Ministry of Climate Change and Environmental Coordination

LEGISLATION AND POLICY REVIEW IMEPLEMNTING NATIONAL ADAPTATION PLAN IN PAKISTAN

National Adaptation Plan for Pakistan

"Adapting Today for Sustainable Tomorrow"

2023

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LIST OF ABBREVIATIONS

ABT	Aichi Biodiversity Targets
CCA	Pakistan Climate Change Authority
CCC	Pakistan Climate Change Council
CDA	Capital Development Authority
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
GHG	Green-House Gas
ICT	Islamabad Capital Territory
MoCC&EC	Ministry of Climate Change and Environmental Coordination
MoNFSR	Ministry of National Food Security and Research
NAP	National Adaptation Plan
NBSAP	National Biosafety Strategy and Action Plan
NCAP	National Clean Air Policy
NCCP	National Climate Change Policy
NDMA	National Disaster Management Authority
NDMA 2010	National Disaster Management Act 2010
NEQs	National Environment Quality Standards
NWP	National Water Policy
PCCA 2017	Pakistan Climate Change Act 2017
PCWR	Pakistan Council for Research in Water Resources
PEQs	Punjab Environment Quality Standards
PEPA 1997	Pakistan Environmental Protection Act 1997
PWP	Punjab Water Policy
SDG	Sustainable Development Goals
SWP	Sindh Water Policy
SWRMD	Sindh Water Resources Management Department

EXECUTIVE SUMMARY

1. INTRODUCTION

Pakistan emits less than 1% Green House Gas ('GHG') emissions yet ranks as one of the most vulnerable countries to climate change. Immediate Global action is needed to tackle the phenomenon, prompting signatories to Paris Agreement to agree to accelerate adaptation efforts by 2030.

For countries like Pakistan primary focus needs to be on adaptation. In 2023 Pakistan's Cabinet passed the National Adaptation Plan ('NAP 2023'). NAP 2023 highlighted the following vulnerable sectors:

(i) Agriculture – Water Nexus
(ii) Natural Capital – (Land, Water and Air)
(iii) Urban Resilience
(iv) Human Capital
(v) Disaster Risk Management
(vi) Gender, Youth and Social Inclusion

The policy interventions mentioned therein for each vulnerable sector required an overhaul of the legislative, regulatory and policy framework in the country. This report has been prepared to highlight gaps in the existing structure in light of NAP priorities.

2. AGRICULTURE AND WATER

Food security is greatly dependent on agriculture and water, two sectors particularly vulnerable to climate change whereby requiring urgent and rapid action. Some of the significant challenges faced by the sector are:

Agriculture

(i) Seeds

Actual output of the agriculture sector is subpar due to declining yield of important crops. One of the main factors is unavailability of good quality, innovative, climate resilient seeds. Lack of research and development ('R&D'), underdeveloped seed supply system, are all contributing factors to declining crop yields.

Laws since 2015 have been formulated with the perspective of encouraging development of innovative seed varieties by the private sector, however progress is lacking due to the following reasons:

a. Insufficient focus on research and development;
b. Weak Intellectual Property Rights ('IPR') laws;
c. Lack of access to finance;
d. Governance issues such as supply chain; and
e. Lack of a communications strategy informing farmers of availability and benefits of transitioning to newer seed varieties.

The existing legislative and policy structure needs to be reviewed from the perspective of laying equal emphasis on development of climate resilient seed varieties and equitable disbursement of such seeds. Further, an effective communication strategy is mandatory for ensuring that small farmers are made aware of the merits of transitioning to newer varieties.

(ii) Mis-managed land use

Land use is a devolved provincial subject, directly managed by local governments and municipal authorities. The past few decades have seen an increase in population and urbanisation leading to conversion of agricultural/cultivated land for housing projects amongst other uses such as industrial zones.

Certain jurisdictions such as Islamabad Capital Territory ('ICT') have ample laws regulating land use however, implementation is lacking. Whereas some other jurisdictions such as Lahore despite having land usage laws do not particularly prohibit conversion of agricultural/cultivated land for other uses. Such laws need to be revised in the context of changing climatic conditions.

(iii) Access to Finance

On the national level the Federal Government may formulate a policy whereby strict criteria is laid down for conversion of land use which may be eventually adopted by the Provinces.

Most farmers are small farmers. With input costs increasing, finances are an area of increasing concern, making farmers risk averse. To facilitate transition to climate smart agriculture and cushion crop/livestock losses due to extreme weather events, better mechanisms need to be devised

to ensure access to finance. The SBP has initiated some schemes whereby credit facilities are made relatively more accessible and private sector is incentivised to provide insurance products in the agriculture sector. However, these initiatives are grossly insufficient.

Water

Pakistan is projected to be a water scarce country by 2025. Agriculture and water have a close nexus therefore threatening food security. Outdated agricultural practices put additional strain on already limited resources. The National Water Policy 2018 ('NWP')which has been adopted by Sindh, Punjab and Khyber Pakhtunkhawa was devised to address some of the issues pertaining to water and agriculture, some of the salient features being:

(I) Banning flood irrigation;
(ii) Limiting outdated irrigation practices;
(iii) Introducing new crop varieties with high yield and low water consumption;
(iv) Water Apportionment Accord 1991 shall be implemented in letter and spirit; and
(v) Abiana system needs to be updated.

Even though the NWP is a comprehensive document most of the interventions are yet to be implemented.

3. NATURAL CAPITAL

Land

National Biosafety Strategy Action Plan ('NBSAP') is the primary national level policy which deals with the subject of biodiversity. At the outset it must be mentioned that NBSAP needs to be updated in line with the Kunming-Montreal Global Biodiversity Framework. NBSAP highlights the need to mainstream biodiversity in policy and planning process.

NBSAP further draws attention to the issue of unsustainable land use. Land use is regulated by provincial and local governments. However, not all jurisdictions have effective laws to ensure that protected areas are not

developed in a manner detrimental to biodiversity and nature. ICT may be used as an example where the Islamabad Wildlife (Protection, Preservation, Conservation and Management) Ordinance 1979 ('ICT Wildlife Ord. 1979') prohibits any adverse development in national parks which are protected areas.

Protection of forest areas is another major concern. Historically, forest policy had been devised to encourage timber trade, having disastrous effects on biodiversity. A new approach was incorporated in The National Forest Policy 2015 ('NFP 2015') whereby mitigation and adaptation measures were prioritised over economic concerns. Some salient features of the NFP 2015 are:

(i) Mandatory requirement of EIA and EMP prior to approval of any project;
(ii) High emitting projects shall invest in establishment of forest carbon sinks;
(iii) Initiators of large dams shall invest in watershed management;
(iv) Projects pertaining to construction or repairing of main and link canals
shall invest in linear plantations;
(v) National organisations including armed forces shall invest on afforestation programmes;
(vi) Provincial governments should incentivise private investment in forestation;
(vii) Coordination between governments shall be encouraged;
(viii) Legislate to control invasive alien species;
(ix) Capacity building;
(x) Establishment of wetland authority; and
(xi) Strengthening of Pakistan Forest institute.

Perusal of NBSAP, NFP 2015 and the Forest Act 1927 lead to the conclusion that even though laws exist whereby interventions are prescribed for protection of forest areas and biodiversity, a review of the existing scheme is needed.

Transition to climate smart agriculture requires development of newer technologies including seeds. However, new seed varieties carry the risk of adversely impacting biodiversity. The existing legislative and regulatory scheme attempts to draw a balance between development of newer technologies while preserving biodiversity however, more specific policy initiative is required

Water

The NWP deals extensively with issues pertaining to water scarcity, equitable water sharing, salinity, depleting groundwater, reuse of wastewater and outdated water intensive irrigation practices. All national and provincial water policies acknowledge that water is a fast-depleting resource, groundwater extraction requires particular attention and rainwater harvesting should be encouraged. All these initiatives require strong legislative and regulatory frameworks.

Clean drinking water is another major area of concern. Pakistan lacks the infrastructure to maintain WHO prescribed standards for clean water. Policies have been formulated but suggested legislative instruments are yet to be enacted.

Air

Pakistan is the third most air polluted country with serious adverse impacts on human health and the environment. Some of the key sectors identified as major contributors to air pollution are transport, industry, agricultural waste/Biomass, solid waste and residential/building sectors. A National Clean Air Policy 2023 ('NCAP') was formulated however the interventions suggested therein are yet to be implemented. Implementation of which may require legislation especially to monitor transboundary movement of air.

4. URBAN RESILIENCE

Urban development needs to be resilient and sustainable aiming to use less water, optimise energy efficiency, enhance indoor environmental quality, generate less waste, provide healthier spaces for occupants to increase their productivity, and encourage resource efficiency. To meet these requirements the Pakistan Engineering Council released Green Building Code in 2023.

The Green Building Code 2023 have been formulated with the sanction of law, however for them to be effective and implemented they need to be mainstreamed in building bye laws on federal and provincial levels.

5. DISASTER RISK MANAGEMENT

After the 2005 earthquake a Disaster Risk Management Authority ('NDMA') was created to provide effective disaster management. The National Disaster Risk Reduction Policy was formulated in 2013. Climatic concerns have significantly changed since then, requiring an updated policy document to adequately manage disaster and build resilience.

6. GENDER, YOUTH AND SOCIAL INCLUSION

There is enough data available to demonstrate that the most marginalised communities are the most adversely impacted by changing climatic conditions. Due to inadequate support and lack of access to resources they are constantly stuck in a recovery trap. NAP 2023 highlights gender-based impacts, effect on youth and need for including vulnerable communities in decision making process. Concerns related to the aforesaid need to be mainstreamed in overall legislative and policy structures.

7. IMPLEMENTATION

Implementation of NAP will be largely dependent upon cooperation from the provinces. The Pakistan Climate Change Act 2017 ('PCCA') provides a roadmap for effective provincial cooperation in the form of Climate Change Council ('CCC') and Climate Change Authority ('CCA') by virtue of their composition. However, for effective implementation an implementation framework should be formulated in collaboration with line ministries and provincial governments.

1. INTRODUCTION

1.1 RATIONALE, BACKGROUND AND CONTEXT

The United Nations Environment Programme ('UNEP') initiated a programme titled *"Building Capacity to Advance National Adaptation Plan Process in Pakistan"*, with funding support from Green Climate Fund ('GCF'), to be executed in conjunction with the Ministry of Climate Change & Environmental Coordination ('MOCC&EC'), hereinafter referred to as the NAP Project.

The FCC/PA/CMA/2023/L.18, draft decision on Glasgow-Sharm el-Sheikh work programme on the global goal on adaptation referred to in decision 7/CMA.3; stipulated the target in para. 10 (c) of making *progress in implementation of National Adaptation Plans ('NAP'), policies and strategies by 2030* with the aim of reducing social and economic impacts of the key climate hazards. Since Pakistan has already formulated its NAP in 2023 ('NAP 2023'), therefore, to meet the target in para. 10 (c) mentioned above immediate steps need to be taken for implementation. Implementation of NAP is dependent on various factors such as projectisation of NAP priorities, financing, and institutional capacity. However, the mandate of this report is confined to review of National/Federal Legislative and Policy Framework ('Framework') with the objective of enhancing institutional capacity for implementation of key NAP priorities on the national/federal level.

NAP 2023 was prepared after a thorough consultative process on the Federal and Provincial level and greatly benefitted from input of stakeholders and area experts. The consultative process and references to various vulnerability and risk assessment studies, highlighted six vulnerable sectors:

(i) Agriculture – Water Nexus;
(ii) Natural Capital – Land, Water and Air;
(iii) Urban Resilience;
(iv) Human Capital;
(v) Disaster Risk Management; and
(vi) Gender, Youth and Social Inclusion.

The adaptive strategies and priorities enumerated in NAP 2023 are centred around the above mentioned sectors and the objectives of the same are succinctly mentioned below for easy reference to give context to the Framework Review:

(i) The Agriculture – Water Nexus

Primary objective of the adaptive strategies mentioned in NAP 2023 for the agriculture sector are to incentivise farmers to transition to climate smart agricultural practices such as climate smart water & land management and modernising surface & groundwater irrigation services by providing a long-term agriculture growth strategy focused on productivity improvement & climate resilience.

(ii) Natural Capital

Natural Capital comprises of land, water and air. Main objectives of NAP 2023 in regard to aforementioned sub-sectors are mainstreaming sustainable land management into ecosystem resilience; promoting watershed management; improving water quality through better wastewater management; investing in coastal and marine resources and; investing in improving air quality.

(iii) Urban Resilience

Adaptive strategies for urban resilience aim to mainstream climate adaptation across federal, provincial, local government levels; improve land regulation & land use planning; encourage climate smart municipal services; leveraging nature-based solutions to manage climate risks; and develop financial instruments to ensure sustainable revenue streams for green and resilient urbanisation.

(iv) Human Capital

Priority initiatives for human capital aim to mainstream adaptation in health & education polices; and build workforce capacities to adapt to climate risks.

(v) Disaster Risk Management

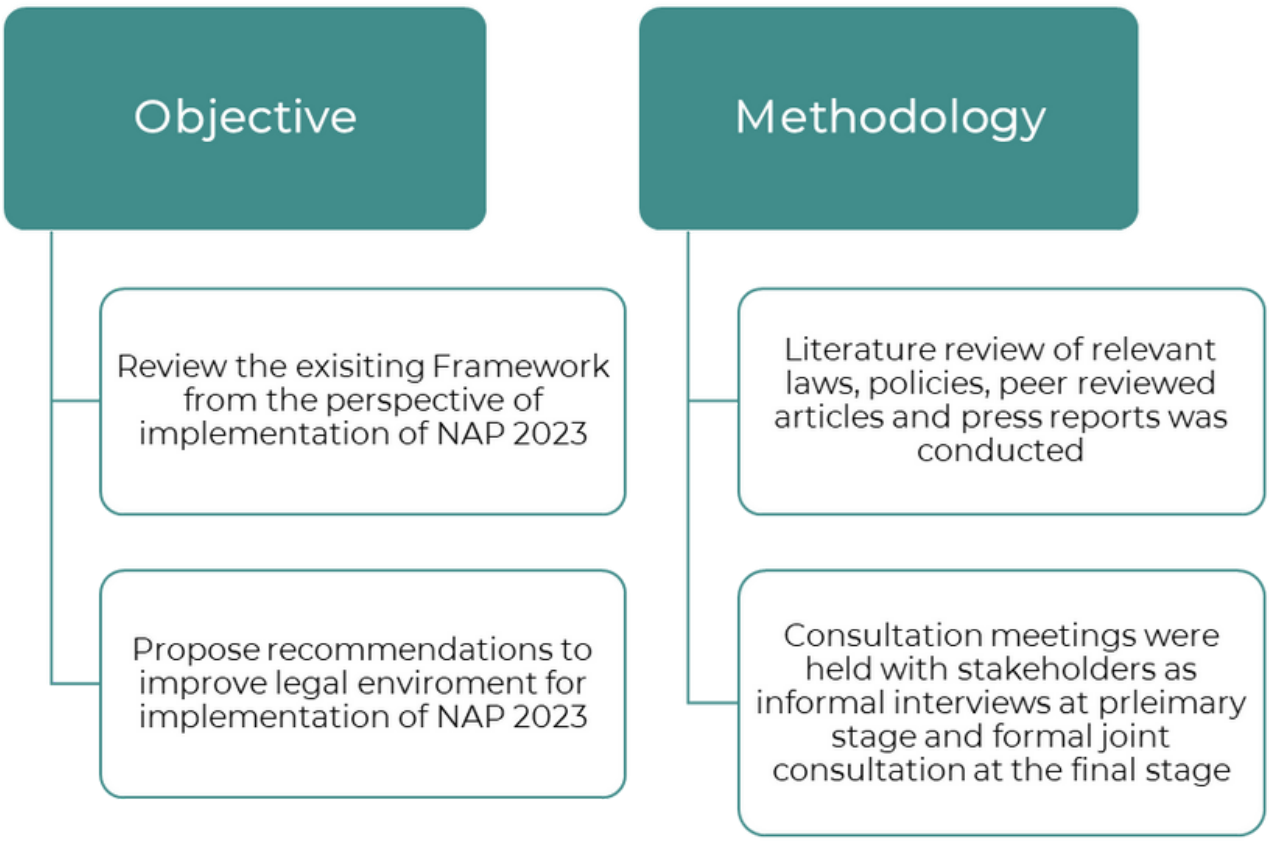
NAP 2023 focused on development of early warning systems to better understand climate risks and pre-empt adverse impacts. Establish policies and framework to strengthen institutional capacity to effectively manage disaster risks. Invest in disaster risk reduction to bolster resilience of communities and critical infrastructure. Enhancing disaster preparedness for effective response and to build back better by incorporating risk informed approaches into recovery and reconstruction efforts.

(vi) Gender, Youth, and Social Inclusion

Marginalised groups are disproportionately affected by adverse impacts of climate change making them exceptionally vulnerable. NAP 2023 aims to strengthen disaster risk management capacity of vulnerable groups and empower them by providing climate resilient livelihoods. To ensure that the interests of vulnerable groups are adequately protected the NAP 2023 recognises that it is imperative they are included in climate related policy and development planning.

NAP 2023 provides a roadmap for a climate resilient future urging all stakeholders to come together and adapt to the changing conditions. Implementation is key to meet these objectives. This Framework review will form the foundation for implementing adaptive strategies enumerated in NAP 2023.

1.2 OBJECTIVES AND METHODOLOGY OF THE REVIEW



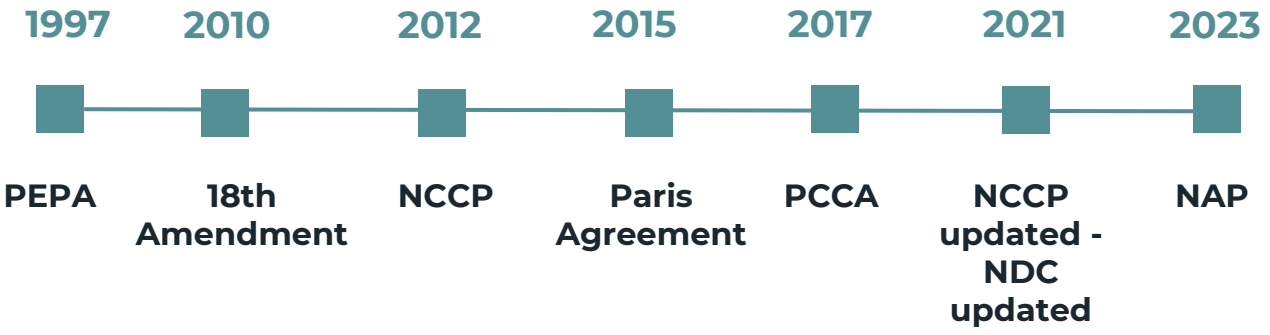
2. OVERVIEW OF PAKISTAN'S CLIMATE CHANGE LEGISLATIVE AND POLICY FRAMEWORK

Prior to commencing report on sector wise Framework review, an overview of specific climate change legislative and policy framework will be provided.

In 1997 Pakistan promulgated the Pakistan Environment Protection Act ('PEPA'). PEPA's objective was preservation and conservation of the environment by introducing precautionary principle, mechanisms for emission control and waste management, mandating environment assessment reports for new developments and projects. An Environment Protection Agency ('EPA') was created under it to monitor and implement provisions of PEPA. In 2010, Pakistan's Parliament passed the 18th amendment to the Constitution of Pakistan. Under the 18th amendment environment became a devolved subject, thereafter all provinces formulated their own versions of PEPA and provincial EPAs were set up.

Pakistan first published its National Climate Change Policy in 2012 ('NCCP'). In 2015 Pakistan ratified the Paris Agreement. Finally in 2017 first primary legislation was promulgated to address climate change concerns, the Pakistan Climate Change Act 2017 ('PCCA'). The PCCA provides for a Climate Change Council ('CCC') and Climate Change Authority ('CCA') with the objective of encouraging participation of stakeholders and technical experts in policy making process.

NCCP was updated in 2021. In the same year Nationally Determined Contributions ('NDC's) were also updated. Pakistan is also a signatory to the Sendai Framework for Disaster Risk Reduction and the Global Methane Pledge.



3. AGRICULTURE AND WATER NEXUS

Agriculture is the backbone of Pakistan's economy. It accounts for around 23 percent share in the GDP, absorbs above 40 percent of total labour force, and contributes about 50 percent in industrial production as well as more than 55 percent in total export earnings. Agricultural output is significantly dependant on water, thereby creating a close agriculture and water nexus. Both agriculture and water sectors are particularly vulnerable to changing climatic conditions having direct and indirect impacts food security. The Integrated Food Security Phase Classification (IPC) conducted by FAO and IPC partners estimated that around 10.5 million people (29% of rural population) are food insecure, the number expected to rise to 11.81 million (32% of the rural population) from November 2023 to January 2024. These statistics highlight the urgent and rapid need to focus on adapting to changing climatic conditions to curtail loss and damage.

The Federal Government and Provincial Governments under the Constitution are mandated with devising policies and legislating in a manner that food security is preserved by minimising adverse effects of changing climate. The Superior Courts of Pakistan through various Judgements most notably *Muhammad Ahmad Pansota v. Federation of Pakistan* reported as PLD 2020 Lahore 229, have interpreted constitutional provisions of the Constitution to include food security as an inalienable fundamental right of citizens of Pakistan. Article 9 read with Article 3 and 4 and examined under Article 38(d) of the Constitution obligates the State i.e. Federal Government and the Provincial Governments to promote the social and economic well-being of the people and to provide basic necessities of life including food.

This review has been conducted with the aim to aid the Federal Government in executing and implementing strategies enumerated in NAP 2023. Various reports, policies, laws and judgements of the superior courts of Pakistan were perused to formulate recommendations in this report.

Policies

- National Food Security Policy 2018
- National Water Policy 2018
- Sindh Water Policy 2018
- Punjab Water Policy 2018
- KPK Integrated Water Resource Management Strategy
- National Hazardous Waste

Laws

- The Constitution of Pakistan 1973
- Land Acquisition Act 1894
- Seed Act 1976
- Seed (Amendment) Act 2015
- Plant Breeders Right Act 2015
- Pakistan Environment Protection Act 1997
- Irrigation and Drainage Act 1879
- Sindh Water Management Ordinance 2002
- Sindh Irrigation Act 1879
- Punjab Water Act 2019
- Punjab Irrigation, Drainage and Rivers Act 2023
- Canal and Drainage Act 1873
- Water Users Associations Ordinance 1981
- KPK Water Act 2020
- The CDA Ordinance 1960
- ICT Zoning Regulations 1992
- Punjab Local Govt. Act 2022
- LDA Act 1975
- LDA Land Use Rule 2020
- PK Biosafety Rules 2005
- National Biosafety Guidelines 2005

Other Ref. Material

- The Integrated Food Security Phase Classification
- Pakistan Economic Survey 2022 - 2023
- Pakistan Bureau of Statistics
- PLD 2020 Lhr. 229
- PLD 2008 SC 673
- Suo Motu No. 03 of 2011

3.1 AGRICULTURE

Under this section of the report, the Framework for different aspects of the agriculture sector has been reviewed with the objective of proposing amendments or promulgation of new legislative and policy instruments to strengthen institutional and governance structures to facilitate implementation of adaptive strategies.

Agriculture and food have a close nexus on multiple levels. Directly by providing sources of food; and indirectly by contributing 22.9% GDP and by providing employment to 37.4% of labour force[2]. Food, contribution to GDP and provision of employment are all dependent on one factor – optimal crop yield. Amongst others, crop yield is adversely impacted by low-quality seeds, inefficient land use, outdated agricultural practices and limited access to finance.

3.1.1 Seeds

In Section 1.1.1 we will confine review to the subject of seeds, other aspects to be dealt with in the following sections. To maximise output, availability of quality seeds, climate resilient seeds, and efficient supply chain systems are a pre-requisite.

The seed sector is dominated by informal sector meeting around 60% of the market's needs, primarily due to tedious and inefficient governance structures. Complicated certification/approval processes and lack of effective intellectual property rights have discouraged growth of the formal private sector and encouraged use of uncertified seeds. Another big deterrent to growth of the formal sector is lack of knowledge amongst farmers about availability of more advanced certified seeds and reluctance of private sector especially the multinational companies to transfer technology and invest in research & development in Pakistan.

Pakistan's journey towards controlling and seed quality started in 1976 when the Seed Act 1976 was promulgated. Under the Seed Act 1976 only Provincial Governments could produce seeds creating a monopoly of the public sector. The monopolisation of the sector greatly compromised innovation due to lack of resources, infrastructure, and governance issues. To address these gaps an amendment to the 1976 Act was proposed through the Seed (Amendment) Act 2015. Private sector

alongside public sector was permitted to produce seeds subject to fulfilment of safety protocols under the laws of Pakistan. Another salient feature of the 2015 Amendment Act was recognising genetically modified plant varieties and hybrid varieties. To ensure small farmer were not exploited at the hands of upcoming private corporate sector, Rule 8 of the Seed Business Rules 2016 offered some protection to small farmers by allowing them to use, reuse etc any seed regardless of the legal structure. However, the questions of supply chain, storage and awareness were not addressed, leaving a big gap.

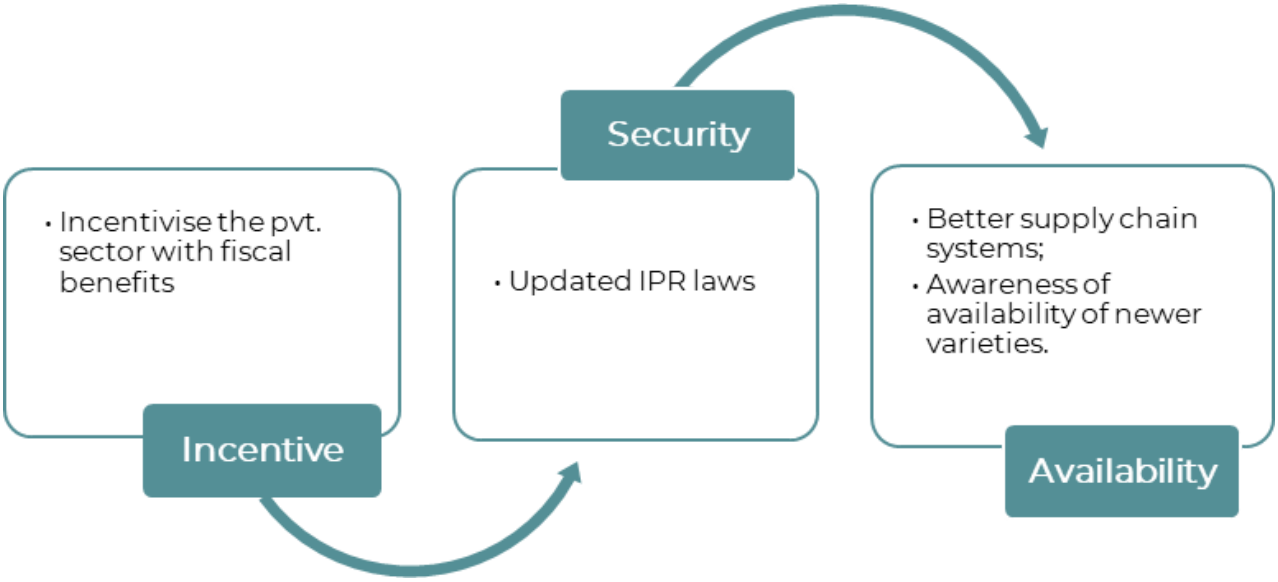
As mentioned above, one big deterrent towards development of newer seed qualities is ineffective protection of intellectual property rights ('IPR'). Some effort was made to address this concern through The Plant Breeders Act 2015 which was enacted in compliance of the Agreement on Trade Related Aspects of Intellectual Property Rights ('TRIPS'). The objective was to establish a viable seed industry by encouraging development of new plant varieties. The Act aimed to achieve its objectives by protecting rights of developers/breeders incentivising them to produce high quality seeds. However, the safeguards were not enough to encourage private sector especially multinational companies such as Monsanto to share knowledge thereby transfer technology to the local market.

Another big governance hurdle for the seed sector is involvement of multiple agencies in certification and approval process. One process is housed under the relevant food and agriculture departments/division under the Framework mentioned above. Another is housed in the relevant environment related divisions/departments under the Pakistan Biosafety Rules 2005 ('Biosafety Rules') made under Section 31 of the Pakistan Environment Protection Act 1997 ('PEPA 1997') and the National Biosafety Guidelines 2005 ('Biosafety Guidelines'). The mentioned scheme regulates import, purchase, sale and trade of Genetically Modified Organisms ('GMO'). The Biosafety Rules and Biosafety Guidelines facilitate compliance of the Cartagena Protocol. The purpose of the scheme is to ensure that research or use of GMOs is not detrimental to human health and the environment.

The statistics as available show that around 60% of market demand is met by uncertified seeds supplied through the informal market. This number demonstrates that the existing legal structure is not working. A new structure is needed. The realities have significantly changed since 2015. Climatic concerns have drastically shifted. Breeds which were optimally performing till 2015 are no longer viable such as BT Cotton.

Despite a detailed legal structure, development of climate resilient seeds is sub-par. One of the primary reasons is lack of incentives and bureaucratic hurdles in commercialisation of innovative seed varieties. Increased focus and funding for research and development is required both in the public and private sector. Where innovative seeds are available, they do not always reach farmers therefore a better supply system needs to be installed.

An overhaul of seed sector is required addressing the following overarching concerns:



3.1.2 Preservation and conservation of agricultural land to ensure food security

Agricultural output is strongly linked to land and soil quality. Over usage and inefficient usage of land can have serious impacts on crop yield. An overhaul of the way land is used and governed is immediately required to ensure food security in the face of changing climatic conditions, starting with legislative and policy reforms.

Issues pertaining to land use and governance in the context of adapting to climate change and preserving food security can be put in two broad overarching categories:

i) Conversion of agricultural/cultivated land to urban land;

The past few decades have seen an increase in population and urbanisation resulting in an increased demand for housing leading to conversion of agricultural/cultivated land for housing projects and industrial purposes which is not always the most efficient way of using land. The superior courts of Pakistan have intervened in various cases and urged the legislature and executive branch to devise legislation and policies to address the issue of inefficient land use. The National Food Security Policy 2018 (the 'NFSP 2018') highlights the concern of mismanaged land use however fails to recommend any policy interventions to tackle the issue. The existing NFSP 2018 needs to be reviewed in this context to include policy interventions on better land management which may be emulated by the provincial governments.

The Constitution protects the right to private property under Article 24. However, the right is qualified by law and land under private ownership may be acquired by state for various purposes including but not limited to roads/infrastructure, housing and industrial development under the Land Acquisition Act 1894 (the 'Land Acquisition Act'). One of the fundamental flaws of the Land Acquisition Act is it does not distinguish between agriculture/cultivated land and normal land – rather treats all land as same. Under the current legal scheme fertile cultivatable land may be acquired by State without any due deference to the issue of food security. The superior courts of Pakistan have time and again intervened to stop such acquisitions. However, such interventions are exceptions not the norm for the reason that dictates of a legislative instrument cannot be bypassed on the strength of a moral argument.

The right of State to acquire land cannot be completely revoked however, the right can be better qualified in the context of changing circumstances such as climate change and increasing threat to food security. One suggestion may be to amend the current legislative scheme in particular the Land Acquisition Act to draw distinctions between different categories of land. Further, a framework maybe devised which stipulates extraordinary conditions under which agricultural/cultivated land maybe acquired.

Land use in Pakistan is essentially a provincial subject primarily governed by municipal authorities and local governments deriving their authority from a combination of federal and provincial laws. For example, in Punjab the Punjab Local Government Act 2022 ('Punjab LG Act') was formulated for establishing an effective local government system for meaningful devolution of political, administrative and financial responsibility to promote good governance, effective delivery of services and transparent decision making through institutionalised participation of the people at the local level. Section 21(b) of the Punjab LG Act stipulates that control over land use which comprises of zoning for any purpose including agriculture, housing, industry, commerce markets, shopping and other employment centres, residential, recreation parks etc. as per the approved master plan will be within the functions and powers of Metropolitan Corporation and District Council. Punjab alone has more than 40 districts. Review of legislative and regulatory framework of every single district is beyond the purview of this report.

A comparative analysis of the structure in Islamabad, which is a Federal Territory, and Lahore has been conducted to provide a roadmap of how land governance can be better managed to ensure food security. Both mentioned jurisdictions are very different, whereas Islamabad has adequate laws but struggles with implementation; Lahore needs a more stringent governance structure to discourage land conversions.

Islamabad has adequate structures in place but struggles with implementation. No additional land use laws need to be promulgated; main focus should be on implementation of existing laws. Support from municipal authorities is essential, whereby basic facilities should be provided which will aid in implementation such as adequate irrigation facilities, research and development facilities, facilitate sale of produce from farms to incentivise local community to farm the land as opposed to use it for residential purposes. Find details below in **Box 1.**

Box 1: A synopsis of Land Laws in Islamabad

- Regulation of land usage on the federal level (jurisdiction spanning across the territory of the ICT) comes within the purview of the Capital Development Authority (the 'CDA') established in 1960 through the CDA Ordinance 1960 (the 'CDA Ord.').

- Agro-Farm scheme was established in Zone 4 under the CDA Ord. read with Islamabad Capital Territory (Zoning) Regulations 1992 (including 2014 amendments made via S.R.O. 1105(I)/2014) ('ICT Zoning Reg.') for the purpose of making Islamabad self-sufficient in growing vegetables, fruits and poultry.

- Due to various factors including lack of provision of essential facilities such as irrigation, land leased under the Agro-Farm Scheme was and continues to be utilised for purposes beyond the scope of the scheme including exclusively residential purposes.

- As per the prevalent legal scheme the Agro-farm lease cannot be put to any other use than for agricultural purposes.

- The matter has been taken up by the Superior Courts of Pakistan on numerous occasions; two notable cases Suo Motu No. 10 of 2007 (PLD 2008 SC 673) and Suo Motu No. 03 of 2011.

Lahore needs to formulate frameworks and laws discouraging conversion of agricultural land to other uses. Provision for land use conversion has to be revisited and confined to only extremely extraneous circumstances, subject to an environmental study of impact in neighbouring land and overall food security. The environmental study should also comprise input from the relevant provincial government departments mandated with overseeing food and security, in case of Punjab that will be the Punjab Food Department. Not stipulating the requirement of an environmental study from the perspective of food security is a major flaw in LDA Rules. Refer to **Box 2** below.

Box 2: A synopsis of Land Laws in Lahore

- The regulating authority in Lahore is the Lahore Development Authority ('LDA') which was established under the LDA Act 1975 ('LDA Act').
- Section 14A of the LDA Act authorises the authority to make the master plan.
- Implementation of the master plan is further aided by the LDA Land Use Rules 2020.
- The LDA Land Use Rules 2020 provide for conversion of agricultural land for purposes other than agriculture subject to conditions stipulated therein.
- One of the additional usage permitted is establishment of an industrial project and estate which can be seriously detrimental to health of soil of adjacent agricultural land.

All similar municipal/district laws need to be reviewed in the perspective mentioned above and conversion of agriculture land for other purposes should be qualified with very stringent requirements. As a guiding tool for revision of municipal/district laws a policy may be developed by the Federal Government laying down stringent criteria for land use which may be eventually emulated by the provinces.

ii) Inequitable land distribution.

Land is perquisite to agricultural output; therefore land ownership and security of tenure have a direct bearing on agricultural productivity, efficiency, agricultural dividends and sustainable agricultural practices. Inequitable distribution of agricultural land has led to unsustainable and inefficient land use causing land degradation and compromising crop yield. The root cause of inequitable land distribution is financial barriers to private acquisition of land and land tenure system in Pakistan. Please refer to section 3.1.5 below for more details.

3.1.3 Outdated Agricultural Practices - Water management for irrigation

National Clean Air Policy 2023 ('NCAP') highlighted crop burning as a major contributor to air pollution. In addition to being a contributory factor to air pollution the practice also significantly depletes soil quality. Even though NCAP calls for complete ban on burning of crop residues, introduction of low-cost alternative options for agriculture waste management and promotion of circular economy in agriculture waste management, corresponding legislation is lacking.

Irrigation practices are discussed below at section 3.2

3.1.4 Livestock

Livestock has emerged as the largest contributor to agriculture accounting for approximately 62.68% of agriculture value added and 14.36% of the national GDP. Rural communities rely heavily on livestock to derive income with 8 million rural families engaged in livestock production and deriving 35 to 40% of their income from this sector. Livestock sector is vital for economic growth, food security, and poverty alleviation.

Post 18th Amendment livestock became a provincial subject. Thereafter as opposed to a dedicated ministry at the national level, the subject of livestock was absorbed by the Ministry of National Food Security and Research ('MNFSR'). MNFSR is primarily responsible for devising a national level livestock policy in light of the changing climatic conditions which may be eventually adopted by the provinces. Work on a new policy has been underway since 2022, however, no official policy has been notified. Current policies of the MNFSR are primarily focused on import and export of livestock.

The MNFSR needs to devise a policy centred around Government priorities of promoting private sector led development, with public sector providing enabling environment through various policy interventions. Regulatory measures need to be implemented to enhance per unit animal productivity by improving veterinary health coverage, husbandry practices, animal breeding practices, artificial insemination services, use of balanced ration for animal feeding, and controlling livestock diseases of trade and economic importance.

To address investment-related issues in the value–added livestock export sector, the government is developing export meat processing zones and disease-free zones. These structures need backing of an effective legislation to create an environment of ease of business and consistency.

As per the data provided by the Ministry of Finance, the Government was focused on the following priorities in 2023:

i) Enhanced productivity;
ii) Establishing nucleus breed;
iii) Identifying breeds that are well adapted to various agro-ecological zones of Pakistan, and importing high-yielding exotic dairy, beef, mutton breeds, and genetic materials.

Pakistan joined the US-EU led Global Methane Pledge in 2030, pledging to reduce methane emissions by 30% by 2030. Even though traditionally this is more of a mitigation concern, adaptation policies need to be cognisant of the impact of methane pledge. A new policy should be devised which ensures that the commitments under the Methane Pledge are met without impacting food security.

Poultry sector which is a subsector of the Livestock sector needs a special policy framework which focuses on disease control, utilising cutting-edge technology for poultry production in controlled environments, processing and value addition, improving poultry husbandry practices, and expanding product diversification. Another issue of concern in the poultry sector is that of feed. Poultry feed is primarily imported. The legal structure regulating the import is housed under the MoCC&EC and EPA as mandated by the Biosafety Rules and Guidelines. The processes are often contradictory and have created serious feed shortages in the past. New regulatory regime is needed which is equally focused on health and ease of business. In addition, a policy to promote production of feed locally is required.

Fisheries sector has received attention during past governments due to its importance to create balance in demand of mutton, beef and poultry. However, no policy framework at the national level has been devised which adequately addresses concerns of water logging, efficient land use for the purpose of fishing and enlarging the sector. A policy needs to be devised at

the national level which lays down parameters for the development of fisheries sector. A policy framework is needed which will stipulate the limitations on conversion of land use for the purpose of fisheries.

There are two components to governance of the livestock sector, i) preventive regime and ii) curative regime. Pakistan is mostly focused on curative regimes. A healthcare policy for the livestock sector is needed which is preventative is nature.

The livestock sector at the national level requires a policy framework at the national level which adequately addresses the concerns mentioned above.

3.1.5 Access to Finance

As discussed in preceding paragraphs, climate change, has profound negative impact on the agriculture sector. The sector is confronted with additional challenges such as water shortage, natural resource conservation, rising prices of inputs including seeds, fertilisers, pesticides, electricity, and gasoline. Most farmers, an approximate 84% are small farmers, either small landholders or tenants, with limited financial resources. Their incomes are wholly dependent on the returns from their crop yield, therefore growing inflation has further compounded these challenges for them. With compromised crop yield and limited financial resources survival is the primary concern for small farmers as opposed to transitioning to newer and more innovative agricultural practices. The state needs to intervene with effective policies and if need be legislative instruments to cushion loss of crops due to adverse climatic conditions and availability of finance to adapt to changing conditions to minimise the crop loss.

The GoP mostly functions on a reactionary basis post disaster by compensating the affected people. During 2010 – 2014 around 3.3 million acres of crops were lost due to floods in Punjab. The provincial government compensated about USD 67 Million for the losses to the affected farmers, whereas according to a World Bank report actual losses were around USD 1.6 Billion and the compensation was only 4% of the total losses. In the mentioned example, the farmers were not adequately compensated yet the national exchequer incurred a heavy loss. A more effective mechanism needs to be installed whereby the farmers are not stuck in a recovery trap and can build up their resilience by investing in adaptive measure and resources of the national exchequer are spent elsewhere.

The two main areas which need immediate attention to achieve the aforesaid are insurance to mitigate risks of the volatility of the sector directly attributable to erratic climatic conditions and; second access to finance for transitioning to climate smart agricultural practices to build adaptive capacity and resilience.

The SBP has initiated some significant initiatives for promotion of agricultural finance in collaboration with federal and provincial governments:

(i) PM's Kissan Package 2022 – The package was announced to facilitate farmers and revive economic activities in flood affected areas. Under the package a scheme for Small and Medium Enterprise ('SME') modernisation has been initiated which will allow agro-based SMEs to avail financing.

(ii) Introduction of Champion Bank Concept for Undeserved Areas – State Bank of Pakistan ('SBP') nominated six banks as Champion Banks to spearhead efforts in their assigned under-served areas/regions from Southern Punjab, Sindh, KP, Balouchistan, AJK and GB to enhance flow of credit and bring more borrowers in to the fold of formal credit network.

(**iii) Crop Loan Insurance Scheme (CLIS) & Livestock Insurance Scheme for Borrowers (LISB)** – Under CLIS and LISB, GoP bears insurance premium for small farmers availing agriculture credit from banks for cropping or livestock purposes. During the period from July 2008 to June 2022, banks have submitted premium claims of Rs. 10.6 billion against 6.9 million beneficiaries. Insurance premium for small livestock farmers, availing bank financing, continues to benefit farmers as premium claims of Rs. 3.09 billion against 0.91 million beneficiaries.

CLIS was initiated in 2008. Under the scheme credit facility is provided to farmers for five major crops, namely, wheat, rice, sugarcane, cotton and maize which is accompanied with insurance of loan against natural disasters like flood, drought, hailstorm, pest attack and fire damage. It functions as a protective measure for the credit lending agency and for farmers.

The impact of CLIS has been limited. Neither the credit lending facilities nor the farmer are adequately protected. Better insurance mechanisms need to be devised whereby insurance is not only linked to credit facility but can also be procured on stand-alone basis.

As per a SBP study 80% of farmers do not have access to credit. Of 8.3 million farmers only 18% had access to bank credit in 2020 of which large farms with more than 50 acres received 60% loans. Credit distribution needs to be more equitable so as to ensure that wealth is not concentrated in a few hands. Schemes which disburse interest free loans to small farmers need to be encouraged. However, for success of such schemes the prerequisite is ease of access without the need for collateral. Most small farmers either do not have landholding papers or simply do not own land and function on tenancy basis.

3.2 WATER

93% of water in Pakistan is used for irrigation. The irrigation network is continuously recharged by the glaciers in the north of Pakistan feeding the Indus River Basin alongside monsoon rains. 60% of this water is wasted during conveyance and application in fields due to outdated irrigation practices and poor maintenance of irrigation system. Pakistan is projected to be a water scarce country by 2025 requiring urgent and rapid action to preserve and conserve the depleting resource. National Water Policy in 2018 ('NWP') states that *"only by devising and implementing appropriate adaptation measure will it be possible to ensure water, food and energy security for the country as well as minimise the impact of natural disasters."*

The NWP was devised with the objective of providing an overall policy framework and guidelines which maybe incorporated by the provinces in provincial level policies with the aim of developing masterplans for *"sustainable development and management of water resources*". The NWP suggests incorporating the concept of "More Crop per Drop" by devising a national plan for implementation of improved irrigation methods and practices; banning flood irrigation; and introducing new varieties of crops with high yields which have lower water consumption, reduced GHG emissions, resistant to hear stress, drought tolerant and less prone to insects and pests. The Water Apportionment Accord 1991 shall be implemented in letter and sprit by IRSA. Abiana system needs to be updated. Provincial departments should establish organisation for water resource development in rain-fed areas. Till date none of these initiatives have been incorporated.

Sindh devised the Sindh Water Policy approved by Sindh Cabinet on 22.07.2023 ('SWP'). The SWP was prepared in alignment with the NWP. The SWP highlights discrepancies between the Irrigation and Drainage Act 1879 and Sindh Water Management Ordinance 2002 ('SWMO 2002') as one of the key obstacles in governance of water resources in Sindh. Some of the key recommendations of SWP are: a new unified law should be formulated for better management of water resources by replacing Sindh Irrigation Department with a new restructured department Sindh Water Resources Management Department ('SWRMD'); establishment of new canals and water outlets by private parties should be banned; Sindh Irrigation Act 1879 should be revised in line with SWMO 2002; groundwater rights should be established; abiana system needs to be better implemented to cover costs of maintaining canal system and additional revenue streams need to be activated to meet this objective; capture and utilise rain/flood water; better recording of land and water rights in revenue records; . To implement the SWP establishment of Sindh Water Resources Council and SWP Implementation Committee is suggested.

Punjab devised the Punjab Water Policy 2018 ('PWP') in line with the NWP. PWP highlights the need to transition to updated agricultural practices such as innovative technologies like laser land levelling, furrow-bed irrigation and precision planting on beds for saving 30%water and increasing crop yield by 20%. To achieve this water measurement and reporting is mandatory – the Punjab Water Act 2019 ('PWA 2019')to a certain extent provides for record keeping across a number of water related areas, however, irrigation water sources should have separate mention. PWP suggests reducing cultivation of crops which deplete scarce water resources such as sugar cane. An overhaul of Abiana system is needed including enhancement in rates and cost of discharging effluents. PWP suggested legislation for water governance, allocations, use, management, regulation of water abstraction, regulation for use and disposal of wastewater. Of suggested legislative instruments Punjab has made considerable improvement by enacting the PWA 2019 and the Punjab Irrigation, Drainage and Rivers Act 2023 ('PIDRA 2023'). However, implementation of the said instruments is lacking.

Khyber Pakhtunkhawa through its Planning and Development Department issued an Integrated Water Resource Management Strategy ('IWRMS') in line with the NWP. The IWRMS focused on establishment of an effective

coordination mechanism, formulation of policies and existing regulation including updating Canal and Drainage Act 1873, formulating a Water Pricing Policy, updating Water Users Associations Ordinance 1981 and implementation of Environment Protection Act 2014. Of the suggested amendments only Khyber Pakhtunkhawa Water Act 2020 has been formulated to regulate allocation of water resources amongst others, however remaining suggestions are yet to be incorporated.

The province of Baluchistan is yet to formulate a policy in line with NWP.

The NWP is a comprehensive document which has been used by most provinces to devise a road map for provincial level sustainable irrigation practises, however, more needs to be done. Issues of water logging and salinity find mention in almost all policy documents however, not enough interventions are suggested to counter the issue. A specialised policy document may be needed to effectively address the issue. Similarly various other mechanisms suggested in NWP are still lacking implementation. The National Hazardous Waste Management Policy 2022 ('NHWM 2022') needs backing of an effective legislation so that the strategies enumerated therein maybe mainstreamed in water related policies.

3.3 WAY FORWARD: GAPS AND RECOMMENDATIONS

3.3.1 Seeds

IPR Laws

2015 amendments opened the industry for the private sector however, adequate corresponding framework for an enabling environment was not created such as effective IPR laws. Lack of effective IPR laws has discouraged the private sector especially the multinational companies from investing locally in seed development.

Supply Chain

Seeds which are available in the market do not always reach the farmers. A better supply chain policy needs to be devised at the national level in consultation with the provinces.

Better Regulatory mechanism

Tedious certification processes have encouraged establishment of informal sector, compromising seed quality. Easier, one stop, certification process is needed. For instance, Biosafety Rules need to be amended to enable commercialisation of hybrid innovative varieties.

Communication Strategy

No policy or legislation on an effective communication strategy exists. It is extremely important that farmers have adequate information of newer seeds available. Federal Government must devise a policy in this regard.

3.3.2 Land Use and Governance

Implementation

- Certain jurisdictions which have relatively adequate land usage laws, struggle with implementation for various reasons, such as lack of adequate agricultural facilities and lack of cooperation from different departments of the government.
- A policy for implementation of land usage laws should be made with support of and in collaboration with all relevant departments including law enforcement.

Framework for land conversion

- Areas where conversion of agricultural land is permitted such conversion should be qualified by stringent conditions as per a framework which should be devised at the federal level, to be adopted by the provincial, local governments.
- One of the requirements for conversion should be Environmental Assessment Report.
- Land Acquisition Act should be revisited in line with the current circumstances.

3.3.3 Agricultural Practices

Legislation to give effect to existing policies.

Provisions of the NCAP whereby ban on burning agricultural residue is recommended should be implemented through effective legislation. The legislation should also address transboundary concerns by providing a mechanism for cooperation between provinces and territories.

Communication Strategy

The most important aspect of transition to sustainable agricultural practices is knowledge. A communication strategy is of utmost importance for narrative shift whereby encouraging more sustainable practices.

Refer to water section.

3.3.4 Livestock

Formulation of a Policy

Livestock policy is long overdue. A policy which addresses concerns beyond import and export.

3.3.5 Access to Finance

- Pakistan needs an insurance scheme for all provinces and territories;
- ·Access to insurance schemes in areas which do not have access to financial institutions or areas which have low literacy rates is important;
- An effective communication strategy is needed informing small farmers of advantages of availing insurance and credit facilities;
- Application processes and disbursement mechanisms need to made more accessible and simplified.

3.3.6 Water

Implementation of NWP

- The NWP provides for a National Drainage System which is vital for improving irrigation and drainage; however, implementation is lacking.
- Priorities and interventions recommended in the NWP should be implemented by the provinces.

Implementation of Water Apportionment Accord 1991

The IRSA needs to implement the Accord in letter and spirit.

Implementation of National Hazardous Waste Management Policy

For implementation of the policy corroborating legislation should be formulated.

Groundwater extraction

Under the supervision of relevant municipal authorities , a policy or regulations should be formulated to regulate extraction of groundwater.

Abiana System

A new policy updating the abiana system is needed.

Water Rights

- All provinces should legislate on water rights.
- Revenue record of water rights should be maintained.

Communication Strategy

New policy instruments incorporating an effective communications strategy advocating updated irrigation practices needs to be mainstreamed.

4. NATURAL CAPITAL

Land, Water, Air – three components of natural capital are vital to survival and prone to be adversely impacted by climate change. In line with the priorities enumerated in the NAP 2023 the following documents have been perused for the purpose of this report.

Polices and Plans

- National Biosafety Strategy and Action Plan 2017
- Convention of Biological Diversity
- Pakistan Biodiversity Action Plan 1999
- Forest Policy Resolution 1955
- 1962 Policy Directive on Forestry, Watershed Management, Range Management and Soil Conservation
- 1975 Forest Policy
- National Agriculture Policy 1980
- National Forest Policy 2015
- National Climate Change Policy 2012
- National Water Policy
- Sindh Water Policy
- Punjab Water Policy
- IWRMS KP
- National Standards for Drinking Water Quality
- National Hazardous Waste Management Policy 2022
- National Drinking Water Policy 2009
- Sindh Drinking Water Policy 2017

Laws

- The Constitution of Pakistan
- ICT Zoning Regulations
- The Islamabad Wildlife (Protection, Preservation, Conservation and Management) Ordinance 1979
- CDA Ordinance 1960
- Forest Act 1927
- Pakistan Biosafety Rules 2005
- Pakistan Environment Protection Act 1997
- National Biosafety Guidelines 2005
- Seeds Act 1976
- Punjab Water Act 2019
- Punjab Municipal Water Act 2013
- Khyber Pakhtunkhawa Water Act 2020
- Pakistan Climate Change Act 2017

International Instruments

- Kumming-Montreal Global Biodiversity Framework
- The Cartagena Protocol

4.1 LAND

Pakistan has abundant natural capital including rangeland, forests and fertile soil. However, it continues to lose biodiversity as a result of habitat destruction, overexploitation, overharvesting, expansion of agricultural land and urban development, spreading of invasive species and climate change. National legislative and policy instruments need to focus on halting and if possible reversing the loss to build resilience through nature based solutions.

As mentioned earlier in this report post 18th Amendment environment is a devolved provincial subject, however, the federation can legislate on behalf of the provinces where the power to do so has been delegated by province(s) under Article 144 of the Constitution of Pakistan. Further the federation may also legislate to implement international obligations from agreements, treaties or any other legally binding international instruments. In this context the current legislative, regulatory and policy framework will be reviewed to highlight any gaps in the context of following concerns:

i) National Biodiversity Action Plan ('NBSAP')

Since 1994 Pakistan is a signatory to the Convention on Biological Diversity ('CBD') an international legal instrument for "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources". In compliance of Article. 6 of CBD Pakistan first developed its Biodiversity Action Plan ('BAP') in 1999. A second document the National Biodiversity Strategy and Action Plan ('NBSAP') was formulated in 2017 to meet Aichi Biodiversity Targets ('ABT') and Sustainable Development Goals ('SDG') till 2030 while meeting the objectives of CBD. The NBSAP highlighted that main causes for biodiversity loss were land/habitat degradation and desertification due to increasing population, expansion of area under human habitation and poverty, further exacerbated by ineffective policy and planning framework.

The NBSAP suggests the need to raise awareness by devising a communication strategy involving all stakeholders and backed by economic incentives; increase capacity, improve scientific knowledge; mainstream biodiversity by encouraging stakeholder debates and including biodiversity in policy and planning process, improve national coordination mechanisms, encourage cross-sectoral collaboration, and adopt fresh financing strategy.

ii) Land Use Policy

One area of concern emphasised by NBSAP is unsustainable land use which majorly contributes to biodiversity loss and low agricultural output. As mentioned above, municipal/local governments govern land use within the confines stipulated by federal and provincial laws. Zoning laws of some jurisdictions (not all) create separate agricultural, residential and industrial zones while conserving/preserving local fauna and flora by protecting natural habitats. One example is ICT, the ICT Zoning Regulations read with the ICT Wildlife Ord. 1979. The ICT Zoning Regulations read with CDA Ordinance clearly prohibit utilising agricultural land for any other purpose than agriculture, similarly, prohibit use of protected areas classified as National Parks under the ICT Wildlife Ord. in way detrimental to preservation and conservation of nature. ICT is a novel example, unfortunately zoning laws of most districts are wanting in this regard.

iii) Forest Laws/Policy

For preservation of forest land, the federation and all provinces have adopted some form of forest policy. To provide historic context, evolution of forest policies will be succinctly mentioned hereunder. First ever Forest Policy Resolution was adopted by the constituent assembly in 1955 whereby forestry programmes were given high priority in national development plans, legislation was proposed to manage privately-owned forests and need for technical/financial assistance for this purpose, public control of land use for soil conservation in areas with soil erosion, awareness campaign for conservation of forests, classification of forests and initiation of programmes to increase forest area. One salient feature missing from the 1955 Policy was inclusion of coastal or mangrove forests. Second policy the 1962 Policy Directive on Forestry, Watershed Management, Range Management and Soil Conservation was more focused on management of forests as commercial enterprises by increasing yield of timber and fuelwood (one step suggested in this regard was mandating village bodies to plant trees around their homestead); and aiming to reduce rights of local communities by creating a central forestry board and fencing off forest areas. The 1962 policy for the first time included coastal forests by suggesting preparation of a plan for planting coastal areas as extensively as possible. After the 1971 partition, a National Enquiry Committee was set up to make recommendations on the forest policy to the Council of Common Interest. The recommendations of the National Enquiry Committee and the 1975 Decision of the Council of Common Interest formed the basis of the 1975 Forest Policy.

It continued with the same theme of the 1962 Policy of reducing engagement/rights of local communities in forests. A lot of emphasis was placed on timber harvesting. Plantation of fast-growing species was recommended to increase forest productivity. Segue to above, such interventions had disastrous effects on biodiversity and in some cases human health, such as mulberry tree plantation drive in Islamabad. Silkworm rearing and fruit tree plantation was encouraged. In 1980, National Agriculture Policy contained a Forest Policy Statement encourage plantation of fast-growing trees to boost the timber industry. 1988 saw formation of a National Commission on Agriculture which recommended that a watershed and arid lands development authority should be created under the (then) Ministry of Food and Agriculture. One common theme that can be ascertained from 1962 till 1980 is that the national policy was primarily interested in bringing forests under government control to maximise its output as a commercial enterprise. This approach is no different from the global approach at the time, when environmental law was established for resource protection to maximise financial returns whether it was fishery, forest, land or water. Priorities of our current times have drastically shifted from exploiting nature to conserving and preserving nature. This shifting trend can be seen in the evolution of global and national policies.

The latest NFP 2015 in line with the mitigation and adaptation measure enumerated in the National Climate Change Policy 2012 ('NCCP 2012'). Some of the key issues the NFP 2015 seeks to rectify is absence of national forest monitoring mechanism, unregulated inter-provincial movement and trade of timber and absence of uniform standards for forest monitoring and assessment of carbon stock. Some salient policy measure suggested therein are (i) mandatory requirement of EIA and EMP prior to approval of any project; (ii) high emitting projects shall invest in establishment of forest carbon sinks; (iii) initiators of large dams shall invest in watershed management; (iv) projects pertaining to construction or repairing of main and link canals shall invest in linear plantations; (v) national organisations including armed forces shall invest on afforestation programmes; (vi) provincial governments should incentivise private investment in forestation; (vii) coordination between governments shall be encouraged; (viii) legislate to control invasive alien species; (ix) capacity building; (x) establishment of wetland authority; and (xi) strengthening of Pakistan Forest institute. One feature of NFP 2015 which particularly stands out is engagement of private

sector. By shifting the onus on the private sector, pathway to public private cooperation has been opened up, increasing chances of success in implementing enumerated therein.

The 1927 Forest Act ('Forest Act') adopted by all provinces was promulgated to regulate transit of forest-produce and duty leviable on timber and other forest-produce. The Forest Act further authorised the government to notify any area as a reserved forest which may not be the property of state prohibiting kindling of fires, felling trees/cutting timber or dragging timber, cutting/damaging plants, damaging a tree or its leaves, quarrying, construction of any sort of building, clearing or breaking land, trespassing or pasturing any cattle, removing or damaging soil/water/natural vegetation/fish/wild animals/wild birds, damaging any water body, changing land use, installing saw mills/charcoal kilns; andestablishing depots. However, Section 27 of the Forest Act gave the government the power to declare a reserved forest, or any part thereof as not reserved whereby permitting change of land use. Similarly, for lands within the ownership of the government they may be declared protected forests prohibiting actions similar to those enumerated above in regard to reserved forests. Under Section 34-A, protected forest status maybe revoked and change of land use permitted.

In ICT the ICT. Wildlife Ord. 1979 provides a dual function of protecting animals and their habitats. Under Section 21 the Federal Government is authorised to declare any area as a national park to protect flora and fauna restricting any action therein which may damage or affect the integrity of the area declared a national park.

A bare perusal of the aforementioned legal and policy landscape leads to the conclusion that sufficient laws are available on book to protect forests, however, provisions relating to change of land use are detrimental and result in decrease of forest cover. Further, not enough provisions are made for protection of flora and fauna therein, in line with updated international obligations and changing local priorities.

iv) Biodiversity in Agriculture

As discussed earlier, transition to climate resilient seeds is a prerequisite to adapting to changing climate scenarios. However, new seed technologies

come with their own set of problems, if not monitored properly they can have drastic adverse impacts on biodiversity by terminating local crops. The Cartagena Protocol was enacted to counter the global threat of GMOs on indigenous crops by regulating transboundary movement and mandating that parties to the Protocol enact laws to reflect the Protocol in their national legislative and regulatory frameworks.

Pakistan has taken some cogent steps to facilitate compliance of the Cartagena Protocol by enacting the Pakistan Biosafety Rules 2005 ('Biosafety Rules') under Section 31 of the Pakistan Environment Protection Act 1997 ('PEPA 1997') and the National Biosafety Guidelines 2005 ('Biosafety Guidelines'). Biosafety Rules prohibit import, trade, sale or purchase of GMOs without a license. To procure a license procedure under the Biosafety Guidelines has to be followed which is an application to be made through an Institutional Biosafety Committee to the Pakistan Environment Protection Agency who shall then present it to the Technical Biosafety Committee for approval, upon approval thereof as a final step the application shall be presented to the National Biosafety Committee for grant of license. The same procedure has been installed for research and experimental or deliberate release of GMOs in the environment. Purpose of the mechanisms is to ensure that the GMOs do not affect biodiversity and also safe for human consumption. Aforementioned safeguards are further reinforced by the Seeds Act 1976 as amended in 2015 whereby only those GMOs can be used in Pakistan which contain terminator technology: terminator technology has been defined in Section 2 (xxxi) as GMOs that include gene or gene sequences which restrict germination of the seed produced by the plant variety hybrid during the next subsequent year of planning.

Biodiversity and incorporation of new technologies in agriculture require a delicate balance. No regulation threatens biodiversity and human health, whereas overregulation can have adverse effects on food security. The legislative and regulatory scheme as it stands today from the perspective of biodiversity adequately protects indigenous crops by putting in place strict checks and balances. Any further regulation may have adverse impact on research and development required for development of new seeds to adapt to changing climate.

4.2 WATER

The NWP formulated by the Federal Government through Ministry of Water Resources is a comprehensive document addressing various concerns in Pakistan pertaining to the water sector including water scarcity, equitable water sharing between different regions of the country, salinity, depleting groundwater, reuse of wastewater and outdated water intensive irrigation practices. The NWP prioritised storage solutions for rainwater; use of technology for desalinisation of seawater, preparation of an inventory of water resources and monitoring of irrigation water delivery; integrated water resource management; regulations for efficient and sustainable utilisation of groundwater, industrial uses and wastewater management; and regulations for groundwater contamination and waste treatment.

NWP recognises groundwater as an important resource suggesting groundwater recharge should be encouraged and excessive pumping should be regulated to stop salinisation. Regulation of groundwater extraction is a priority area for another reason - managing overuse. Superior courts of Pakistan have directed federal and provincial governments to regulate over exploitation of groundwater. Till date no legislation exists which effectively regulates groundwater.

Perusal of the SWP, PWP, IWRMS, have all led to one unanimous conclusion that water is a fast-depleting resource. Groundwater extraction is one area which needs immediate attention on two fronts, one recharge and second prevention of over exploitation. Both these measures require legislation. Neither the provincial governments nor the federal government has legislated on the issue. Another area which found unanimous support was rainwater harvesting. However, no specific modalities have been mentioned. ICT Building Regulations have incorporated a provision mandating construction of tanks for rainwater harvesting, however, no technical guidelines are provided.

Section 6(1) of PEPA 1997 authorises EPA to establish National Standards ('NEQS') for Drinking Water Quality. NWP recommends full implementation of NEQS. It is pertinent to mention here that the EPA has commented that Pakistan does not have the requisite infrastructure to maintain WHO prescribed standards. EPA has also prescribed NEQS for municipal and liquid

industrial effluents, NWP seeks full implementation of the said NEQS. Despite prescribed NEQS and the NHWMP 2022 a separate regulation is needed which exclusively prescribes standards and regulations for effluent disposal so as to prevent it from leaking into water bodies.

Government of Pakistan through the then Ministry of Environment (now MOCC&EC) formulated a National Drinking Water Policy in 2009 ('NDWP 2009'). The NDWP 2009 set the goal of providing access to safe and sustainable drinking water supply to the entire population of Pakistan by 2025. Some of the key policy interventions mentioned were metering drinking water supplies, abstraction of groundwater will be regulated, rainwater harvesting, recycling and re-use of water, existing water supply will be rehabilitated, water treatment to ensure NEQS met, National Action Plan for promotion of household water treatment options will developed. The NDWP 2009 suggested Pakistan Safe Drinking Act, enforcement of Drinking Water Quality Standards, Water Conservation Act and legislation for regulation of groundwater extraction. It may be noted that none of the prescribed legislations and National Action Plan has been formulated till date.

Sindh formulated a Sindh Drinking Water Policy 2017 in line with the NDWP suggestion legislation to further monitor the water sector, however, no such legislation has been passed. Punjab formulated its Drinking water Policy in 2011 in line with NDWP. The Punjab policy also suggested legislation for regulation of groundwater abstraction, enactment of a Punjab Municipal Water Act to be enacted by 2013. Since the Policy Punjab has passed the Punjab Water Act 2019 which deals with multiple issues including water supply, sewerage, licenses for water abstraction and disposal of water. Despite being a relatively advanced legislation compared to others, specific parameters are missing which may be regulated through separate regulation. Khyber Pakhtunkhwa passed a Drinking Water Policy in 2015 in line with the NDWP. KP passed the Khyber Pakhtunkhawa Water Act 2020 which is very similar to the Punjab Water Act 2019.

Balouchistan is the only province which has legislation since 1978 regulating groundwater, the Balouchistan Groundwater Rights Administration Ordinance, 1978, requiring registration of all water extraction devices. Further the Ordinance mandates record keeping of all water resources.

4.3 AIR

Pakistan is the third most air polluted country with serious adverse impacts on human health and the environment. Some of the key sectors identified as major contributors to air pollution are transport, industry, agricultural waste/Biomass, solid waste and residential/building sectors. It is essential to bear in mind that causes of air pollution as much as local are equally attributable to transboundary movement, therefore, to effectively combat the crisis a mixture of mechanisms which address national and international factors is needed.

It is reiterated here that environment is a provincial subject therefore the federation at the national level has limited scope to legislate or mandate actions to curtail air pollution. Transboundary movement of air pollution is the exclusive domain of the federation whereas national causes need cogent actions from provinces. The GoP through MoCC&EC formulated a National Clean Air Policy in 2023 ('NCAP'). The NCAP outlined its objectives as data collection, establishing air quality targets, identifying key mitigation actions and outlining implementation framework. Policy recommendations included transitioning to Euro 5 and Euro 6 fuel standards, regulate transport by penalising non-compliant vehicles, green and sustainable urban planning, revise industrial emissions standards, strengthen compliance of NEQS/PEQS, establishing separate industrial zones, upgrade brick kilns to zig-zag technology, ban high polluting industries, ban burning of crop residues, reduce emissions from livestock sector, manage forest fires, ban open burning of solid waste, improve cook stove technology and address transboundary air pollution by enhancing international cooperation. The NCAP has established an implementation mechanism by creating a National Action Committee ('NAC') which shall be facilitated by a Technical Committee ('Tech. Comm.'). Their scope of work shall be policy guidance and review progress. Composition of NAC is inclusive with representation from all line ministries, provinces and municipal and specialist wings or departments. The Tech. Comm on the other hand includes representatives from civil society in addition to public sector representation.

Interventions enumerated in NCAP are all capital-intensive interventions, therefore, even in some developed countries with lucrative economies interventions have been confined to a couple of cities. Fight against air

policy document and does not have force of law therefore does not create legal obligations. For implementation of NCAP all line ministries need to work in conjunction with the NAC and Tech. Comm. to legislate to give legal sanction to interventions enumerated in NCAP.

As mentioned above national scope for legislating on the matter of air pollution is limited. However, there are international precedents whereby devolved states have legislated on clean air. Such legislations normally focus on cooperative mechanisms to reduce transboundary air pollution and data collection from different states/provinces/territories etc to create a baseline. Pakistan can legislate on similar lines, reference maybe made to the UNEP Guide on Ambient Air Quality Legislation. Similarly, guidance can be sought from the Montevideo LEAP assistance platform.

4.4 WAY FORWARD: GAPS AND RECOMMENDATIONS

4.4.1 Land

NBSAP

- NBSAP needs to be updated to reflect the Kunming - Montreal Framework.
- NBSAP should form the basis for Pakistan's primary biodiversity law addressing amongst other protection of flora and fauna, regulation of alien species and prohibiting invasive species.

Land Use

- Pakistan needs a sustainable land use policy which addresses concerns such as biodiversity, preservation of national park, protection of flora & fauna.
- The mentioned policy should be devised on the national level in conjunction with MoNFSR and forestry departments as a guiding tool to provinces, local governments, and municipal authorities.

Forest Laws/Policy

- Forest Acts are outdated and do not adequately address current concerns such as conversion of land use which has seriously impacted forest cover.
- Current laws need to be updated.

4.4.2 Water

- The Federal Government needs to legislate on clean drinking water and regulation of groundwater abstraction.
- The NEQS need to be implemented.
- Modalities of rainwater harvesting must be formulated and communicated.

4.4.3 Air

- The NAC and Tech. Comm as mentioned in NCAP need to be notified.
- National legislation on clean air must be formulated with focus on coordination between federal, provincial governments and territories of Pakistan.
- All relevant divisions/departments should amend existing frameworks to incorporate interventions mentioned in NCAP.

5. URBAN RESILIENCE

Pakistan is one of the most urbanised countries in South Asia, contributing to 55% of total GDP. However, increasing urbanisation has resulted in rapid and unplanned settlements which both contribute to climate change and also reduce adaptive capacity of cities. It is in this background that an overhaul of the existing urban development is required. For the purpose of this report the following legislative and policy instruments were reviewed:

Plans, SOPS and Codes

- ICT Master Plan 1960
- SOP for Management of Sanitation Services in Islamabad 2008
- Planning Parameters for Construction of Medium Rise Residential Apartments in Zone-II, Zone-IV, and Zone-V
- Green Building Code of Pakistan (2022)
- Building Code of Pakistan (2021)
- Building Code of Pakistan - Fire Safety Provisions (2016)
- Pakistan Electric and Telecommunication Safety Code (2014)
- Building Code of Pakistan - Energy Provisions (2011)
- Building Code of Pakistan - Seismic Provisions (2007)
- Policy Guidelines for Green Building Code

Laws

- The Pakistan Engineering Council Act 1975
- ICT Master Plan 1960
- ICT Zoning Regulations
- Islamabad Fire Prevention and Life Safety Regulations 2010
- Islamabad Residential Sector (Building Control Regulations) 1993
- ICT Building Control Regulations 2020
- ICT Municipal Bye Laws, 1968
- Islamabad (Upkeep of Cleanliness) Regulations 1979

Pakistan engineering council was created through the Pakistan Engineering Council Act 1975 ('PEC Act'). Under Section 25 of the PEC Act the Governing Body with the previous sanction of the Federal Government may make bye-laws for carrying out the purposes of the Act. The Governing Body established under Section 9 of the PEC Act is the principal executive authority of the Council comprising of 66 professional engineers. Under Section 8 (p) the council may establish standards for engineering contracts, costs and services. By power sanctioned under Section 8 (p) read with Section 25 of the PEC Act the Governing Body has formulated Building Codes which shall apply to *"the construction, alteration, relocation, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structure."* PEC with the extended technical assistance of reputed international organizations successfully developed and published following Codes:

- Green Building Code of Pakistan (2022)
- Building Code of Pakistan (2021)
- Building Code of Pakistan - Fire Safety Provisions (2016)
- Pakistan Electric and Telecommunication Safety Code (2014)
- Building Code of Pakistan - Energy Provisions (2011)
- Building Code of Pakistan - Seismic Provisions (2007)

Even though these codes have been established by sanction of law, they are in essence expert technical documents which require local district/municipal level legislation or policy for effective implementation.

Policy Guidelines for Green Building Code were prepared by the Ministry of Climate Change & Environmental Coordination with support from UN Habitat, UN Environment and EU Switch – Asia Policy Support Programme. The Policy Guidelines recommended establishing a green building code to achieve eco-friendly sustainability in different elements of building, aiming to use less water, optimise energy efficiency, enhance indoor environmental quality, generate less waste, provide healthier spaces for occupants to increase their productivity, and encourage resource use efficiency. It was

suggested that green building code should work in conjunction with existing codes including Building Code, Seismic Provisions Code 2007, Building Energy Code 2008 and Fire Safety Provisions Code 2017. The Policy Guidelines document conceded that even if green building code was formulated on the national level, corresponding legislation will have to be promulgated at the provincial level to be emulated by the local governments.

Pakistan Engineering Council released Green Building Code of Pakistan 2023 on 24 May 2023 ('Green Building Code'). Green Building Code is an internationally recognized integration of all building codes developed so far to reduce the impact of buildings on climate change by using modernized green products and efficient technologies. The principal aim is sustainable production and consumption of resources. Green building is the practice of creating structures by using a process that is environmentally responsible and resources efficient throughout the life cycle of the building starting from design, construction, operation, maintenance, revocation, and demolition. The scope of Green Building Codes is to use environmentally responsible and resource-efficient processes throughout the life cycle of the building i.e. (1) Energy efficiency and the use of renewable energy (2) Water efficiency (3) Use of environmentally friendly building materials (4) Waste and toxic reduction (5) Smart and sustainable growth (6) Enhancement of air quality. The Green Building Code are a national level document whereas, urban planning is a provincial subject further devolved on local government level to municipal and district level authorities. The provinces should incorporate Green Building Code in their legislation to ensure climate informed urban planning, improving municipal delivery services in light of climate change concerns and leveraging nature-based solutions to build resilience.

Review of all provincial, municipal and district urban planning laws is beyond the scope of this report, however, ICT legislative, regulatory and policy instruments may be reviewed by way of example. In ICT, CDA regulates urban planning. The following CDA urban planning laws and regulatory instruments were reviewed for the purposes of this report Master Plan 1960 prepared by Greek Company Doxiadis Associates, Islamabad Fire Prevention and Life Safety Regulations 2010 ('ICT Fire Safety Regulations'), ICT Zoning Regulations, SOP for Management of Sanitation Services in Islamabad 2008 ('ICT Sanitation SOP'), Islamabad Residential Sector (Building Control Regulations) 1993 ('ICT Residential Building Control Reg.'), Planning

Parameters for Construction of Medium Rise Residential Apartments in Zone-II, Zone-IV, and Zone-V ('Planning of Medium Rise Apt. Building') and ICT Building Control Regulations 2020 ('ICT Building Control Reg.').

The Master Plan was prepared by a Greek Company Doxiades Associates and approved by the Federal Cabinet on 26.10.1960. ICT was divided into three major areas (i) ICT; (ii) National Park; and (iii) Rawalpindi and the Cantonment Area. The Master Plan was given sanction of law through promulgation of the CDA Ord. Review of the Master Plan was mandated every 20 years however, two attempts one in 1986 and second in 2005 failed to get approval of the Federal Government. In 1992 through the ICT Zoning Regulations ICT was divided in to five zones whereby in Zone 1 only CDA could acquire land and develop it, in Zone 2 and 5 private sector was allowed construct housing societies, Zone 3 was protected as a National Park under the 1979 Ord and; Zone 4 was reserved for agro-farming, large tract educational Institutions and research & development activities. Despite various regulations and laws in place, over the years many illegal constructions have happened in and around ICT leading to an unregulated urban sprawl decreasing green cover of ICT prompting the Superior Courts to instruct revision of the Master Plan.

Some of the problem areas faced by ICT are water shortage, sanitation issues, water quality issues, dilapidated water supply, dilapidated sewerage network, environmental issues such as encroachment of protected areas and activities such as mining conducted therein, shortage of land and housing, decreasing green cover, development of slum areas, increasing urban sprawl, unauthorised constructions, violations of building and zoning laws, contamination of natural streams, shortage of health and educational facilities, and lack of mass transit system.

The updated ICT Building Regulations 2020 have addressed some of the concerns enumerated above even though there is still room for improvement:

- To counter the issue of urban sprawl and limited land resources in proportion to increasing population CDA revised the ICT. Building Regulations by removing height restriction for high rise buildings subject to obtaining a non-objection certificate from the Civil Aviation Authority

and the CDA to encourage compact city limits and vertical housing. *However, it is important to revise the Building Code Seismic Provisions 2007 in light of the 2019 waiver. Further the percentage of permissible covered area in most Regulations may be revised, in some instances going up to 70%.*

- ICT Building Regulations provide for Rainwater Harvesting at Reg. 4.1.2. making it mandatory on plots of 400 square yards and more by installing overhead and underground water tanks.

- In Reg. 4.1.12 every landowner is encouraged to plant, protect, maintain and grow trees in accordance with the Plot Frontage. Further, cutting of trees without permission of CDA has been prohibited. *Even though initiative of tree plantation is a step in the right direction but this step needs to be qualified in light of biodiversity concerns and additional regulations in this regard shall be formulated.*

Another area of concern is sanitation which requires additional legislation. Main legislative and regulatory instruments governing sanitation services in ICT are the ICT Municipal Bye Laws, 1968 ('ICT Bye Laws 1968'), the Islamabad (Upkeep of Cleanliness) Regulations 1979 ('ICT Cleanliness Regulations') and ICT Sanitation SOP. CDA is authorised to ensure implementation of the ICT Sanitation Protocol in public and private domain under the ICT Bye Laws 1968. Whereas, the ICT Cleanliness Regulations make it illegal to deposit; branches, leaves, cutting from trees and plants, sand, earth, pebble, stones, gravel, slush, iron/wooden scrap, rubbish, manure, building material, dismantled building material, goods or material of any kind; at any public place in ICT. However, none of the aforementioned instruments mention any specific implementation mechanisms for effective facilities pertaining to sewerage, preventing seepage of sewerage waste into water bodies and effective collection and disposal of solid waste. Policy mechanisms are needed whereby, stringent waste disposal mechanisms are suggested including management of open land fills and updated sewerage protocols are recommended. In addition to policy interventions mechanisms for generating adequate financing is needed such as raising municipal tax for implementation of policy interventions and encouraging public private interventions. Further a framework maybe developed to access climate financing through carbon markets for enhancing waste disposal initiatives. The ICT Sanitation SOP mentions need for raising public awareness, those mechanisms maybe implemented.

Depleting water resources are another area of concern, the existing legislative framework does not adequately address the concern. Rainwater harvesting is a positive initiative however surcharge or metering of ground extraction is mandatory to conserve depleting water resources. A proper municipal framework should be devised whereby groundwater extraction is regulated. Metering and charging for water use can be used as a deterrent to water waste. Further enhanced aquifer recharge initiatives should be made mandatory in the ICT Building Regulations.

The ICT laws and regulations have been reviewed in light of the need to transition to a more resilient and adaptive practices. However, a national level policy on urban resilience is missing. Formulation of a national level urban resilience policy can suggest measure for green transit solutions and incorporate some of the suggestions enumerated above as a guiding tool to provinces to update their legislation in this perspective.

5.1 WAY FORWARD: GAPS AND RECOMMENDATIONS

- Green Building Codes should be notified and mainstreamed in provincial and local governance structures.

- National Urban Resilience Policy should be formulated by the federal government in consultation with the provinces.

6. HUMAN CAPITAL

An effective solution to climate change is deeply rooted in protection of human capital and human rights. The State under Article 38 of the Constitution is mandated with providing basic necessities of life to the citizens of Pakistan such as education and health. Right to Education is further protected under Article 25A of the Constitution and right to life under Article 9 of the Constitution constitutes right to health. Mere provision of the said facilities is not sufficient access must be guaranteed as well. Adverse climatic events greatly hamper access. As seen in the aftermath of the 2022 flood, damage to infrastructure greatly comprised access to vital facilities.

Both Education and Health are devolved provincial subjects, however policies at the national level can be devised as guiding tools for Provincial Governments to formulate their policies accordingly.

i) Education

The National Education Policy Framework 2018 stresses on the need of for uniform education for all children. Further, policy interventions regarding infrastructure of the buildings and use of technology have been mentioned to increase access to education. However, none of the policy interventions have been mentioned from the perspective of climate change.

It is vital to either amend the existing policy framework of 2018 or devise a new one which addresses hurdles created by adverse events and how to counter them. Further, the urban resilience section may be read as a pertinent part of this section.

ii) Health

At the moment no policy framework exists in Pakistan which specifically addresses impact of climate change on health such as nutrition (even though interventions suggested in the agriculture sector may address the concerns to a certain extent), access to medical facilities (section on urban resilience may address some concerns); water, sanitation and hygiene (water and urban resilience sections may address some concerns); and reproductive health.

A policy framework should be formulated which specially addresses climate change concerns in the health sector in line with the NAP priorities.

6.1 WAY FORWARD: GAPS AND RECOMMENDATIONS

- The existing 2018 education policy does not address climate change. A new policy should be devised aligning education policy with environmental and climate concerns.

- Education policy should also include a component of climate justice whereby citizens are made aware of their fundamental human right to clean environment under Article 9 and 14 of the Constitution.

- A new health policy is needed which is formulated in the perspective of the priorities enumerated in NAP 2023.

7. DISASTER RISK MANAGEMENT

Perusal of the following laws, policies and frameworks was conducted for an analysis of the sector:

Policies/ Framework

- National Disaster Risk Management Framework 2007
- National Disaster Risk Reduction Policy 2013

Laws

- National Disaster Management Act 2010
- National Disaster Risk Management Ordinance 2007

Post 2005 earthquake National Disaster Management Authority ('NDMA') was established through the National Disaster Management Act 2010 ('NDMA 2010') (previously National Disaster Risk Management Ordinance 2007) to provide for effective disaster management. The Provincial Assemblies of Baluchistan, KP and Punjab passed resolutions under Article 144 of the Constitution authorising the Federal Government to legislate on their behalf to develop a national disaster management system.

The NDMA prepared a National Disaster Risk Management Framework in 2007 ('NDRM Framework') to serve as a guideline for disaster risk management at the national, provincial and district level and later in 2010 formulated a National Disaster Response Plan ('NDRP'). In 2013 in collaboration with the MoCC&EC a National Disaster Risk Reduction Policy was framed ('DRR'). It is pertinent to mention that it has been a decade since the last policy instrument. Since 2013 climatic concerns have rapidly accelerated. Post 2022 flood a new instrument is required to adequately address the emerging needs in light of changing circumstances with specific attention on innovative solutions for Disaster Risk Financing centred around equity and timely disbursement.

The implementation time for most interventions mentioned in the NDRM Framework expired in 2022, deeming the document redundant. A new framework should be devised on the federal, provincial and district level focusing on disaster risk reduction along with disaster risk management. Most interventions mentioned in the DRR (such as installation of early warning systems, inclusion of DRR strategies in infrastructure development through regulations/policies, data collection, disaster risk financing and preparation of plans for implementation) are yet to be implemented. The devastation of tedious road to rebuilding thereafter are testament to the lack of implementation of DRR.

7.1 WAY FORWARD: GAPS AND RECOMMENDATIONS

- The existing policies and frameworks are to a large extent redundant. Post 2022 floods DRM considerations have significantly altered. New NDRMF, NDRP and DRR needs to be formulated in line with the priorities enumerated in NAP 2023.

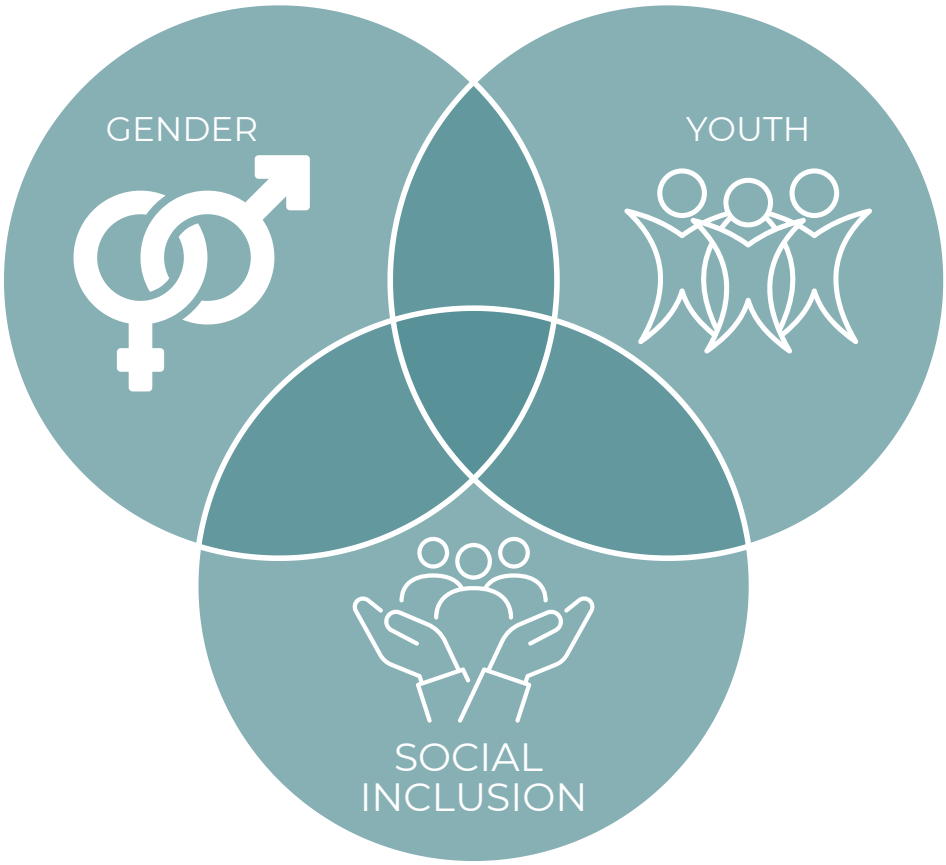
8. GENDER, YOUTH AND SOCIAL INCLUSION

Gender, Youth and Social Inclusion are cross cutting subjects. The concerns related to all of the above must be mainstreamed in overall policy and legislative structure across various sectors.

Women significantly contribute to the work force especially informal sector. Despite being wage earners, gender disparity in our culture makes them exceedingly vulnerable. A Climate Change Gender Action Plan was launched by Pakistan but most interventions mentioned therein can only be implemented if gender concerns are mainstreamed across multiple sectors.

Similarly, youth is disproportionately affected by any adverse climate event across multiple spheres such as inaccessibility to education, employment etc. Innovative solutions are required to counter these issues.

Social inclusion of most vulnerable communities is vital to effectively combat climate change. In addition to involving vulnerable communities in decision making processes, social impact reports should be mandated in all legislation and policies pertaining to development.



9. IMPLEMENTATION

Pakistan has made substantial progress in legislating towards meeting mitigation goals such as formulation of National Climate Change Policy last updated in 2021 ('NCCP') and in compliance of international obligations updating its Nationally Determined Contributions in 2021 ('NDC'). During the 27th Conference of Parties, as appreciated world over, Pakistan played a monumental role in setting up of the loss and damage fund.In this background to further its efforts in countering climate change, Pakistan developed NAP in line with the Cancun Adaptation Framework and Article 7 of the Paris Agreement.

It is pertinent to reiterate that as per the prevalent legal landscape in the country post 18th Amendment to the Constitution the subject of environment and various sectors requiring implementations of adaptive interventions are devolved provincial subjects. Therefore, the implementation of NAP will be largely dependent on provincial cooperation. For effective provincial cooperation the PCCA 2017 through the CCA and the CCC provide an effective tool by virtue of their composition. The PCCA 2017 mandates that the PCCA, policy making body, shall comprise of representatives from each province, whereby making provinces stakeholders in the decision-making process.

NAP is a policy document laying down an adaptation plan, its implementation requires sanction of legislation. Existing legislative and regulatory instruments can be amended to incorporate adaptive strategies enumerated in NAP where possible. However, implementation of legislation is problematic sometimes due to weak institutional capacity or lack of resources. A policy instrument should be devised in collaboration with all regulatory departments of line ministries to formulate an implementation strategy.

Coordination between federal and provincial governments is necessary for implementation of NAP 2023. The PCCA 2017 provides a pathway for better coordination however, relevant provisions are yet to be implemented such as establishment of the PCCA and creation of a Climate Change Fund.

SHORT TERM AND LONG TERM REFORM PLAN

AGRICULTURE AND WATER NEXUS

Primary focus of the Gap Analysis was lack of climate resilient seeds, mis- managed land use, access to finance and water in the context of agriculture.

01 Climate Resilient Seeds

Short Term

- A committee of line ministries i.e. Ministry of Climate Change & Environmental Coordination ("MOCC&EC") and Ministry of National Food Security and Research ("MONFSR") should be formed to initiate reforms in existing laws pertaining to seed development;
- MOCC&EC and MONFSR should engage with Competition Commission of Pakistan to formulate roadmap for strengthening monopoly components of seed laws,
- Initiate consultative process between all line ministries to enhance supply of seeds to small farmers,
- Initiate a communications strategy advocating transitioning to climate resilient seeds;
- Enhance capacity of institutes such as National Agriculture Research Center.

Long Term

- Strengthen intellectual property right to encourage private sector to invest in seed development
- Amend seed laws to strengthen anit-monoply components and enhance access to innovative seeds to small farmers;
- Amend Pakistan Biosafety Laws to encourage ease of business and facilitate research& development,
- Formulate a National level policy devising an effective communication strategy on merits of transitioning to climate resilient seeds.

02 Mismanaged Land-Use

Short Term

- Analysis of existing zoning laws on district level under supervision of Provincial Governments,
- Build capacity for formulation of a National level policy stipulating land-use parameters and imposing stringent requirements for conversion of land-use in line with recommendations of superior courts of Pakistan,
- Initiate Capacity Building interventions for officials of local governments/district governance structures/municipal authorities to implement existing zoning laws,
- Formulate a National Level Policy for implementation of zoning laws including capacity building initiatives of law enforcement.

Long Term

- Formulate a National Level policy stipulating land-use parameters and recommending a strict criteria for conversion of land-use in line with recommendations of Superior Courts of Pakistan,
- Introduce requirements for environmental study of impacts of change in land use on neighbouring lands through amendments in existing legislative instruments,
- Amend zoning laws on district level curtailing conversion of land-use for agricultural and cultivated land,
- Review Land Acquisition Act 1894 and introduce amendments whereby state's acquisition of agricultural and cultivated land is subject to an extremely strict criteria,
- Formulate a policy for equitable distribution of land by linking it to access to finance.

03 Access to Finance

Short Term

- Form a committee comprising of representation from MOCC&EC, Ministry of Finance and State Bank of Pakistan ("SBP") to devise a strategy for access to finance for small farmers without the need for collateral beyond means,
- The committee should also devise a roadmap for formulation of am enhanced insurance mechanism for both farmers and private financial institutions,
- Engage private stakeholders such as telecom companies and financial institutions to formulate a policy whereby access to finance in far flung areas is made possible,
- Initiate a communications strategy warning small farmers of perils of procuring finance from informal sector;
- Initiate communication strategy informing small farmers of the existing finance facilities and educating on how to apply for them.

Long Term

- Formulate a law setting up a new body responsible for access to finance for small farmers;
- Formulate an enhanced insurance scheme,
- Formulate a policy incentivising private sector to extend financial support to small farmers;
- Formulate an effective credit scheme.

04 Water

Short Term

- Devise a strategy for implementation of the National Water Policy ("NWP"),
- Implement National Hazardous Waste Management Policy,
- Regulate groundwater extraction through rules promulgated by municipal authorities,
- Initiate a communication strategy advocating use of updated irrigation practices,
- Maintain revenue record of water.

Long Term

- Establish National Surface Drainage System as mentioned in NWP,
- Establish National Water Quality Monitoring Programme as mentioned un NWP,
- Convert National Hazardous Waste Management Policy into an Act of Parliament or Rules under the Pakistan Environment Protection Act 1997,
- Reform Abiana System,
- Legislation on water rights.

NATURAL CAPITAL

Natural Capital comprises of Land, Water and Air.

01 Land

Short Term

- National Biodiversity Strategy and Action Plan ("NBSAP") should be amended to reflect Kunming-Montreal Protocol,
- MOCC&EC should coordinate with the province for provision of technical support to draft legislation on biodiversity,
- Implement zoning laws,
- Implement laws pertaining to protected areas.

Long Term

- National Legislation should be promulgated to give affect to NBSAP,
- Update existing laws to incorporate provisions for protection of flora/fauna and prevention of invasive species,
- Formulate a National Policy on Land-use,
- Amend zoning laws in line with the Policy on land-use,
- Amend Forest Laws in line with NFP 2015,
- Legislate for preservation of Mangroves and Coastal ecosystem.

02 Water

Short Term

- Implement existing National Environmental Quality Standards,
- Regulate groundwater extraction through rules promulgated by Municipal Authorities,
- Implement NWP,
- Formulate a policy for rainwater harvesting.

Long Term

- Formulate National Legislation on clean drinking water,
- Formulate legislation in line with policy for rainwater harvesting.

03 Air

Short Term

- Notify National Action Committee as per National Clean Air Policy 2023 ("NCAP"),
- Notify Technical Committee as per NCAP,
- MOCC&EC should coordinate with line ministries for the formulation of legislation for the implementation of NCAP.

Long Term

- Formulate Legislation with line ministries to give effect to NCAP,
- Formulate legislation focusing on domestic transboundary pollution and data collection.

URBAN RESILIENCE

Urban Resilience is an important component of adapting to changing climatic conditions.

Short Term

- Notifying Green Building Code 2023,
- Facilitate consultative process between federation and provinces to mainstream Green Building Codes in local district/municipal level,
- Implement updated ICT building Regulations whereby rainwater harvesting is mandatory,
- Implement ICT. Building Regulation whereby tree plantation and protection is encouraged,
- Initiate communication strategy encouraging resilient urban practices.

Long Term

- Update legislation in light of the Green Building Code,
- Formulate National Urban Resilience Policy.

HUMAN CAPITAL

Human capital is particularly vulnerable to Climate Change. Two areas which need specific attention in this regard are Health and Education.

Short Term

- Mainstream impacts of climate change on health and education in all new legislative and policy instruments pertaining to climate change,
- Update existing National Education Policy 2018 to include a section on effects of climate change,
- Devise a strategy to connect infrastructure and urban planning with health and education sectors to ensure access despite climatic impacts.

Long Term

- Formulate policy frameworks linking climate change with health and education.

DISASTER RISK MANAGEMENT

Short Term

- Update National Disaster Risk Management Framework 2007 ("NDRMF"),
- Update National Disaster Response Plan 2010 ("NDRP"), Update National Disaster Risk Reduction Policy ("DRR"),
- Initiate process for formulating new instruments.

Long Term

- Formulate a NDRMF,
- Formulate a new NDRP,
- Formulate a new DRR.

IMPLEMENTATION

Short Term

- Notify Pakistan Climate Change Authority Pakistan Climate Change Act 2017 ("PCCA")
- Create the Climate Change Fund under the PCCA,
- Coordinate with the provinces implement adaptive strategies.

Long Term

- Provide technical support to the provinces to legislate for implementation of NAP.

NAP 2023 was a monumental step for Pakistan in its journey towards adapting to changing climatic conditions. This Report and the Reform Plan has been prepared with the intention of facilitating the implementation of NAP 2023.

We have a long way to go in truly mainstreaming adaptation in our policies which is only possible by changing the societal narrative.

We must always be cognisant of gender, minority, indigenous and youth rights. All policy and legislative reforms must factor in vulnerable segments of our society.

Progress is only as effective as monitoring and evaluation mechanisms surrounding it. Regular stocktake of the reforms will ensure their long term success.

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