

Evolution And Challenges Of Environmental Governance In Pakistan

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Abstract

Pakistan is 5th most vulnerable country to climate change in the world. Diverse environmental challenges like pollution, deforestation and biodiversity loss etc faced by Pakistan are far more convoluted spilling beyond scope of “Climate Change”. Perpetual onset of Extreme Weather Events tends to undermine human and overall national security. Environmental degradation is termed by experts as an “Existential Challenge” confronted by Pakistan. Successive governments have made efforts to devise laws, policies, institutional frameworks and other measures pertaining to environmental governance over the past seven decades. However, the real challenge lies in the implementation and execution of these mechanisms. Environmental governance of Pakistan confronts serious challenges which needs a comprehensive collaborative effort by the federal and provincial government for a commensurate response.

Key Words: *Climate Change, Environmental Governance, Human Security, National Security, Extreme Weather Events.*

Introduction

Public Administration has been instrumental in providing conceptual frameworks as well as practical methodologies to address the challenges confronted by the populace. It has also enabled the governments in utilizing state institutions and mechanisms for efficient delivery of public services to the masses. However, with every passing day human problems have grown to be more complex, intricate and dynamic (Bannink & Trommel, 2019). Natural disasters proffer astounding challenges to the governance infrastructure, institutional capacities and order of the society. Real test of the performance, flexibility and adaptability of the institutions to the totally unpredictable scenarios, while ensuring wellbeing of the public, is exhibited during natural disasters, (Ahrens & Rudolph, 2006).

United Nations Population Division ranks Pakistan as the 5th most populous country in the world. Coincidentally Pakistan also ranks as the 5th most affected countries by the natural disasters according to Global Climate Risk Index 2020 (Eckstein et. al, 2019). This ever-rising susceptibility to the Extreme Weather Events (EWEs) has resulted into huge losses in terms of lives and properties across all regions of Pakistan (Burke et al., 2023).

Pakistan’s leading climate change expert, Mr Ali Touqeer Sheikh in his article in Daily “Dawn” on 17 November 2022 opines that Pakistan is ranked as one of the most vulnerable countries to climate change and ironically the least prepared for it. Economic repercussions of climate have been so alarming for Pakistan that its basic economic structure has been rattled

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by the soaring financial constraints triggered by climate change. All major economic indicators like debt to GDP ratio, tax collection, revenue targets, savings and credit ratings have been seriously hit by the economic impact of climate change. He equates Pakistan's environmental challenges with a horror movie where every new scene appears to be more frightening than the previous one. He opines that Pakistan has been caught in the web of climate disasters which are perpetually hitting our economy as well as every aspect of our economy (Sheikh, 2022).

This overall scenario has resulted into serious governance issues for Pakistan as environmental degradation has been termed as an "Existential Challenge for Pakistan" by many experts (Khan, 2022). Environmental issues have caused a wide array of challenges for Pakistan in terms of economy, health, food and water security, water scarcity, migration and various other social issues. Pakistan's governance system has been continuously evolving to meet the emerging environmental challenges; however, the response mainly has remained in the reactive category (Asghar et al, 2024). The study in hand is aimed at exploring evolution of Pakistan's governance response to the environmental issues and challenges faced in the process.

Evolution of Environmental Governance in Pakistan

Pakistan has continuously been introducing laws, regulations and policies alongside institutions at federal and provincial levels to respond the impending environmental challenges. According to Durrani (2019) policy level responses by the successive governments in Pakistan can be categorized into three eras. These eras alongside relevant policy measures are discussed in succeeding paragraphs.

- **Highlights of Environment Governance Measures During 1947 – 1956**

Evolution of environmental legislation has deep linkages with the overall political and constitutional development of Pakistan. The initial decade is termed as period of environmental neglect, mainly due to involvement of government in establishing the basic tenants of a newly borne state. Governance, administrative measures, war of 1948 with India and framing of first constitution marred the first decade of Pakistan which resulted into neglecting environment from the policy and administrative framework (OECD, 2007). The only worthwhile development related to environmental legislation is found in the maiden Five-year plan (1955-60), which had hinted at the concept of physical planning without any meaningful manifestation scenarios (Islam, 1957).

- **Highlights of Environment Governance Measures During 1956 – 1972**

The period after 1956 is considered one of "ad hocism" for environmental legislation and policy formulation as during this era, focus of the governments was on expediting the development while ensuring least possible regulation. These years witnessed massive industrialization, agricultural expansion, large scale infra structure projects like Mangla, Tarbela and Warsak dams alongside Karakoram Highway (Durrani, 2019).

The compound effect of environmental issues resulted in initiation of preventive measures, like SCARP (Salinity Control and Reclamation Project) and establishment of soil survey and conservation departments at federal and provincial level. To promote understanding regarding forestry and wildlife, a forest research institute was also established. These institutes, albeit their efficacy at localized level, mainly remained isolated acts (OECD, 2007).

- **Highlights of Environmental Governance Measures During 1972-1989**

The period since 1972 has witnessed remarkable improvement in the realization regarding environmental challenges at the government level as well as by the public at large (Durrani, 2019). According to Naureen (2009), 1980's witnessed a rise in environment related legislation in Pakistan. Establishment of Pakistan Environmental Protection Council (PEPC), Pakistan Environmental Protection Agency (PEPA) and Provincial Protection

Agency (PPA) was carried out in 1980's. This was in addition to the enactment of Pakistan Environmental Protection Ordinance (PEPO) in 1983. Various other measures for conservation of natural resources were undertaken in 1980's. Establishment of National Wildlife Council (NWC) made a considerable contribution by earmarking national parks for wildlife conservations. Additionally, 10% of the land area in Pakistan got designated as national parks, however, enforcement of the requisite measures remained lukewarm. 6th Five-year plan of 1983-88 covered the convergence of environmental requirements vis-à-vis the development objectives on one platform (Naureen, 2009).

- **Highlights of Environmental Governance Measures During 1990's**

According to a review study by Sustainable Development Policy Institute (SDPI), during the earlier parts of 1980's, development frameworks entailed limited consideration of the environmental aspects. However, environmental degradation concerns gradually started to seek desired attention at the policy level. Eighth Five-year plan spanning from 1993-98 is considered to be the first significant national policy document entailing environmental challenges in the policy objectives of the plan. The government of Pakistan also initiated two very significant environmental projects, the first one was Pakistan National Conservation Strategy (Durani, 2019). Another initiative titled Environmental Planning and Resource Conservation Project (EPRC) lasted for 7 years between 1993-2000. The initiative was completed with the help of the World Bank and played an important role in establishment of institutions related to environment, education and raising awareness related to environmental issues alongside enactment of environment related legislation (Naureen, 2009).

- **Highlights of Environmental Governance Measures Post 2000 Era**

Dawn of 21st century brought an era of positive developments in Pakistan, in terms of environmental policy making, legislation, institutional development, public awareness and much more (Naureen, 2009). Significant milestones achieved during the post 2000's era have been discussed in the succeeding paragraphs.

An Overview of the Major Policies, Plans and Institutional Mechanisms Related to Environment in Pakistan

Period after 2000 has witnessed a wide range of developments in the field of environmental legislation, institutional building and policy measures.

Environment Related Plans & Policies in Pakistan. Significant policies and plans related to environmental governance in the past two decades are as under:-

National Environmental Action Plan - 2001

National Environmental Action Plan (NEAP) was formulated by the Ministry of Environment in 1999. Key objectives of this plan supported by United Nations Development Program (UNDP) included improving quality of life of Pakistan's population through measures like ensuring public health facilities, provision of sustainable livelihoods and effective environmental governance through highly effective collaboration between public and private sectors (Durrani, 2019).

National Environmental Policy – 2005

The National Environmental Policy 2005 was introduced by ministry of environment with the aim to streamline the different plans, policies and frameworks at federal and provincial level in order to achieve the goal of effectively managing the environmental resources of the country. Salient facets of this landmark policy document are as under (OECD, 2007):-

- **Goal.** The main goal of the policy was improving quality of life of Pakistan's overall population by ensuring path of sustainable development derived through protection,

conservation and restoration of deteriorating environment in Pakistan.

- **Implementation and Monitoring of the Policy.**

To ensure coordination between institutions, federating units and stake holders, a “National Environmental Policy Implementation Committee (NEPIC)” was formulated. The committee, extended to District and Tehsil levels, was answerable to Environment Protection Council regarding progress on the planned measures (Durani, 2019).

National Sanitation Policy – 2006

National Sanitation policy was introduced by Federal government in 2006. A cross sectoral policy aimed at creating an environment where every household possesses a latrine, thereby getting away with open defecation. The policy was primarily aimed at promoting clean hygiene practices in the country while ensuring appropriate disposal of different kind of wastes. Special focus was laid on 3 x Rs (Reduce, Reuse, Recycle), of various kinds of wastes according to the environmentally appropriate procedures (Naureen, 2009).

National Drinking Water Policy – 2009

National drinking water policy was formulated by government of Pakistan in 2009. The most important goal of the policy was to ensure provision of quality safe drinking water to every household in Pakistan thereby reducing the water and sanitation related diseases and resultant financial impact. The policy also principally endorsed the fact that in the rural settings women are mainly responsible of ensuring the availability of water for domestic use, therefore, involvement of women in planning related to safe water supply would be ensured (Khwaja & Aslam, 2018).

National Climate Change Policy – 2012

Year 2012 assumes a greater significance in terms of climate related policy making in Pakistan. In the backdrop of two consecutive years marred with devastating floods, a national climate change policy was formulated by newly formed federal ministry of climate change under 18th constitutional amendment (Mumtaz, 2018).

- **Identification of Threats Related to Climate Change Confronted by Pakistan.**

Few important challenges including increasing intensity and frequency of natural disasters, changing monsoon patterns, rapid melting of glaciers in the northern areas, silting of water resources, extremely high temperatures, deforestation, rising sea level, intrusion of saline water in the coastal regions and heightened risks of health and migration due to climate change were identified as the key threats to the survival of Pakistan (Khan, 2014).

- **Goals and Objectives.**

The main goal of the policy was to mainstream environment into vulnerable sectors of economy thus ensuring development that is climate resilient. The policy had objectives ranging from ensuring continued economic growth while taking environmental considerations into account, integrating climate change into all future national policy making, gender main streaming, ensuring food, water and energy security in the country (Khan, 2014).

National Sustainable Development Strategy (NSDS) – 2012

National Sustainable Development Strate, policy of 2012 was evolved with a guiding vision of transforming Pakistan into a welfare society based on all-encompassing development and growth with fair usage of environmental and other natural resources. The strategy was aimed at formulating the pathways of sustainable development through “Green economy” concept for

Pakistan (Pervaiz, 2012). Key aspects of the policy are discussed below

- **Implementation Strategy.**

The NSDS, 2012 had devised a three-tiered implementation hierarchy for the enlisted strategic goals at federal, provincial and local governance level. The “Green Action Agenda” identified 10 core development programs under three globally acclaimed dimensions of development mechanisms. Spearheaded by National Sustainable Development Council (N-SDC), followed by Provincial Sustainable Development Councils (P-SDCs) and Local Sustainable Development Councils (L-SDCs) at District level (Faisal, 2017).

National Mineral Policy – 2013

Pakistan’s first national mineral policy was introduced in year 1995, aimed at expanding the activity and investment in the mining sector of the country. Considering the potential of mining sector in terms of large mineral base and increasing interest of international mining forms, a revised mineral policy was introduced in 2013. The aspect of mineral development was linked with taking adequate measures to ensure prevention against harmful impact of the process on the overall environment and pollution in Pakistan (Ashraf & Cawood, 2017).

National Forest Policy – 2015

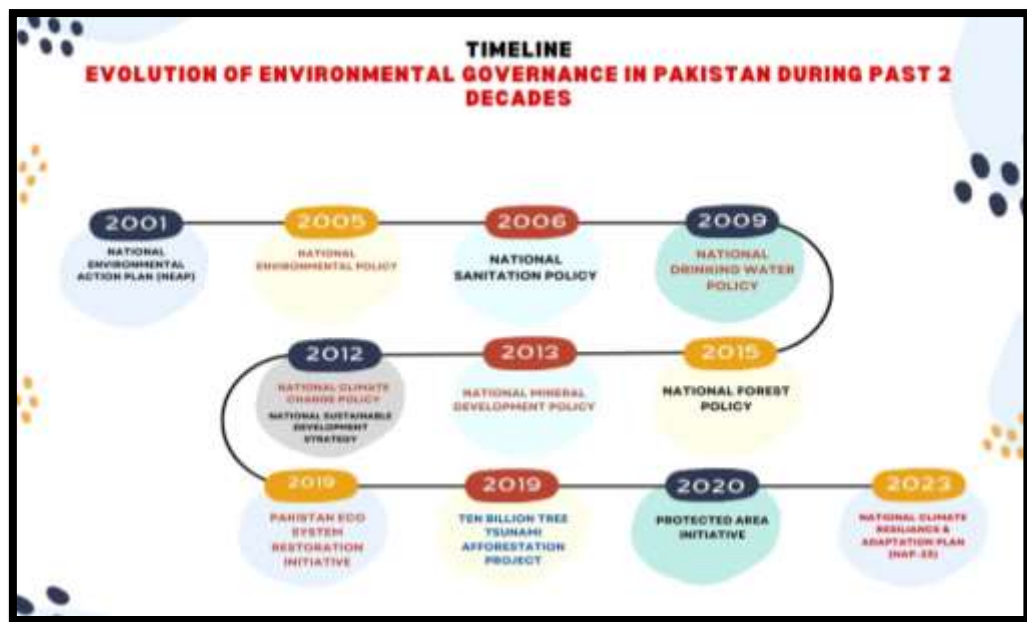


Figure 1 A Timeline of Environmental Governance Measures in Pakistan ; Author's Own Illustration

The government of Pakistan Federal Ministry of Climate Change introduced national forest policy in 2015. The policy was formulated in the backdrop of REDD+ (Reduced Emission from Deforestation & Forest Degradation) Convention and the emergence of forest related carbon as a new commodity under the United Nations Framework Convention on Climate Change (UNFCCC) (Ahmad et. al 2022). According to Durrani, 2019, The policy highlighted the fact that apart from the erstwhile concept of forests as merely wood producing reservoirs, their significance for other important sectors of economy like food, water, agriculture, energy and tourism necessitate incorporation of preservation maintenance and expansion of forest cover in the polices, plans and instruments aimed at development in these sectors.

Pakistan Eco System Restoration Fund & Initiative – 2019 / 21

In line with the UN's decade of restoration initiative, Ministry of Climate Change, Pakistan launched its Eco System Restoration Fund (ESRF) during United Nations Framework Convention on Climate Change (UNFCCC), at 25th Conference of Parties (COP 25) organized in Madrid, Spain in December 2019. The fund was presented as an independent, transparent and wholesome financial framework aimed at enabling Pakistan inch towards climate friendly development in the future. 10 billion Tree Tsunami was a flagship project being run under the fund which attracted global recognition (Abbas, et, al., 2023).

Pakistan's Eco System Restoration initiative was introduced at COP 26 in Glasgow with initial financial support by the World Bank. The initiative became operational in 2021 with intervention like provision of green employment opportunities, restoration of mangroves, expanding the number and size of protected areas and a smooth yet swift transition towards introducing electric vehicles. Pakistan was expected to contribute towards restoration of global eco system in next 3 years by planting around 200 million sapling provision of aimed 80,000 employments, and management of 60 protected areas by different measures including employment of watchmen from the local communities. The initiative attracted widespread global appreciation. For instance, World Bank's vice president on sustainable development Jürgen Voegele exclaimed "Kudos to the government of Pakistan which is evolving as a leader by focusing on both climate and covid". (Abbas, et, al., 2023).

Protected Areas Initiative-2020

According to Khan (2020), protected areas initiative was launched by the government of Pakistan in June 2020 with a view to ensure facilitation, promotion and development of significant wildlife habitats located in various national parks across Pakistan. The government aimed to continue the expansion in the protected areas as proportion of total land areas from 12% in 2018 to 15% by year 2023. Considering the valuable benefits protected areas offer towards combating climate change the government named the initiative as the "Green Stimulus". The government added 15 national parks spanning over an area of 7300 square kilometers across Pakistan including the first ever marine protected area of Pakistan located at Astola Island, near Pasni Balochistan. One of the major objectives of the initiative was to link major national parks with International Union for Conservation of Nature (IUCN) list called "Green List of Protected Areas" (Khan, 2020).

Billion and Ten Billion Tree Tsunami Afforestation Projects (TBTTAP)

Billion Tree Tsunami Afforestation Project (BTTAP) was launched by the government of Khyber Pakhtunkhwa. Aimed at restoring the receding forest cover to fight climate change, the government initiated an ambitious project to plant one billion trees between the year 2014-17. According to Kamal et al, 2019, the BTTAP was considered as a successful project while achieving the desired restoration targets of protected natural regeneration (60%) and planned afforestation (40%). The project is believed to have reinforced riparian embankments of the catchment areas of three main rivers of Indus, Kunar, and Sawat rivers. In addition, an increase in the forest cover, rise in the biodiversity, wildlife restoration and reduction of CO₂ emissions are other key contributions of the project (Kamal, et.al, 2019)

Sequel to the successful implementation of BTTAP project, the government of Pakistan lunched another ambitious project entailing plantation of 10 billion trees over a period 4 years between 2019-23. Ten Billion Tree Tsunami Afforestation Projects (TBTTAP) was aimed at increasing the overall forest cover, enhancing biodiversity, wildlife preservation, promotion of eco-tourism and creation of green employment opportunities. The initiative attained wide spread global acclaim (Kamal, et.al, 2019).

National Climate Resilience and Adaptation Plan – 2023

Moving a step forward in terms of environmental policy making and improving environmental governance at par with the contemporary standards, Government of Pakistan introduced its first ever “National Adaptation Plan, (NAP)-2023”. With an anticipated aim to upscale resilience in the face of overwhelming environmental degradation and climate change related challenges faced by the country. As per the official document released by MOCC&EC on 26 July 2023, the plan is targeted at presenting a framework for implementing climate adaptation at a macro scale while focusing simultaneously on climate resilience and promotion of an inclusive character. The NAP-23 is also aimed at promoting and coordinating cooperation amongst the stake holders while acting as instrument for fiscal mobilization pertaining to environmental governance (Shahid, 2023). As the NAP document, the process has 10 essential guidelines for achieving the desired results (Siddiqui, 2023)

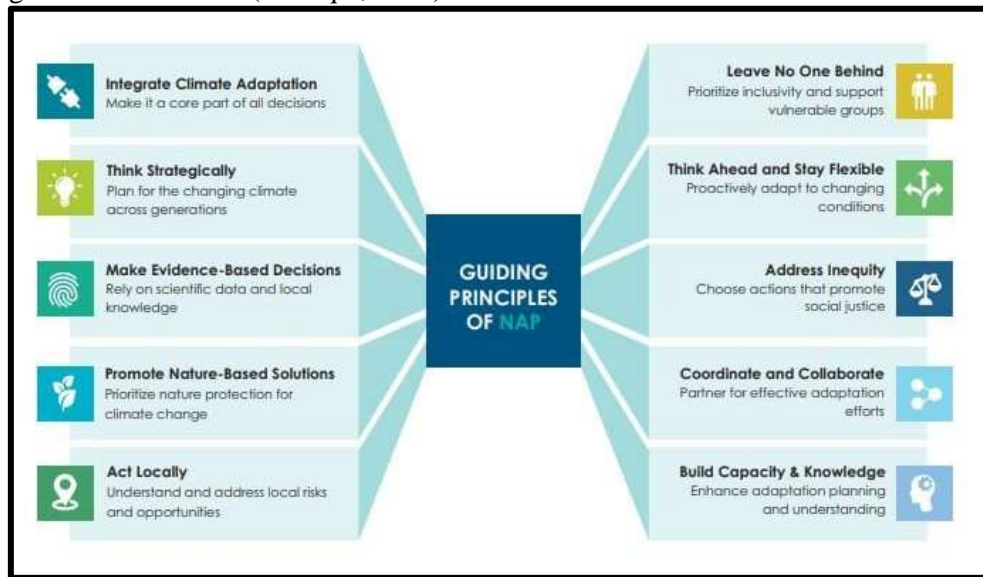
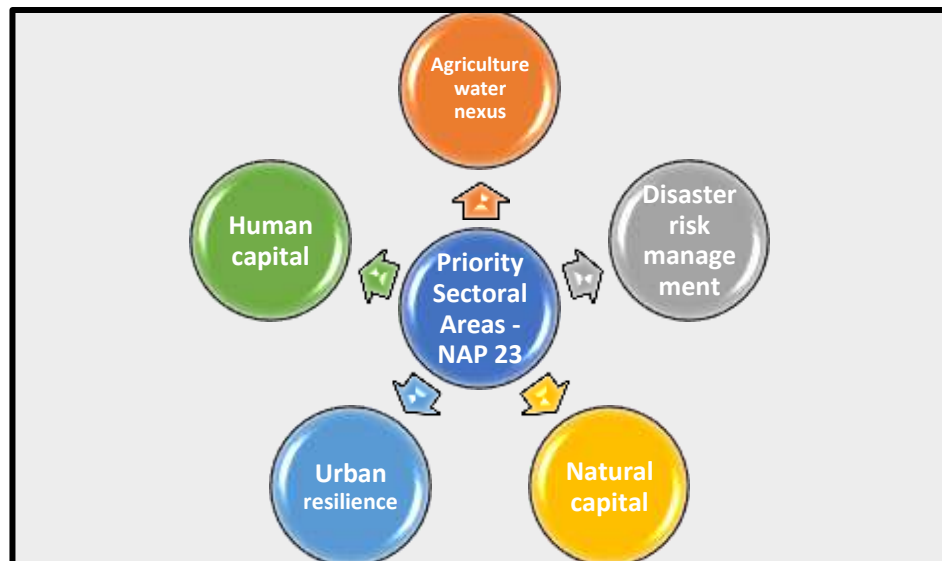


Figure 1 Essential Guidelines National Adaptation Plan – 2023, Source Siddiqui (2023)

Priority sectoral areas included in the NAP -2023 include Agriculture water nexus, Natural



capital, Urban resilience, Pakistan's human capital and Enhancing disaster risk management (DRM). One of the latest additions in the plan is the aspect of "Climate Budget Tagging" (Shahid, 2023).

Figure 1 Priority Sectoral Areas - NAP 23, Source : Author's Own Illustration

Environment Related Laws, Rules & Regulations in Pakistan.

Evolution of environmental laws since inception of Pakistan can also be divided into time periods. As per a study by Organization for Economic Cooperation and Development (OECD) from 1947 till 1957, no worthwhile legislation had been carried out. First period of environmental legislation commenced in 1958 and culminated at 1965, where enactment of environment specific laws was executed. The period from 1970-76 witnessed a lukewarm approach related to environmental legislation with no worthwhile progress. The subsequent 14 years from 1983 to 1997 are considered most valuable in terms of environment related legislation in Pakistan. Significant laws in terms of environment implemented in Pakistan since its inception are discussed in the succeeding paragraphs (OECD, 2007).

Pakistan Penal Code - 1860

Pakistan penal code was adopted from the pre partition laws of the 1860. Two of its sections i.e., section 277 and 275 related to contamination of the atmosphere and prevention of polluting the water reservoirs acted as the guiding environmental laws in the absence of any new legislation SACEP (2001).

The Punjab Forest (Sale of Timber) Act – 1913 & The Forests Act – 1927

Punjab Forest Act was introduced in 1913, while the Forest Act 1927 was initially was subsequently extended to the entire country. Many measures for preservation, expansion, maintenance and sustainable growth of the forests in the country were introduced (Naureen, 2009).

The Factories Act – 1934

The act established clear demarcation and limits on use of processes, chemicals and types of waste to be released by every factory to prevent environment from getting pollute. Overall, a concept of workplace environment, hygiene and safety was introduced by this act which could contribute towards adoption of environment friendly practices across the country (Naureen, 2009).

West Pakistan Wild Life Protection Ordinance -1959

The ordinance was introduced in West Pakistan (modern day Pakistan) in order to ensure protection of the wildlife in the country, through regulating the hunting and trade of these animals. The act introduced protected areas like national parks, wildlife sanctuaries and game reserves in the different areas of Pakistan. Establishment of the wildlife departments to undertake these functions was one of the most prominent aspects of this ordinance (Durrani, 2019).

The West Pakistan Epidemic Diseases Act – 1959

The act was aimed at establishing a comprehensive administrative mechanism for the governments at federal and provincial levels to deal with the epidemics and pandemics (Naureen, 2009).

The West Pakistan Fisheries Ordinance – 1961.

The ordinance was enacted in 1961 and was aimed at protection and preservation of fisheries

habitat from environmental hazards like pollution and excessive fishing endangering the ecological balance. System of licenses and permits for fishing was also introduced entailing monitoring and oversight of the fishing activities being regulated through fisheries inspectors and magistrates, under the overall ambit of fisheries department (OECD, 2007).

The West Pakistan Firewood and Charcoal (Restriction) Act -1964.

This is one of the most significant pieces of legislation introduced in Pakistan for protection of the environment. Primarily aimed at regulating and managing the use of firewood and charcoal through proactive role of forest and other related departments. Provisions of this act are particularly effective against rising air pollution in the country (Naureen, 2009).

Motor Vehicle Ordinance -1965

Motor vehicle ordinance was introduced in 1965 with an aim to regulate the vehicle registration, fitness, roadworthiness and related issues. The ordinance also hampers upon environmental considerations in addition to its primary objective. The provisions mainly pertain to curbing the air pollution which is one of the biggest environmental challenges faced by Pakistan (Durrani, 2019).

Provincial Wild Life Protection Ordinances (Sindh, Punjab, NWFP, Islamabad): 1972-74

1970's witnessed evolution of provincial wildlife protection ordinances beginning from Sindh in 1972, the ordinance entailed a number of measures for the protection, preservation and development of wildlife in the province. Important measures in the ordinances for all federating units included establishment of national parks, wildlife sanctuaries for regulating the hunting, possession and transportation of animals, trophies and meat were also covered in the act (Durrani, 2019).

Plantation, Maintenance and Tree Cutting Acts of 1974-75.

Two significant pieces of legislation for protecting the environment were enacted in the form of these two acts in successive years of 1974 and 1975. Slightly different in the purpose and objectives, these two acts, however, synergize efforts to increase number of trees by regular plantation while at the same time conserve the existing plantation (OECD, 2007).

Pakistan Environmental Protection Ordinance -1983

Pakistan Environmental Protection Ordinance (PEPO) was enacted in 1983 and is generally considered as the first comprehensive and dedicated legislation related to environmental conservation in Pakistan. Hall mark of their legislation was creation of some highly empowered institutions i.e., Pakistan Environmental Protection Council (PEPC) at federal level and environmental protection agencies at federal and provincial level. Another institution titled Pakistan Environmental Protection Agency (PakEPA) was also established under the same ordinance in year 1984. Apart from the above mentioned bodies, the ordinance also aimed at promotion of some important environment related institutions and polices like National Environmental Policy, National Environmental Quality Standards (NEQS) and Environment Impact Statements (EIS), SACEP (2001).

Pakistan Environmental Protection Act (PEPA) -1997

The Environmental Protection Act of 1997 is one of the landmark legislations for protecting, conserving, rehabilitating and overall betterment of environment; while at the same time promoting sustainable development in the country (SACEP, 2001).

- **Establishment of Pakistan Environment Protection Council (PEPC).**

The act laid foundation for a high-powered body under the leadership of Prime

Minister comprising Chief ministers of provinces, minister for environment at federal and provincial levels, along with 35 other members from various segments of the society. The council was tasked to take measures like coordination of environment related issues between stake holders (SACEP, 2001).

- **Establishment of Pakistan Environment Protection Agency (PakEPA).** The act also laid the foundation of Pakistan Environment Protection Agency (PakEPA), responsible for implementation of the provisions of environment act along with other environment related rules, regulations and polices The Agency was also tasked for preparation of national environmental policies in consultation with all stake holders and take appropriate measures for their implementation (SACEP, 2001).

Pakistan Trade Control of Wild Fauna and Flora Act-2012.

This legislation was introduced in the backdrop of United Nation Convention on International Trade in Endangered Species of Wild Fauna and Flora. The act lays out the procedures for imports, exports, sales and purchase of wild fauna as well flora at local as well as international markets, (Durrani, 2019).

Pakistan Climate Change Act-2017

Pakistan Climate Change Act was introduced with an aim to address Pakistan's international obligations related to climate change. It also served another significant propose in the backdrop of 18th constitutional amendment which had devolved the subject of environment to the provinces. According to Khan & Yaseen, 2017, the act served a very important purpose of bringing federal government into decision making and legislation loop, which was somehow left out from the authority to ratify international conventions, as the implementation part laid with the province.

- **Pakistan Climate Change Council.** The act laid foundation for establishment of Pakistan Climate Change Council, headed by the Prime Minister and 30 other members (Khan & Yaseen, 2017).
- **Pakistan Climate Change Authority.** The act also paved way for establishment of Pakistan Climate Change Authority headed by the Federal Minister for Climate Change with scientists, academia, environmentalists, professional and other technocrats its members. The authority was entrusted with formulation of adaptation and mitigation strategies alongside mechanisms to implement adaptation and implementation plans devised at federal and provincial level (Khan & Yaseen, 2017).
- **Pakistan Climate Change Fund.** The act also established a fund under the climate change authority. It is empowered authority of financing environment related projects and investment for rising the fund's portfolio (Khan & Yaseen, 2017).

Institutional Framework and Mechanisms to Deal with Environmental Challenges in Pakistan

The succeeding paragraphs will discussion some of the institutional mechanisms responsible to ensure good environmental governance in Pakistan by effectively responding to environmental challenges at Federal as well as Provincial level.

Ministry of Climate Change and Environmental Coordination (MOCC&EC)

The ministry of environment alongside its associated departments and institutions was renamed as ministry of climate change in 2012 after the 18th amendment (Khayam & Ahmad, 2020). Key functions of the ministry include formulation, development and implementation of National Climate Change Policy (NCCP) and other relevant polices, plans and measures. The

ministry is also responsible for spearheading the mainstreaming process of environment in coordination with ministries, departments of the public, private institutions and civil society. Enhancing awareness related to climate change, development, promotion of the measures related to adaption and mitigation also fall under the ambit of the ministry. Headed by Federal minister with a parliamentary secretary and minister of state as an option. The bureaucratic side is headed by a federal secretary and has 5 Wings (MOCC, 2024).

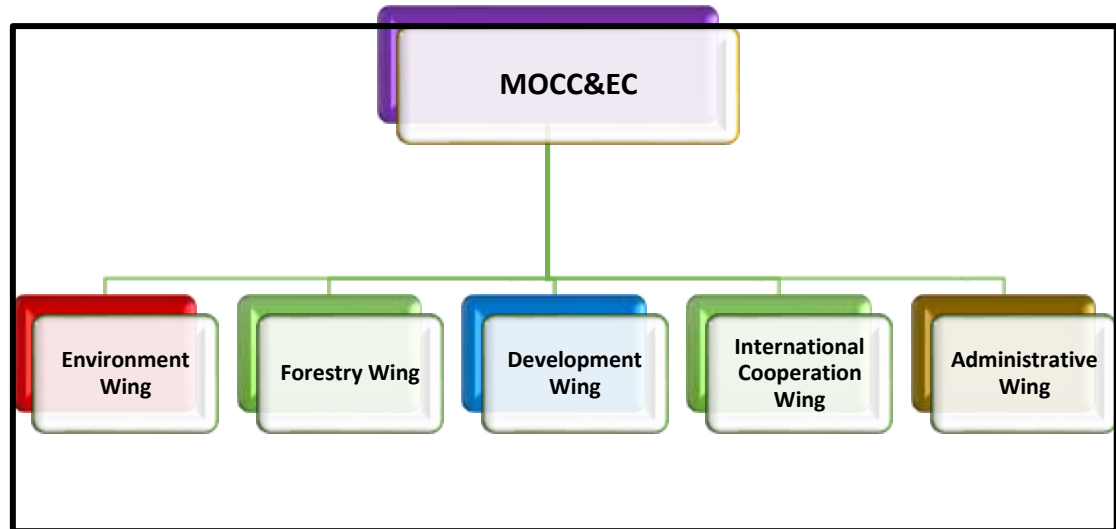


Figure 3 Functional Wings of the MoCC & EC, Source www.mocc.gov.pk

Pakistan Environmental Protection Agency (PakEPA).

Pakistan Environmental Protection Agency (PakEPA) is an executive agency working under the MOCC&EC. The agency is responsible for protection of human health by enforcement of the relevant rules, regulations and polices formed by the government from time to time. The most significant function of the agency, which was formulated under section (5) of PEPA, 1997 is to ensure implementation of the provisions of these historic legislations. Other important functions of the agency include approval of Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) for the potential projects (Sial et.al.,2018).

National and Provincial Disaster Management Authorities (NDMAs / PDMAs)

The NDMA was established in year 2007 as a sequel to adoption of National Disaster Management Ordinance of 2006. In year 2010, National Disaster Management Act was enacted which laid the foundation for establishment of a high-powered National Disaster Management Commission (NDMC) chaired by the Prime Minister of Pakistan. The authority is responsible for preparation of Pakistan's National Disaster Management Plan (NDMP) for implementation by all stake holders for ensuring efficient support to those affected by the disaster. PDMAs are also responsible for formulation of disaster management policies for respective provinces and coordination of the actions of various stake holders during a disaster (Faiz et.al., 2015).

Ministry of National Food Security and Research (MNFSR).

The Federal ministry for food security and research has been mandated with planning, policy making and implementation of measures related to development of agriculture in the country. Salient functions of the ministry include coordination, planning and decision making related to import / export of the agriculture product in the country. The processes are executed in synchronization with other national and international stake holders. The ministry has large number of attached departments and autonomous bodies which are overall responsible

indirectly or directly for the core functions of the ministry i.e., Food security (MNFSR, 2023):-

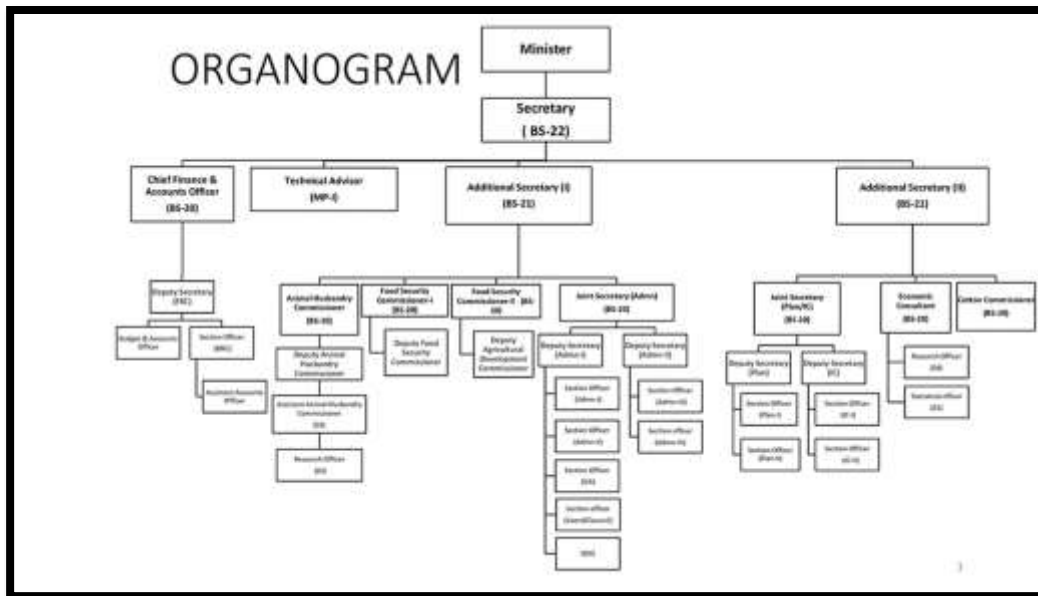


Figure 4 Organogram - Ministry of National Food Security and Research
Source www.mfsr.gov.pk

Soil Conservation Departments.

As per Khan et. al., 2010, of the respective Provincial soil conservation departments have their outreach till the districts and are mandated for protection and conservation of vital soil resources from erosion. The departments endeavor to ensure agriculture predicting, socio economic relevance and above all food security of their respective regions. Conduct of surveys to maintain comprehensive soil inventory, evaluation and analysis of the land resources and promotion of sustainable land management are the key functions performed by these institutions.

Water and Power Development Authority (WAPDA).

WAPDA was established in 1958 as an authority responsible for development of water resources in the country and their subsequent management as well as maintenance. The authority has been chartered for developing and managing the projects related to power generation, water supply, drainage and irrigation management alongside prevention of water logging and reclamation of saline land. Headed by chairman, The authority is responsible for management of water storage like dams, canals, development of new hydropower initiatives, management of salinity control and reclamation (SCARP) projects alongside promoting research and development in the field of water (Khalid & Husnain, 2016).

Challenges of Environmental Governance Confronted by Pakistan

There has hardly been any shortage of laws, rules, regulations, polices, plans and institutions regarding improving the environmental governance in Pakistan. Most of these measures were primarily undertaken to meet the evolving international obligations. However, the real test lies in the implementation part of the equation, which somehow has been lacking (Asghar et al, 2024). Significant challenges to the environmental governance are discussed in the succeeding paragraphs.

Lack of Purpose, Manifestation & Implementation of the Policies

Pakistan's most prominent climate change and development expert, Ali Tauqeer Sheikh in an article sums up efficacy of Pakistan's environmental governance in following words "Climate governance in Pakistan is flawed. It is ineffective and unresponsive to climate threats" (Sheikh 2024). According to him a number of towns in provinces of Sindh and Balochistan are nearing the thresholds beyond which human endurance and survival becomes uncertain. Questioning the capacity and will of the present governance infrastructure he opines that a weak environmental governance at federal and provincial level lead to lack of foreplaning and ineffective response to the impending and future environmental challenges faced by Pakistan. The situation is further compounded by nonfunctional local governments and limited capacities of the disaster management authorities (Sheikh 2023).

Another expert Professor S. Shafique Ur Rahman in his article titled "The Case for Environmental Governance" laments lack of seriousness of successive governments towards environmental governance. For instance, Pakistan Environment Protection Council (PEPC) headed by the Prime Minister is the apex body which is required by rules to at least have couple of meeting every year. However, seriousness of the political leadership for environment can be ascertained from the fact that between establishment of the council in 1974 to 2018, approximately 34 years witnessed only two meetings of the council. After the 18th amendment, provinces formulated their respective environmental protection Acts. One common feature of all these legislations was regarding establishment of Environmental Protection Council (EPC) for every province. Punjab established its EPC in 2013 which had held only one meeting till 2018. Khyber Pakhtunkhwa introduced its EPC in 2017 i.e., 7 years after the introduction of 18th amendment (Rehman, 2018 & Interview with the main author).

Dr Rehman is also a staunch critic of renaming ministry of Ministry of Environment to that of Ministry of Climate Change. Terming it as a "Cruel Joke with the nation" as he believes climate change is one of the many serious environmental challenges being confronted by Pakistan like pollution, deforestation, water scarcity, land degradation, unchecked urban growth, water and sanitation related issues etc. He is of the view that renaming the ministry amounts to the government trying to "Absolve itself from all environmental obligations beside climate change".

Decentralization of Environment – Governance Challenges Post 18th Amendment

Devolution of environment as a Provincial subject has been a constant source of debate amongst the environmental experts, legal community and other factions of academia. Various experts have expressed strong criticism over the devolution of environment to provinces. Khayam and Ahmad, 2020 in their research regarding 18th constitutional amendment are of the similar view. According to Maryam and Iftikhar (2020), despite the devolution there exists incoherence of procedures, as on certain occasions legislative competence of federal and provincial governments has overlapped, resulting into "ambiguity alongside dilemma of shared accountability" in many matters including International Environmental Agreements, (Khayam and Ahmad, 2020).

In the words of Khayam and Ahmad, 2020, "there is no formal mechanism through which PEPA (at federal land) is linked with Provincial Environmental Protection Agencies (EPAs)". Laying emphasis on effectiveness and good articulation of coordinating mechanism between various stake holders, researchers consider the devolution experience as "mired in coordination, funding and capacity issues". Pointing out few other challenges of coordination amongst federation and provinces on the vital subject of environment, the study points out that "despite having primary legislation on the subject, the implementation of climate change policy and legislation is inadequate due to lack of coordination mechanisms".

In the words of renowned environmental lawyer Ahmed Razaay Alam "even the limited reference to federation-provincial coordination and interaction on climate governance remain confined to the paper" (Durrani, 2019). Despite having issues in capacities of the

provinces to conceive, plan and implements climate related initiatives, no province has formally approached to the parliament for fresh legislation, clarification or introducing a new law for addressing general or specific environmental issues (Khayam and Ahmad, 2020).

Fiscal Issues between Federation and Provinces Hampering Environmental Governance

According to Pastakia, 2014, distribution of fiscal resources between federation and provinces as part of 18th amendment has ostensibly enhanced the share of provinces of upto 57.5% of the total National Finance Commission (NFC) Award. However, this transfer of fiscal obligations has a negative impact on the investments in the environmental sector. This has reduced or almost eliminated federal investment in the provincial domain while on the other hand provinces lacked the institutional capacity to manage the fiscal requirements of the sector. The overall situation has resulted into below per environmental governance at federal and provincial levels.

Another governance and management related issue falls under the ambit of Provincial Sustainable Development Funds (PSDF), established under relevant provincial environmental protection acts. However, there is no guaranteed source of income for these funds to support environment related projects as these funds are dependent on sporadic and unconfirmed grants. Lack of independent and pre delimited budgetary allocation along with issues in the mechanism for recovery of fines and penalties are significant stumbling blocks to the better environmental at federal and provincial levels. As explained by Khayam and Ahmad, 2020, governance. "There are serious administrative, Jurisdictional, financial and capacity problems as well as issues of collection and coordination between the federal and provincial governments concerning environmental governance, which need to be addressed urgently".

Absence of a National Industrial Policy

Industries are one of the most dominant contributors of the Green House Gases (GHGs) alongside other hazardous and nonhazardous wastes. Therefore, a well thought out and all-encompassing industrial policy having environmental protection at its core is of paramount importance for a country like Pakistan, Durrani (2019). With the introduction of 18th constitutional amendment, requirements of mutually complimenting provincial industrial policies with an over-arching federal policy is an essential requirement for ensuring environment friendly industrial growth and development.

Lack of a national industrial policy at federal level and by federating units like Sindh, Balochistan, Gilgit Baltistan and Kashmir is a serious handicap to environment friendly industrial growth in the country. Syed Bakhtiar Kazmi, in an article in "Daily Times" On point out to the reality and state that "A developing economy like Pakistan cannot afford to not have an industrial policy". He is of the view that policy may have positives, as well as grey areas which can be worked on and improved, however, not heaving a policy related to industry at all does not make any sense (Kazmi, 2017).

Resistance to Conduct Environmental Assessments and Quality Standards

A regular conduct of environmental assessment in a periodic manner has been an essential part of environment related legislation and policymaking in the recent past. However, this aspect has not witnessed very encouraging response from the industrial and other development related sectors like Real Estate. In the words of Dr Imran Khalid, during his interview with Durrani, 2019 "There is a perception that if you have environment on agenda than you are against development". There is a general tendency that stake holders once asked about incorporating environmental aspects in a project particularly the assessment, a greater degree of resentment is displayed without going into the benefits of these assessments in the overall sustainable development in the country, (Durrani, 2019).

Financial Constraints in Undertaking Effective Adaptation and Mitigation Measures

Financial constraints are the biggest challenge for Pakistan in managing routine expenditures on the environmental related institutions. The issue has been discussed by Mr Ali Tauqeer Sheikh, Pakistan's leading climate change and development expert, who quotes figures from the Country Climate and Development Report (CCDR) for Pakistan prepared by the World Bank in 2022 that Pakistan may require 348 Bn USD for mitigating the natural disasters, an amount which is around 8 times the complete budget of Pakistan. Only in 7 years between 2023- 2030 Pakistan may need a whopping USD 152 Bn for climate adaptation measures alone. The non availability of requisite financing is the biggest constraint in bridging the adaptation and mitigation to climate challenges for Pakistan (Shiekh, 2022).

Lack of Mass Awareness Regarding Environmental Challenges

In a country like Pakistan with a relatively lower literacy rate and facing a host of economic challenges, prioritizing environment by sensitizing masses about the future outlook is a challenging prospect. According to Shahid (2012), enhanced awareness regarding environmental degradation in Pakistan can assist in formulation and implementation of an effective adaptation framework for Pakistan. According to Jan et al., (2020), awareness is of the most important factor which influences the stake holders to undertake adaptation to the climate change (Marshall, et. al., 2013). In a book chapter titled "Awareness of Climate Change Impacts and Adaptation at local Level in Punjab, Pakistan" Shahid & Piracha are of the view that enhanced sense of disaster risk awareness can expedite the disaster risk preparedness in Pakistan. The chapter entailed a survey in Punjab province to gauge the existing level of public awareness on climate change and its potential impacts. According to the results, 53% of the survey respondents had no idea about climate change. Another interesting finding of the survey research was that 100% of the local government officials were totally ignorant regarding the important local or international laws regarding environment (Shahid and Paracha, 2016).

Although the increasing reach onset of social media and extreme climate events in the recent past have contributed towards enhanced awareness amongst the policy makers as well as general public. However, the desired level of awareness which makes climate change adaptation as a matter of household discussion is still a farfetched thought. This would require concerted efforts over a prolonged period of time to bear the desired outcomes.



Figure Illustration of Environmental Challenges Faced by Pakistan

Conclusion

Environmental degradation is termed by experts as an “Existential Challenge” confronted by Pakistan. Successive governments have made efforts to devise laws, policies, institutional frameworks and other measures pertaining to environmental governance over the past seven decades. However, the real challenge lies in the implementation and execution of these mechanisms. Environmental governance of Pakistan confronts serious challenges which needs a comprehensive collaborative effort by the federal and provincial government for a commensurate response.

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