters and higher glacial melt is depleting the water resources of Pakistan and leading to low productivity in agriculture. The forests, which acts as carbon sinks are also degrading with a rapid pace due to unabated deforestation. The biodiversity of Pakistan is also endangered due to water-stressed conditions, loss of habitat and lack of food security.

### **2.1. Impacts on Agriculture**

Agriculture enjoys great importance in the socio-economic system of Pakistan. It contributes 22% to the GDP of Pakistan and gives employment to the half of workforce. Agriculture also ensures food security and its importance cannot be minimized. The sector provides raw materials to other industries as well, but it is gravely affected by droughts, floods, change in season patterns, and other natural catastrophes. As per the estimates of IPCC, the productivity of agriculture has the pattern to decline in Asia due to frequency of flood and droughts and thermal stress. Increase in salinity and water logging is declining the crop yield to the massive 30%. Moreover, the increase in precipitation and prevalence of pests due to climate change is also responsible for the low productivity. With the increase of 1 degree temperature, the crop yield can be declined by 6-9% in Pakistan.

### **2.2. Ecological fragility**

Pakistan is prone to the threats caused by climate change leading to ecological fragility. The threat of extinction is also prevalent in agro-agriculture zones. The zones that are particularly at risk are arid areas, mountainous and coastal areas and the communities living in these areas are at higher risk of survival because climate change can lead to landslides, destruction of farms, upland and forests and sheet erosion as well. Frequent floodings due to glacial melts are also a grave danger for mountainous settlements. Moreover, due to glacial melts, the sea level is also rising and the coastal areas have existential threat, as in near future many islands will get submerged. Karachi faced various sand storms, and floods causing death of hundreds of people. Baluchistan and Sindh are also ravaged by tropical cyclones, havocking crops, livestock, and lives of countless people.

In addition to mountainous and coastal areas, the mangroves are also very important for ecology and the development. They protect floods and natural habitats essential for ecosystem. Mangroves are also facing threats being imposed by climate change such as rise in temperature and intrusion of saline water in it.

The rapid increase in the disastrous effects of climate change, the displacement of is taking place by the communities dwelling in these vulnerable zones, if the situation gets out of control it would be impossible for Pakistan to mitigate the impacts of Climate change.

### **2.3. Water Scarcity**

Pakistan is among the water stressed countries, and per capita water availability is decreasing with a rapid pace. In 1951, the per capita water availability in Pakistan was 5260m<sup>3</sup> which plunged to 1000m<sup>3</sup> in year 2008, and it is decreasing further due to climate change. IPCC also predicted that the freshwater availability in Pakistan will continue to decline unless some stringent measures are taken to cope with this issue. The Indus basin and

livelihood of thousands of people are also threatened. The glaciers of Pakistan, which are main sources of water availability are also very stressed. The rapid melting of glaciers due to increase in temperature and climate change is causing floods in glaciers. In the long run, with the recession of glaciers and snow cover, the water flows in rivers are also receding and leading to severe water shortage. As Pakistan rely on agriculture sector, the rapid decrease in water flows (93% of fresh water is used for agriculture) is directly affecting the economy of the country. Millions of households are suffering from water and food shortage because of deficit of grain production. The alternate of source of water availability, such as groundwater extraction has also reached its limit making the situation very grave for the livelihood of millions of households which rely on agriculture.

The national security of any country is also interrelated with the economic security, and shortage of water is also affecting the hydro-power generation capacity of Pakistan which is the cleanest form of energy production. Moreover, the cost of energy production is increasing worldwide, but now the environment is also the cost of energy production which must be minimized. The Pakistan is also suffering from this cost of environment, as it is generating energy mostly from coal power plants. With the increase in population, the per capita energy consumption is also increasing which results in the development of nation and vice versa.

## **2.4. Impacts on Health**

The impacts of climate change on human health are direct and indirect. For instance, it is impacting the fresh water quality, increasing the frequency of natural disasters like floods, landslides, cyclones etc., food availability and the mean temperature. In addition to that, the vectors of vector-borne diseases like dengue, typhoid, malaria and cholera are sensitive to heat and thrive in warmer conditions which is one of the major causes of mortality in Pakistan. The potential percent for epidemic of dengue and malaria is likely to increase due to climate change. The health sector of Pakistan is also trembling with lack of facilities and proper infra structure, the addition of the impacts of climate change will cause a great pressure on current health system. The associated issues of poverty, and illiteracy is also leading to poor health conditions and increase in diseases. The new variants of diseases in animals and livestock are also prevalent which have been observed and concluded to be the effect to soaring temperature.

## **3. Environmental Legislation in Pakistan**

For the very first time, the ecology and environmental pollution was added as an item in the Concurrent legislative List of the Constitution of The Islamic republic of Pakistan 1973, thereby admitting the importance of this grave issue. The item on the list was not restricted to the environmental concerns but also included within its ambit the items like electricity, poisons and harmful drugs, historical and ancient monuments etc. (Munir, 1996).

### **3.1. Ministry of Environment 1975**

For the very first time, an institution dealing with the ecology, international environmental obligations and environmental pollution was established in 1975. This ministry was not well-acquainted with its work and later on it was replaced.

### **3.2. Pakistan Environmental Protection Ordinance 1983**

The first legislation on the subject of ecology and environment in the form of ordinance was passed in 1983 but it was never implemented. Although through this ordinance, the Federal Government expressed its concerns about the severity and importance related to the environment and its associated issues.

### **3.3. Pakistan Environmental Protection Act 1997**

Another attempt was made in 1997 to address this issue in its entirety. The captioned act was passed by the Federal Legislature and it repealed the Pakistan Environmental Protection Ordinance 1983 (Badr-ul-Ameer). In this landmark act, first and pertinent of its kinds, the Federal Government established '*Pakistan Environmental Protection Council*',

mandated to approve and scrutinize national environmental quality standards, environmental policies, national environmental reports etc. This council has the representation of Provincial and Federal Governments to devise and implement uniform policies across the Pakistan to prevent and protect its environment. It is the highest executive body in Pakistan on environment and environmental issues. Through this composition in any body, it is expected to gain better outcomes because it bridges the trust deficit between federation and provinces, helps in the ownership and validity of decisions, and participation of every stratum of society and administrative agency leads to better implementation. The Federal Government, under this act, also established '*Pakistan Environmental Protection Agency*', headed by a Director General. This agency is mandated to formulate national environmental standards, environmental policies, and reports for the approval by the Pakistan environmental protection council. Contrary to the composition of council, the agency does not contain provincial representation but it has numerous functions and role in respect of environment. The Federal Government has empowered the provincial governments in Pakistan Environmental Protection Act 1997 (hereinafter PEPA) to establish '*Provincial Environmental Protection Agency*' for their respective provinces, and it shall be headed by a Director General. Although the domain of powers and functions of provincial agencies are not incorporated in the parent act, but it can draft its own rules not inconsistent with the PEPA 1997.

### **3.4. Environmental Legislation after Eighteenth Amendment**

The eighteenth amendment in the constitution resulted in, among other changes, the abolition of Concurrent Legislative list (Mahmood). After this abolition, the subject of environment was given to the provinces, and the provinces shall have the exclusive authority to legislate upon environment and carry out its administration. Prior to eighteenth amendment, the subjects of ecology, pollution and environment was in the Concurrent list, meaning thereby the Federal government and Provincial governments can legislate upon that matter concurrently, and in case of contradiction and inconsistency between federal and provincial Law, the former will prevail, but in 18<sup>th</sup> amendment, the concurrent list was abolished and the above-mentioned subjects were transferred to provinces.

An institutional change occurred after 18<sup>th</sup> amendment was that the issues relating to environment and ecology was given to *Ministry of Planning* and the Ministry of Environment formed in 1975 was abolished. Later on, *Ministry of Disaster management* was also constituted by the Federal Government to address the environmental issues in 2011. Lastly, a concerned *Ministry of Climate Change* was finally created to deal with climate change. The nascent ministry was mandated to take care of following matters.

To comply with and fulfil the obligations of Pakistan under various conventions, treaties, protocols and MEAs (Multi-lateral environmental agreements)

- To facilitate the environmental legislation, policies and standards at national level
- To determine the standards of environmental quality in the light of international obligations
- To collect data and undertake surveys and research as provided under MEAs.
- To implement, monitor and coordinate various climate change and environmental agreements signed by Pakistan.
- To ensure the implementation of *Pakistan environmental Protection Act 1997*.
- To develop and devise strategies on national level to meet the international environmental commitments.
- Environment and its related issues are not merely restricted to climate change, but the nomenclature of ministry working in Pakistan indicates that Ministry of Climate change is only mandated to work on climate change. In addition to that, the concerned ministry is also responsible for implementing the international environmental obligations binding under the treaties and conventions signed by Pakistan. But when it comes to practical implementation of international obligations, the ministry appears to be of no use, because the subject of environment and climate change exclusively belongs to the provinces. A major gap in devising and implementing national policies is that there is lack of coordination and understanding between federation and provinces on this subject and neither there is any working relationship between provinces.

### **3.5. The Climate Change Bill 2016**

The Climate change bill 2016 was approved from the federal cabinet (but not from federal legislature) and important institutional changes was made. A Climate change council was established and Prime minister is the chairman of that council and will head the meetings. Keeping in view the above-mentioned debate that environment and climate change do not fall within the legislative jurisdiction of federal government, despite that the Climate council was allowed to devise strategies and plans, adaptation and mitigation polices for climate change, and the protection of biodiversity. In addition to climate council, an authority is also established under this captioned act i.e., Pakistan Climate Change Authority. It is mandated to formulate mitigation and adaptation policies, plans and strategies to address the effects of Climate change like the climate council.

The Climate change act also established a climate change fund authorized to collect donations, grants and endowments from the sources being designated (the sources has not been designated yet). The purpose of this fund is to mitigate the disastrous effects of climate change, to provide financial assistance in rehabilitation projects, and to invest in research and development to combat the adverse effects of climate change. The act also enables the federal government to make rules and regulations for the proper functioning of authority and council under this act. Pakistan has been a party to international agreements such as "United Framework convention on Climate Change 1992", "Kyoto Protocol 1997" and "Paris Agreement 2015", and this act allows Federal Government to devise rules to implement the international obligations under such conventions and agreements. But after 18<sup>th</sup> amendment, the Federal Government is incapacitated to legislate upon the subject of environment. As compared to *Pakistan Environmental Protection Act 1997* the *Pakistan Climate Change Act 2016* also established some institutions discussed above, and are similar to each other.

### **3.6. Provincial Legislations**

After 18<sup>th</sup> amendment, Provincial Governments have also legislated upon the subject of environment and climate change.

### **3.7. Baluchistan Environmental Act 2012**

The Government of Baluchistan tried to reflect the *Pakistan Environmental Protection Act 1997* in its Provincial act of *Baluchistan Environmental Act 2012* to deal with environment and its related issues. It also includes the provisions to protect the local species of animals and birds in Baluchistan in addition to the management of electronic wastes and protection of coastal zones. These provisions are not present in PEPA 1997, but Provincial Government deemed it necessary to expand the domain of environment.

### **3.8. Khyber Pakhtunkhwa Environmental Protection Act 2014**

Like the provincial act of Baluchistan, the Khyber Pakhtunkhwa Protection Act 2014 also reproduced PEPA 1997 in its act and also added the procedure of Strategic Environmental Impact assessment. A major blunder was made in this act was that it included the provision of allowing Provincial Government to make rules for the implementation of Law of convention on seas, but apparently, province has no adjacent sea.

Punjab also reproduce PEPA 1997, with merely changing the nomenclature. As the subject of environment has been given to provinces, it can be easily noted that it is impossible to devise uniform laws in the light of international conventions and agreements to which Pakistan is a party. Moreover, it can also be observed that the issue of climate change and environment has not been delegated to the local or district governments, which can ensure its proper implementation.

## **4. Major Gap hindering the fulfillment of International Environmental Obligations**

A major gap which restricts the Pakistan to fulfil its international obligations is traced back to eighteenth amendment. In Pakistan, as environment is now a Provincial Subject, the

influence of Federation is ceremonial. When Pakistan commits anything in international arena, or ratify any international convention on environment and climate change it has no authority left to implement any policy across Pakistan. The provinces are now more important in this regard, they can formulate their own policy and laws in the light of international Obligations. Although PEPA 1997 allows the provinces to adopt the national legislation with or without amendments or enact their own version. Resultantly, it is the major hindrance in adopting the environmental policy at national level and implementing in its entirety. The federal government cannot legislate upon environment, thus the implementation of any environmental treaty of convention is very difficult in Pakistan.

## **5. International Environmental Agreements Ratified by Pakistan**

Pakistan has been a party to, and ratified few Multilateral Environmental Agreements concerning climate change.

### **United Nations Framework Convention on Climate Change (UNFCCC) 1992**

The objective of this convention is to stabilize and minimize the concentration of GHG (Green House Gases) in the atmosphere to limit the harmful effects of Climate change.

### **Kyoto Protocol to UNFCCC 1997**

In this protocol, the developed countries pledged to minimize and restrict their GHG emissions. Pakistan has also ratified this protocol of UNFCCC.

### **Paris Agreement 2016**

This agreement involves strengthening the international feedback to the danger of climate change by maintaining the rise in global temperature below 2 degrees Celsius and pursuing attempts to minimize the increase in temperature additionally at 1.5 degrees Celsius.

Suggestion:

## **6. Conclusion**

It can be clearly ascertained from the above facts and debate, that major hurdle in the implementation of international obligations lies within the working relationship of federation. The issue of climate change cannot be averted without significant measures. The Climate change effects the whole socio-economic indicators of any country as it is related with livelihood and food security of majority of people. The international conventions that are ratified by Pakistan make it obligatory for Pakistan to devise national policies to cope with the consequences of Climate Change. But as environment is a provincial subject now, the Federal Government is unable to make uniform and national policies in order to meet its obligations. There is a dire need to uphold the doctrine of Cooperative Federalism, in which cooperation between federation and provinces is ensured. Without this, it will be impossible for Pakistan to meet the international obligations related to Environment and Climate Change.

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