



Ministry of Climate Change  
Government of Pakistan

NATIONAL

# REDD+

STRATEGY AND ITS IMPLEMENTATION FRAMEWORK





**National REDD+ Strategy  
and its Implementation Framework**

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## MESSAGE

Pakistan has been placed 5<sup>th</sup> on the Global Climate Risk Index, though Pakistan's contribution to global GHG emission is less than 1%. This sole factor underpins the vulnerability of Pakistan to the potential adverse effects of climate change, some of which are already posing great risk to Pakistan's environment, economy and society. This entails Pakistan to implement adaptation and mitigation measures in various sectors, including forestry, to address the risks associated with climate change.

The Government of Pakistan has assigned high priority to forestry and environment sectors under its clean and green agenda to steer Pakistan towards "climate resilient development". Forests cover 5.45% of Pakistan's total area. The importance of forestry has been emphasized in the National Forest Policy 2015 and Climate Change Policy 2012. The National Forest Policy 2015 aims at expansion, protection and sustainable use of national forests, protected areas, natural habitats and watersheds for restoring ecological functions, improving livelihoods and human health.

The Ministry of Climate Change, Government of Pakistan has been implementing REDD+ readiness project with a financial grant from Forest Carbon Partnership Facility (FCPF) of the World Bank to comply with four key requirements under REDD+ Warsaw Framework, including National REDD+ Strategy, National Forest Monitoring System, Forests Reference Emission Levels and Safeguards Information System.

I am glad to note that with the preparation of the National REDD+ Strategy, Pakistan has complied with all the key requirements to support REDD+ implementation. The National REDD+ Strategy has been prepared through extensive stakeholder consultations to develop strategic actions to reduce carbon emission from deforestation and forest degradation and promote conservation and enhancement of forest carbon stocks and sustainable forest management.

The Government of Pakistan has targeted forest restoration as one of the priorities to address the adverse impacts of climate change. The Ten Billion Tsunami Programme, Billion Tree Afforestation Project and Mangrove Restoration initiated from domestic public financing are the foremost examples that have supported in enhancing tree cover in the country through reforestation and restoration of degraded landscapes and creating job opportunities for the local people. The measured, verified and reported carbon and non-carbon benefits from these initiatives would contribute to global climate change mitigation objectives and will create additional opportunities of investment for conservation and management of our natural forests.

I am thankful to the Forest Carbon Partnership Facility (FCPF)-World Bank for providing the readiness grant to Pakistan that has supported Pakistan in fulfilling the key requirements of the UNFCCC-Warsaw Framework on REDD+.

Lastly, I congratulate the National REDD+ team of Ministry of Climate Change for achieving this milestone and would like to invite donors, development partners, private sector and other relevant stakeholders to support in the implementation of this national strategy.

**Malik Amin Aslam**  
**Special Assistant to Prime Minister on Climate Change**

## PREFACE

Deforestation and Forest Degradation contributes about 11% towards global GHG emissions [IPCC Fifth Assessment Report]. However, at the same time, forestry sector has the potential to sequester 31% of CO<sub>2</sub> emissions, which constitute one of the main greenhouse gases. Within this context, Pakistan aspires to comply with the United Nations Framework Convention on Climate Change (UNFCCC) requirements in order to comply with the Cancun Agreement Decision 1/CP 16 of UNFCCC, to mitigate climate change through reducing carbon emissions from the forestry sector.

The National REDD+ Strategy (NRS) is one of the key components under the REDD+ Warsaw Framework. It is an outcome of a rigorous participatory process involving all stakeholders across the national, provincial and local levels, including provincial/territory forest departments, sector experts, relevant government departments, forest owners, forest communities, including women and men, as well as INGOs, civil society organizations (CSOs), academia, media and judiciary.

Within the ambit of a long-term vision, the NRS specifies a set of policies, actions and measures for forest ecosystems restoration, which Pakistan aims to implement to reduce emissions and enhance removals of carbon from forestry sector. The implementation of these actions will also yield multiple non-carbon benefits and livelihood and employment opportunities for the local communities as well as support in managing the forests' resources for biodiversity conservation, economic prosperity and climate change mitigation. The NRS proposes Six Strategic Options and Nine Strategic Policies and Measures based on institutional assessment, needs of the forest dependents and analysis of direct and indirect drivers of deforestation and forest degradation.

In order to support implementation of the strategy, more detailed REDD+ Action Plans are in process of development at the provincial/territory level under the FCPF readiness support. A multi-sector approach and targeting the context specific drivers of deforestation and degradation prevalent across various forest types is being adopted in preparation of sub-national Participatory REDD+ Action Plans.

I urge upon the provincial/territory forestry departments and the other relevant sectors to integrate and implement the actions suggested in the national strategy into their provincial planning processes. The Ministry of Climate Change will continue to provide the required support to the provincial forestry departments in accessing resources and capacity building.

Finally, I am thankful to FCPF-World Bank for their readiness support and would like to appreciate the Provincial Forestry Departments, REDD+ Focal Points and the National REDD+ project team for their active support in the formulation of this National REDD+ Strategy.

**Naheed S. Durrani**  
**Secretary**  
**Ministry of Climate Change, Islamabad**

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The Ministry also commends the support provided by the Provincial REDD+ Working Groups representing forestry officials, local communities, civil society, INGOs (IUCN & WWF Pakistan), and academia for their participation and support in preparation of this National Strategy.

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The support provided by Ex-National REDD+ Coordinators, including Mr. Inamullah Khan and Dr. Ghulam Akbar, for initiating the process of preparation of this report is also highly acknowledged.

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The Ministry also acknowledges and appreciates the support extended to the National REDD+ Strategy Team for the contributions by the forest communities, forest owners, women, media representatives, and officers of other departments who made rich contributions towards the preparation of this strategy.

Last but not least, the work would not have been possible without the grant provided by the Readiness Fund of the Forest Carbon Partnership Facility (FCPF).

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**ABBREVIATIONS**

ADP	Annual Development Programme
AJK	Azad Jammu and Kashmir
BISE	Biodiversity Information System for Europe
BTTP	Billion Tree Tsunami Project
CBA	Cost-Benefit Analysis
CITES	Convention on International Trade in Endangered Species
CO <sub>2</sub>	Carbon Dioxide
COP	Conference of Parties
CPEC	China Pakistan Economic Corridor
CSR	Corporate Social Responsibility
EIA	Environmental Impact Assessment
EPA	Environment Protection Agency
ESMF	Environmental and Social Management Framework
FAO	Food and Agriculture Organization of the United Nations
FATA	Federally Administered Tribal Areas
FCPF	Forest Carbon Partnership Facility
FGRM	Feedback and Grievance Redress Mechanism
FLEG	Forest Law Enforcement and Governance (under WB PROFOR)
FLEGT	Forest Law Enforcement, Governance and Trade (under EU)
FREL	Forest Reference Emission Level
FRL	Forest Reference Level
G-B	Gilgit-Baltistan
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	Greenhouse Gas
GIS	Geographic Information System
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoP	Government of Pakistan
HDI	Human Development Index
IEE	Initial Environmental Examination
IDP	Internally Displaced Persons
IGF	Inspector General of Forests
INDC	Intended Nationally Determined Contribution
INGO	International NGO
IUCN	International Union for Conservation of Nature
JICA	Japan International Cooperation Agency
KP	Khyber Pakhtunkhwa
KP-EPA	Khyber Pakhtunkhwa Environmental Protection Agency
MACC	Marginal Abatement Cost Curve
MACP	Mountain Areas Conservation Project
MBIGS	Multiple Benefits, Impacts, Governance, Safeguards
MDG	Millennium Development Goals
MoCC	Ministry of Climate Change
MT	Mega Tonnes
MRV	Measurement, Reporting, and Verification
NAMA	Nationally Appropriate Mitigation Actions
nd	No date
NDC	Nationally Determined Contribution
NFI	National Forest Inventory
NFMS	National Forest Monitoring System

NFREL	National Forest Reference Emissions Level
NFRRAS	National Forest & Range Resources Assessment Study
NGO	Non-Governmental Organization
NHA	National Highway Authority
NOC	No Objection Certificate
NPV	Net Present Value
NRO	National REDD+ Office
NSC	National Steering Committee
NTFP	Non-Timber Forest Product
NWFP	North West Frontier Province
PC	Participants Committee
PEDO	Pakhtunkhwa Energy Development Organization
PEECH	Promotion of Energy Efficient Cooking, Heating and Housing Technologies Project
PES	Payment for Ecosystem Services
PEPA	Pakistan Environmental Protection Act
PFI	Pakistan Forest Institute
PKR	Pakistani Rupee
PRMC	Provincial REDD+ Management Committee
PROFOR	Program on Forests, World Bank based multi-donor programme
PSDP	Public Sector Development Programme
PURE	Productive Uses of Renewable Energy in Chitral District, Pakistan Project
PwC	PricewaterhouseCoopers
REDD+	Reducing Emissions from Deforestation and Forest Degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries
R-PP	Readiness Preparation Proposal
SDR	Social Discount Rate
SDGs	Sustainable Development Goals
SESA	Strategic Environmental and Social Assessment
SFM	Sustainable Forest Management
SIS	Safeguards Information System
SLMS	Satellite Land Monitoring System
Sq	Square
SUPARCO	Pakistan Space and Upper Atmosphere Research Commission
TSP	Targeted Support Program
UN	United Nations
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNSD	The United Nations Statistics Division
UN-REDD	The United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
USAID	United States Agency for International Development
USD	United States Dollar
USDA	United States Department of Agriculture
WAPDA	Water & Power Development Authority
WB	The World Bank
WP	Wholesale Price
WPI	Wholesale Price Index
WWF	World Wide Fund for Nature

## EXECUTIVE SUMMARY

Climate change is the single most important threat to humanity and the earth's ecosystems. It produces direct impacts to temperature and precipitation trends and influences the patterns of meteorological events. Second order impacts may exacerbate many of the problems we currently face, including biodiversity loss, disruption in biogeochemical cycles, food insecurity, and migration. Recognizing this, Pakistan is poised to contribute to global climate change mitigation goals by using REDD+ mechanisms to reduce its emissions from deforestation and forest degradation; and through [adopting] the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks. In doing so, it will strengthen its ecosystems and society's capacities to adapt to climate change and achieve multiple benefits.

Forests cover 5.45% of Pakistan's total area. Currently, with only 0.023 ha of forest per capita against the world average of 1.0 ha, Pakistan is relatively forest poor. Forests provide a multitude of ecosystem services for the socio-economy of the rural populace, including various wood products, non-timber forest products (NTFPs) and green job opportunities. In 2019-20, the forestry sector contributed 2.13% in agricultural and 0.41% in overall GDP (GoP, 2020)<sup>1</sup>. However, these figures are not illustrative of factual natural capital of forestry sector in the national economy since many forest products and almost all forest services; agriculture, water, tourism, soil conservation, carbon sequestration, and biodiversity, etc., remain unaccounted for. Instead, only the marketed goods from state-managed forests are accounted for. About 95% of timber and 99% of fuel wood demands are met from farmlands (Maanics Int., 2004). The forest products of farmlands are either sold in the local market or used at farm level. Mechanisms to value these products for GDP calculations do not exist. At the same time, forests have the potential to generate revenues from forest carbon credits under REDD+ by avoiding forest carbon emissions and conserving and sustainably managing forestry resources. Furthermore, by harnessing and value addition to NTFPs such as, bee keeping, medicinal, aromatic and other economic plants, the share of the forest sector in GDP may be substantially increased.

Pakistan is a federation of four constituent provinces and two territories of Gilgit Baltistan and State of Azad Jammu and Kashmir. Forestry and natural resource management is a devolved subject and falls in exclusive ownership and management jurisdiction of provinces concerned. The provincial assemblies of the provinces can only legislate on resource management. Forests in Pakistan may be broadly classified into government-owned and community or privately owned. The legal framework of each province and other territories provides for further sub-classifications of government-owned forests, with varying degrees of private rights and concessions, and activities allowed within each class of forest.

Forests are an important social and economic resource for local rural populations, especially those with a high prevalence of poverty and lack of livelihood opportunities. The rural population has high dependence on forestry sector resources for their livelihoods. There is a big gap between supply and demand due to mismatched forest resource base and continuously increasing population growth. Firewood is a key source of household energy for 68% of the population with approximately 0.1 million people associated with fuelwood collection and marketing, valued at approximately PKR 11.3 billion annually. Wood based industries employ 0.5 million people whereas, non-timber forest products are a source of supplementary income for approximately 80% of Pakistan's rural population (FAO, 2020).

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<sup>1</sup> Government of Pakistan, 2020. *Pakistan Economic Survey 2019-20*. Islamabad: Finance Division, GoP.

According to Nationally Determined Contributions (NDC), the emissions, related to land use, land use change, and forestry in Pakistan were estimated to reach 10.39 MT CO<sub>2</sub>e for 2015, which accounts for 2.5% of total country emissions. However, a consistent but gradual increase in emissions has been observed over the last two decades and is expected to grow threefold by 2030. The average per capita emissions due to timber and fuel wood consumption in 2003 were 0.188 tCO<sub>2</sub>-e per capita and projected as 0.185 tCO<sub>2</sub>-e per capita for a population of 207.7 million in 2018. The per capita emissions varies from province to province; highest in GB (0.484 tCO<sub>2</sub>-e per capita for a current population of 1.9 million) followed by KP (0.282 tCO<sub>2</sub>-e per capita for a current population of 30.52 million), AJK (0.272 tCO<sub>2</sub>-e per capita for a current population of 4.04 million), Balochistan (0.200 tCO<sub>2</sub>-e per capita for a current population of 12.34 million), Punjab (0.171 tCO<sub>2</sub>-e per capita for a current population of 110 million) and Sindh (0.135 tCO<sub>2</sub>-e per capita for a current population of 47.89 million) in a descending order (MoCC, FREL Report 2020).

Pakistan is a diverse country in terms of its ecosystems, social groups, governance systems, land tenure, and cultures. The drivers of deforestation and forest degradation, as well as barriers to conservation and enhanced forest carbon stock vary across the different ecosystems and forest types; some of these drivers are similar across provinces, territories, ecosystems, and forest types. Several important policies directly relate to forests and ecosystems and provide the foundation for the REDD+ Strategy, such as the National Forest Policy 2015 and Climate Change Policy 2012. Provinces also have similar policies related to forest and ecosystems. Other policies and activities outside the forestry sector are directly or indirectly linked to or exert influence over forests: important examples of these include climate change, water, energy, agriculture, mining, and tourism.

The National REDD+ Strategy has analysed these common prioritized direct drivers of deforestation and forest degradation at national level, also highlighting their underlying causes rooted in demographic, institutional, legal and fiscal contexts. The prioritized direct drivers of deforestation include, commercial agriculture, infrastructure developments, encroachments, mining, and unsustainable timber extraction; whereas, the prioritized direct drivers of forest degradation have been identified as, unsustainable wood extraction, small-scale/subsistence agriculture, overgrazing, forest fires, and water scarcity for riverine and mangrove ecosystems.

The population pressure, poverty and livelihood dependencies are the key demographic factors contributing to deforestation and degradation. The rising population in Pakistan would continue to exert pressure on the country's limited natural forest resources. The institutional issues are rooted in conventional governance regimes. Though, there are established forestry institutions at the federal and provincial levels, weakness in capacities to regularly monitor and implement policies and regulations, lack of land use policies and poor sectoral coordination remain the foremost underlying causes to be addressed to prevent forest land conversion to other land uses. The institutional capacities are further weakened by legal matters pertaining to forest land tenures, encroachments and forest boundary disputes resulting in a large number of pending cases in various courts of law.

That said, being marred with fiscal deficits, the economic development priorities dominate the decision-making priorities with low priority assigned to forestry sector as compared to other revenue generating development sectors – water, energy, agriculture, infrastructure, etc. The forestry sector remains disadvantageous in allocation of resources due to inadequate accounting of natural capital of forest ecosystem services.

The foundation of National REDD+ Strategy is therefore based on review of the current state of the demographic, legal, institutional, fiscal and policy frameworks. The strategy provides the Guiding Principles within which Strategy Vision, Objectives, Strategy Options and several actions under the Roadmap for implementation have been suggested, along with proposed

institutional framework and enabling strategic measures to support implementation of REDD+ and address the prioritized drivers of deforestation and forest degradation.

The strategy proposes the following six Strategic Options and a Roadmap with a set of actions to support implementation of Strategic Policy and Measures for achieving the national vision for REDD+, **“Forests in Pakistan provide ecosystem services and livelihood support on a sustainable basis”**.

1. Restoration, reforestation, and afforestation
2. Sustainable Forest Management
3. Payment for Ecosystem Services
4. Efficient alternative energy sources
5. Silvo-pastoral and agroforestry practices
6. Sustainable tourism and eco-tourism

The Strategic Policy and Measures are likely more challenging to implement than those performed directly in and around forests; however, they establish the foundation to enable the achievement of the Strategy Options. These challenges may be due to diversity of sectors and agents involved and the diversity of socioeconomic conditions prevailing across the various provinces.

The National REDD+ Strategy sets the direction for the country (including the federal government and provincial governments, the private sector, civil society and the rest of the stakeholders involved) to achieve the mitigation and adaptation goals. As such, respective provincial action plans and mechanism would be required to support jurisdictional REDD+ implementation. The strategy also suggests for establishment of benefit sharing mechanism at the national and provincial levels for distribution of benefits from bilateral and multilateral sources.

The benefits for bilateral actions may be received directly, and the Climate Change Fund may serve as the national entity to receive and distribute/ pass-on funds to provinces related to REDD+ when national or multiprovince results are reported. A mechanism for further distribution to beneficiaries may be required within the province concerned.

To do so, the Roadmap proposed a set of actions to follow that may be performed at variable points in the future (as indicated by the included timeframe) which may vary from province to province based on local conditions and drivers of deforestation and forest degradation. The implementation of these actions would require substantial financial resources to be generated from domestic public funding, international bilateral and multilateral sources and the private sector having interest in financing forestry or carbon forestry projects.

This report is structured in seven chapters. Chapter 1 introduces REDD+ and the readiness process in Pakistan followed by Chapter 2 detailing the existing forestry context in Pakistan, covering various forest types, institutional, legal, policy and rights related aspects. Chapter 3 discusses the trends in forest cover and the prioritized direct and indirect drivers of deforestation and degradation, their demographic, institutional, legal, fiscal contexts. It also discusses social and gender issues related to forest management and identifies the potential barriers to plus activities – conservation and enhancement of forest carbon stocks and sustainable forest management. Chapter 4 identifies the Guiding Principles and Vision, Objectives and analyses various strategic options and concrete actions to address drivers of deforestation and degradation and enhancement of forest carbon stocks and associated risks. Building upon existing readiness arrangements at the national and sub-national level, Chapter 5 suggests the institutional framework for REDD+ implementation in Pakistan, guidelines for benefit sharing mechanism, FGRM, social and environmental safeguards system and the national forest monitoring system for assessment of technical forestry

aspects and safeguards. Chapter 6 suggests Strategic Policy and Measures under a Roadmap with potential actions to be implemented for achieving the REDD+ Vision and Objectives. Finally, Chapter 7 identifies potential international and domestic sources for financing implementation of the strategy.



**Chapter 1**  
**INTRODUCTION  
TO REDD+**

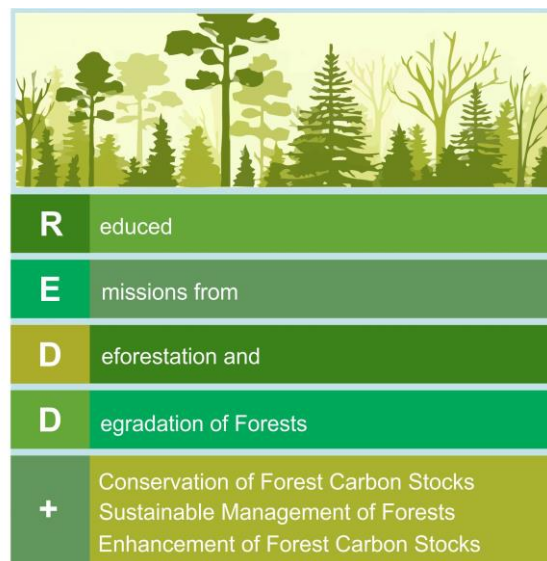


Climate change is the single most important threat to humanity and ecosystems. It produces direct impacts such as temperature rise or change in the patterns of meteorological events; in turn, these impacts are predicted to exacerbate many global current problems, such as biodiversity loss, disruption in biogeochemical cycles, food insecurity, and migration. To mitigate these impacts, the United Nations Framework Convention on Climate Change (UNFCCC) aims at achieving the stabilization of greenhouse gas (GHG) concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed sustainably.

### 1.1 REDD+ in the UNFCCC

Recognizing that the emissions originating from deforestation and forest degradation are a considerable source of GHG in many developing countries and that the conservation of forests provides multiple social, environmental and economic benefits, the UNFCCC decided to create a mechanism to incentivize actions to prevent forest loss and encourage forest conservation.

The UNFCCC, in its 16<sup>th</sup> Conference of the Parties (COP16) in Cancun, Mexico, adopted a decision as part of the Cancun Agreements (Decision 1/CP.16), called *Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries*. This policy is known as REDD+.



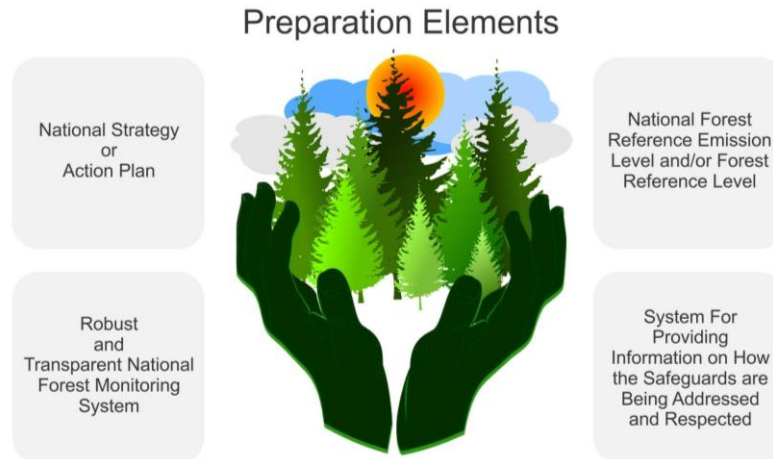
**Figure 1 Actions included in REDD+**

The same decision recognizes different national circumstances and capabilities and thus decides that the REDD+ activities 'should be implemented in phases, beginning with the development of national strategies or action plans, policies and measures, and capacity-building, followed by the implementation of national policies and measures and national strategies or action plans that could involve further capacity-building, technology development, and transfer and results-based demonstration activities, and evolving into results-based actions that should be fully measured, reported and verified. In this regard, the preparation for REDD+ (first phase) should include the following four elements, also illustrated in Figure 2 below:

National Strategy and/or Action Plan

1. A National Forest Reference Emissions Level and/or Forest Reference Level
2. A robust and transparent National Forest Monitoring System
3. A system for providing information on how the safeguards are being addressed and respected.

**Figure 2 Elements of the Preparation Phase for REDD+**



The Cancun Agreements go further to ensure social and environmental integrity, establishing the following seven safeguards to be considered during REDD+ implementation:

1. Actions complement or are consistent with the objectives of National Forest Programmes and relevant international conventions and agreement.
2. National forest governance structures are transparent and effective, and they take into account national legislation and sovereignty.
3. Respect is afforded to the knowledge and rights of indigenous peoples and members of local communities, by taking into account relevant international obligations, national circumstances, and laws, and by noting that the United Nations General Assembly has adopted the United Nations Declaration on the Rights of Indigenous Peoples.
4. The full and effective participation of relevant stakeholders, in particular of indigenous peoples and local communities, is required.
5. Actions are consistent with the conservation of natural forests and biological diversity, ensuring that these actions are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services and to enhance other social and environmental benefits.
6. Actions should address the risks of reversals.
7. Actions should reduce displacement of emissions.

In 2011, during COP 17 in Durban, South Africa, countries agreed to provide financial support for REDD+ by 2020 for results-based payments from REDD+. A decision was also adopted to establish the functioning principles for the Safeguards Information System (SIS) and modalities related to the reference level and reference emission levels. It was not until 2013, in Warsaw, Poland during COP 19, that the full methodological package for REDD+ was adopted in seven decisions. In 2015, in Paris, France during COP 21, the decisions adopted included alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests, and further guidance for reporting how the Safeguards are being addressed and respected.

## 1.2 REDD+ Preparation Process in Pakistan

Pakistan is committed to working towards the global goal to mitigate climate change. Pakistan's Nationally Determined Contribution (NDC) states that subject to the availability of international financial support, Pakistan intends to reduce up to 20% of its 2030-projected GHG emissions. Even though land use change practices and the forestry sector only contribute to 2.5% of the overall national emissions, the prevention of forest loss and recovery of forested areas could provide benefits for the country in the long run. According to the NDC, the projected emissions from land use change and the forestry sector for the year 2030 are 29 MT CO<sub>2</sub>e.

The year 2010 is considered as the beginning of the preparation process for REDD+ in the country. During that year, the Government of Pakistan initiated consultative workshops and awareness-raising events that provided stakeholders' opinions and concerns later used to prepare the Readiness Preparation Proposal (R-PP), which set the basis for further discussions and coordination.

As part of the REDD+ readiness process, a National Steering Committee (NSC) was established to ensure multi-sectoral coordination and cooperation for the planning and implementation of REDD+ activities. The provinces and territories also established Provincial REDD+ Management Committees (PRMCs) and appointed provincial REDD+ focal points.

In 2015, Pakistan received REDD+ Readiness Preparation support of USD 3.8 million from the Forest Carbon Partnership Facility (FCPF) which was subsequently enhanced to USD 7.081 million in 2018 with additional funding of USD 4.01 million to continue and consolidate the REDD+ readiness process.

The readiness preparation process included actions to ensure four elements: 1) the organization and consultation about REDD+ in Pakistan, 2) the preparation of the National REDD+ Strategy, 3) the development of the National Forest Reference Emission Levels, and 4) the design of the National Forest Monitoring and Safeguards Information Systems.

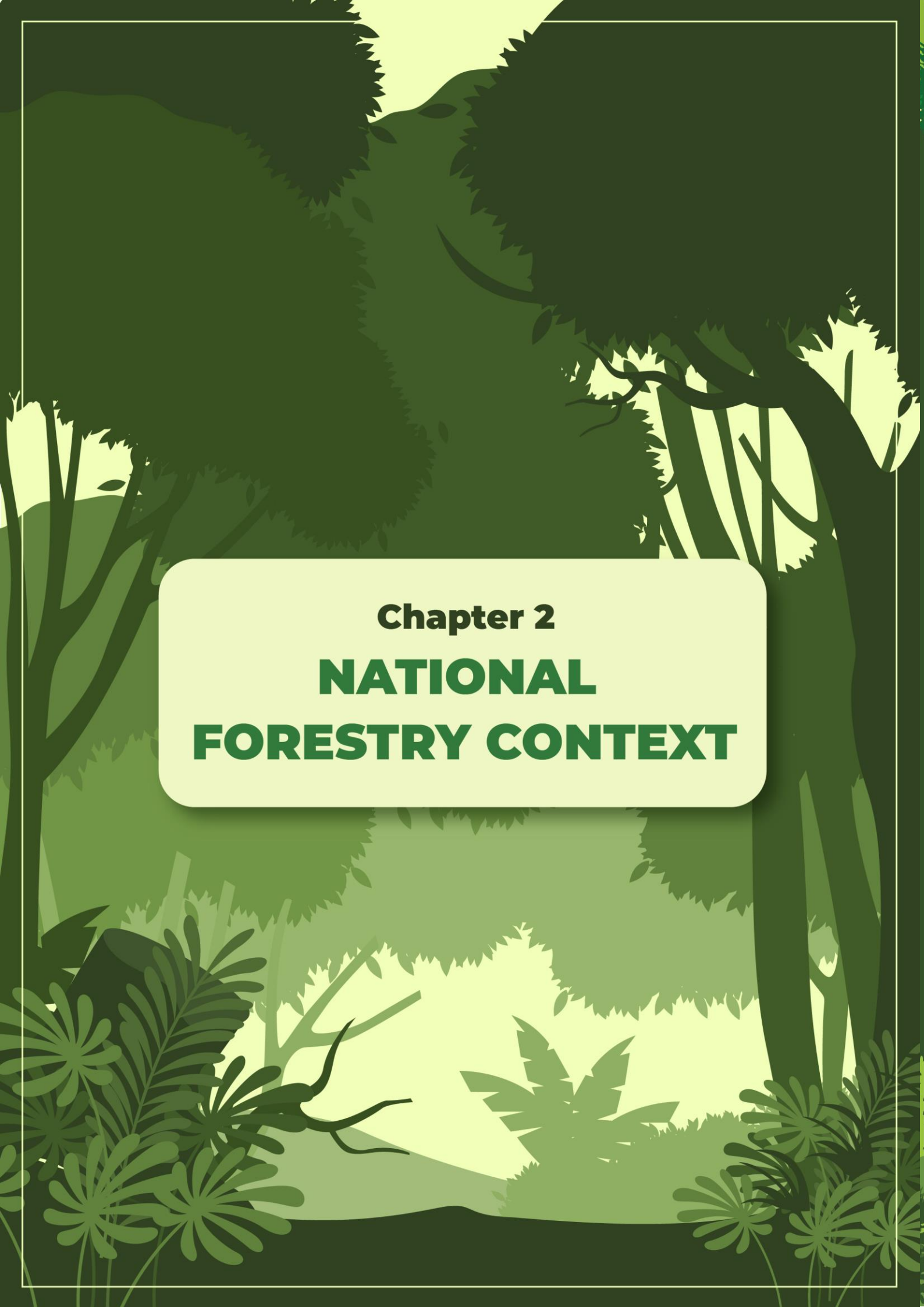
The development of the National REDD+ Strategy took into account the characteristics and requirements established by the UNFCCC and incorporated the best practices, technical standards, and guidance available at the international level to consider and incorporate the current institutional and legal framework as well as new information and the decisions made during the consultation and preparation process.

During the preparation of this Strategy, a comprehensive stakeholder consultation process was applied, which included communities, government departments at the federal and provincial levels, civil society organizations, academia, forest owners, media, actors from diverse sectors, and market players (including but not limited to the wood products industry). This also included consultative meetings with the PRMCs, as these are responsible for REDD+ affairs in their respective provinces, and with the Working Groups of the NSC. This process used several techniques to acquire information, such as focus group discussions, key informant interviews, questionnaires, and consultative workshops.<sup>2</sup>

Meetings and discussions have also taken place concerning the way in which Pakistan is addressing and respecting the Cancun Safeguards, the Safeguards Information System, the National Reference Emission Levels, and the National Forest Monitoring System. Decisions and related endorsements involved a wide variety of topics, such as *inter alia* the national forest definition, the national interpretation of safeguards, REDD+ activities, and Strategy Options, and characteristics of the Safeguards Information System and the National Forest Monitoring System.

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<sup>2</sup> Annex 2 contains a synthesis of the consultation process undertaken for the development of the National REDD+ Strategy.

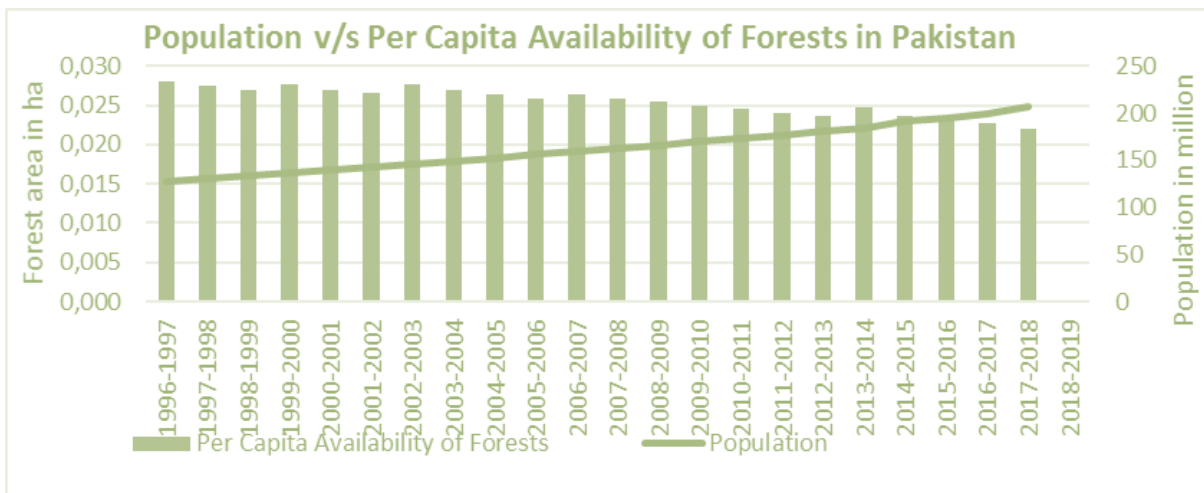


**Chapter 2**  
**NATIONAL**  
**FORESTRY CONTEXT**

Pakistan is a federal state having four constituent provinces and two special areas of Gilgit Baltistan and the State of Azad Jammu and Kashmir. Forestry and natural resource management is a devolved subject and falls under exclusive ownership and management jurisdiction of the concerned provinces. The provincial assemblies of provinces can only legislate on resource management.

Currently, with only 0.023 ha of forest per capita against the world average of 1.0 ha, Pakistan is comparatively forest poor. The rural population has high dependence on forestry sector resources for their livelihoods. There is a big gap between supply and demand due to mismatched forest resource base and continuously increasing population growth. The supply has only steadily increased from the farm trees whereas pressure on natural forests has continued to increase significantly. The per capita forest cover is declining due to increasing population pressure (Figure 3).

**Figure 3 Historical Trends in Population Dynamics and Per Capita Availability of Forests (1996-2019)<sup>3</sup>**



Forests provide multitude of ecosystem services for socioeconomic the rural populace, including various wood products, NTFPs and green job opportunities. In 2019-20, the forestry sector contributed 2.13% in agricultural and 0.41% in overall GDP (GoP, 2020)<sup>4</sup> In addition to non-tangible environmental and ecological benefits of the forests, trees on farmlands are an important source of wood stock to bridge the gap between demand and supply of wood, and produce sizeable income for forest communities. Firewood is a key source of household energy for 68% of the population with approximately 0.1 million people associated with fuelwood collection and marketing, valued at approximately PKR 11.3 billion annually. Wood based industries employ 0.5 million people, whereas non-timber forest products are a source of supplementary income for approximately 80% of Pakistan's rural population (FAO, 2020). In addition, forests are providers of various ecosystem services (e.g., water regulation, sediment control, tourism and biodiversity conservation) that are essential for resilience of agroecosystems and their dependent communities and vulnerable groups, including rural women.

According to its Nationally Determined Contributions (NDC), emissions from the forestry sector were 10.39 MT CO<sub>2</sub> in 2015 (2.5% of total emissions). These are projected to reach

<sup>3</sup> Ministry of Finance's Economic Survey Reports.

<sup>4</sup> Government of Pakistan, 2020. *Pakistan Economic Survey 2019-20*. Islamabad: Finance Division, GoP.

29 MT CO<sub>2</sub> by 2030. According to estimates (MoCC, FREL Report 2020), the average per capita emissions due to timber and fuel wood consumption in 2003 were 0.188 tCO<sub>2</sub>-e per capita and projected as 0.185 tCO<sub>2</sub>-e per capita for a population of 207.7 million in 2018. The per capita emissions varies from province to province; highest in GB (0.484 tCO<sub>2</sub>-e per capita for a current population of 1.9 million) followed by KP (0.282 tCO<sub>2</sub>-e per capita for a current population of 30.52 million), AJK (0.272 tCO<sub>2</sub>-e per capita for a current population of 4.04 million), Balochistan (0.200 tCO<sub>2</sub>-e per capita for a current population of 12.34 million), Punjab (0.171 tCO<sub>2</sub>-e per capita for a current population of 110 million) and Sindh (0.135 tCO<sub>2</sub>-e per capita for a current population of 47.89 million) in a descending order. The average annual increase in emissions from 2003 to 2018 due to wood consumption is 2.02 %. The wood consumption mentioned here includes major share from farmland trees and industrial consumption (Table 9) and also includes degradation in natural forests. The results show almost similar statistics regarding over all emissions (million tCO<sub>2</sub>-e) due to timber and fuelwood consumption for the current year, i.e. 2018 (Table 1).

**Table 1 Average Annual Timber and Fuelwood Consumption and Associated Emissions (tons of CO<sub>2</sub>-e) for Pakistan<sup>5</sup>**

Consumption Wood	Average Per Capita Cons. (m <sup>3</sup> ) <sup>6</sup>	Total Country Population	Total Cons (Million m <sup>3</sup> )	Total Cons. (Mt)	Total Cons. (MtC)	Total Emission (Mt CO <sub>2</sub> -e)	Percent Share <sup>5</sup> (million tCO <sub>2</sub> -e)		
							State Forest	Farm-lands	Imports
	A	B	A*B	C = (A*B)/1.309 <sup>1</sup>	D = C*0.52*0.47 <sup>2</sup>	D*3.67 <sup>4</sup>	T = 3.34 F.W. = 0.20	T = 91.44 F.W. = 91.8	T = 5.22 F.W. = 0.00
Industrial Wood Timber	0.0796	207.7	16.53292	12.6301	2.9680	10.8929	0.3638	9.9604	0.0048
Fuelwood (domestic + commercial + industrial)	0.205	207.7	42.5785	32.5270	7.6439	28.0533	0.0561	25.7529	0.0000
<b>Total</b>	<b>0.2846</b>		<b>59.1114</b>	<b>45.1577</b>	<b>10.6120</b>	<b>38.9462</b>	<b>0.4199</b>	<b>35.7134</b>	<b>0.0048</b>

The study of consumption by urban and rural split at domestic scale (Table 2) has reinforced the common belief that the use of biomass as fuel is highest in rural areas as compared to urban areas. The consumption at provincial level revealed that the domestic sector in the province of Balochistan has typically consumed fuelwood due to extreme cold in winters and lack of alternative fuels. Punjab mostly consumes crop residues due to larger farm area. High level of urbanisation is attributed to the use of electricity as energy source in Sindh. In KP, FATA, GB and AJK, where majority of the forest resources exist, most of the fuelwood is being consumed at household level, attributed to lack of alternate biomass fuels in these areas.

<sup>5</sup> 1 Conversion factor i.e. 1 ton = 1.309 m<sup>3</sup> (GoP, 2003)

<sup>2</sup> Conversion factor from wet weight to dry weight (IPCC, 2006)

<sup>3</sup> Dry mass to carbon conversion factor (IPCC, 2006).

<sup>4</sup> 1 ton of carbon equals 3.67 tons of CO<sub>2</sub> Eq. (IPCC, 2006)

<sup>5</sup> Assuming percent shares of 2003 (GoP, 2003) for current year

<sup>6</sup> Source: Supply and Demand Survey, Government of Pakistan, 2003

**Table 2 Province Wise Fuelwood Consumption and Associated Emissions by Household Sector<sup>6</sup>**

Province	Per Capita Consumption (maunds)/ year <sup>1</sup>		Population (million) <sup>2</sup>		Total Consumption (Million maunds)		Total Cons. (mill. maunds)	Total Cons. (mill. tons) <sup>3</sup>	Total (million tons C) <sup>4</sup>	Total (million tCO <sub>2</sub> -e) <sup>5</sup>	Sources <sup>6</sup> (million tCO <sub>2</sub> -e)		
	Rural	Urban	Rural	Urban	Rural	Urban					Own Lands (61%) <sup>7</sup>	Markets (34%)	Others (5%) <sup>7</sup>
	A	B	C	D	E = (A*C)	F = (B*D)	G = (E + F)	H = G*40 kg/1000	I = H*0.5*0.47	J = I*3.67	61%*J	34%*J	5%*J
<b>KP</b>	1.126	0.748	25.13	5.39	28.30	4.03	32.33	1.29	0.304	1.115	0.680	0.379	0.056
<b>PB</b>	0.614	0.11	69.62	40.38	42.75	4.44	47.19	1.89	0.444	1.628	0.993	0.553	0.081
<b>SD</b>	0.591	0.028	22.99	24.9	13.59	0.70	14.28	0.57	0.134	0.493	0.301	0.168	0.025
<b>BN</b>	0.924	0.526	8.94	3.4	8.26	1.79	10.05	0.40	0.094	0.347	0.211	0.118	0.017
<b>AJK</b>	0.907	0.268	3.54	0.5	3.21	0.13	3.34	0.13	0.031	0.115	0.070	0.039	0.005
<b>GB</b>	2.503	1.2	1.57	0.33	3.92	0.40	4.32	0.17	0.040	0.149	0.090	0.051	0.007
<b>Total</b>			<b>131.79</b>	<b>74.90</b>	<b>100.02</b>	<b>11.49</b>	<b>111.52</b>	<b>4.46</b>	<b>1.048</b>	<b>3.847</b>	<b>2.347</b>	<b>1.308</b>	<b>0.192</b>

The forest sector's share in national GDP is insignificant as shown in Figure 2. Rather the contribution of forestry sector in GDP has been decreasing. However, these figures are not illustrative of factual contribution of forestry sector in the national economy since many forest products and almost all forest services; agriculture, water, tourism, soil conservation, carbon sequestration, and biodiversity, etc., remain unaccounted for. Instead, only the marketed goods from state-managed forests are accounted for. About 95% of timber and 99% of fuel wood demands are met from farmlands (Maanics Int., 2004). The forest products of farmlands are either sold in the local market or used at farm level. Mechanisms to value these products for GDP calculations do not exist.

It is also expected that the revenues from forest carbon credits under REDD+ could be generated by avoiding forest carbon emissions and promoting sustainable forest management. If serious efforts are made to explore and utilise non-conventional non-timber forest products (NTFP), bee keeping, medicinal, aromatic and other economic plants, the share of the forest sector in GDP may be substantially increased.

<sup>6</sup> Source: Supply and Demand Survey, Government of Pakistan, 2003

<sup>2</sup> Source: Pakistan Bureau of Statistics, Government of Pakistan, 2017

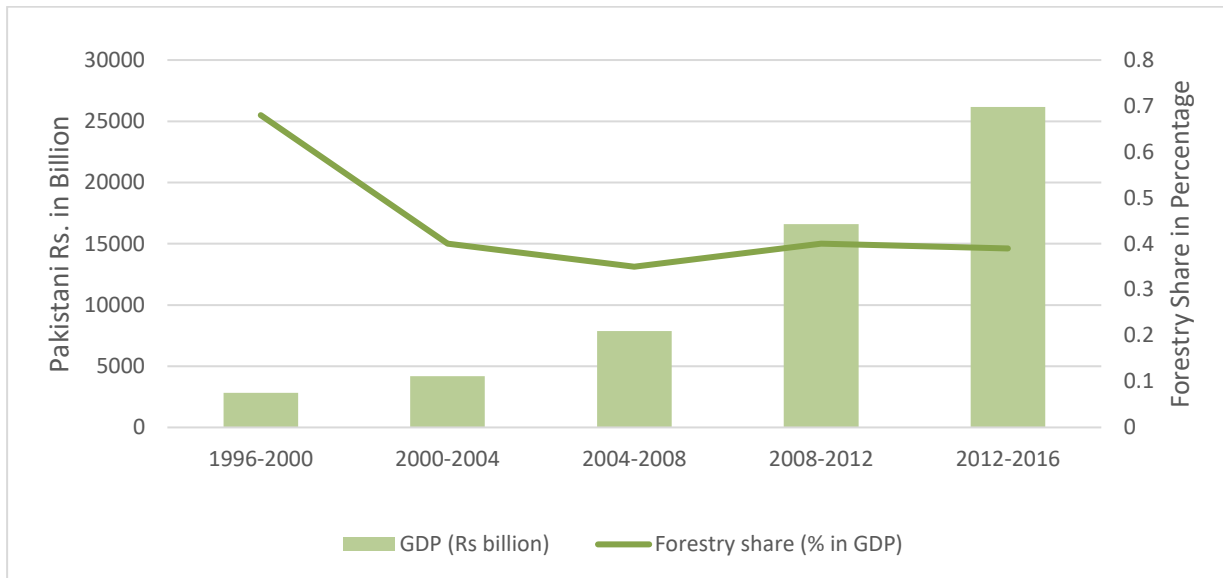
<sup>3</sup> Conversion Factors i.e. 1 maund = 40 kg; 1 ton = 1000 kgs (Supply and Demand Survey, Government of Pakistan, 2003)

<sup>4</sup> Conversion factor (0.5) from wet weight to dry weight; Dry mass to carbon conversion factor i.e. 0.47 (IPCC, 2006).

<sup>5</sup> 1 ton of carbon equals 3.67 tons of CO<sub>2</sub> Eq. (IPCC, 2006)

<sup>6</sup> Source of Percent Shares: Supply and Demand Survey, Government of Pakistan, 2003

<sup>7</sup> Assuming this as contribution from state forests

**Figure 4 Share of Forestry in GDP of Pakistan (1996-97 to 2015-16)<sup>7</sup>**

Within this context, the design and implementation of a strategy to address deforestation and forest degradation entail an understanding of the policy framework; of the environmental, economic, and social conditions and of the dynamics that enable the deforestation and forest degradation to occur. This chapter describes the trends and the current environmental and socioeconomic situation regarding forests and land use changes in Pakistan. It also presents an overview of the current policies and laws relevant to REDD+, as well as the institutional arrangements already in place. The items described in this chapter define the conditions for the occurrence of the drivers of deforestation and forest degradation and are addressed with the implementation framework.

## 2.1 International Commitments

Pakistan has made a political commitment to address sustainability issues through the ratification of international treaties on the environment and climate change that have intended positive implications for its forests, ecosystems, and land management. Pakistan has signed and ratified, *inter alia*:

- United Nations Convention on International Trade in Endangered Species,
- United Nations Framework Convention on Climate Change (including its decisions and agreements),
- United Nations Convention to Combat Desertification,
- Convention on Biological Diversity,
- Convention on Migratory Species,
- Vienna Convention on the Protection of the Ozone Layer,
- Montreal Protocol on Ozone Layer Depleting Substances, and
- Ramsar Convention on Wetlands.

Pakistan is a dualist state, and though international agreements may be signed by the country, domestic compliance is not mandatory or binding until they are ratified through translation into national legislation. The compliance of such agreements in case of forestry broadly happens at the provincial level as forests are a provincial subject, hence provincial role is important in relation to compliance with REDD+ related international commitments.

<sup>7</sup> Ministry of Finance's Economic Survey Reports, 2015-16



## 2.2 Legal Framework

Pakistan has an extensive set of regulations regarding natural resources, land tenure, and institutional arrangements at national and provincial levels that are relevant to REDD+. This section presents the most relevant ones.

Legislative and executive powers are divided between the federation and the provinces by the Constitution of Pakistan, 1973. AJK and GB, although not *de jure* provinces of Pakistan, are under the *de facto* administrative control of the federation, with legislative and executive function between them and the federation being regulated by the Azad Jammu and Kashmir Interim Constitution Act, 1974 (AJK Interim Constitution) and the Gilgit-Baltistan (Empowerment and Self Governance) Order, 2009 (GB Order), respectively.

Forestry is a provincial subject since the British rule and the same laws and rules have been adapted and later reviewed according to the evolving context after independence. Hence, the subject of the environment, including forests and all related matters, including the implementation of the United Nations Framework Convention on Climate Change (UNFCCC) and the Cancun Agreement on Reduction of Emissions from Deforestation and Forest Degradation (REDD+), is within the exclusive purview of the provinces of Pakistan, both within the legislative and executive policy space.

In respect of the territories of AJK and GB, the forests of AJK are within the exclusive legislative domain of the Legislative Assembly of AJK and the executive domain of the AJK Government as per the AJK Interim Constitution. Under the GB Order, the forests of GB are within the exclusive legislative and executive domain of the Gilgit-Baltistan Council, with the Prime Minister of Pakistan as its Chairman, who may exercise the executive authority, vested in the Council directly or through the Secretariat of the Council.

The primary legal regime determining the legal categories of forest land in Pakistan and their governance is the Forest Act 1927 ('Forest Act'). The Forest Act is applicable in three of the four provinces, as well as having been extended to Gilgit-Baltistan. While KP has repealed the Forest Act and replaced it with the Khyber Pakhtunkhwa Forest Ordinance, 2002 which co-opts the major legal categories of forests laid down in the Forest Act itself. The other provinces have made periodical amendments to the Forest Act, with Punjab having made the most significant overhaul of its provisions.

The primary legislation concerning AJK is the Jammu and Kashmir Forest Regulation [No.2 of 1936] ('AJK Forest Regulation'), which retains, in essence, the same legal categories of forest land as the Forest Act, although under different nomenclature.

## 2.3 Classification of Forests

Forests in Pakistan may be divided into two broad categories: government-owned forests, and privately-owned forests. The legal framework of each province and the other territories provides for the further sub-classification of lower levels of government-owned forests, as notified by the relevant Government, with varying degrees of private rights and activity allowed within each class of forests.

In addition, the relevant laws for each province and the territories, and the rules and regulations made, also provide for the regulation and management of certain classes of private forests.

The specific sub-classification of forests within the larger categories of Government Forests and Private Forests is as follows:

**Table 3 Legal Classification of Forests in Pakistan**

Legal Category	Classification	Legal Provision
Government Forest	Reserved Forest	Section 20 of the Forest Act 1927; Section 4 of the Khyber Pakhtunkhwa Forest Ordinance 2002
	State Forest	Section 3 of the Balochistan Forest Regulation 1890
	Demarcated Forest	Section 3 of the Jammu and Kashmir Forest Regulation [No.2 of 1936]
	Un-demarcated Forest	Section 10 of the Jammu and Kashmir Forest Regulation [No.2 of 1936]
	Protected Forest	Section 29 of the Forest Act 1927; Section 29 of the Forest Khyber Pakhtunkhwa Forest Ordinance 2002
	Village Forest	Section 28 of the Forest Act 1927; Section 28 of the Khyber Pakhtunkhwa Forest Ordinance 2002; Section 14-A of the Jammu and Kashmir Forest Regulation [No.2 of 1936]
	Community Forest	Section 101 of the Khyber Pakhtunkhwa Forest Ordinance 2002
	Unclassed Forest	Section 28-A of the Forest Act 1927 (inserted through Forest (Amendment) Act 2010 for Punjab)
Private Forest	Guzara Forest	Rules of Guzara land, or forest and wastelands of the Murree and Kahuta Tahsils, other than Reserved and Protected Forests under Section 76 (c) of Act XVI of 1927; Section 35 of the Khyber Pakhtunkhwa Forest Ordinance 2002
	Protected Wasteland	Section 36 and 37 of the Khyber Pakhtunkhwa Forest Ordinance 2002
	Community Forest	Section 13-A of the Jammu and Kashmir Forest Regulation [No.2 of 1936]
	Section 36 Forest	Section 36 of the Forest Act 1927
	Section 38 Forest	Section 38 of the Forest Act 1927; Section 38 of the Khyber Pakhtunkhwa Forest Ordinance 2002
	Chos Act Areas	Punjab Land Preservation (Chos) Act 1900

### 2.3.1 Government Forests

#### *i. Reserved Forest, State Forest, and Demarcated Forest*

These three categories are similar in that they are the strictest categories of forests from the perspective of governance. These forests generally exclude all private rights and privileges unless the government has specifically sanctioned these. As such, almost any act that harms the forest in general, including the trees and other forest resources therein, is prohibited within these forests.

#### *ii. Protected Forest and Un-demarcated Forest*

Regarding the governance of forests, these two classes of forests are similar. Within these forests, all activities are permitted unless these have been specifically proscribed either through a notification by the relevant government in this respect or through the promulgation of rules in respect of such matters. However, any contravention of such notification or rules, once issued, is a punishable offense.

#### *iii. Village Forests and Community Forests ('Assigned Forests')*

Throughout Pakistan, the relevant provincial government may assign to any village community, the rights of government to or over any land, which has been constituted a reserved forest (or in the case of AJK, over land which has been entered into settlement records as *khalsa* ('crown' land)). Such forests would be called village forests.

The Forest Ordinance goes further in this respect and also provides for the formation of community forests in KP, whereby the Divisional Forest Officer may assign to any village

forest community, village organization, or Joint Forest Management Committee, all or any of its rights of management over any protected forest, Guzara forest, and protected wasteland.

Such assigned forests would be governed by the assignee subject to any rules formulated by the relevant provincial government for the management of the assigned forests.

### 2.3.2 Private Forests

#### *i. Guzara Forests, Protected Wasteland, and Community Forests*

Guzara Forests, Protected Wastelands, and Community Forests are similar concerning the fact that these are lands within the common ownership of a village in whose vicinity these are located. However, the law provides that these will be managed by the Forest Department, including the regulation of private rights and prohibition of certain acts within these types of private forests, even by the right-holders to such forests. Generally, most acts that may harm the forest or certain types of valuable trees are prohibited within these types of forests, even by the village owners of these forests. However, the village owners are granted certain subsistence rights within these forests to meet their genuine domestic needs as determined by the relevant provincial government, such as, the right to a quota of trees from these forests for residential construction, fuel wood and grazing.

#### *ii. Section 36 Forests*

With the exception of KP and AJK, for certain specified public purposes such as, protection against natural phenomena (e.g., floods and avalanches), protection of public works, and preservation of public health, the government may regulate or prohibit certain acts in any forest or wasteland including a private forest. In the case of a violation of such prohibition, under Section 36 of the Forest Act, the government may place such forest under the supervision of a forest officer and declare that the provisions of the Forest Act in respect of a reserved forest apply to it.

#### *iii. Section 38 Forests*

With the exception of AJK, the owner(s) of any land (specifically wasteland, however, in the case of KP) may hand over management of such land (or wasteland) to the government to be managed by the Forest Department as a reserved or protected forest on such terms as may be mutually agreed or that all the provisions of the Forest Act (or Forest Ordinance in the case of KP) be applicable thereto.

### 2.3.3 Legally Permitted Uses of the Forests

The permitted uses of the forests are connected to the legal category within which, a particular forest may fall. Where the government regulates a category of the forest, it does so through the prohibition of certain acts within those forests rather than by positively defining the rights that a private person may enjoy within those forests.

With the exception of Reserved Forests (and the equivalent legal categories of State Forest and Demarcated Forest described above), all forest categories at least allow for private persons, such as members of forest-dependent communities, to make subsistence use of the forests and forest produce subject to regulation by the government.

Within Reserved Forests (and other equivalent categories under other provincial laws), most uses by private individuals are prohibited unless specifically sanctioned by the government.

Of course, the government itself enjoys apparent *carte blanche*, subject to its administrative regulation, about the uses that it may make of the forests under its ownership.

With regard to private forests, the private owners of these forests enjoy all the rights that come attached with ownership, while complying with the relevant regulations to acquire permission for forest use.

It is noteworthy that while the above is the position under the law, regardless of the legal classification of forests and the concomitant rights of the government and private persons, since 1993, there has effectively been a general ban on commercial timber harvesting in Pakistan, put into effect through a cabinet decision of the Federal Government.

### **2.3.4 Provisions within Laws that May Potentially Allow for Change of Land Use of Forests**

Although the corpus of laws in Pakistan is not generally designed to allow for a change of land use of forests, it still sometimes allows competing for commercial and strategic interests to dominate the preservation of forests and forest lands.

Each of the Forest Act, the Forest Ordinance, the Balochistan Forest Regulation, and the AJK Forest Regulation respectively allow the government to declare that a forest or a portion thereof is no longer reserved, or a state forest or a demarcated forest as the case may be. This is an unrestricted power, and the government need not have a prior justification for changing the status of a forest in this manner.

The province of Punjab, however, has amended Section 27 of the Forest Act to provide that the government shall not declare or notify a reserved forest, or any part thereof as no longer being reserved and further that the government shall not allow change in the land use of a reserved forest except for the purpose of right of way, building of roads and development of a forest park, but the government shall not allow construction of concrete building or permanent structure therein. However, through a further amendment to Section 27 the Government of Punjab may declare a reserved forest, or a part thereof, as no longer reserved if the organization requiring the reserved forest land is able to a) satisfy the government that there is no other option but to use the reserved forest land for the purposes of a national project of strategic importance; b) provide substitute fertile land equal to or bigger than the required reserved forest land, in a compact form and situated close to the reserved forest land; or c) provide funds for immediate forestation and maintenance of the substitute forest land.

In Punjab, Section 34-A mirrors the provisions of the amended Section 27 of the Forest Act in empowering the government to declare a protected forest as no longer protected for certain specific purposes and subject to certain conditions and safeguards in this regard to be fulfilled by an organization seeking the protected forest land for a project.

The laws of the other provinces and Gilgit-Baltistan, however, do not envisage the declaration of a forest as no longer protected. Similar to the provisions in the Punjab forest laws, the declaration of a forest as no longer reserved or protected should not be allowed except where this is demonstrably the only option available in subservience to a “national project of strategic importance” and in no other circumstances. And even then, adequate substitute forestation should specifically be provided for.

In another instance of competing for commercial interests, in each of the mining concession and mineral rules for the provinces, there are certain provisions in relation to mining concessions that have been granted within reserved and protected forest areas. However, these mining concession rules/mineral rules do not envisage a significant role for the Forest Department in relation to the granting of mining concessions in the first place, and instead, this authority is invested in the respective licensing authorities of the province. This militates against the role of the Forest Department as custodian of public forests reducing it to rubber stamping mining concessions after the fact of their approval by the provincial licensing authorities. The laws in this respect need to be amended to allow for greater coordination between the licensing authorities and the Forest Department at every stage of the mining concession approval process from the very inception. In particular, a high threshold should be set for the justification for seeking a mining concession within forest land.

### 2.3.5 Legal Provisions for Carbon Rights

Formally, there are no explicit provisions in the legal and policy framework concerning forests in relation to the rights of ownership to the carbon stored in trees. Presumably, the carbon rights in a forest are subsumed within the larger ownership rights about a given forest. This would mean that the provincial government would retain the carbon rights in forests that are government-owned and/or managed.

### 2.3.6 Other Laws and Regulations

#### *i. Environmental Protection Act*

The Pakistan Environmental Protection Act 1997 (PEPA) provides that parties desiring to commence a project must submit an Environmental Impact Assessment (EIA) and/or an Initial Environmental Examination (IEE) to the federal or provincial Environmental Protection Agencies (EPA) and obtain approval thereof. A project is very widely defined as 'any activity, plan, scheme, proposal or undertaking involving any change in the environment,' including 'mineral prospecting, mining, quarrying, stone-crushing, drilling and the like' and 'any change of land use or water use.' The IEE is a preliminary environmental review of the reasonably foreseeable impacts of a project, and it serves to evaluate if the project will have an adverse environmental impact and therefore require an EIA. The EIA is a detailed environmental study comprising a collection of data; prediction of qualitative and quantitative impacts; comparison of alternatives; evaluation of preventive, mitigative, and compensatory measures; formulation of management and training plans, and monitoring arrangements.

In addition, PEPA and provincial EPA regulations provide for several penalties for the breach of its provisions, including fines, imprisonment, closure of the project, and the confiscation of project assets involved in the infraction.

#### *ii. Mining Concession Rules*

Each of the provinces has mining concession rules/mineral rules formulated under the Mineral Development (Government Control) Act, 1948 and the National Mineral Policy, 1995. Also, AJK and GB have promulgated their own Mining and Mineral Concession Rules along similar lines as those of the provinces.

In each of the mining concession rules /mineral rules for the provinces, there are certain provisions in relation to mining concessions being granted within reserved and protected forest areas. These require, in general, that it shall be the condition of every mineral title that before the commencement of exploration operations within a reserved or protected forest, thirty (30) days' written notice shall be given to the Forest Department. The operations may commence only subject to any condition regarding the use of land that may be prescribed by the government, the Licensing Authority and/or the Forest Department, (as applicable depending on the nature and scale of the mining to be carried out within the scheme of the rules for each province).

Generally, the mining concession rules/mineral rules do not envisage a significant role for the Forest Department about the granting of mining concessions within public forests being the custodian of public forests. Instead, this authority is invested in the respective Licensing Authorities of the province.

## 2.4 Relevant National Policies

The National Forest Policy, promulgated in 2015, addresses the forestry sector directly. It has two main policy objectives: (a) the expansion of forest cover and (b) the curbing of deforestation and promotion of forest conservation. Forestry operations of KP, Punjab and GB are governed under their own provincial policies.

**Table 4 Policy Objectives of the National Forest Policy**

Policy Objectives	Policy Measures
The expansion of forest cover	<ul style="list-style-type: none"> <li>(i) Preparing, sponsoring and implementing a long-term mass afforestation programme in collaboration with all the federating units and concerned national organizations;</li> <li>(ii) Integrating forests with economic sectors in that projects undertaken in any sector having a cross-cutting impact on forests, such as water, energy, agriculture, tourism and communication, amongst others, would have to take impact on forests and afforestation as part of their development policies and programmes and allocate part of their cost towards afforestation;</li> <li>(iii) Establishing and promoting sustainable ecological corridors to minimize fragmentation of ecosystems.</li> </ul>
The curbing of deforestation and promotion of forest conservation.	<ul style="list-style-type: none"> <li>(i) Regulating inter-provincial and international timber movement and trade</li> <li>(ii) Ensuring both the implementation of REDD+ in Pakistan and the full transfer of benefits arising therefrom, such as payments for preserving carbon stock, to forest owners and right-holders;</li> <li>(iii) Retiring the rights to public forests and purchase of privately owned forests and converting the same to protected forests through prior informed consent of owners and adequate compensation.</li> </ul>

Apart from the Forest and Rangeland Policy, the other policies outside the forestry sector directly or indirectly linked to or influencing forests include those of climate change, agriculture, minerals, tourism, water, and energy. These include Climate Change Policy 2012, Environment Policy 2005, Minerals Policy 2013, and Power Policy 2014. After the 18<sup>th</sup> constitutional amendment on provincial subjects, Pakistan's provinces have developed their policies for some of these areas. The following provides an overview of policies influencing forests.

The **National Climate Change Policy 2012** includes necessary provisions to address climate change-related issues for various topics, such as water, agriculture, forestry, coastal areas, biodiversity, and other vulnerable ecosystems. It also discusses industrial emissions and carbon footprint in different industries and implications for climate. The policy proposes various alternatives to mitigate the possible effects of climate change on vulnerable and other ecosystems. It also reflects on coping with the challenges emerging from climate change. The policy has extensively covered forestry and a range of management sectors. Specific recommendations have been given to benefit from the REDD+ mechanism. The REDD+ Strategy can bank on the Climate Change Policy as an important supporting instrument within the complex policy framework of Pakistan. This support includes forest management, mitigating drivers of deforestation, and working on technological improvements to reduce carbon and other emissions.

The **National Environment Policy 2005** provides comprehensive guidelines for natural resource sectors and related topics, including forestry, biodiversity and protected areas, agriculture, livestock, and water. It also covers other important topics, such as energy efficiency, renewable energy, climate change, and ozone depletion. The policy encourages the protection and preservation of biodiversity, including forests, use of energy efficient technologies, handling climate change issues, and improvement of agriculture and livestock productivity under a changing environmental scenario.

The **National Mineral Policy** was developed in 2013 after a long consultation process with sector stakeholders. One of the themes of the National Mineral Policy 2013 is

environmentally sustainable exploration, development, and production of minerals. It also envisages the mitigation of adverse environmental effects of mineral development, facilitation of access to private or public lands and forest reserves, and resolution of issues with other public department civil servants. Section 7.3 deals with the environment and binds the explorative companies to observe safeguards on the protection of the environment, highlighting Corporate Social Responsibility (CSR). However, it has been observed that while some sections work toward mitigating adverse environmental impacts, including those on forests, their implementation is not very effective due to low inter-departmental coordination and inefficient monitoring and control.

The **National Power Policy** was promulgated in 2013. The National Power Policy recommends the generation of inexpensive and affordable energy sources and focuses on shifting Pakistan's energy mix toward low-cost sources, such as hydro, gas, solar, nuclear, and biomass. The policy also mentions coal as a source of energy and recommends coal with appropriate mitigating measures for reducing carbon and sulfur emissions. A cheap supply of electricity may reduce pressure on forests; however, the generation of energy from biomass could be carefully carried out.

The **National Renewable Energy Policy** (2006) underlines the importance of renewable energy resources and emphasizes benefiting from the enormous potential of solar, hydro, wind, and biomass (bagasse, crop residues, livestock manure, etc.). Appropriate strategies in this respect can reduce pressure on forests due to fuelwood extraction.

As far as tourism policy is concerned, work was initiated on the formulation of a new **National Tourism Policy**. However, the Policy issued in 1990 and updated in 2007 has not been able to propose any tangible preventive or mitigation measures, despite recognition of the environmental spoilage caused by tourism. In addition, the revised policy from 2007 coincided with a phase of terrorism between 2007-2012, when tourism dropped significantly. As of 2014, it had failed to envisage the expanded scale and challenges of local tourism.

The **National Food Security Policy, 2018**, recommends the adoption of climate-smart agriculture practices and emphasizes efficient and sustainable use of rangelands and forests to ensure sustainable intensification of livestock and crop systems in environmentally fragile areas. However, it does not discuss forestry, farm forestry, or agroforestry in any sufficient detail. In addition, it does not discuss the issue of livestock grazing having an adverse impact on forest regeneration.

The **National Rangeland Policy** was drafted in 2010. It discusses rehabilitation, management, and mitigation of the impacts of global warming and climate change on the rangelands. It has remained in draft form and has not been approved yet. The policy supports the protection and rehabilitation of scrub forests for better forage production but does not provide for the improvement of tree growth on rangelands. However, it does promote the need for practicing agroforestry and farm forestry on farmlands near rangelands and pastures.

The **National Water Policy 2018** discusses concerns about an increase in water scarcity and emphasizes the judicious use of the limited water resource across all sectors. It provides measures for climate change adaptation, improving watershed management through extensive soil conservation, catchment area treatment, preservation of forest, increasing forest cover, and restoring and maintaining the health of the environment and ecology. It provides for protection of wetlands and Ramsar Sites for the conservation of wildlife, flora and fauna, and for stopping further seawater intrusion into the Indus River (upstream from the coastline) for the sustenance of coastal environment, flora and fauna, and mangrove growth. The recommendations of the policy are critical for some of the important forest ecosystems of Pakistan, including mangroves, junipers, and northern alpine areas.

## 2.5 Relevant Provincial Policies

All the provinces, as well as AJK and GB, accord high priority to the subject of climate change due to its impacts on almost all aspects of life. Some of the provinces have drafted their policies regarding climate change, while others have either developed or are developing strategies and plans for implementation of the National Climate Change policy to cope with the possible impacts of climate change. The Climate Change Policies of Khyber Pakhtunkhwa (2016) and Punjab (2017) emphasize the protection and conservation of existing forest resources and the enhancement of forest carbon sinks through the pursuit of afforestation and reforestation programmes. The KP policy has proposed both adaptations and mitigation measures. The Azad Jammu and Kashmir Climate Change Policy was approved in 2017. GB is proposing similar actions and activities in the plans and strategies under preparation as a follow up to the National Climate Change Policy.

The Khyber Pakhtunkhwa Forest Policy (1999) stresses upon integrated resource management with participation of the local communities and other stakeholders. Decentralization in management, involvement of private sector in NRM and inter-generational and intra-generational equity are other salient features of this policy. The important elements and instruments include creation of a Forestry Commission and Forestry Development Fund besides starting a rigorous system of monitoring the sustainability of forestry in the province.

The Agriculture Policy of KP offers a ten-year perspective (2015-2025). It has attributed the recent natural disasters in the province to climate change and has proposed measures to deal with them. However, no specific recommendations for enhancing tree cover on farmlands or elsewhere have been provided, although references have been made to one particular project: the Billion Tree Afforestation Project. No institutional mechanisms have been recommended, but measures for soil, water, biodiversity conservation, and rangelands development have been proposed.

The Punjab Agriculture Policy 2013 (draft) includes addressing the issues of climate change and environmental pollution due to the burning of crop residues (particularly the burning of rice straw, which in recent years has contributed to winter smog). Measures for encouraging farm forestry have also been proposed.

The Punjab Environment Policy 2015 (draft) sets forth guidelines and proposes actions for the protection of the environment and natural resources. It also recommends measures for coping with the challenges arising from environmental degradation.

Khyber Pakhtunkhwa has approved its own Rangeland Policy while Gilgit-Baltistan has drafted its Rangeland Policy for sustainable management of rangelands and pastures in various ecological zones. Measures for mitigation of climate change impacts and protection of the environment have been recommended in these policies.

KP Mineral Development Policy of 2014 urges elimination and mitigation of adverse environmental degradation of mining. No mining operations will be permitted without an Initial Environmental Examination Report or an Environmental Impact Assessment Report (depending on the case) having been compiled, evaluated, and approved by Khyber Pakhtunkhwa Environmental Protection Agency (KP-EPA). The KP Mines and Mineral Development and Regulation Ordinance 2016 directs that a holder of a mineral title not cut or injure any tree on government land or in reserved forests without prior permission in writing issued by the Licensing Authority or by an officer the government may authorize in this regard. Operations in reserved and protected forests shall be conducted subject to precautions regarding prevention of fire and conservation of forest, that the licensee or the lessee may, from time to time, be required to perform by the Licensing Authority.

The Draft Punjab Mineral Policy 2017 envisions having a modern, innovative, dynamic, and private sector-driven mineral sector that is environmentally responsible, socially sustainable, and safe. Under the policy, it requires that the Punjab Forest, Wildlife and Fisheries Department provide a No Objection Certificate (NOC) for carrying out the mineral activity in






the areas marked under Forestry, Wildlife and Fisheries land. Similar policies requiring NOCs from the Forest Department also widely exist, for example, in other provinces, AJK, and GB.

The Punjab Tourism Policy 2009 is based on the principles of building environmental and cultural awareness and respect and providing a positive experience for both visitors and hosts. It proposes the promotion of ecotourism that would involve a selective approach, scientific planning, effective control, and continuous monitoring. However, due to various departmental reasons, the policy and its different aspects have not yet fully materialized for the tourism sector as a whole.

The KP Tourism Policy 2015 values the principle of sustainable development, which dictates that the level of development does not exceed the carrying capacity of an area. Tourism development needs to be properly guided and regulated to avoid any adverse impact on the natural environment. A conscious balance needs to be maintained between development and conservation. For this reason, the policy envisions adding additional tourist spots to reduce the tourism burden on existing hot spots.

The AJK and GB Tourism Departments also believe in sustainable tourism development that assures conservation of the environment and natural resources in their respective areas. Given the available potential, ecotourism is considered to be the most appropriate option for adoption in these areas.

Figure 5 Current Legal Structure

		Provincial					
National		AJK	GB	Sindh	Balochistan	KP	Punjab
Policies	National Climate Change Policy, 2012	Climate Change Policy, 2017		Sindh Climate Change Policy (Draft)		Climate Change Policy, 2016	Climate Change Policy, 2017
	National Environment Policy, 2005					Agriculture Policy, 2015-2025	Forest Policy, 1999
	National Forest Policy, 2015						
	National Agricultural Policy, 1980						
Acts/Ordinances	Pakistan Trade Control of Wild Flora and Fauna Act, 2012	Rules for Sale and Development of Private Forests, 1984	Gilgit Private Forest Regulation, 1970	Forest Act, 1927	Wildlife Protection, Preservation, Conservation and Management Act, 2014	NWFP Guzara Forest Rules, 2004	Rules of Guzara land, or forest and waste lands of the Murree and Kahuta Tahsils
	Land Acquisition Act, 1894	AJK Forest Regulation, 1936	Forest Act, 1927		Forest Act, 1927	Forest Development Rules, 2006	Land Preservation (Chos) Act, 1900
	Forest Act, 1927	Interim Constitution Act, 1974	Gilgit-Baltistan (Empowerment and Self-Governance) Order, 2009		Balochistan Forest Regulation, 1890	KP Forestry Commission Act, 1999	Forest Act, 1927
	Federal Rules of Business 1973					KP Forest Ordinance, 2002	
<b>Constitution</b>							

## 2.6 Institutional Arrangements

The current laws and policies related to forests in Pakistan are implemented by the provincial forest departments in all the federating units. While the implementation is the responsibility of departments, the design and promulgation of forestry laws are the sole responsibility of the provincial legislature (Provincial Assemblies). As for the policies, the relevant ministry is responsible for the design and is only enforced after the approval of the relevant cabinet and its formal promulgation. With this understanding as well as the discussions in the section related to the legal framework, it is also important to recognize the forest-related architecture and roles of different institutions; and a thorough analysis of the genesis of the forestry related institutions that exist in Pakistan, and it is necessary to find the root causes of deforestation and forest degradation.

Pakistan inherited the institutions and laws from the colonial empire at the time of independence in 1947. Thereafter, the provinces and territories started developing their own policies and legal framework. In addition, the executive powers between the federal government and the provincial governments are delineated by the Constitution of Pakistan, 1973. However, at federal level, various institutions operate towards climate change, forestry, emissions and other related subjects. Important of these are discussed below.

Within the federal government, the **Ministry of Climate Change (MoCC)** is responsible for the facilitation and coordination related to national climate change, forestry and related disaster management policies, plans, strategies, and programmes. Its mandate also includes facilitation and coordination related to environmental protection, pollution, ecology, wildlife, biodiversity, and desertification. MoCC is responsible for the coordination related to international environmental agreements, so it obviously has a coordinating role to play that it also currently fulfils.

The **Office of the IG Forests (OIGF)** within the MoCC acts as the national focal point for forest and wildlife related matters and is also the focal point for REDD+ and represents Government of Pakistan at various international engagements. The OIGF steered the interprovincial consultative process for REDD+, capacity building of the provinces amongst other efforts to effectively introduce REDD+ as a new discipline in Pakistan.

The **National Steering Committee for REDD+ (NSC)** was notified by the MoCC and is chaired by Secretary Climate Change. The NSC includes representatives of the provinces, forestry stakeholders, forest owners, NGOs, private sector and academia. It oversees the National REDD+ Office and other REDD+ agenda and also engages stakeholders to integrate their opinions and concerns.

**Prime Minister's Task Force on Climate Change (PMTFCC)** was established in 2008 under the Planning Commission<sup>8</sup> as a body under the chairmanship of the Prime Minister to assemble quarterly and semi-annually to discuss the issues related to climate change and their ramifications. Its mandate also includes organization of climate change based research, assemblage of research groups, identification of the knowledge gaps, and assessment of the capacity and compilation of unified research results for the guidance of planners and policy makers. The Task Force has neither met regularly nor discussed REDD+ as yet.

The **Inter-Provincial Coordination Division of the Ministry of Inter-Provincial Coordination (MIPC)** is responsible for promoting uniformity of approach in formulation of policy as well as its implementation in the provinces and the federal government in areas of common concern. It works as the secretarial division of the **Council of Common Interests (CCI)**. The CCI is a constitutional body chaired by the Prime Minister, while its members include Chief Ministers of all the provinces and three members from the federal government,

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<sup>8</sup> Task force on Climate Change, Final Report, Planning Commission, Government of Pakistan, February, 2010.

usually cabinet members. The CCI formulates and regulates policies related to issues of national importance and interprovincial matters, particularly related to issues related to common interests, especially revenue and resources. Forestry under the constitution is a provincial subject; therefore, the CCI is an important legal forum for forestry issues, in particular REDD+ forestry related CERs in Pakistan, that can be generated by the provinces while national accounting and issues of displacement have to be dealt by the federal government. The CCI took a benchmark decision in the thirtieth meeting held on 15th December 2016 and approved the National Forest Policy 2015 (NFP) that also has segments on REDD+.

**Global Change Impacts Studies Centre (GCISC)** is a dedicated research institute for climate change studies in Pakistan, working under the Ministry of Climate Change. The centre is mandated for national level R&D efforts, capacity building, policy analyses, information dissemination and assistance to national planners and policymakers on issues related to the past and projected future climatic changes in the country. GCISC is responsible for preparation of national GHG inventories as well as the NDC and is the repository of forest carbon accounting.

**The Climate Change Act 2017** envisages the creation of the **Climate Change Authority (PCCA)**. The PCCA would consist of scientists, academics, professionals, serving or retired government servants, industrialists, and other technocrats with at least fifteen years of experience in fields related to climate change. PCCA and PCCC could prove to be key in the implementation of REDD+ in Pakistan, given their specific mandates.

The **Climate Change Council (PCCC)** is defined under the Pakistan Climate Change Act, (2017) however it is yet to be functionalized. The specific functions of the PCCC would cover implementation of international agreements relating to climate change including UNFCCC and coordinating, supervising, and mainstreaming climate change concerns into decision-making by the federal and provincial governments. This includes formulating comprehensive adaptation and mitigation policies, plans, and programmes designed to address the effects of climate change within the framework of the national climate change policy.

The PCCC would count amongst its members the Prime Minister (or his/her nominee), Federal Ministers for various divisions, including climate change, finance, agriculture, water and power, as well as the Chief Ministers of the provinces and the Ministers-in-charge of the departments concerned with environment within a province, among others. By its mandate, PCCC could most certainly play a key role in the implementation of REDD+ in Pakistan.

## 2.7 Provincial Institutional Arrangements

Forests are a provincial subject, where the provincial governments (and territories) have exclusive executive authority in this respect. Hence, the **Forest Department** should be at the vanguard of any push towards implementing REDD+ in Pakistan. The approach and architecture of the forest department within each province has its own unique shade, depending upon the scale, types of functions covered (forestry, wildlife, environment, etc.). Generally, the department is headed by a secretary for executive and administrative affairs, and from the government side, a minister looks after the affairs within his / her own ministry. The technical affairs of the department are headed by the chief conservators of forests who are responsible for conservation and management with the support forestry field formations.

Each of the provinces has notified a focal person, who looks after the affairs related to REDD+ and also communicates with the federal government on matters related to REDD+.

There is, however, a dearth of inter-departmental coordination when it comes to issues that affect the forests within a province, with the result that decisions made within other departments, such as mining, livestock, and agriculture, can have deleterious effects on forests, as these decisions may not have been taken with the necessary input of the forest department. This could include, for example, the grant of mining concessions and a push towards the expansion of agricultural land without accounting for the consequent externalities

faced by forests. This can also impact the implementation of National REDD+ Strategy, for actions to be taken at provincial level.

To look after REDD+ related agenda and engage with stakeholders, provinces also formed, through notification, Provincial REDD+ Management Committees (PRMCs) under the chairmanship of provincial forest secretaries. The objective of the committees is to ensure engaging with stakeholders and also to act as inter-departmental institutions for REDD+ related activities. The committee is mandated to endorse plans, programmes and projects related to REDD+ and prepare the annual budget for the respective province. Additionally, the committee is responsible to deal with issues referred by Provincial Grievance and Implementation Units, however the system is not yet effectively functional, and some provinces are making progress on ensuring the functionality.


## **2.8 Other Organizations and Civil Societies**

The management and conservation of forests is further supplemented by the initiatives, funding and collaboration of the following organizations and their collaborators:

- i. International Union for Conservation of Nature (IUCN)
- ii. World Wildlife Fund/World Wide Fund for Nature (WWF)
- iii. Food and Agriculture Organization of the United Nations (FAO)
- iv. United Nations Development Programme (UNDP)
- v. Sustainable Development Policy Institute (SDPI)
- vi. Other civil society organizations like Taraqee Foundation, Sungi Development Foundation, Sindh Agriculture and Forestry Workers Organization (SAFWCO), etc.

Sarhad Forestry Ittehad is a civil society body that provides a forum to forestry stakeholders and NGOs related to forests; however, it has been dormant till now.

A number of universities, under the supervision of Higher Education Commission (HEC), are offering graduate and post graduate courses in forestry including Pakistan Forest Institute, Arid Agriculture University, etc. The details of the aforementioned can be found in Annex 5 of the National REDD+ Strategy.



**Chapter 3**

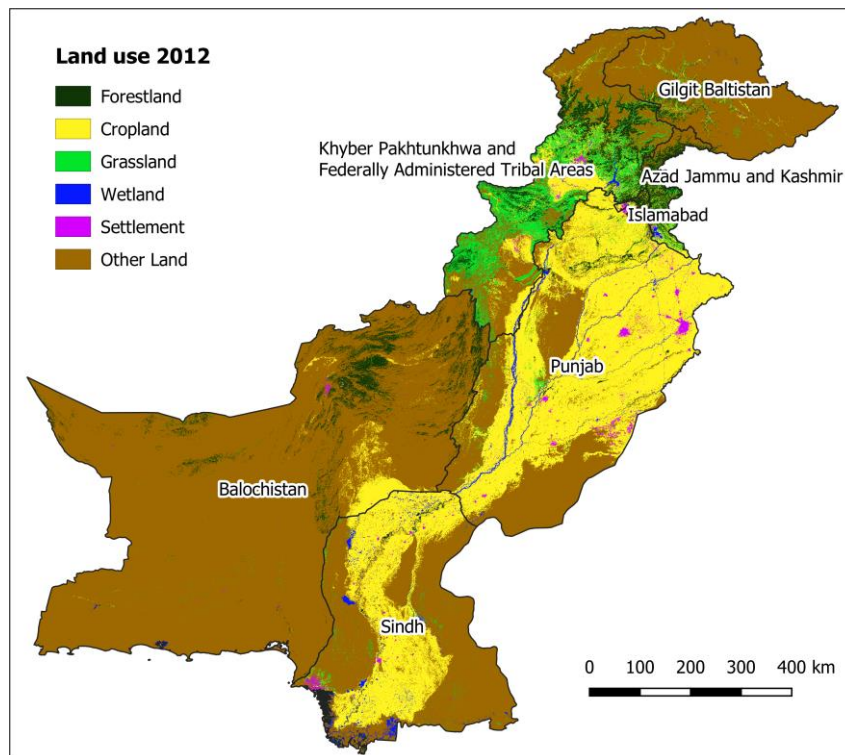
**TRENDS IN FOREST  
COVER AND CHANGE**

The basis for addressing deforestation and forest degradation is knowledge not only of the drivers but also of the land use, and of how the usage changes over time and space. In the case of Pakistan, land tenure and natural resource rights have an important influence on land use. Pakistan is mainly a dry land country with 80% of its land in arid and semi-arid areas. The map below shows the main forest types and their locations in the country. In 2017, Pakistan adopted the following nationwide definition of forest.

#### National Definition of Forest Land

A minimum area of land of 0.5 ha with tree crown cover of more than 10% comprising trees with the potential to reach a minimum height of 2 meters.

This definition<sup>9</sup> is the basis for the establishment of the National Forest Reference Emission Levels (NFREL) and the National Forest Monitoring System (NFMS), which provides updated information for a better understanding of the current situation and extent of the forests in the country.



**Figure 6 Land Use in Pakistan, 2012 (FREL Report)**

Pakistan submitted its first ever scientifically established FREL based on deforestation to UNFCCC on January 6, 2020 for technical assessment by assigned UNFCCC experts, with modified submission on 05 December 2020 for the reference period 2004–2012, which corresponds to mean annual emissions from the deforestation estimated to be 946,653 t CO<sub>2</sub> eq/year. Pakistan's submitted FREL was assessed to be transparent, complete and in overall accordance with the guidance contained in annex to decision 12/CP.

<sup>9</sup>The national definition of forest includes existing irrigated plantations as well as areas that have been defined as forests in respective legal documents and that are expected to meet the required thresholds.

Using national forest definition, the total forest land was assessed as about 4.787 million hectares, which was 5.45% of the country's territory in 2012 (Table 5). The deforestation was assessed from 2004 to 2012. The average annual deforestation during that period has been estimated up to about 11,000 hectares, whereas, an increasing trend of more than 17,000 ha was observed from 2008-2012.

**Table 5 Historical Assessment of Forest Cover at National Scale**

Years	Forest Area (Ha)	% Areas
2004	4,981,163	5,67
2008	4,858,259	5,53
2012	4,786,831	5,45

Source: MOCC (2020)

According to the FREL analysis, deforestation has had the highest average annual rates in riverine (34%), scrub (20%), dry temperate (19%), pine (13%), thorn forests (9%), moist temperate (3%), mangrove (2%), and sub-alpine (0.5%). The largest share of CO<sub>2</sub> emissions originated from dry temperate (34%), riverine (27%) and Chir pine forests (16%) followed by moist temperate forests (11%), scrub forests (9%), thorn forests (2 %) and subalpine forests (1%).

### 3.1 Drivers of Deforestation and Forest Degradation

Identification of the drivers of deforestation and forest degradation (DoDs) as well as the barriers that prevent conservation and sustainable forest management is the key for an effective REDD+ strategy. Correctly identifying drivers by involving all the stakeholders and designing actions to address these drivers by taking into account all relevant sectoral policies and strategies holds the key to an effective strategy. This includes both the direct drivers and indirect causative agents for these DoDs. In particular, Decision 1 of COP 16 (2010) obligates parties to act to address drivers of deforestation and forest degradation when developing and implementing their national strategies and action plans.

The process for identification of DoD involved extensive literature review and in-depth consultations with all stakeholders, carried out through the engagement of national and international experts. The process considered the key drivers, direct and indirect (underlying), rooted inside and outside the forestry sector with local, national and global aspects. This was supplemented with an analysis of their relationship to all land use activities; by taking into account the opinions and considerations of all stakeholders, including the forest-dependent people, while also ensuring gender considerations.

The identification of the DoDs and the barriers that prevent conservation of forests for the inclusion in the architecture of Pakistan's National REDD+ Strategy has been an iterative process since 2010 when World Wide Fund for Nature - Pakistan (WWF P) prepared the first reports (2012-13) on identification of the DODs through a consultative process. The results of these reports were used in the preparation of Pakistan's R-PP in 2013 and the process was enriched with the REDD+ related decisions taken by the UNFCCC Conference of Parties.

The analysis also took into view the existing data coming from monitoring systems and other sources. To understand DoDs in Pakistan, existing documents including REDD+ Readiness Preparation (R-PP), Pakistan Forestry Outlook Study and some localized studies,<sup>10</sup> were reviewed. The findings reported in the existing literature are aligned with the results obtained

<sup>10</sup> The Khyber Pakhtunkhwa (KP) REDD+ strategy.



from the consultations with stakeholders conducted for the development of this strategy.<sup>11</sup> Based on the outcomes of nationwide assessment and consultations, this National REDD+ Strategy proposes actions to address the drivers of deforestation and forest degradation.

### **3.1.1 Prioritized Direct Drivers of Deforestation**

Pakistan is a diverse country in its ecosystems, social groups, governance systems, land tenure, and cultures. It is also diverse in conditions that provide the basis for a wide variety of drivers and causes of deforestation and forest degradation, and barriers to conservation and enhanced forest carbon stock. The direct drivers do not occur in isolation; instead, they are the result of underlying conditions that produce them, some of which are rooted in the legal, policy and institutional framework.

Different ecosystems and forest types have different drivers of deforestation and forest degradation; however, some drivers are similar in nature across provinces and territories, ecosystems, and forest types. This section elaborates the national level drivers of deforestation and forest degradation, prioritized according to the perceived importance of stakeholders. This prioritization of the DoDs has been decided in terms of the impact of the driver on the forests as identified through consultations and expert judgments. Some of these drivers are also considered as a barrier to conservation and sustainable forest management.

#### **3.1.1.1 Commercial Agricultural Expansion**

Agriculture is a major land use in Pakistan. The cultivable area is 23.67 million ha i.e. 27.7% of the total area (GoP's Economic Survey Report, 2018). The population, directly and indirectly associated with the agriculture sector, currently stands at 42.3%, whereas contribution of the sector to the overall GDP is around 18.9% (GoP, 2018). According to INDC 2016, the forecasted economic growth rate, duly adjusted, shows a faster agriculture sector growth as compared to its average historical trend of about 3% per annum. With expected healthy rise in GDP and sizeable impacts of the China-Pakistan Economic Corridor (CPEC) interventions, this growth is likely to be well over 4% per annum (INDC, 2016).

Commercial agricultural expansion has been prioritized as the main driver of deforestation in most of the provinces and territories. The growing population pressure is the key proximate cause of commercial agricultural expansion. The situation is additionally fueled by poor policy planning and implementation, national economic developmental priorities and lack of land use planning. According to United Nations projections, Pakistan's population will grow to over 380 million by the year 2050, surpassing the United States, Indonesia, Brazil, and Russia to become the world's third largest country behind India and China. A large area has to be brought under cultivation to feed this population. This rapid increase in population, coupled with low productive practices in the agriculture sector, is imposing the need for the expansion of land for agriculture. In order to halt conversion of forested land to agricultural land, the existing forest and wildlife laws offer safeguard to notified forest lands, however, there is little incentive for private forest owners not to convert forest lands into agricultural lands. In certain cases, such as in Sindh province, the introduction of policy for leasing of forest land in 2004 has also led to conversion of forest land to agriculture cropping.

#### **3.1.1.2 Infrastructure Development (roads, habitation, transmission lines, etc.)**

Infrastructure development plays a pivotal role in promoting economic growth and to meet the increasing population's needs for habitations, communication, water storage, power, tourism developments, among others. The increasing trend of construction of large-scale housing societies to accommodate urban populations and tourism expansion in forested

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<sup>11</sup> Interim Report 1: Drivers of Deforestation and Forest Degradation Analysis, Annex 1: Provincial REDD+ Strategy Briefs and Annex 2: The consultation process—a summary, for more details: <https://www.redd-pakistan.org/wp-content/uploads/2015/08/Interim-Report-V5-ID-110071-1.pdf>

landscapes is exacerbating the infrastructure expansion resulting in permanent forest land use change through infrastructural developments like roads, housing blocks, bridges and water reservoirs, among other facilities.

The impact of infrastructural development on forest land is further exacerbated by weak governance and poor law enforcement, lack of land use planning, political influence, and poor sectoral coordination.

Modernized infrastructure and strengthened regional connectivity is one of the seven core pillars of Pakistan's Vision 2025,<sup>12</sup> and hence, infrastructural development is receiving significant allocations under Public Sector Development Programs (PSDP).<sup>13</sup> To bolster the national economy, the China-Pakistan Economic Corridor (CPEC) has emerged as an impetus to Pakistan's infrastructural development needs in recent years. Under CPEC and overall economic development goals of Pakistan, construction of roads, power projects, transmission lines and other associated developmental activities are predicted to mount pressure on forest land use changes.

### 3.1.1.3 Encroachments

Encroachments on forest lands generally take place for different purposes: agricultural cultivation, housing and mining. Although, provisions to safeguard government lands and regular boundary checking exist in respective regulations, such as the Forest Laws, Manuals and the Land Revenue Laws, the unclear demarcation of forest boundaries and land tenures appear the key sources of encroachments over forestlands and boundary disputes. The extent of this issue is evident from a large number of pending legal cases—increasing over time—in the courts in all the provinces and territories. Weak institutional capacities to effectively monitor the forest areas and local political influences also contribute to this end.

### 3.1.1.4 Surface Mining

The mining sector is one of the biggest industries globally; in line with global trends, mining sector is an important industry in Pakistan that contributes to deforestation and forest degradation. Pakistan has significant deposits of several minerals that fall in the forest lands. Balochistan has the most mineral deposits, while Sindh is rich in coal deposits and Khyber Pakhtunkhwa in marbles and gems. Mining's direct impacts on forests in Pakistan include land-use changes at mine sites. The sector's indirect and cumulative impacts include those associated with the development of roads to the mine sites, rail and port infrastructure for the transport and export of minerals, and the impacts associated with inflows of workers and other economic activities that contribute to logging as infrastructure opens forests up.

In Pakistan, mining is regulated through provincial and federal acts. The constitution gives exclusive domain to the federal government for major minerals like oil and gas and radioactive minerals whereas all other minerals are under the provincial domain. The provincial mining is further categorized as surface or deep mining. Ostensibly, the impact of surface mining on forests is conspicuous. Mining in designated forest areas is often a source of conflict between the departments of mines and minerals and the forest departments. This is because the forest laws prohibit any type of mining inside notified reserved forests. The mines in forest areas of the *Potohar* (Punjab) are both surface and deep - mining for minor minerals like coal, fireclay, iron ore, etc. Since all mines have to be abandoned at some stage the natural regeneration processes may bring back vegetation. No detailed studies have been conducted to assess the impact of mining on forests lands, therefore, the assessment is based on the prioritization by the participants interviewed during the consultative process. The consultation deduced that the impact of mining on forest land use

<sup>12</sup> Pakistan's Vision 2025 retrieved from: <https://www.pc.gov.pk/uploads/vision2025/Vision-2025-Executive-Summary.pdf>

<sup>13</sup> Public Sector Development Programs retrieved from: <https://www.pc.gov.pk/web/psdp>

is increasing with rising population demands. This is amplified by weak governance, lack of sectoral coordination, and national economic priorities.

### **3.1.1.5 Unsustainable Timber Extraction**

Timber extraction, in particular for the construction industry, remains an important driver of deforestation. The demand for timber is not restricted to the rich urban areas but continues to be a major factor in forested areas where the local population depends on timber for mainly housing needs. Fueled by increasing population pressure, and subsequently, the rising demand for timber products, there has been a rising impact of unsustainable timber extraction on forest land use. The weak governance, and departmental priorities for revenue also contribute to this end. This is also a barrier that prevents forests to preserve and enhance their carbon content and also remove the incentive to implement sustainable forest management actions.

### **3.1.2 Indirect Drivers of Deforestation**

Through comprehensive stakeholders' consultations and expert opinions, the indirect drivers have been identified in order to decipher the root causes of deforestation in Pakistan. Some of these indirect drivers are also barriers to forest conservation and sustainable forest management.

These indirect drivers of deforestation are contextualized in demographic, institutional, legal and fiscal contexts as discussed in the following sections.

#### **3.1.2.1 Demographic Context**

Pakistan is the sixth most populous country in the world, with its population estimated at 208.57 million in 2020.<sup>14</sup> Furthermore, trends indicate that this population will continue to rise, as Pakistan's population growth rate of 2.40% is the highest in South Asia. The high level of population growth, inevitably, puts pressure on the country's natural resources with the rising demand for food, housing, infrastructure, energy, agriculture, mining, industrial expansion and other facilities to accommodate them. Therefore, population pressure has been identified as the prominent cross-cutting proximate cause of deforestation resulting from commercial agricultural expansion, infrastructural development, mining and unsustainable timber extraction.

National Population Vision, 2030 predicts that Pakistan will become the fifth country from top by 2030, with a population ranging between 230 and 260 million people, 60% of whom will live in urban areas. The high population growth rate is pushing pressure on forestry resources, as rural population has high dependence on forestry sector resources for their livelihoods. There is a big gap between supply and demand due to mismatched forest resource base and continuously increasing population growth. The supply has only steadily increased from the farm trees whereas pressure on natural forests has continued to increase significantly. Due to lack of the provision of electricity, gas, access and availability of renewable energy sources at reasonable rates, wood becomes the only choice as an energy source for communities in hilly areas.

The estimated demand of wood and wood-based products in the country is 40.93 million m<sup>3</sup>. This includes, 6.06 million m<sup>3</sup> of timber and 34.87 million m<sup>3</sup> of fuelwood. Of this demand, 8.2 million m<sup>3</sup> of wood is provided by forests, 18.8 million m<sup>3</sup> by farmlands, and about 0.417 million m<sup>3</sup> is imported (FAO, 2020) while the remaining demand is met through unaccounted for logging, crop residuals (such as cotton sticks) and animal waste.

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<sup>14</sup> <https://www.statista.com/statistics/383245/total-population-of-pakistan>

This strategy therefore highlights population pressure as one of the major drivers of deforestation and forest degradation in rural areas, in particular the hilly areas leading to unsustainable harvesting of wood due to lack of alternates and compensating mechanisms for forest communities. This tendency, if it remains unimpeded, will have radical insinuations in the form of irreparable loss of forest resources at an exceptional pace.

The competing demand for land with a rising population in Pakistan has significant impacts on forest lands, impacting not just the carbon stock but also resulting in increasing pressures on surface and ground water resources.

The forestry sector in Pakistan has little influence to directly address the causes and actions needed to control population growth in the country. However, continuous efforts to reform forest land tenure laws and participation of the forestry sector in demographic debates and policy planning could have a positive impact.

### **3.1.2.2 Institutional Context**

#### **a) Weak Governance (Poor Law Enforcement)**

Institutional causes of deforestation emanate from weak forestry governance, encompassing poor policy implementation, weak enforcement of laws, with lack of land use planning and lack of sector coordination due to conflicting sectoral priorities. Weak institutional structures and the inability to effectively monitor and enforce existing regulations contribute to deforestation. Issues such as poor governance, corruption, illegal extractions and the operation of local 'mafias' in sustaining these practices are very important to address the root causes of ineffective forest governance. Weak governance also prevents forest owners and right holders the implementation of actions to ensure sustainable uses of forests leading to the conservation of carbon stocks.

As a result of low priority given to forest sector historically, there is a gap in the regulatory framework for the development sectors. For instance, there are no mechanisms in the forestry or mining departments in Pakistan to follow up on the World Conservation Congress Resolutions, to minimize the environmental damage to forest biodiversity due to mining.

Furthermore, weak institutional capacities and lack of financial resources are the major constraint impeding the enforcement of forest regulations. For example, most of the provincial forest agencies have a serious lack of latest monitoring technology and trained staff to use it. While the government generates revenues from the forests and associated resources, the funds allocated to forest departments are insufficient to implement forest regulations effectively. As far as budget spending is concerned, the spending does mostly follow the published budget, but there are sometimes shortfalls or changes in allocations among programmes.

#### **b) Lack of Land-Use Planning**

The lack of cohesive and effective land-use planning in Pakistan across all the provinces induces conversion of previously forested land to agricultural land, infrastructural developments and urban areas. There had been attempts to craft a land-use policy and zonation in the country but these aspirations have not yet materialized around the country, except for certain urban areas like the Islamabad Capital Territory where land-use zones have been clearly demarcated and strengthened with legislation. Though, the Pakistan Environmental Protection Act 1997 and similar provincial laws restrict land developers from undertaking development activities without proper EIA and EMP, the law does not cater for the need to have proper, cohesive land-use planning, supplemented with policies, procedures and effective implementation, in the country.

As such, conversion of forest area to other land uses such as infrastructure development, housing schemes and agricultural expansion is unregulated and has been identified as an important driver of deforestation.

The lack of clarity about possible and authorized land uses creates a barrier to embrace sustainable forest management and other sustainable uses of forest.

c) Poor Sectoral Coordination

Sectoral policy planning in Pakistan is undertaken by the relevant governmental entities assigned to the sector. The Constitution of Pakistan specifies the subjects that are in the provincial or the federal domains. All the subjects that relate to deforestation and forest degradation like the environment, agriculture, population planning, mining and irrigation (except for oil, gas and radioactive materials), are provincial subjects. However, the federal government also supports the provinces through policy making and fund allocations for projects. Each sectoral policy is prepared by the relevant ministry or department, and these sectoral policies sometimes face issues of lack of inter-ministerial and inter-departmental coordination. For example, there is a competing demand of water for agriculture, forestry, fisheries, wildlife, industries, and hydropower developments. Often the sectoral priorities dominate policy making processes. The sectoral policy on water or forests lacks regular coordination between different departments not only during policy formulation but also at the implementation phase. However, coordination in policy formulation and implementation is weak across these relevant sectors, and is unable to create a sustainable pathway to reducing deforestation in Pakistan.

Mandates of national agencies are not always in conformity with each other. Mandates of national and subnational governments are sometimes contested.

d) Political Influence

Political influence exists in all provinces and at national level with varying degrees; however, it is particularly at play in districts with high percentages of forests. A common way that political influence plays out in Pakistan is in the recruitment, official postings and transfers, leasing of forest lands and devising ad-hoc timber removal policies.

### 3.1.2.3 Fiscal Context

a) Economic Development Priorities

Being a developing country marred with several socioeconomic problems, economic development dominates the decision-making processes and fiscal priorities in the country. Allocation of funds is often a choice of many competing demands for a developing country and the forestry sector has always received low priority, both for the federal and the provincial governments. The sectoral budget allocations are always low for sustainable management of forests and are somewhat biased towards high revenue producing sectors.

For instance, the Pakistan Vision 2025, places the growth of private entrepreneurial sector, water, energy and food sectors, and the infrastructure and construction sectors as important pillars of the way forward for the development of Pakistan. Meanwhile, it is silent on REDD+ on its section on climate change even though it mentions the Kyoto Protocol, according to which Pakistan is eligible to benefit from the Clean Development Mechanism (CDM). Likewise, the national five-year plans initiated in the 1960s have consecutively placed lower priority on forestry, in terms of the funding allocated, in the last five decades.

### 3.1.2.4 Legal Context

a) Disputes over Land Tenure

Another significant underlying driver of deforestation is disputes over land tenures. Forest land tenure is an extensive, comprehensive concept that includes ownership, tenancy and other arrangements for the use of forests. It is underpinned by legally defined forest ownership and rights and arrangements to manage and use forest resources. Forest land

tenure has been an ignored subject in the forestry sector over the years. There is a dearth of literature to understand the complex nature of forest land tenure in Pakistan. This results in frequent disputes on rights to forest land, including but not limited to, forest land ownership, grazing rights, and right to water, non-timber forest products (NTFPs), wood harvesting and other forest produce. These disputes, resulting from unclear legislation, regulations and procedures, are evident from the large number of pending cases in the court of law.

It is essential to address these disputes caused due to lack of clarity and other external influences, in order to mitigate the impact on forest lands either to prevent deforestation and forest degradation or to enhance forest carbon stocks. The feasible ways in which REDD+ can address these have been underpinned in the Strategic Actions.

#### b) Unclear Demarcation of Boundaries

One of the major underlying drivers causing encroachments which result in deforestation, is the unclear demarcation of boundaries in many areas.

The parent Act for all forestry laws in Pakistan is the Indian Forest Act of 1927, coupled with the Act are the Forest Manuals, the Land Revenue Laws and the Cantonment Laws which provide strict procedures to safeguard government lands and regular boundary checking. However, at certain places the disputes occur between forest department and local landowners due to unclear and non-settled boundaries resulting in encroachment of forest lands and legal conflicts.

### 3.1.3 Summary of the Drivers of Deforestation

Table 6 summarizes the national level prioritized drivers of deforestation according to the perceived importance placed by the stakeholders. The detailed indirect or underlying drivers for each of the listed direct drivers, along with the broader context under which the indirect driver falls, the prominent agents directly involved, and the relative feasibility of initiating policies and measures to address these underlying drivers is given in the Appendix.

**Table 6 Summary of Drivers of Deforestation**

#	Prioritized Direct Drivers of Deforestation	Underlying Causes of Prioritized Drivers of Deforestation
1.	Commercial Agricultural Expansion	Population pressure
		Weak governance (poor law enforcement)
		Economic development priorities
		Lack of land-use planning
2.	Infrastructure development (roads, habitation, tourism developments, transmission lines, etc.)	Population pressure
		Weak governance (poor law enforcement)
		Lack of land use planning
		Economic development priority
		Political influence
Poor sectoral coordination		
3.	Encroachments	Weak governance (poor law enforcement)
		Unclear demarcation of boundaries
		Disputes over land tenures
		Political influence
4.	Mining (Surface-mining)	Population demand for construction material
		Weak governances (legislation conflict between mines act and forest act, implementation EIA)
		Economic priorities (leasing concessions)
		Lack of Sectoral coordination
5.	Unsustainable Timber Extraction	Population pressure (high demand for timber products)
		Weak governance (illegal wood extraction)
		Departmental priorities for revenue

### 3.1.4 Prioritized Direct Drivers of Forest Degradation

The prioritized drivers of forest degradation, as identified through stakeholder consultations and expert opinions are explained below:

#### 3.1.4.1 Unsustainable Wood Extraction

Unsustainable extraction of fuel wood, brushwood and small branches from forest lands has been classified as one of the leading causes of forest degradation in Pakistan. The country's rural population largely depends on wood for cooking and heating, due to its easy and cheap availability and the lack of alternative energy sources. The use of traditional cooking stoves and inefficient heating systems results in wasteful burning, and subsequently increases pressure on the limited forest resources. The intensifying pressure from unsustainable fuel wood extraction has badly affected all types of forests, including farmland trees in the country, as almost all the fuel wood needs are met by the local resources. The extensive unsustainable extraction of fire wood also prevents the enhancement of carbon stock and conservation of forests.

A study conducted in 2003-04 reported that the fuel wood consumption in Pakistan was at 31.462 million m<sup>3</sup>, of which 0.061 million m<sup>3</sup> was provided by state forests and balance of 31.401 million m<sup>3</sup> (presumably) by farmlands (Maanics Int. 2004). Wood shortage faced by the country was identified to be around 29.361 million m<sup>3</sup> for the same year which was met through over cutting of trees from various tree sources (Maanics Int. 2004). The Forestry Sector Review, 2019 by FAO claims that almost all forests in Balochistan and erstwhile FATA, 72% of forests in GB, 57.5% in KP, and 61.5% in Punjab continue to be governed in the absence of a proper management plan (Shah and Mohammad, 2016). Most of the work plans for Sindh, and for the rest of the forests in AJK, KP and Punjab, have also expired and thus the available data is outdated. The only countrywide assessment of forest resources was made by FSMP in 1992, now outdated. With the absence of this data, it is difficult to make concrete assessments on the unsustainable wood extraction in Pakistan's forests.

#### 3.1.4.2 Small-scale Agricultural Practices

According to a USAID study, about 66% of the rural population of Pakistan is either directly or indirectly dependent on traditional, subsistence agriculture (USAID, 2009). The importance of small-scale agriculture, in light of poverty reduction and food security, cannot be denied. Small-scale agriculture is widely practiced in Pakistan by forest dwelling communities for their livelihood needs, often leading to clearing small patches of forests. In absence of effective monitoring, these patches remain undetected by the forest departments and over decades become a part of private property, thereby, reducing the overall forest area. Moreover, these agricultural practices often expand in conjunction with small-scale building of houses or structures (using local forest produce) further leading to forest degradation.

#### 3.1.4.3 Overgrazing

In Pakistan, forests have been a traditional grazing/pasture area for the local population, as well as seasonal grazing areas for nomads or residents of other villages. When forests are exposed to intensive grazing for extended periods of time, it results in forest degradation, often impacting forest regeneration and species diversity and also reducing forest capacity to store carbon.

There are contextual variances in the issue of overgrazing in different regions of the country. In high hills, where there is a long-standing tradition of keeping herds of goats and sheep, the grazing pattern is embedded in culture and tradition. For instance, in the Kalash valley of Chitral, the communities have established their own sustainable grazing system and appointed watchers who enforce this system of '*Dane*'. According to this traditional system, no grazing is allowed after the snow melts, until the grasses and forbs grow back their roots. In AJK and GB, similar traditional grazing patterns are followed. In Balochistan, the traditional grazing system of '*Pargorh*' appears to have already vanished without being scientifically

studied. Little documentation exists on the traditional grazing systems while the forest departments attempt to impose the system of grazing by calculating the 'carrying capacity'. The provinces, therefore, in particular Punjab, AJK and KP, have established separate range management wings that manage lands specified as rangelands. The working plans of the *Potohar* region in Punjab have provisions of annual grazing program to be followed as seasonal rains bring large forage that attracts flocks from villages that are far from the forests. Grazing is normally not allowed by the forest staff in regeneration areas or where planting is done.

#### **3.1.4.4 Forest Fires**

Forest fires, in particular in the hilly forested areas, are a common phenomenon particularly during the dry season. A fire can be useful or counterproductive to a particular species or an overall forest ecosystem, depending on the scale and other dimensions of it. Many believe that fires are not only productive for the forests, they are actually necessary to promote diversity as well. (Douglas 1971, Kovacic 1998).

In Pakistan, the peak fire season typically begins in mid-January and lasts around 10 weeks, however, lately, fires have also started erupting in early summers, when rains are scarce and the forest floor is dry. There were 1,315 fire alerts reported between 30th of March 2020 and 22nd of March 2021, considering high confidence alerts only (GFW, 2021). Forest fires in Pakistan are almost all ground fires while crown fires are rare. The control of forest fires and reporting procedures are provided in the Forest Manuals and site-specific actions are part and parcel of forest management plans. Fire season is clearly defined in susceptible areas and the forest departments have their SOPs in place to respond to forest fires in designated forests. However, ground capacity to control, in terms of trained manpower, necessary equipment and other resources, is lacking across the provinces and territories.

In most cases, the forest fires include man-made fires intended for regenerating fresh grass or occur due to human negligence such as throwing cigarette butts, tourists' activities (camp fires, unsafe cooking), and dry seasons that provide the tinder for forest fires. Weak institutional capacities and lack of awareness among general population are the main factors leading to such forest fires.

#### **3.1.4.5 Reduced Fresh Water for Riverine and Mangrove Forests**

The pattern of rainfall and river flows in the Indus delta has been such that during the rainy season, there is surplus water for three months while there is prolonged drought or near drought for the rest of the year. A large number of water diversions and storage structures have been constructed at the upstream for year-round agricultural and hydropower generation to meet economic development needs. Resultantly, the riverine forests and mangroves do not receive the required quantity of flood water and necessary nutrient rich silt that is the lifeline of these forests.

An additional aspect is climate change that has changed the rainfall pattern in the region. It has been observed during the last few decades that the frequency and intensity of rainfall has been varied, making some part of the year more wet, and rendering little rain in the rest of the year. This exacerbates the drought conditions during the dry spell in the riverine areas, which rely on river flood inundation.

While it is empirically challenging to rationalize water flow to the mangroves, significant actions can be taken for the riverine forests that no longer receive flood waters to be discussed at the meeting of interprovincial body, the Indus River System Authority (IRSA). Floods are dealt by the Federal Flood Commission (FFC) and the provincial irrigation departments. Both the FFC and IRSA function under their respective Acts and take decisions on water issues, however, provincial forest departments or environment departments or Ministry of Climate Change (MoCC) are not part of the decision-making process.



### 3.1.5 Indirect Drivers of Forest Degradation

Through comprehensive stakeholders' consultations and expert opinions, the indirect drivers have been identified in order to decipher the root causes of degradation in Pakistan. This identification will aid the strategy in proposing relevant strategic actions to address these indirect or underlying drivers for effective and sustainable solutions.

These indirect drivers of degradation are contextualized in demographic, institutional, legal and fiscal contexts as discussed below:

#### 3.1.5.1 Demographic Context

##### a) Population Pressure

The rising population pressure in Pakistan has been explained in depth in the section on indirect drivers of deforestation. Apart from the high population, the country is also undergoing faster than usual changes due to a higher per capita income as compared to the past, where the standards of living for a large portion of the population are improving. This has a direct impact on the equation on demand and supply for various resources including wood and other forest produce. However, on the other side, solar energy and LNG are gradually gaining acceptance in rural and urban areas thereby impacting overall reduction in per capita firewood demand. The last study for demand and supply for wood (firewood, timber and other forest products) was conducted in 2003-4, and to get a clearer picture of the current trends, a new study is needed. Due to increasing population pressure and high dependency of local communities on wood energy (also exacerbated by poverty), unsustainable wood extraction is identified to be an important driver of deforestation. Coupled with unsustainable forest management, weak governance, lack of clarity in tenure rights and a general lack of awareness in communities, this continues to grow in scale, and demands immediate attention.

##### b) Poverty of Forest Dependent Communities and Lack of Livelihood Alternatives

A major part of the population with low incomes in forest dwelling/ dependent communities as well as nomadic grazers depend on firewood and small brushwood to meet their daily cooking needs. Removal of above ground forest litter ultimately impacts the overall carbon balance in a given forest and therefore falls under the category of forest degradation. The low incomes also lead the communities to extract other forest resources like NTFPs as well as timber, as and when they get an opportunity, resulting in reducing the overall carbon balance as well as disturbing the ecosystem.

On the other hand, the paradigm of livelihood opportunities for forest dwelling communities is also changing fast as more areas are becoming accessible due to road construction and inflow of tourists in remote areas. Enterprising individuals from the locals do find opportunities through establishment of small businesses like kiosks or small restaurants, etc. Yet a large number of locals lack access to alternate sources of livelihoods.

Poor rural women are especially dependent on forest resources for their subsistence (World Bank, FAO and International Fund for Agricultural Development, 2009), and with the population of Pakistan on the rise, these needs are projected to increase. Forests provide land, products and services to many communities in rural areas of Pakistan, particularly the poorest populations, to ensure subsistence.

With the increasing population pressure and poverty of these rising local communities, with a lack of livelihood alternatives, unclear boundaries and weak governance, the small-scale agricultural practices are the source of forest degradation in Pakistan.

##### c) Livestock Pressure

Livestock grazing changes the habitat indirectly by changing soil properties and directly by the removal of vegetation and may change plant diversity mainly by decreasing the abundance of palatable herbaceous species. It can also cause degradation of forest

understory and reduce tree regeneration. Removing livestock grazing from forests may increase species diversity (Rook et al. 2004). There is a general belief that the forests in Pakistan are subject to heavy grazing pressure from livestock, in particular goats and sheep, particularly in AJK, Balochistan, parts of KP and south Punjab, where the population and its subsequent demands continue to rise. However, there exist little or no empirical studies to substantiate this on scientific grounds. The potential threat to forest regeneration and afforestation from livestock grazing has to be addressed through studies as well as scientifically proven measures. Due to increased livestock pressure, lack of awareness and weak governance, unsustainable and unregulated grazing in forests is one of the underlying causes of forest degradation and poses a barrier for enhancing carbon stocks and conservation.

d) Climate Change (drought, flood etc.), Coastal Erosion due to Wave Actions (sea intrusion)

Pakistan is one of the top 10 countries on the Global Climate Risk Index (2020) and in the last two decades, significant changes in weather patterns, altered rainfalls and other climatic variations have been observed, putting pressure on forests in multiple ways. Apart from this, climate change is also altering the frequency and intensity of forest disturbances, including wildfires, storms, insect outbreaks, and the occurrence of invasive species. The productivity and distribution of forests could be affected by changes in temperature, precipitation and the amount of carbon dioxide in the air. Such variability related to climate in Pakistan is well documented by the Global Change Impacts Studies Center, Pakistan (GCISC).

e) Low Awareness

Awareness in the local communities about forest laws, forest ecosystem, factors that lead to deterioration of forest ecosystem and also forest fires, etc. and the need to protect and conserve forests at large is lacking, despite many efforts. This has, resultantly, helped little in government efforts to counter timber mafia or other factors that lead to forest degradation. Massive awareness campaigns are organized by all forest departments on yearly basis yet there is a lot more to be done to reach the desired level regarding importance of forests and in particular about REDD+.

### 3.1.5.2 Institutional Context

a) Unsustainable Forest Management (Absence of Working Plans and Management Plans)

Forest Working Plan (WP) is a legal document that has a given expiry date and is mandated to be revised and approved before its expiry. The legal authority of the WP is derived from the Forest Manuals that are in vogue in all provinces and territories. The WPs are site specific and contain each and every detail of the bio-cultural, in particular the economic, aspects of the specified area. Each province/ territory handles the task of the preparation of the WP and the process is well defined that ensures that the WP is bias free and covers scientific aspects of sustainable forest management. The tradition that no forestry operation is carried out outside a valid WP was followed till there was a ban on tree felling that was imposed by the federal government in 1992. A trend followed the ban whereby preparation and implementation of WPs was given low priority

The Wildlife sector was part of the Forest Department in all the provinces till the 1970s-80s when Wildlife was established as a separate Department in Punjab, KP, Sindh, GB and AJK while the Forest and Wildlife Department in Balochistan functioned as a single entity. A large number of Protected Areas, mainly National Parks, had been notified by the provinces that were previously managed by the Forest Departments through Working Plans. The Protected Areas are managed through Management Plans (MPs) and the situation of the MPs is such that large forest areas are being managed without MPs.

b) Inadequate Capacity for Monitoring and Tackling Forest Fires

In the hilly areas, the local communities traditionally burn the under growth so that new grass can sprout in the next year otherwise the old dry grass would not allow fresh grass to sprout. The FDs take actions under the law for any fire incidents, but the practice is deep rooted and burning is common in hilly areas during the fall season, due to low capacity of forest departments in monitoring of forest areas and dealing with such fire incidents. Furthermore, fire incidents also occur due to negligence by tourists, travelers and often passersby, in particular during the dry season in hilly areas, due to throwing of burning matchstick or a cigarette, unsafe cooking practices at camping sites in forests or nearby human settlements.

c) Untreated sewage disposal in coastal areas

A huge volume of untreated sewerage effluent, around 400 million gallons per day, from Karachi metropolitan city and adjoining districts is discharged in the Arabian Sea. This has an impact on mangrove forest ecosystem and leads to degradation and reduction in species diversity of both marine flora and fauna.

The situation of urban sewerage in cities located along the rivers is not much different, only a few cities have operational sewerage treatment plants that however do not have the capacity to treat all the sewerage water. The volume of untreated sewerage water is on the rise as the population grows.

### 3.1.5.3 Fiscal Context

a) Competing demand of water for agriculture

There is a competing demand for water from different users, particularly the agriculture sector, which deprive the riverine and mangrove forests of their share of fresh water. The Canal and Irrigation Laws provide adequate safeguards for supply of approved quantity of water for forests, however there is a lack of coordination and agreed mechanisms within the forest and irrigation departments to get adequate waters for the irrigated plantation and riverine forests.

### 3.1.6 Summary of Drivers of Forest Degradation

The Table 7 lists the national level drivers of forest degradation according to the perceived importance placed by the stakeholders. Furthermore, it also identifies the relevant indirect or underlying causes for each of the listed direct drivers, along with the broader context under which the indirect driver falls, the prominent agents directly involved with the issue, and the relative feasibility of initiating policies and measures to address these underlying drivers. This will form the foundation on which the strategy will base its Strategic Actions.

**Table 7 Summary of Drivers of Forest Degradation**

#	Prioritized Direct Drivers of Forest Degradation	Underlying Causes of Prioritized Drivers of Forest Degradation
1	Unsustainable wood extraction	Population pressure
		High dependency on wood energy/ Lack of alternative energy sources
		Unsustainable forest management (absence of management plans)
		Weak Governance (poor law enforcement)
		Poverty of forest dependent communities
		Lack of clarity in tenure rights
		Lack of awareness
2	Small-scale agricultural practices	Population pressure
		Lack of livelihood alternatives
		Weak governance
		Poverty
		Unclear demarcation of boundaries
3	Overgrazing	Livestock pressure
		Weak governance (unsustainable, unregulated grazing)

#	Prioritized Direct Drivers of Forest Degradation	Underlying Causes of Prioritized Drivers of Forest Degradation
		Lack of awareness
4	Forest Fires	Man-made fires for fresh grass regeneration
		Human negligence
		Extreme weather events due to climate change (Dry season)
		Weak monitoring governance/weak capacity to handle forest fires
		Lack of awareness
5	Reduced fresh water for riverine and mangrove forests	Competing demand of water for agriculture
		Upstream water diversion
		National economic development priorities (construction of dams, barrages, etc.)
		Low priority to forestry sector (undervaluation of ecosystems services)
		Climate change (drought, flood etc.) - coastal erosion due to wave actions (sea intrusion)
		Untreated sewage disposal in coastal areas

### 3.2 Social and Gender Contexts

According to the census report of 2017, the total population of Pakistan is 207.7 million (excluding Azad Jammu Kashmir and Gilgit-Baltistan, estimated to be at 1.8 million). This makes Pakistan the sixth most populous country in the world, accommodating 2.63% of the world population, with the annual growth rate of 2.4%. This population is primarily young, with 60% falling in the age group of 15 to 64 years. Moreover, Pakistan hosts one of the largest refugee populations in the world.

Assessing the quality of life, standard of living and access to knowledge, the Human Development Index gave Pakistan an HDI score of 0.557 in 2019, placing it at 154 out of 189 countries and territories (UNDP, 2020). The findings of this report are further supplemented by the data on low labour force participation in the formal sector (24% in rural areas and 30% in urban areas). With a high level of unemployment and lack of ample livelihood diversification, rural-to-urban migration is high in Pakistan, as people leave the primarily agricultural set-up, in search of better social and economic opportunities. Most social and economic indicators suggest that the rural population experiences higher levels of poverty in Pakistan, with high dependency on green sector sources, such as forests, for their livelihoods.

Pakistan ranks 151 out of 153 countries on Global Gender Gap Index Report for 2020 with 150<sup>th</sup> ranking on women economic participation and opportunities. The overall literacy rate of Pakistan stands at 60%, with males at 69% and females at 45% (GoP). In terms of the forestry sector, local women tend to collect firewood and fodder, graze animals and collect NTFPs. However, women do not have formal rights in forests, under any land tenure arrangement in Pakistan. A study on Women in Agriculture in Pakistan by FAO 2015, and consultations for the strategy formulation at the provincial level, highlight women's role in forests at the provincial level.

**Table 8 Women's Role in Forests at the Provincial Level**

Region	Women's Role in Forests
Azad Jammu Kashmir	- Men mostly engaged in livelihoods in urban centres of Pakistan - Women take care of firewood and NTFP collection within forests, also livestock grazing
Balochistan	- Collection of medicinal herbs, fuel and fodder
Gilgit Baltistan	- Men engaged in livelihoods in urban centres of Pakistan - Women engaged in firewood collection and also in collecting NTFPs

Region	Women's Role in Forests
Khyber Pakhtunkhwa	<ul style="list-style-type: none"> <li>- Women engaged in agro-forestry, and responsible for fuel and fodder collection,</li> <li>- Tree nurseries are being encouraged through reforestation efforts,</li> <li>- Private nurseries established with women engagement</li> <li>- Effort also promoted under Billion Tree Tsunami Project (BTTP)</li> </ul>
Punjab	<ul style="list-style-type: none"> <li>- Women engaged in forestry related activities including fuel and fodder collection and nursery raising</li> </ul>
Sindh	<ul style="list-style-type: none"> <li>- Rural women responsible for animal grazing and fuel wood collection covering long distances (often 4 to 5 km every day)</li> </ul>

This is time-consuming and laborious work for women, and directly affects their health, energy levels, and education opportunities. Also, women are responsible for other household chores, including fetching of water from long distances. The reduction in forest cover and forest resources has, therefore, impacted women more severely than men. The consultation process highlighted that women generally do not participate in the decision-making processes in forest management, projects, and programs. Culturally, men from outside the communities are not allowed to interact with community women, so contact is not appreciated. Thus, women, as important forest users and stakeholders, remain outside the sphere of consultation and decision-making processes.

In addition to local resident communities, nomads and seasonal migrants also have a high dependency on forest resources. These are mostly livestock rearing communities who settle in areas with forest and grazing resources, concentrated in KP, FATA, Balochistan, and GB. However, provincial forest departments do not have a community outreach component in their routine operations, which limits their ability to engage with these stakeholders.

There have been several donor-funded projects implemented in almost all provinces in the forestry sector, using a community-based participatory approach, engaging vulnerable groups, including women, nomads, and seasonal migrants, through male and female project staff. These projects have shown positive results regarding forest conservation, management and diversification of communities' livelihoods and socio-economic status. The consultation process highlighted that engagement of women as forest users and managers has added value to the impact of projects. To mainstream all stakeholders in the REDD+ process, provincial departments need to allocate additional resources to reach out to forest-dependent communities. FAO recommends allocation of at least 30% of the budget to the development of women in all programmes and projects.

Moreover, Pakistan has complex dynamics of land use and land use change, which is closely related to land tenure and rights to access natural resources. Table 9 presents an overview of the different land tenure systems, rights and their relation to formal and informal use of natural resources. Tenure regarding carbon and genetic resources is unclear in the existing laws. The traditional and indigenous rights of grazing and those of collection of firewood or NTFPs are indeed recognized by the law and are practiced differently in different legal types of forests and at diverse locations. However, the law does not fully harmonize formal and informal rights to forest resources everywhere. The laws tend to empower government officers unilaterally, and there is little in the way of absolute protection for indigenous and traditional rights under the current legislative framework. The mechanisms of tenure-related dispute resolution are time consuming and legally complicated processes. The law expressly allows the government to share or transfer management authority of public forests to local communities. However, there is a general lack of scientific work on the forest land tenure system, with some studies profiling and providing the context of the tenure system in Pakistan. The following broader steps are proposed to address the complexity of issues in land tenure:

- The land tenure system is embedded in the social and economic spheres of communities. It is recommended to undertake scientific studies to understand the

context and magnitude of local and provincial level tenure issues, with the involvement of the relevant stakeholders,

- The prevalence of multiple tenure systems (Shariah-based, traditional and post-colonial land tenure systems) leads to conflicts. Often, the same stretch of land is under the influence of multiple tenure systems, providing opportunities for the offenders to take advantage of loopholes. This can be addressed through land tenure reforms at provincial level. Also, there is a need to update and enhance the legal framework concerning land tenure to protect the right of owners, right-holders and also the right of the forest land.
- Absence of women from the policy framework and implementation process has led to unbalanced gender policies, programs and institutional frameworks. This particularly demands a review of policies to make them gender sensitive approaches in forest management so as to allow women to participate in the decision making and benefit sharing mechanism.
- Forest departments in all provinces are not well equipped regarding institutional and human resources. To address such a complex issue, a dedicated unit within the forest department should be established so that all land tenure issues can be processed through the unit. This unit can be beneficial in future when REDD+ related payments are to be made, where land and tree tenure, ownership and rights will become a bone of contention.

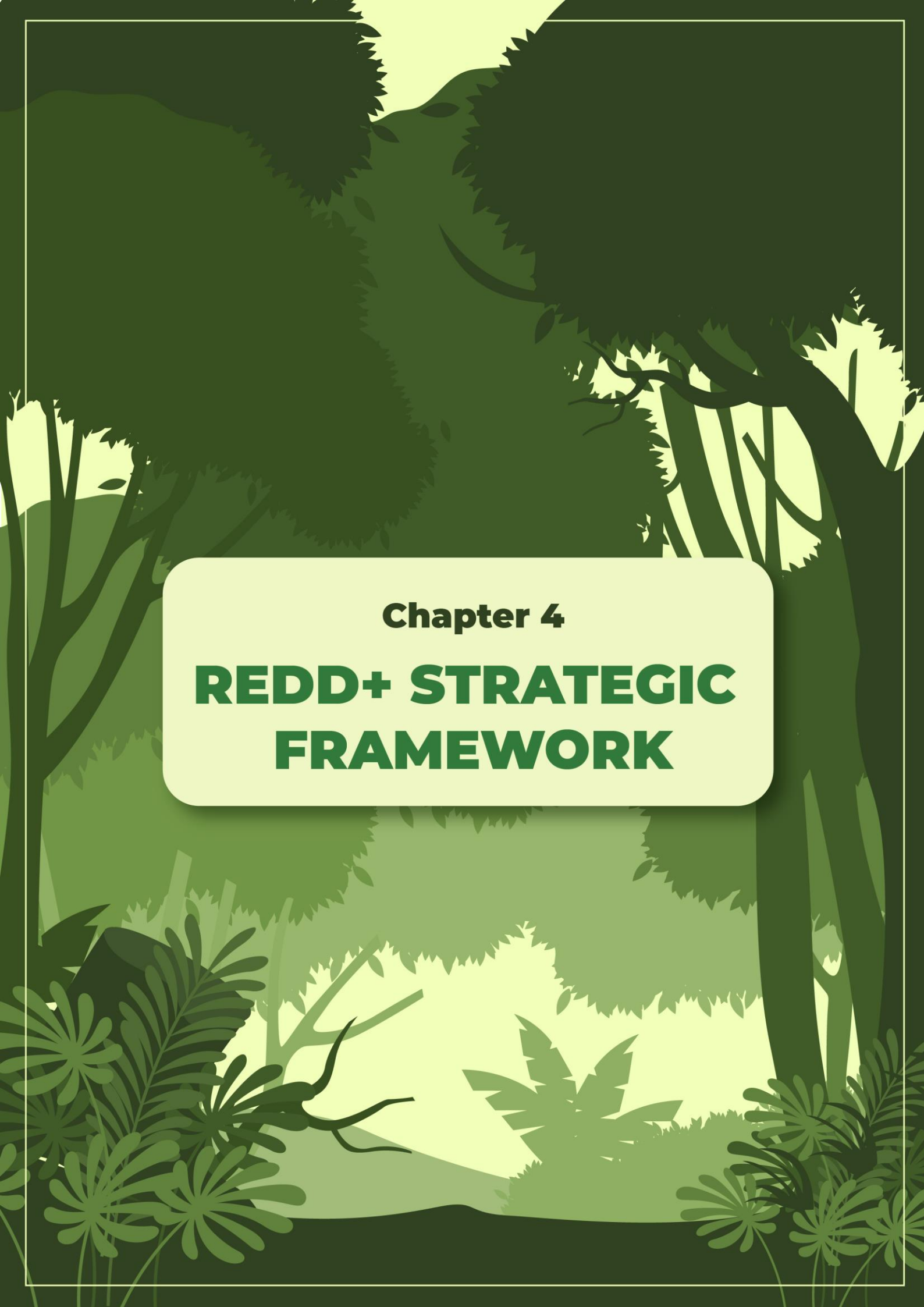
### **3.3 Barriers to Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks**

Similar to the drivers of deforestation and forest degradation, the barriers to conservation, sustainable management of forests and enhancement of forest carbon stocks do not occur in isolation; instead, they are the result of underlying conditions that produce them, some of which are rooted in the legal, policy and institutional framework. Additionally, as drivers and barriers are referring to the same environmental, social, economic, and institutional system, some of the drivers are also considered as a barrier to conservation and sustainable forest management, as described before. A brief and overall list of the barriers to conservation, sustainable forest management and enhancement of forest carbon stock (+ activities) in Pakistan are listed below;

1. Deficiency of water for forests particularly for riverine forests and also reduced availability of fresh water for mangrove forests
2. Low funding for initiatives to support conservation efforts, SFM and enhancement of forest carbon stocks
3. Lack of awareness and capacities of forest communities to support efforts towards 'Plus' activities
4. Weak governance and poor law enforcement to support conservation efforts, SFM and enhancement of forest carbon stocks
5. Overgrazing, leading to challenges for enhancing carbon stocks and SFM related efforts
6. Lack of investments in alternative energy sources by the government in the forest dependent communities
7. Lack of inter-sectoral coordination reducing the effectiveness of SFM and conservation related initiatives
8. Lack of advanced technology, in terms of supporting mobility in forests, advanced monitoring at ground level and other associated advanced technologies that can help support the conservation efforts, SFM and enhancement of forest carbon stock.

Table 9 Forest Land Tenure and Stakeholders

Legal Category	Classification	Province						Stakeholder	
		Balochistan	KP	Punjab	Sindh	AJK	Gigit Baltistan	Formal Rights	Informal Rights
Government Forest	Reserved Forest							Forest department, local communities (collect seeds), and lessees Payment of seigniorage fee (to right holders out of sale proceeds)	Mostly free of rights. However, timber for bridges/mosques permissible in some areas. Local communities benefit from forest resources, (collecting fallen branches and doing controlled grazing during the season)
	State Forest							Forest department, Board of Revenue, and resident community (fuelwood, household timber, fodder/grasslands)	Communities, nomadic, and seasonal groups
	Demarcated Forest							Forest department and local communities	Do
	Un-demarcated Forest							Do	Do
	Protected Forest							Forest department, Board of Revenue, and local communities (collection of fuelwood, grazing, fallen/dead wood, Household timber). In KP, in areas inherited from erstwhile princely states, communities are given 60-80% of sale proceeds as concession	<i>De facto</i> rights of graziers/landless overgrazing, fuelwood collection and NTFPs. Fishermen rights in the case of mangroves
	Village Forest							Do	Do
	Community Forest							Local communities	Nomads and seasonal migrants
	Unclassed Forest							Forest department and private owners	Local communities
Private Forest	Guzara Forest							Forest department, Guzara owners (Household construction timber, fuelwood, and NTFPS)-80% of sale proceeds.	Landless
	Protected Wasteland							Forest department and communities	Do
	Community Forest							Forest department and local community	Do
	Section 36 Forest							Local communities; the forest department has the right to declare this as a reserved forest with mutual understanding or compensation to the owner	Do
	Section 38 Forest							Local communities, with rights to the forest department to treat a certain portion or all land as reserved forest	Do
	Chos Act Areas							Forest department and local communities (allowed by the government)	Do



**Chapter 4**  
**REDD+ STRATEGIC  
FRAMEWORK**



The previous sections have underscored the complexity of the REDD+ implementation in Pakistan, particularly given the complex legal and institutional system in Pakistan. This section presents a Strategic Framework for REDD+ in Pakistan based on the analysis of drivers of deforestation and forest degradation as well as the legal and institutional framework.

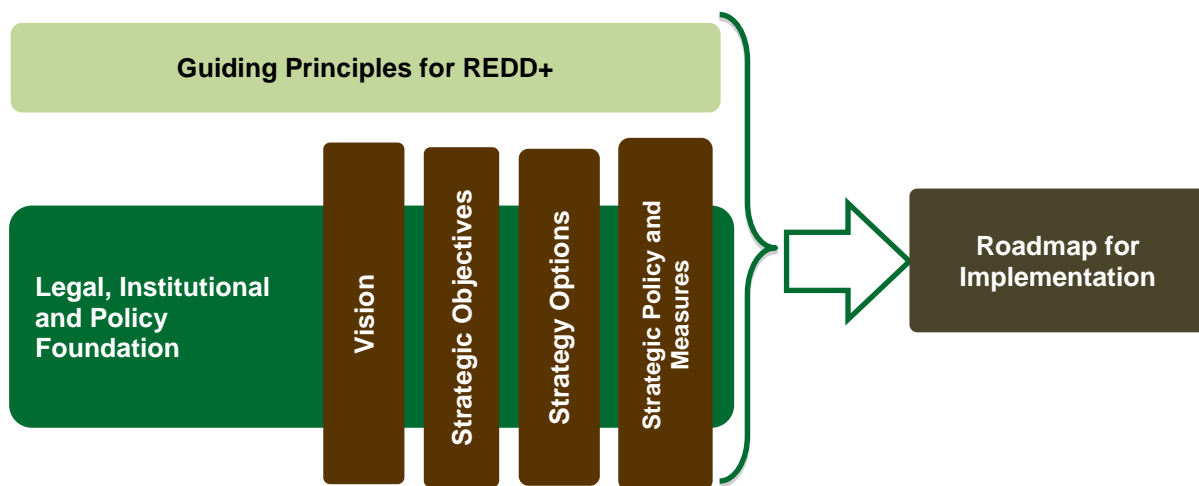
The complexity of REDD+ cannot be addressed with a narrow or project-based approach, but rather with a broad understanding of all the conditions and particularities that are involved in land use and forests ecosystems. The Strategic Framework for the REDD+ implementation considers the multiple drivers of deforestation and forest degradation and their root causes, as a response to address them, but also to reinforce successful forest restoration practices currently occurring in the country.

The National REDD+ Strategy is based and aligned with the current state of the **legal, institutional and policy framework**, which provides the foundation for all the activities to be performed. The **Guiding Principles** provide coherence between vision and objectives and steer the implementation of the Strategy.

The **Vision** and the **Strategic Objectives** were developed to provide the overall aim and direction of the Strategy. The **Strategy Options** (described in chapter 4) are a set of alternative action-oriented responses to be performed to address the direct and indirect causes of deforestation and forest degradation. A considerable part of the root causes, i.e. the underlying drivers of deforestation and forest degradation in Pakistan, are linked to forestry governance (the policy, legal and institutional framework). The **Enabling Environment** (described in chapter 5) constitutes key interventions to address these root causes of deforestation and forest degradation.

A **Roadmap for Implementation** has been proposed for implementing the Strategy both when it comes to Strategic Options and strengthening the forestry governance.

**Figure 7 Strategic Framework for REDD+ in Pakistan**



#### 4.1 Guiding Principles

The National REDD+ Strategy, and its development is based on a set of guiding principles that align with the vision. The Guiding Principles are based on outcomes of stakeholder consultations including government forest officials, NGOs working specifically on REDD+, and donors that have been supporting Pakistan's REDD+ efforts. The Guiding Principles also reflect the country's compromise with the UNFCCC decisions regarding social and environmental safeguards.

These Guiding Principles are common to all provinces and ensure coherence between the objectives and vision of the National REDD+ Strategy and its provincial actions.

#### **Guiding Principles**

- Improve forest and land governance
- Safeguard forest dependent livelihoods
- Recognize ecosystem services
- Ensure equitable distribution of benefits
- Guarantee transparency and accountability
- Abide by national and international obligations, and local culture and values
- Ensure inclusiveness and gender sensitivity
- Foster partnerships and coordination
- Harmonize methodologies and practices among all federating units
- Respect provincial autonomy and legal rights of provinces and special areas

#### **4.2 Vision and Objectives**

The ultimate goal of a National REDD+ Strategy is the effective mitigation of greenhouse gas emissions coming from deforestation and forest degradation, the conservation and enhancement of carbon stocks, and the promotion of sustainable forest management. To achieve such a goal and the multiple associated benefits, including adaptation to climate change, efforts should be circumscribed in a broad policy framework, which at the same time is integral and has a long-term scope. The National Vision for REDD+ is oriented to incorporate these characteristics.

Vision is a document that provides the overall vision for Pakistan for the following years. Pakistan's Nationally Determined Contribution (NDC) to the Paris Agreement is also based on Vision 2025. Vision 2025 sets out important elements that prioritize people, inclusive growth, governance, water, energy, and food. It also recognizes the high priorities of developing a knowledge economy and regional connectivity and of having the private sector participation in the economy. In this sense, there is a strong alignment between Pakistan's Vision 2025, the Millennium Development Goals (MDGs), and the Sustainable Development Goals (SDGs) (Ministry of Planning Development & Reform, 2014).

Pakistan's forests can play an important part in the country's ability to mitigate and adapt to climate change. Additionally, it is the social values that forests have historically provided to its people that create the need to craft a vision that acknowledges the potential of both forests and people.

Pakistan's vision for forests and people is a culmination of extensive consultations that seek to align the national REDD+ vision with the national vision of Pakistan. As a result, the national REDD+ vision is based on Vision 2025 and the SDGs.

#### **National Vision for REDD+**

Forests in Pakistan provide ecosystem services and livelihood support on a sustainable basis.

This National Vision considers forests ecosystems as a public good and as a source of multiple benefits and development. With this vision, Pakistan contributes to the global objective of mitigating climate change, and also ensures resilience for the ecosystems and the population.

### Strategic Objectives

1. Contribute significantly **to reducing GHG emissions** through avoided deforestation and forest degradation **and to enhancing forest carbon stocks** in order to mitigate climate change
2. Provide sustainable flow of environmental services from forest ecosystems
3. Make available alternatives **for sustainable livelihoods** to people dependent on forests
4. Provide the required **institutional, legal, and economic conditions** to ensure the sustainable management of forest resources, ecosystems and for effective implementation of cross sectoral coordination
5. Ensure **awareness of stakeholders** concerning the role of forests in sustainable development, climate change and REDD+

The Strategic Objectives reflect the concerns, expectations, and needs of different stakeholders and also address the identified drivers of deforestation and forest degradation. They also take into account the current policy and legal framework, including the decision to take action on the five REDD+ activities, and in doing so, achieve the multiple parallel benefits, including adaptation to climate change.

With this Vision and Strategic Objectives, Pakistan envisages to take actions to implement the five REDD+ activities:

1. Reducing emissions from deforestation
2. Reducing emissions from forest degradation
3. Conservation of forest carbon stocks
4. Sustainable management of forests
5. Enhancement of forest carbon stocks

In order to achieve these five activities, the country will need to make efforts directed at ensuring coordination, not only across sectors (horizontally) but also among the federal government, provinces, districts, and communities (vertically).

The Strategic Framework for REDD+ in Pakistan underpins the importance of strong legal, policy and institutional systems in Pakistan, that can contribute towards the vision and strategic objectives and the roadmap for implementation. The framework is steered by the Guiding Principles that need to be inculcated into the instruments related to all actions related to forestry and REDD+ in the country to move towards the national vision. The next section will discuss the Strategy Options, which identifies the pathway toward possible decisions towards the objectives.

### 4.3 Strategy Options

To accomplish the national vision for REDD+, forests providing ecosystems services and livelihood support on a sustainable basis, will require that the National REDD+ Strategy addresses the different direct and indirect drivers of deforestation and forest degradation. Due to the diversity and complexity of drivers of deforestation and forest degradation in the country, there is no single solution. Hence a mosaic of alternatives is to be implemented to achieve the country's **REDD+ strategic objectives**, including multiple benefits and ensuring long-term resilience and adaptation to climate change.

The **Strategy Options** of forestry resources have been designed with the logic of creating appropriate incentives, encouraging the owner or user and other stakeholders to modify productive practices to improve sustainability. Hence, they are a set of alternative action-oriented responses to be performed **in the field** to **address** the **drivers** of deforestation and














forest degradation while implementing the **five activities of REDD+** to achieve the strategic objectives set out for REDD+ in Pakistan.

Most of the anthropogenic drivers of deforestation and forest degradation occur because of the economic, legal, and social conditions that favour unsustainable practices instead of encouraging forest protection or sustainable use. Hence, a considerable part of the underlying drivers of deforestation and forest degradation in Pakistan are linked to the policy, legal and institutional framework.

Therefore, to achieve the strategic objectives of REDD+ a complex set of governance reforms and supporting policies and measures are required, i.e. an Enabling Environment that addresses the underlying drivers of deforestation and forest degradation. Table 10 presents the Strategy Options for REDD+ implementation in Pakistan for implementation of five REDD+ activities.

Pakistan already has successful experiences and projects, at various scales and funding sources. Some of these initiatives include (but are not limited to): *Sustainable Forest Management to Secure Multiple Benefits in High Conservation Value Forests* by the Global Environment Facility (GEF), the *Green Pakistan Project* (at the national level), *Billion Tree Tsunami Afforestation Project* in Khyber Pakhtunkhwa, large scale mangrove restoration and the Ten Billion Tree Tsunami Programme launched by the federal government in collaboration with the provinces. The National REDD+ Strategy is built to support, expand, scale-up, or adjust current initiatives and projects.

**Table 10 Strategy Options for REDD+ Implementation**

Strategy Option for REDD+ Implementation		Five activities of REDD +				
		Reducing emissions from deforestation	Reducing emissions from forest degradation	Sustainable management of forests	Conservation of forest carbon stocks	Enhancement of forest carbon stocks
Strategic Policy and Measures for REDD+	Restoration, reforestation, and afforestation					
	Sustainable Forest Management					
	Payment for Ecosystem Services					
	Efficient alternative energy sources					
	Silvo Measures -pastoral and agroforestry practices					
	Sustainable tourism and eco-tourism					

When **planning and implementing** the Strategy Options at field level, in the provinces, the following are important considerations:

- i. When to be implemented in the provinces and territories, the strategy actions will have to be **designed in more detail** to effectively address and incorporate **local conditions and needs**, including specific drivers of deforestation and forest degradation as well as the institutional, legal, and economic circumstances.

- ii. There is a need to not only **consider** drivers of deforestation and forest degradation, but **also**, to consider the current **economic activities, cultural practices**, and other **social aspects**, such as gender equality or land tenure in respective territories. In other words, REDD+ implementation shall respect and fully address the **environmental and social safeguards and gender aspects**.
- iii. The **SESA** (Strategic Environmental and Social Assessment) process serves to identify potential risks and benefits related to REDD+ implementation, as well as sources of complaints and grievances for each Strategy Option. The **Environmental and Social Management Framework** establishes the mechanisms to manage and address the risks and enhance the benefits from REDD+ implementation.
- iv. As the **conditions across provinces** and territories **vary**, not all strategy options are similarly suitable to all provinces, or at least not at the same level. A particular option might need to be implemented through **different mechanisms** in different provinces according to the local circumstances. Some provinces or territories may identify additional actions that support the REDD+ objectives.

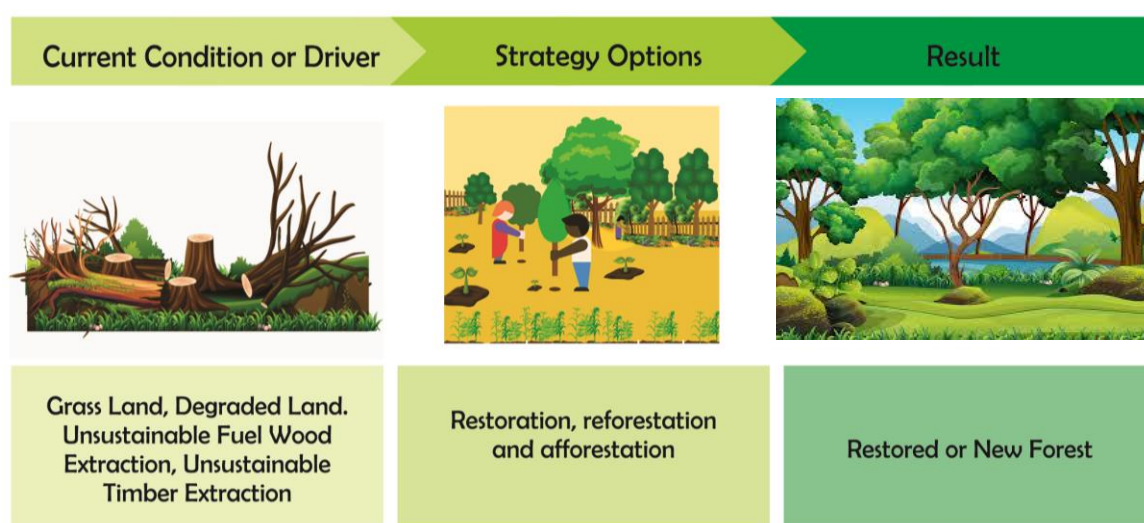
Land-uses and economic and social activities are complex and interrelated, so **Strategy Options** may need to be **implemented complementarily** according to the local conditions and to aspirations of provinces through **a landscape approach**. All land uses and activities in a territory need to be considered as an integrated landscape.

The section below discusses each of the proposed strategy options.

#### 4.3.1 Restoration, Reforestation, and Afforestation

A forest's capacity to capture and store carbon depends on its health and span. Healthier forests and more forested areas will contribute to REDD+ objectives of enhancing forest carbon stocks. Restoration of degraded forest areas, recovery of recently lost forest cover, and creation of new forested areas are activities that improve forest capacity to capture and store carbon. This can be applied to any type of forest, from high altitude forests to mangroves, on lands with different current uses and levels of degradation, and it could be a transformative approach for harnessing wasteland in several areas in the country. Additionally, new or restored forests represent a source of goods and services, including *inter alia* fuelwood and biodiversity. Promoting social forestry/ agroforestry on farmland/communal lands is important to enhance the tree cover and reduce pressure on natural forests.

**Figure 8 Schematic Representation of Restoration, Reforestation and Afforestation process**



## Feasibility Analysis

Fuelwood consumption by the local communities is one of the main drivers of degradation in all provinces. It is particularly an issue in the upland mountain and cold areas of KP, AJK, GB, and Balochistan because it is the cheapest and most easily available means for cooking and heating. In addition to introducing a broader pool of indigenous species in the restoration, afforestation, and reforestation projects/activities, the inclusion of fast-growing local species in afforestation can cater for the growing needs of the local population even while being able to conserve and restore the natural forest ecosystems. Coordination with other relevant projects, such as the Green Pakistan Project and Ten Billion Tree Tsunami Programme (TBTP) at the national level and the Billion Tree Afforestation Project (BTAP) in KP, will further supplement the efforts of the National REDD+ Strategy.

## Stakeholders

National Level	Provincial Level	Local Level
Ministry of Climate Change Planning Commission Ministry of Finance Ministry of Planning & Development UN agencies INGOs Private sector	Provincial forest departments Private sector Planning and Development Department Finance Department Academia and research institutions	Forest department Local communities (owners or users) Private sector Landowners Livestock owners and graziers NTFP collecting communities Community based organizations (CBOs)

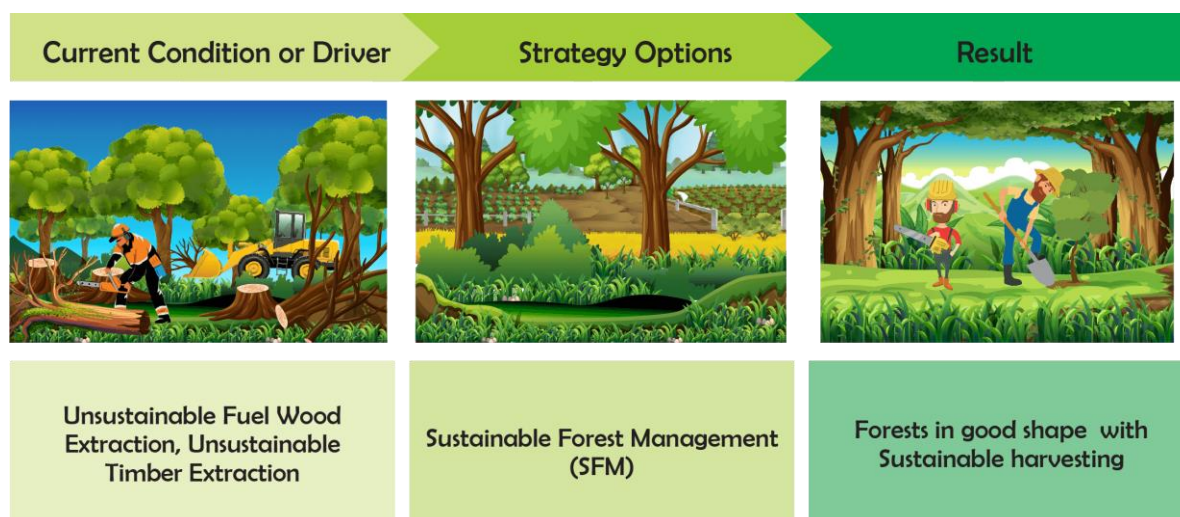
## Key Challenges

- Ensuring protection and recovery of forest dynamics in the long-term.
- Ensuring financing for the long-term.
- Ensuring that opportunities for forest users are not reduced or compromised in terms of income and subsistence sources.

### 4.3.2 Sustainable Forest Management

Sustainable Forest Management (SFM) is a proven mechanism through which it is possible to obtain specific products and services (including non-timber products) from the forests, all the while ensuring their ecological integrity and sustainability, and hence reducing its loss in the long run and sustaining forest capacity to store carbon.

Although there are experiences and mechanisms already in place to promote SFM, there is a need to expand them to ensure most forests in the country are sustainably managed for production or conservation purposes.

**Figure 9 Schematic Representation of Sustainable Forest Management Process**

### Feasibility Analysis

Forests should be managed under sustainable forest management plans to maintain, restore and enhance their capacity to store carbon and provide a multitude of ecosystem services. The management plans should be founded on ecological and socio-economic data and knowledge of pressures to plan for the future management of forests using a landscape level approach.

Sustainable Forest Management should be an approach well accepted by local communities, as it holds promise for the availability of forest products and services to local communities. However, a comprehensive capacity-building programme on SFM needs to be carried out with all stakeholders, including resident communities (men and women), nomads, and seasonal migrants to ensure maximum benefits from the approach and to implement it effectively. The capacity-building programme will need to focus on raising awareness of the importance, the long-term benefits, and the technical aspects of SFM. Nevertheless, the success of SFM will also depend on the availability of alternative energy sources to meet immediate local needs for energy. As mentioned earlier, the proposed Strategic Options will multiply the benefits and positive impacts of the results if implemented in complementarity to each other.

### Stakeholders

National Level	Provincial Level	Local Level
Ministry of Climate Change Research institutions and universities UN agencies INGOs	Provincial forest department Livestock department Agriculture department Finance department, P&D department Private sector Other relevant departments	Local communities (owners or users) Livestock herders and graziers CBOs Other users of the forest, e.g., NTFP collectors Nomads

### Key Challenges

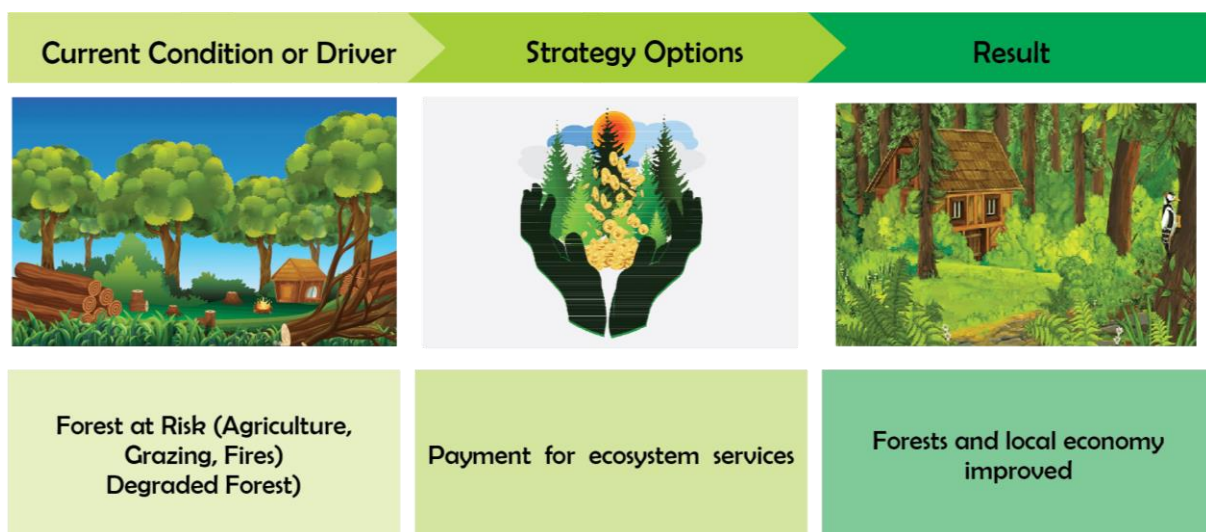
- Having capacities to perform SFM.
- Raising awareness to promote the sustainable use of forest products and services.
- Ensuring correct incentives are in place to promote SFM.
- Ensuring correct mechanisms and conditions exist to articulate value chains and added value to production.

- Ensuring institutional arrangement of communication and sectoral coordination with other departments, where needed.
- Creating conditions to ensure traceability of legal timber and other forest products.

### 4.3.3 Payment for Ecosystem Services

A Payment for Ecosystem Services (PES) scheme is aimed at compensating forest owners or users to ensure a certain level of health in specific ecosystems to maintain or improve environmental services that the forest provides, including the increase in forest carbon stocks and reduced deforestation and forest degradation. The basic idea of a PES scheme is that forest owners or direct users can ensure the provision of environmental service for the enjoyment and use of those who can compensate for it. PES schemes would create a positive incentive to keep or improve forested areas (in quality or extension) and to avoid other activities that destroy or degrade the forest. PES schemes should also promote alternative sustainable activities to provide additional income to forest owners or users.

**Figure 10 Schematic Representation of Payment for Ecosystem Services Process**



### Feasibility Analysis

The strategic option can be effective if PES is managed in such a manner that economic returns directly reach the forest-dependent communities (including users, owners, nomads, and seasonal migrants). However, the overall socio-economic feasibility of PES will largely depend on alternative energy and income generation options available to local communities at the local level in an easy-to-access manner. Therefore, as mentioned in the early part of this section, the impact of strategic options can be multiplied greatly if they are effectively linked with each other.

### Stakeholders

National Level	Provincial Level	Local Level
Ministry of Climate Change Ministry of Finance Ministry of Planning and Development INGOs	Provincial forest departments Other relevant provincial departments, particularly the Revenue department Finance department Planning departments Communities living downstream	Local communities (owners or users) Right holders CBOs



## Key Challenges

- Development of equitable and inclusive benefit sharing mechanisms
- Valuation of environmental services
- Establishment of a system of financial transactions between different institutions
- Assurance of equitable participation of users
- Identification of right holders and their shares in the payments
- Establishment of a system of distribution of payments
- Assurance of financing for the long-term
- Inter-institutional coordination to avoid policy and implementation contradictions and to guarantee synergies
- Governance strengthening at local, provincial, and federal levels

### 4.3.4 Efficient Alternative Energy Sources

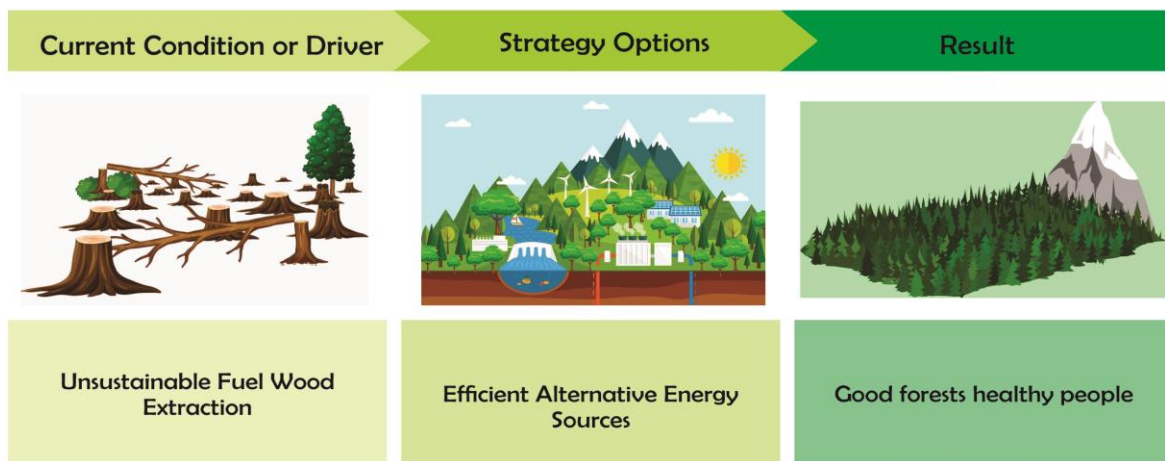
This Strategy Option is aimed at reducing the pressure on forest ecosystems preventing deforestation and degradation by providing an alternative energy source to reduce pressure on forests. The alternate energy sources are intended to develop off-grid or small grid systems by generating electricity by micro hydel, photovoltaic, biogas, solar or other available technologies. Using electricity from sustainable sources for heating, cooking, and lighting would reduce the pressure on the forest by eliminating or reducing extraction for fuelwood.

These technologies might also produce other benefits, such as reduced fuelwood collection time, reduced indoors pollution, and thus less respiratory illness and fewer health care expenses and improved livelihood at the local level. These will have particular positive impacts on women and girls in terms of reduced workload and improved health conditions.

The introduction of alternative energy sources, cook stoves and kilns must be designed jointly with the end-users because no one single model can provide a feasible solution for energy needs in all areas. It is important to highlight that fuel efficient stoves are considered as a high priority mitigation alternative in the Nationally Determined Contribution.

Pakistan already has good experiences to learn from, for example the project on Promotion of Energy Efficient Cooking, Heating and Housing Technologies (PEECH), financed by GEF and finished in 2013, Promoting Sustainable Energy Production and Use from Biomass in Pakistan finished in 2016, Productive Uses of Renewable Energy in Chitral District, Pakistan (PURE-Chitral) finished in 2012, among others. The lessons from these can be capitalized on in the implementation of this Strategic Option.

**Figure 11 Schematic Representation of Efficient Alternative Energy Sources Process**



## Feasibility Analysis

Fuelwood from forest resources is the major energy source in all rural areas and in some urban and peri-urban areas of the country. Alternative energy sources at the local level, which are planned and implemented jointly with local communities, including women (who might be responsible for managing them at the household level), should reduce pressure on forest resources. Lessons learnt from past projects and engaging with the private sector, including public-private partnerships, can make the Strategic Option socially and economically feasible and yield promising results.

### Stakeholders

National Level	Provincial Level	Local Level
Ministry of Climate Change Ministry of Energy Alternate Energy Development Board, Pakistan Council for Renewable Energy Technologies Ministry of Federal Education and Professional Training Ministry of Law and Justice Ministry of Planning and Development Ministry of Water Resources	Provincial forest departments Industrial sector involved in alternate energy appliances Small and Medium Enterprise Development Authority Provincial Energy Development organizations (e.g., PEDO, etc.) Chambers of Commerce and Industry Private sector	Local communities (owners or users), Technical professionals and workers Market players

### Key Challenges

- Awareness raising and capacity building to switch to and adopt new technologies
- Development of tailor-made packages to meet the local needs and implement alternative energy packages/technologies
- Market development, by creating local demand and by ensuring the availability of suppliers in new technologies to ensure timely provision and accessibility
- Access to people in remote scattered areas around forests
- Costs of changing to alternatives
- Availability of technologies in remote forested areas
- The professional expertise of alternative technologies in forested areas.

#### 4.3.5 Silvopastoral and Agroforestry Practices

The current practice of free grazing (usually overgrazing) has several impacts on the environment, including deforestation and degradation of forests and lands. There could also be negative effects related to soil, erosion and depletion of species diversity. Uncontrolled livestock grazing often results in low productivity, partially due to the lack of management practices that ensure ecosystem integrity.

Productive practices that combine trees (or other woody perennials) with agricultural crops on the same land is known as agroforestry. It is a proven system for increasing benefits from the land, as they can provide equal or higher yields than traditional practices, with the added environmental and economic benefits including carbon capture and storage in the areas where agroforestry is implemented and the reduction of pressure on forested areas.

Because silvopastoral and agroforestry systems incorporate multiple dimensions (environmental, productive, economic, and cultural), it is important to design them according to the local circumstances and include specialists from different disciplines. This might be the biggest challenge to implementing this Strategy Option.

This Strategy Option is intended to promote:

- Silvopastoral systems combining trees (or other woody species) and animal production, allowing for enhanced ecosystem productivity and stability through integrated management of soil and water resources and animal diversification.
- Intensive animal husbandry (ranching), combined with sustainable pasture and rangeland management.
- Use of environmentally friendly technologies to intensify production on high-potential land already converted to pasture.
- Agroforestry systems such as alley cropping, multilayer tree gardens, multipurpose trees on croplands, shelterbelts and windbreaks, live hedges, and fuelwood production, among others.

There are some successful experiences in the country with agroforestry systems, and it is already considered a high priority mitigation option for the agriculture sector in the NDC.

**Figure 12 Schematic Representation of Improved Silvo-pastoral and Agroforestry Practices Process**



### Feasibility Analysis

There is a high dependency on forests for grazing use by a large number of forest users, including local communities, seasonal migrants, and nomadic groups across the country. In order to make silvopastoral practices successful and effective, large-scale awareness raising and capacity building of all these stakeholders will have to be carried out on a regular basis. Local arrangements might be needed to meet additional grazing demands in high seasons, such as stall feeding and provision of high mineral supplements. In many cases, success stories exist for managing grazing land to foster improved conditions of pastures, which can be used to upscale for improved silvopastoral activities.

Forest resources remain an important source of fodder and fuel for local communities and farmers. In addition to economic gains, promotion of integrated farming practices and agroforestry brings many other benefits to local farmers, including easy access to fodder and fuelwood. This will not only reduce pressure on existing forests but also reduce the workload for women and girls who cover long distances to collect fuel and fodder.

**Stakeholders**

National Level	Provincial Level	Local Level
Ministry of Climate Change Ministry of National Food Security & Research UN agencies NGOs	Provincial forest departments Livestock department Agriculture department Irrigation department Academia and research institutions Private sector	Local communities (owners or users) Livestock herders and nomads Women as key custodians of livestock Landowners and tenants Migrant communities, e.g., nomads

**Key Challenges**

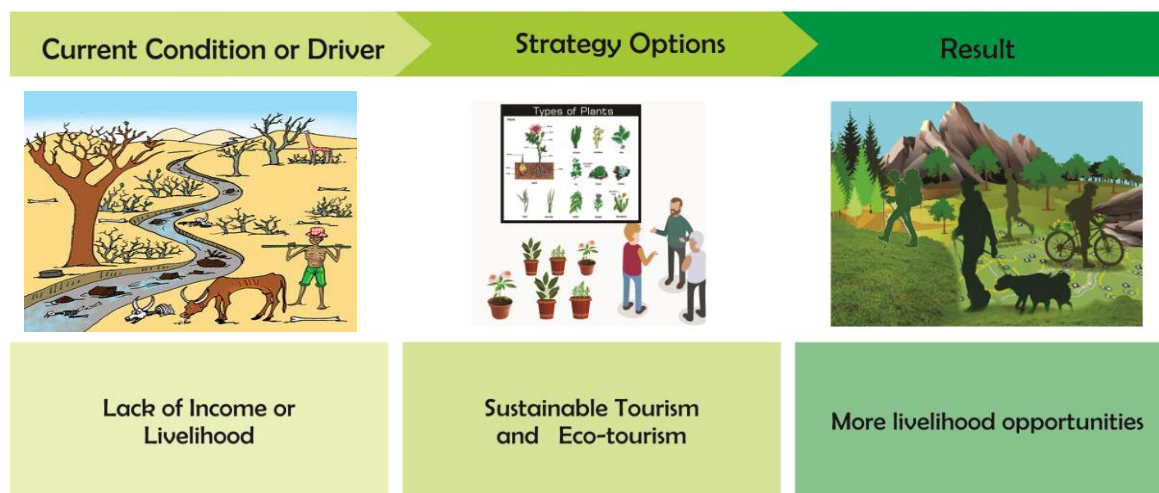
- Coordination between the Ministry of Climate Change, Ministry of National Food Security & Research, and similar provincial departments to develop mechanisms to create positive incentives for the activities, considering the National Food Security Policy.
- Assurance of suppliers in local livestock markets to meet additional demand for feed in high seasons when nomads/seasonal migrants visit the area.
- Coordination at local, provincial, and federal levels between the forest department and agriculture department, considering the National Food Security Policy.
- Availability of planting stock of multipurpose fodder species to the farmers at nominal rates.

**4.3.6 Sustainable Tourism and Eco-tourism**

Large areas in the country in most of the provinces present a very good conservation state. Some of these areas are covered with attractive landscapes and ecosystems and even fascinating species. These conditions are the basis for attracting domestic and international visitors looking for hiking and mountaineering, natural hotspots visiting, trophy hunting, photographic safaris, and cultural tourism to rural areas, among others. Promotion of eco-tourism could be performed in these areas with other economic and productive activities and could be an additional source of income, that can provide the incentive to maintain and improve forested areas and their carbon stocks.

Ecotourism could be an attractive livelihood alternative for local communities in several areas of the country. However, their consent for involvement in any project should be guaranteed.

The country already has experience at the project and policy level to support the development of eco-tourism, like the *Mountain Areas Conservancy Project (MACP)* completed in 2006, National and Provincial Tourism Policies, or the National Conservation Strategy.

**Figure 13 Schematic Representation of Sustainable Tourism and Eco-tourism Process**

### Feasibility Analysis

Eco-tourism has great potential to enhance income opportunities of local communities through diversification of livelihood opportunities. This should be a welcome initiative in areas where tourism is not yet developed, while other areas need further attention to regulate it in a systematic manner. The eco-tourism strategies with a focus on conservation approaches need to pay special attention. The potential tourism volumes can be easily over-estimated, and realism must be kept in mind, with special reference to international tourism.

### Stakeholders

National Level	Provincial Level	Local Level
Ministry of Climate Change Ministry of National Food Security & Research Pakistan Tourism Development Corporation Ministry of Interior (for supporting international tourism) Planning and Development Division	Provincial forest departments Culture and Tourism departments Finance department Planning department INGOs	Local communities (owners or users) Hotel industry Tourist operating companies Guides and porters

### Key Challenges

- Strengthening and coordination at local, provincial, and federal levels
- Alleviating negative perceptions among potential (international) tourists regarding safety issues
- Assurance of security to both local and international tourists
- Capacity building of local communities as service providers
- Creation of an ecotourism friendly environment, including basic infrastructure development at the local level which requires a certain amount of financial resource allocation
- Acceptance from local communities
- Cultural conflict between local communities and visiting national or international tourists
- Influencing the policies and strategies of other departments, e.g., tourism departments

#### **4.3.7 Synergies and Conflicts related to Strategic Options**

The Strategy Options are designed with multi-fold purposes: they contribute to climate change mitigation, enhance people and communities' capacity to adapt to climate change, ensure their livelihoods, and contribute to the provision of diverse ecosystem services, among other things.

Even though the Strategy Options could be performed in isolation, they might have additional or synergic benefits or positive impacts if implemented complementarily with a landscape approach. Under the scenario of a landscape approach in addition to a land use plan and correct land demarcation, the Strategy Options do not present conflicts in being implemented together. On the contrary, they might increase the positive benefits.

Table 11 presents potential synergies and conflicts between the Strategy Options, showing the most logical relations. An empty box does not mean the absence of synergy or conflict, but rather low opportunities for the strategy options to be developed together.

Table 11 Potential Synergies among the Strategy Options

Strategy Option	Restoration Reforestation and Afforestation	Sustainable Forest Management	Payment for Eco-System Services	Introduction of efficient alternative energy sources	Silvo-pastoral and agroforestry practices	Sustainable Tourism and Eco-Tourism
<b>Restoration, Reforestation, and Afforestation</b>		Sustainable Forest Management will allow for the restoration of degraded forests.	PES will incentivize stakeholders to willingly participate in restoration, reforestation, and afforestation in order to benefit from PES.	Introduction of efficient alternative energy resources will reduce pressure on existing forests, aiding the process of restoration.	Sustainable grazing will reduce pressure on existing forests, allowing for restoration of forests. Increased yields and availability of certain forest products on agricultural land itself will decrease the burden on forest land for agricultural expansion, allowing for reforestation and afforestation.	Awareness raising from sustainable tourism can create the drive for restoration and afforestation.
<b>Sustainable Forest Management</b>	Restoration and afforestation/ reforestation can contribute towards SFM as a component and contribute to improving green cover.		PES will support SFM through generating revenues for community welfare and their engagement in SFM activities.	This will reduce pressure on existing forest resources and thereby allow sustainable forest management by mitigating a driver of unsustainable forest use.	These will directly aid SFM by reducing pressure on existing forest resources. Pressures on the forest lands will be reduced through agroforestry, as fuelwood needs will be addressed.	Revenues from tourism can complement SFM activities. This will engage tourists in forestry activities and also create demand pull.
<b>Payment for Eco-System Services</b>	Enhancing health and extension of forest areas will lead to greater availability of ecosystem services that may be monetized.	SFM is necessary to guarantee the continued availability of valuable ecosystem services.		These represent a long-term supplementary contribution towards improved payments with improvement in ecosystems.	These practices can reduce pressure on an ecosystem to contribute to gradual improvement in payments in the long term, improved carbon stock.	Sustainable tourism itself generates towards PES and is therefore complementary to the larger strategic option of PES.

Strategy Option	Restoration Reforestation and Afforestation	Sustainable Forest Management	Payment for Eco-System Services	Introduction of efficient alternative energy sources	Silvo-pastoral and agroforestry practices	Sustainable Tourism and Eco-Tourism
<b>Introduction of efficient alternative energy sources</b>		A better understanding of the forest ecology and its importance, through SFM, might create awareness and willingness to use alternative efficient energy sources to reduce pressure on forests.	PES may assist in defraying the cost of adopting efficient alternative energy sources and incentivize its adoption to allow for healthier eco-systems and thereby a larger flow of revenues.		Silvo-pastoral practices can contribute to providing an opportunity for biogas and other energy sources.	The tourism industry can be used to promote efficient alternative energy sources.
<b>Silvo-pastoral and agroforestry practices</b>	Increased fodder will be available for grazing, and an increased grazing area will be available.  Reforestation and afforestation can be supported through agroforestry practices, which will reduce pressure on forests through reduced grazing and fuelwood collection, etc.	SFM contributes towards managing livestock and grazing on a sustainable basis contributing to improved productivity. Possible conflicts can arise when livestock grazing disturbs regeneration or is not undertaken according to SFM or when it is undertaken in the same area.  Reforestation and afforestation can be supported through agroforestry practices.	PES may incentivize the adoption of silvopastoral and agroforestry practices and sustainable grazing, allowing for healthier eco-systems and therefore a larger flow of revenue to forest users.	Overall dependence on trees for energy will be reduced.	Alternative fodder will be available to the local community.  Benefits to the livestock from agroforestry will incentivize this and will be promoted in other areas. Possible conflicts can arise when livestock grazing disturbs regeneration or is not undertaken according to SFM, or when it is undertaken in the same area.	
<b>Sustainable Tourism and Eco-Tourism</b>	Enhancing health and the extension of the forest will lead to greater opportunities for sustainable tourism and eco-tourism.	Enhancing health and the extension of the forest will lead to greater opportunities for sustainable tourism and eco-tourism.	Sustainable tourism itself generates towards PES and is complementary to the larger strategic option of PES.	There will be reduced pressure on forests for fuelwood in areas with high tourist flux.		



### 4.3.8 Risk Analysis

Achieving REDD+ objectives and stabilizing GHG concentration in the atmosphere is a global benefit. However, the actions undertaken on the ground usually involve changing the production methods and procedures, including those at household level or in small-scale production. Creating the conditions for implementing these changes, although designed to provide economic, social, and environmental benefits, does pose some risks. Table 12 summarizes the key risks that might prevent the full implementation of the Strategy, including management actions to prevent occurrence or mitigate such risks.

**Table 12 Main Risks Related to the Implementation of Strategy Options**

Risks	Management Mechanism
<b>Low level of interest without external incentives</b>	<ul style="list-style-type: none"> <li>• Technical and organizational capacity building of concerned communities in the REDD+ Strategy to be able to draw maximum benefits</li> <li>• Awareness raising and capacity building on the strategy and implementation process to ensure that positive economic and environmental impacts are well demonstrated and understood</li> <li>• Involvement of stakeholders from early stages to recognize and meet their needs and expectations</li> <li>• Designing benefit sharing mechanisms to create incentives for local communities</li> </ul>
<b>Lack of political will to incorporate REDD+ into practices in non-environmental sectors</b>	<ul style="list-style-type: none"> <li>• Sensitizing of political leaders/parliamentarians and associated stakeholders from the early stages on the National Steering Committee and through bilateral coordination</li> <li>• Demonstration of benefits of a landscape approach and REDD+ implementation for other sectors</li> </ul>
<b>Weak governance and institutional framework, including the lack of capacity to address forest land encroachments, and the high number of open cases in courts</b>	<ul style="list-style-type: none"> <li>• Creation of a mechanism for coordination for policy and strategy implementation with higher authorities including political leadership and senior management bureaucracy</li> <li>• Strengthening of monitoring mechanisms and accountability to combat corruption</li> <li>• Strengthening of legal and judicial processes for speedy trial of forestry cases</li> </ul>
<b>Exclusion from or limitation to the effective participation of local communities</b>	<ul style="list-style-type: none"> <li>• Adopting participatory approaches</li> <li>• Identification of local communities and a plan to involve them from early stages through proper institutional arrangement</li> <li>• The awareness raising on programme planned interventions, and long-term benefits</li> <li>• Building of technical skills of local communities to enable them to participate effectively in the implementation process</li> <li>• Developing participatory benefit sharing mechanisms</li> </ul>
<b>Increased social conflict, like ethnicity, cultural heritage and traditions may be negatively affected</b>	<ul style="list-style-type: none"> <li>• Identification of local stakeholders, their roles and rights around forest and land use</li> <li>• Design of interventions should respect local social, cultural and traditional practices</li> <li>• Establishment of a proper grievance redress mechanism</li> <li>• Demarcation of forest lands to provide certainty on the limits and tenure of forest lands</li> </ul>
<b>Limitation or exclusion of certain right holders</b>	<ul style="list-style-type: none"> <li>• Design implementation mechanisms to include non-right holders, so that they are eligible to benefit despite the existing land tenure or legal deficiencies</li> </ul>

Risks	Management Mechanism
<b>(nomads, women, indigenous, among other vulnerable stakeholders) to access projects</b>	<ul style="list-style-type: none"> <li>• Create institutional mechanism to be put in place to provide access to women, nomads, and seasonal migrants. In this regard, the provincial forest departments may establish a community outreach component for women extension workers/officers. Where needed, forest departments may engage support of local NGOs to access women and engage them in extension programmes and decision-making processes.</li> </ul>
<b>Exacerbation of the marginalization of women, particularly in land tenure rights, and decision-making</b>	<ul style="list-style-type: none"> <li>• Strengthen the land tenure systems and policies to mainstream women's role, ownership and contribution to forests and their role in decision making processes and benefit sharing mechanism. In this regard, the provincial forest departments may establish a community outreach component with women extension workers/officers in mainstream institutional mechanism. The forest departments may engage support of local NGOs to access women and engage them in extension programs and decision-making process.</li> </ul>
<b>Displacement of unsustainable practices (and emissions)</b>	<ul style="list-style-type: none"> <li>• The National Steering Committee and its Working Groups need to ensure that Provincial Strategies are aligned with the National Strategy and are well coordinated and monitored to ensure there is no displacement of emissions.</li> <li>• Promotion of the participatory preparation of land use plans at national and provincial levels to be used as a planning instrument</li> </ul>
<b>Non-permanence of the achievements</b>	<ul style="list-style-type: none"> <li>• Provincial Strategies and the implementation of activities need to be carefully planned and designed, to ensure the drivers and underlying causes are fully addressed. This should include mechanisms that guarantee income generation activities and facilitate adoption of alternates over the long term.</li> <li>• Assure that coordination mechanisms across the economic sectors are maintained in the long term that new activities implemented in the same areas are designed with a landscape approach for REDD+</li> </ul>

#### 4.3.9 Legal Considerations

None of the strategic options is impeded by the existing legal and policy framework as far as these are applied to government forests, such as reserved or protected forests. Certain regulatory measures may have to be taken by the government to facilitate implementation of strategic options. For instance, with protected forests, rights of access and use of the forest may have to be regulated. In the case of unclassed forests, the provision of reserved or protected forests may be applied for effective enforcement.

In the case of private forests, the implementation of the strategic options would necessarily have to be subject to the agreement of the forest owners, except if this need is circumvented through necessary legislative provisions in the existing legal framework which is subject to the constitutional provisions regarding property rights under Articles 23 and 24 of the Constitution of Pakistan.

Where a proposed strategic option breaks new ground, the need to create transparency and acceptability around an option will create a financial burden on the public at large. This would also dictate that this and other such strategic options be introduced specifically through rules and regulations under the existing legal regime, where possible under the provisions of the law in this respect, or at the very least through a policy instrument.

It must be taken into account that where a strategic option requires the curtailment of rights that stakeholders may currently enjoy or otherwise require a modification or abandonment of hitherto prevalent practice, this is likely to elicit resistance from the affected beneficiaries,

including resorting to litigation. Therefore, strengthened legal and judicial systems may be required to address weaknesses in legal enforcement and avoid litigations.

Most importantly, the process of legislative changes to the currently existing legal framework is likely to be lengthy and tedious. However, where a change in the legal foundation is necessary for the achievement of a particular strategic option, this should be sought to be introduced through policy measures in the first instance, which is a relatively easier solution. In certain instances, however, amendment to legislation may be unavoidable. A sustained programme for the education of the legislators in the national and provincial assemblies, and other relevant stakeholders, on issues surrounding REDD+ may assist in expediting the passage of required legislation.

#### 4.3.10 Cost-benefit Analysis and Marginal Abatement Cost Curves

A cost-benefit analysis (CBA) was conducted for two baseline situations which represent the most typical business-as-usual land uses in Pakistan and for two *strategy options* for which it was possible to obtain data. The baseline situations that were considered are:

- Livestock model with goat rearing
- Agriculture model with wheat cultivation
- Abandoned land that has previously been under cultivation.

Cost and benefit data were obtained for Strategy Options 1 (reforestation) and 5 (sustainable silvopastoral and agroforestry practices) respectively. For the latter Strategy Option, separate analysis was carried out for silvopastoral practises and for agroforestry.

The analysis was conducted by calculating one-hectare models for the baseline situations and strategy options. The benefit of one-hectare models is that the analysis co-measures the options while it still allows the scaling up of the models as considered necessary.

The CBA included the following general assumptions:

- A calculation period of 15 years.
- A financial discount rate of 10%, based on the technical proposal.
- A social discount rate (SDR) of 7.47%, calculated considering methodology developed by Valentim and Prado (2008). The SDR country-specific parameters were updated by applying the World Bank estimate for Pakistan's population growth rate between 2018-2050 and the household expenditure consumption trend of the previous five years.
- The social cost of carbon at 40 USD/tCO<sub>2</sub>e as estimated by the United States Environmental Protection Agency for 2018, with a discount rate of 3%.
- The calculations are in real terms without taxes.
- In the case of monetary assumptions based on historical figures, the Wholesale Price Index (WPI) by the Pakistan Bureau of Statistics was used to convert those items into current money.

The financial analysis was extended to an economic analysis by including social benefits arising from carbon sequestration impacts and by applying the SDR to the net present value (NPV) calculation. Instead of social benefits, social costs were considered to occur if the option increases carbon emissions. In addition, financial and economic benefit-cost ratios were calculated for each model.

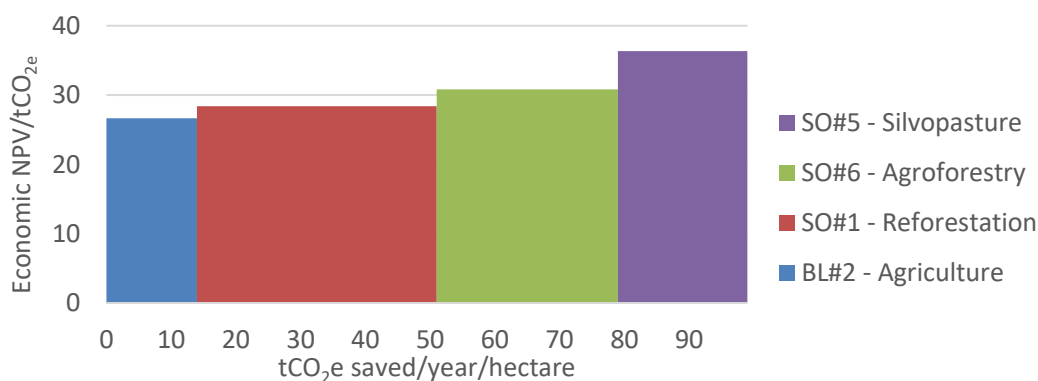
The carbon sequestration (or emission) calculations considered the additional biomass of implementing the option. For example, in the case of reforestation, the additional biomass consisted of the trees, branches, foliage, and roots; or in the case of goats, it consisted of the added carbon dioxide emissions from the activity.

**Table 13 Results of Cost Benefit Analysis**


Baseline/Strategy Option	Financial NPV, (USD/ha)	Financial B/C	Economic NPV (USD/ha)	Economic B/C
B-1 Livestock (goats)	325	1.9	239	1.43
B-2 Agriculture (wheat)	545	1.1	5 499	1.85
B-3 Abandoned land	-	-	908	-
SO-1 Reforestation	2 326	1.49	15 991	3.94
SO-5 Silvo-pastoral	3 321	2.05	11 091	3.84
SO-6 Agroforestry	2 638	1.6	13 096	3.56

Marginal abatement cost curves (MACC) of the analyzed Strategy Options are shown in Figure 14. The y-axis represents the NPV per metric ton of CO<sub>2</sub>e per hectare over the calculation period, and the x-axis shows the absolute amount of metric ton of CO<sub>2</sub>e saved per year per hectare. Evidently, Strategy Option 1 sequesters 40% more carbon dioxide per hectare than Strategy Option 6 (agroforestry) and 85% more than Strategy Option 5 (Silvopasture). However, the Strategy Option 6 (agroforestry) exhibits 10% higher economic NPV per saved metric ton of CO<sub>2</sub>e. The Strategy Option 5 (silvopasture) results in 28% higher economic NPV than Strategy Option 1.

The results suggest that well-known forestry activities, such as reforestation, have larger CO<sub>2</sub>e benefits per hectare, whereas lesser-known models that combine forestry with other livelihoods produce a higher economic value per CO<sub>2</sub>e. Mapping of areas where the strategy options are suitable can be used for calculating the indicative economic and climate benefits when the options are scaled up.

**Figure 14 Marginal Abatement Cost Curves**

More detailed information on the cost-benefit analysis can be consulted in Annex 3.



**Chapter 5**  
**REDD+**  
**Implementation**  
**Framework**

## 5.1 Institutional Arrangements

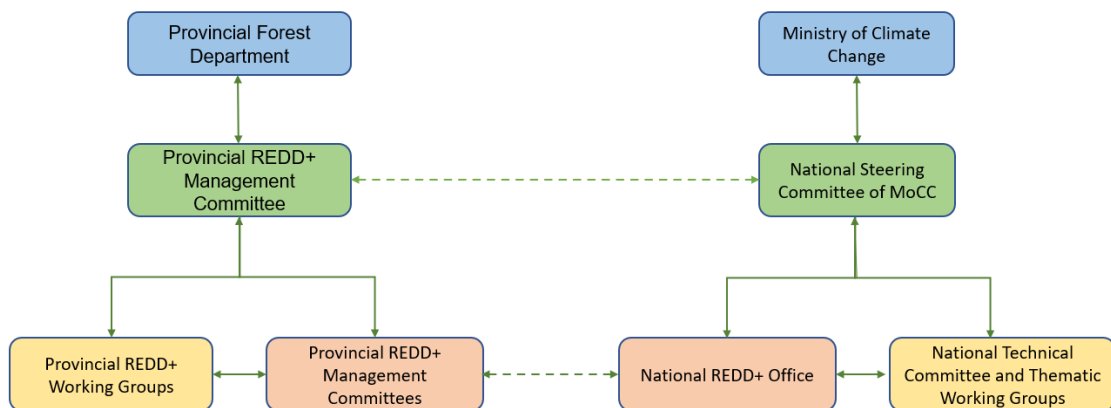
One of the most important elements of the Implementation Framework for REDD+ is the arrangements needed to effectively establish a structure that allows complex institutional processes to occur, however remain operationally simple. These will help render an open discussion between interested and relevant stakeholders, lead to efficient decision making at different levels, and cross-sectoral coordination, among other things.

Since the start of REDD+ readiness preparation in Pakistan, there have been important advances in establishing adequate institutional arrangements based on current capacities, the legal mandate, and REDD+ scope. According to the Constitution, forests are the responsibility of the provinces, except in cases requiring coordination among provinces, territories, and international cooperation, for which the federation is in charge. This is a crucial fact to build on a structure that supports the implementation of the REDD+ Strategy in the country, with a nested approach, having fairly empowered provincial role to have the liberty to implement their own REDD+ strategies and initiatives.

While the provinces will have the independence to conceptualize, plan and implement strategies and initiatives related to REDD+ and work with international or national bodies (including mandatory or voluntary carbon market), NRO under MoCC will remain the national focal institution in relation to REDD+ to maintain registry of REDD+ projects and international reporting about carbon stock and REDD+ agenda. This renders a mechanism within nested approach where provinces will be working with the NRO on various institutional roles including planning, reporting and to act as a national registry.

An overview of the institutional arrangements is provided in the figure below.

**Figure 15 Institutional Arrangements for REDD+**



### 5.1.1 National Steering Committee (NSC)

The National Steering Committee will be the highest-level multi-sectoral / multi-stakeholder platform to discuss and make decisions on REDD+ in light of recommendation of relevant thematic working groups. While REDD+ is a forest-related topic, it has strong links with other sectors and this fact is duly recognized in the mandate and membership of the NSC as it facilitates the coordination across sectors, between the federal and provincial levels as well as with the stakeholders representing forest communities. The objective of NSC is to enhance participation, multi-sectoral and multi-level coordination on REDD+ within diverse stakeholders.

As for its role, the NSC coordinates REDD+ activities with provinces and other relevant stakeholders; discusses and decides on all substantive matters relating to REDD+ to ensure inter-provincial consistency and national reports; facilitates and supports provinces in developing and implementing REDD+ processes. NSC generally meets quarterly, however the frequency depends on various operational factors and needs as well.

The NSC needs to be strengthened with representation of key stakeholders including forest owners, right holders, concessionists, private sector actors, and other relevant stakeholders. This will facilitate it to function as a platform for sectoral coordination and decision-making, not only for forest issues but also for other sectors impacting of forests.

### **5.1.2 National Technical Committee and Thematic Working Groups**

In order to provide appropriate space to provinces and special areas, a National Technical Committee (NTC) is proposed to be established to deliberate, thrash and decide issues relating to REDD+ implementation. This body will be comprised of IGF, Head of National REDD+ office, CCFs of all provinces and DG PFI. It will support in developing agenda of NSC and will thrash the issues and table recommendation to facilitate decision making by the NSC.

It will compile and deliver information and data on the various aspects related to REDD+ and serve as a platform that engages in scientific discussions, plans and organizes research, collects data and engages with stakeholders in discussions. Hence, it will generally serve as a platform for providing the NSC with validated data and information, to support its decision-making processes. The NTC may get support from the thematic working groups that were constituted in 2013. The membership of these working groups may be reviewed and updated on the recommendations of NTC.

The 4 thematic working groups<sup>15</sup> include Governance and Management of REDD+, Stakeholders' Engagement and Safeguards, NFMS-MRV and FREL/FRL, Drivers of Deforestation and Forest Degradation. The thematic working groups contribute towards incorporating emerging issues and coordinating on issues independently. The thematic working groups also have representation from forest stakeholders and stakeholders of other sectors that are linked to forestry or REDD+. Particularly, the working group on 'Stakeholder Engagement and Safeguards' represents the interests of stakeholders.

### **5.1.3 National REDD+ Office**

A central platform is critically essential for planning, coordinating, supervising, and communicating the REDD+ agenda as well as strategy and its implementation. In this connection, NRO is proposed to be a permanent office under the MoCC.

The National REDD+ Office is responsible for taking the following actions:

- Overall responsible for the REDD+ agenda in the country, including coordinating implementation of the REDD+ Strategy and also undertaking actions related to international commitments
- Engage with other sectors at the highest level possible (at least secretary level)
- Coordinate with provinces on issues related to REDD+
- Coordinate and monitor REDD+ activities at the national level
- Coordinate and ensure the participation of Provincial Representatives in international REDD+ dialogue and negotiations under UNFCCC, and in other forums

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<sup>15</sup> National Thematic Working Groups on REDD+: <https://www.redd-pakistan.org/national-redd-working-groups/>

- Undertake research, monitoring and related data management, in light of recommendations of NTC and in view of REDD+ agenda and compliance
- Contribute towards national capacity building on REDD+
- Enhance general awareness among various groups on forestry, carbon emissions and other relevant topics

The National REDD+ Office is currently supported by FCPF-WB project, however it needs to be permanently institutionalized within MoCC. The two options that can be considered for this purpose are;

1. National REDD+ Office can be instituted under the Office of the Inspector General of Forests with an additional position of DIG to be notified while supported by positions of Inventory Specialist, Safeguards Specialist and GIS Specialist.
2. The National REDD+ Office can institutionalize within GCICS, which is an attached department of the MoCC, with similar positions of Forest Inventory Specialist, Safeguards Specialist and GIS Specialist.

#### **5.1.4 Provincial REDD+ Management Committees**

The Provincial REDD+ Management Committees act as the provincial platform to ensure strategic decision making with participation of major stakeholders, including NGOs/CSOs, forest owners and community members as well as private sector under the chairmanship of Provincial Forest Secretaries. These also act as an inter-departmental platform for REDD+ activities to plan, implement, coordinate and communicate REDD+ agenda within respective jurisdictions.

An important agenda of the Provincial REDD+ Management Committee is to coordinate with federal and provincial stakeholders as well as ground level actors (forest owner, contractors, and other stakeholders) relating to issues that are linked to provincial REDD+ agenda. Additionally, the committee deals with issues referred by Provincial Grievance and Implementation Units and is authorized to endorse plans, programmes and projects related to REDD+. The committee, while notified by provinces, needs strengthening in terms of regularity of its meetings and capability of executing REDD+ agendas.

#### **5.1.5 Provincial REDD+ Management Cells**

The provincial REDD+ Management Cells are the institutions that are / will manage the REDD+ related provincial activities oversight by Provincial REDD+ Management Committee. These cells will be facilitated by Provincial REDD+ Focal points. The office will be duly supported through provision of experts on GIS, Forest inventory, safeguards and also private sector engagement. A conservator or chief conservator level will act as the head / focal point of the Provincial REDD+ Management Cells. Currently, almost all provinces have REDD+ Focal Points nominated / notified, however REDD+ Management Cells are partially established in some provinces without sufficient HR to support the REDD+ related operations.

#### **5.1.6 Provincial Thematic Working Groups**

Provincial working groups will be working similar to that at the federal level, however, for their own provincial jurisdiction and also undertaking technical research and generating data to support decisions at Provincial REDD+ Management Committees. In addition, provincial working group will serve as a platform for forest related stakeholders to participate in the decision-making processes, make sure their voices are made part of the scientific researches as well as to advocate for their rights.



## 5.2 Benefit Sharing Mechanism

The core of REDD+ is compensating countries that demonstrate results in terms of carbon for the actions undertaken related to forests and reducing forests loss strategy. The UNFCCC recognizes that implementing actions to achieve REDD+ (field-based or enabling environment) can promote benefits other than carbon (known as no-carbon benefits) such as poverty alleviation, biodiversity conservation, ecosystem resilience, and improved governance. As REDD+ is an international mechanism based on carbon, the benefit sharing mechanism refers only to the compensation received for the result-based actions.

As forestry in Pakistan is primarily a provincial subject, the role of federal government is limited to undertaking projects of national importance only, in collaboration with the provinces. The federal government also supports the provinces in building their capacities and providing guidelines for improvement of the environment. It also handles matters related to international cooperation.

The 'one size fits all' approach will not work for Pakistan due to divergence in administrative setups, diversity in forest types, tenure status, stakeholders and customary/legal basis for resource uses in each province and territory.

### 5.2.1 Principles of the Benefit Sharing

Use of the compensation the country would receive for its results has to be fair, equitable, transparent and further channelled to compensate people and institutions for their successful efforts in meeting REDD+ objectives.

Beneficiaries of the benefit sharing mechanism (BSM) need to be clearly identified to ensure interests and participation of all stakeholders in the REDD+ activities. Stakeholders are defined as the 'groups that have a stake, interest or right' in forestry and those that will be impacted by REDD+. This may include government agencies, private owners, right holders, concessionists, formal and informal forest users, and owners of private sector entities, indigenous people and other forest-dependent communities. The interests and priorities of these groups, need to be taken into account in design of the BSM.

The BSM shall include Social and Environmental safeguards and grievance redressal mechanism to ensure equitable, effective and efficient distribution of benefits among all stakeholders particularly the vulnerable groups, such as women, forest users, livestock herders, refugees and nomads. This will help avoid the potential conflicts among owners and non-owners (right holders/ tenants, etc.). The grievance redressal mechanism shall be established at both national and provincial levels, and has representation from relevant line departments, CSOs, forest owners and users, and womenfolk. The PRMCs shall serve as platforms for discussions on and resolution of REDD+ related issues.

### 5.2.2 Benefit Sharing at the National Level

The most viable options for the national level projects and drives in Pakistan is a **national nested benefit-sharing mechanism** to provide compensation to provinces or projects that present results in terms of carbon.

The benefit sharing mechanism may be structured in a way to allows for creation of a national REDD+ fund under the national administration, which utilizes the capacities and competencies of present state administrations. In this regard the Climate Change Fund may serve as the national entity to receive and distribute/ pass-on funds to the provinces/territories related to REDD+ when national or multiprovince results are reported. Each province may create or use its own REDD+ specific fund to receive funds from National Climate Change Fund.

Allocations then could be proposed (a small fraction to the federal government and the rest to implementing entities such as Provinces), according to results identified by the National Forest Monitoring System, by each province or project and presented to the National Thematic Working Groups and National Steering Committee for review and approval. In order to ensure transparency and equitable distribution of funds, a system may be designed to share information about payment with all the stakeholders and management of the proposed forests.

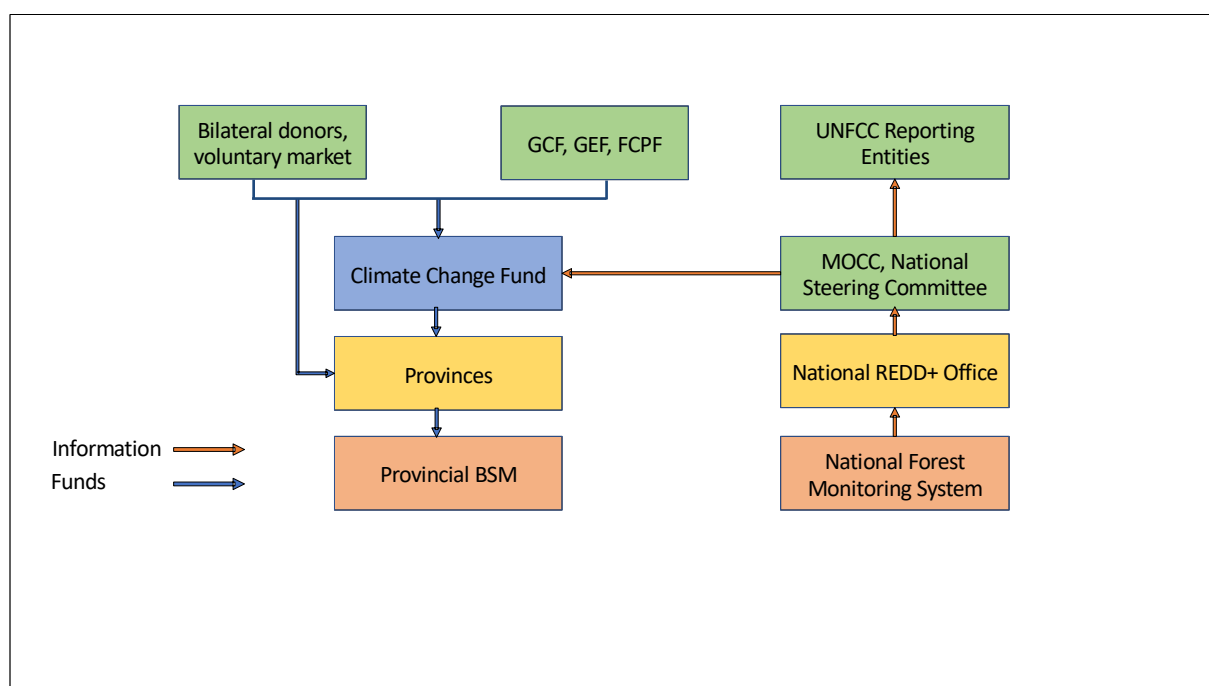
### 5.2.3 Benefit Sharing at the Provincial Level

In cases where a province or individual project reports results directly under bilateral arrangements, that province or project may exercise the option of receiving compensation directly from the donor. The province or project shall then report the emission reductions achieved and allocated to national registry for accountability and to avoid double counting. Each province/entity may design its own benefit sharing mechanism based on its legal and policy framework and relying on existing benefit sharing mechanisms. Each province may create or use its own specific fund on the pattern of National Climate Change Fund.

To further distribute benefits, provinces may develop community level mechanisms. Pakistan already has successful experiences in local mechanisms for distributing and sharing benefits from forests and wildlife. For example, a benefit-sharing mechanism exists in KP and Gilgit-Baltistan for distribution of the sale proceeds and royalty from forests in Hazara, Malakand, Diamer and Astor districts where the forest owners receive the benefits on per head basis (proprietary rights), and distribution of sales proceeds from trophy hunting in KP and Gilgit-Baltistan. Similar examples also exist in other entities. While developing the details of the national, provincial and local benefit sharing mechanisms, the following might be duly considered:

- Benefits and beneficiaries may be clearly identified and legally recognized including forest owners, forest users, right holders, provincial forest departments and forest-dependent communities.
- The ministries and public/private sector institutions having stake in the forests may be involved in the process of benefit distribution especially when their services will be required in the projects to be implemented.
- The benefits may be translated into need-based instruments, such as, cash, or even other non-cash alternatives, livelihood support, communal project in consultation with the stakeholders.
- A suitable formula for vertical and horizontal distribution of benefits needs to be developed and agreed after thorough consultation with all stakeholders (and possibly research).

The Benefit Sharing Mechanisms may be reviewed based on lessons learned from early implementation for identification of issues in the system and their timely redressal. Periodic reviews may be undertaken in consultation with the stakeholders for necessary improvements.

**Figure 16 Possible Functioning of Proposed Benefit Sharing Mechanism**

### 5.3 Environmental and Social Safeguards

As part of the Warsaw Framework, developing countries participating in REDD+ must do the following:

- 1) Ensure that activities, regardless of the source and type of funding, are implemented in a manner consistent with the UNFCCC REDD+ safeguards;<sup>16</sup>
- 2) Have in place a system for providing information on how the safeguards are being addressed and respected (SIS);<sup>17</sup> and
- 3) Provide the most recent summary of information on how all the UNFCCC REDD+ safeguards have been addressed and respected before they can receive results-based payments.<sup>18</sup>

Pakistan has designed its SIS (see *Framework for design of a Safeguard Information System in Pakistan, MoCC, 2018*), as an iterative undertaking, with the objective to provide information that is accessible by all relevant stakeholders (domestic and international) to demonstrate that the seven Cancun safeguards are being addressed and respected throughout REDD+ implementation. The functions of designed SIS are:

**Table 14 SIS Functions**

SIS Function	Description
Collection of information	Collection of data to be carried out by the Provincial REDD+ Management Cells and to provide periodical evaluation reports concerning the implementation of REDD+ activities
Compilation and	To be carried out by the National REDD+ Office with the information

<sup>16</sup> UNFCCC Decision 2/CP.17 paragraph 63

<sup>17</sup> UNFCCC Decision 1/CP.16 paragraph 71

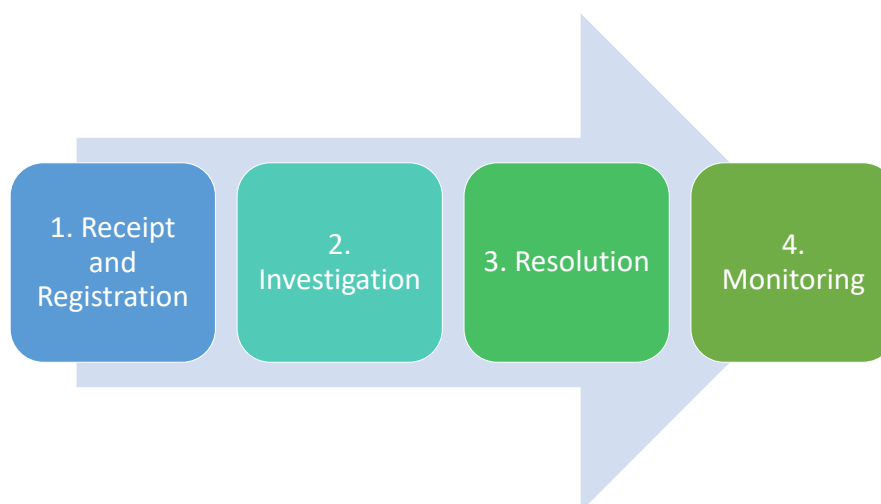
<sup>18</sup> UNFCCC Decision 9/CP.19 paragraph 4

aggregation of information	provided by the Provincial REDD+ Management Cells through specific templates for reporting.
Analysis of information	The National REDD+ Office through a SIS Specialist would lead the analysis of information.
Dissemination of Information	Preparation of national reports be the responsibility of National REDD+ Office, and reports should be published on the REDD+ Safeguards Website every two years.

Pakistan has undertaken a clarification of the Cancun safeguards and an identification of the SIS associated information needs and intends to utilize the information gathered and managed by the SIS as the basis for the preparation of their summary of information to the UNFCCC.<sup>19</sup>

A framework for a Feedback Grievance Redress Mechanism (FGRM) in Pakistan has already been established and should therefore be applied with due consideration of the principles and institutional arrangements set out in the documented standard operating procedures (see Standard Operating Procedures for FGRM in Pakistan, MoCC, 2018). Feedback Grievance Redress Mechanisms (FGRM) are not intended to replace the judiciary or other forms of legal recourse. Therefore, the procedure described would apply in case the affected parties decide to use the FGRM in preference to other available mechanisms. Project level interventions can also access the FGRM and its procedures under the design provided in this document.

**Figure 17 Proposed FGRM procedure**



#### **5.4 National Forest Monitoring System and National Forest Emissions Reference Level**

According to the Cancun Agreements, countries participating in REDD+ should have the following two elements in place, among other elements of readiness:

- A robust and transparent national forest monitoring system for the monitoring and reporting of REDD+ activities.

<sup>19</sup> <https://reddpakistansis.com/>

- A National Forest Reference Emission Level and/or forest reference level, or if appropriate, as an interim measure, subnational forest reference emission levels and/or forest reference level

#### 5.4.1 National Forest Monitoring System (NFMS)

The National Forest Monitoring System (NFMS)<sup>20</sup> (MoCC, 2020b) designed for Pakistan has two main functions: a ‘monitoring’ function and a ‘Measuring, Reporting and Verification (MRV)’ function. The “monitoring” function of the NFMS is primarily a domestic tool to allow countries to assess a broad range of forest information, including both biophysical data on forest and forest land resources, and the Policies and Measures (PAMs) to implement REDD+ activities. The MRV function for REDD+, on the other hand, refers to the estimation and international reporting of national-scale forest emissions and removals. MRV has three main components, or ‘pillars’:

- 1) Satellite land monitoring system (SLMS),
- 2) National forest inventory (NFI), and
- 3) National greenhouse gas inventory (GHG-I).

The SLMS and NFI pillars are used to provide inputs supporting the third pillar – the GHG inventory for the forest sector.

The objectives of Pakistan’s NFMS are as under:

- To monitor forest resources of Pakistan for their sustainable management;
- To establish a national database and web portal for ensuring quality, transparency and accessibility of information related to forestry sector;
- To report to international conventions according to COP decisions and IPCC guidelines.

The NFMS for Pakistan also includes information repository for multiple benefits, impacts, governance and safeguards linked to Safeguards Information System (SIS) to incorporate local knowledge into national monitoring and provide participatory inputs to validate information. A national forest carbon registry system should serve as a tool to register REDD+ projects and track emission transactions.

In future, NFMS is envisaged to support monitoring the performance of REDD+ demonstration activities during Phase 2 and national REDD+ Policies and Measures (PAMs) during Phase 3. The monitoring function also helps to monitor the drivers of deforestation and forest degradation. In scope of the MRV system, it is also necessary to discover spatial evidence (hotspots) that can be linked to the direct and underlying causes altering the state of forests by accelerating or halting deforestation, forest degradation as well as afforestation / reforestation processes.

The National REDD+ Office may coordinate technical implementation of the NFMS, including the SLMS, NFI, GHG-I components linked to carbon registry and MBIGS linked to SIS.

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<sup>20</sup> <https://www.nfmispak.org/>

**Table 15 NFMS Functions and Institutions**

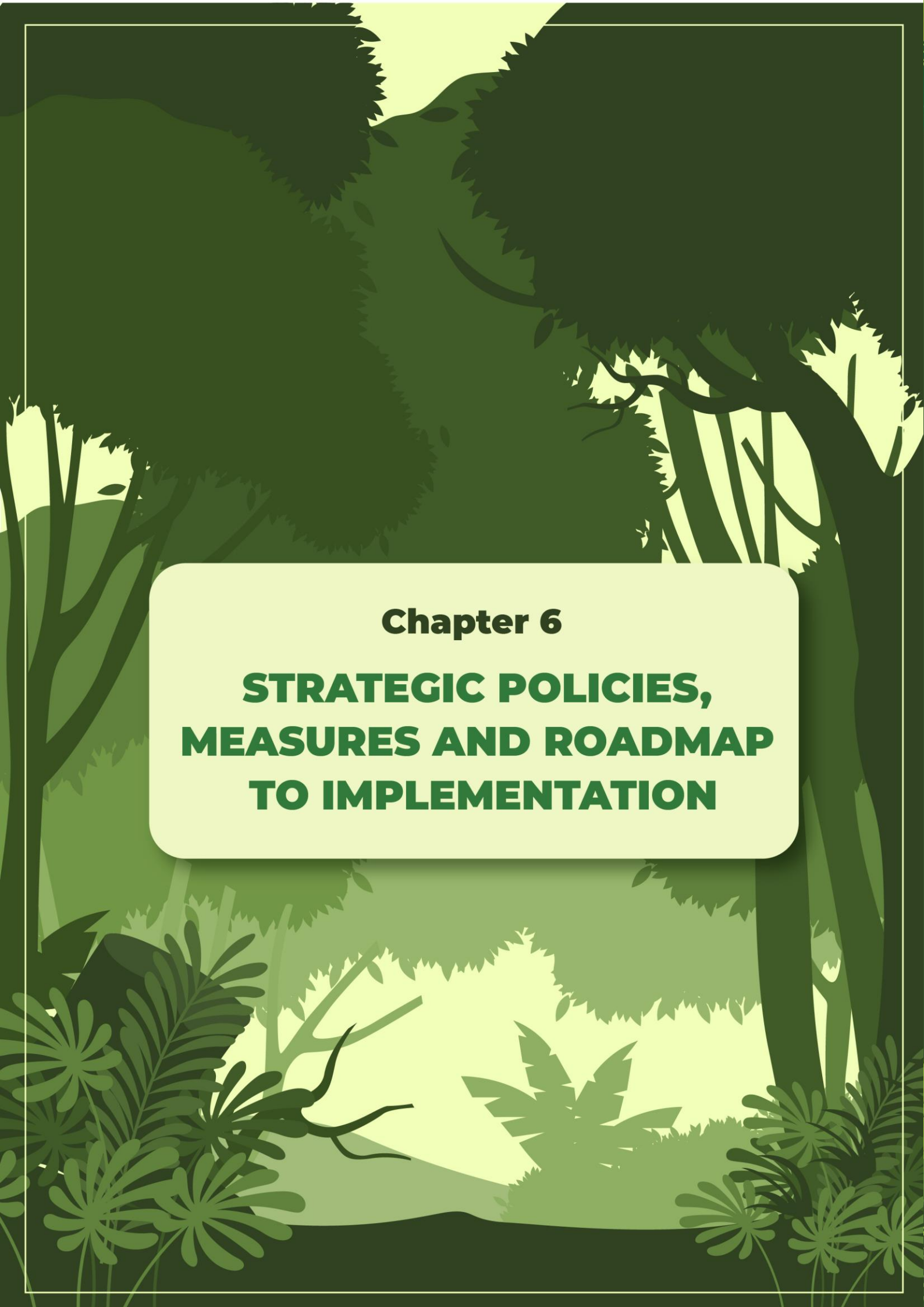
Function	Responsible Institution	Partner Institutions
National Coordination	Ministry of Climate Change National REDD+ Office	Provincial (or State) Forest Departments
National Forest Inventory Data Production	Provincial (or State) Forest Departments	Pakistan Forest Institute
SLMS data production	Provincial (or State) Forest Departments	- Space and Upper Atmosphere Research Commission (SUPARCO) - Pakistan Forest Institute
GHG-I (forest sector data)	Global Change Impact Studies Centre (GCISC)	National REDD+ Office
MBIGS	National REDD+ Office	Provincial REDD+ Management Units

#### 5.4.2 The Forest Reference Emission Level (FREL)

The Forest Reference Emission Levels (FRELs) or Forest Reference Levels (FRLs) are benchmarks for assessing each country's performance in implementing REDD+ activities. More broadly, FREL/FRLs may be relevant to assess country performance in contributing to mitigation of climate change through actions related to their forests.

Pakistan submitted its first FREL to the UNFCCC including information and rationale on its development, country context and a plan for future development. Construction of the FREL adopts a step-wise approach to further strengthen it. Currently, the FREL is based on a nationally adopted integrated approach of satellite and field-based assessment with approach 1 for Activity Data (AD) and Tier 2 for Emission Factors (EF) using a gain-loss approach derived with national level data sets produced by the main forest types, following the 2006 IPCC Guidelines.

The FREL includes emissions from deforestation estimated from above-ground (AGB) and below-ground biomass (BGB) pools. Future improvement plan with short- and long-term objectives to strengthen and extend the scope of significant REDD+ activities, pools and gases with higher tiers and approaches used better forest reference data and monitoring are provided in Pakistan FREL 2020 (MoCC, 2020).



**Chapter 6**

**STRATEGIC POLICIES,  
MEASURES AND ROADMAP  
TO IMPLEMENTATION**

The National REDD+ Strategy sets the direction which the country (including federal and provincial governments, the private sector, civil society and the rest of the stakeholders involved) should opt to achieve the mitigation and adaptation goals. This section presents enabling policy conditions and a roadmap with a set of actions to follow that should be performed in the immediate future or otherwise, according to the time frame to support implementation of Strategy Options.

### 6.1 Strategic Policy and Measures

Addressing drivers of deforestation and forest degradation and implementation of Strategic Options requires several complementary policies and measures to achieve desired strategy outcomes. In this, regard several forestry governance related issues will need focused approach for effective implementation for REDD+ agenda in Pakistan. Improved forest governance is the process by which people and institutions may make decisions (according to formal regulations or customs), follow-up, and enforce them in a timely manner. The key forestry governance related issues and strategic policy and measures (**Table 16**) are briefly summarised as under:

**Weak forestry governance** encompasses poor policy implementation, weak enforcement of laws, gaps in the land use planning, weak institutional capacities and lack of sector coordination due to conflicting sectoral priorities. **Lack of cohesive and effective land-use planning** induces conversion of previously forested land to agricultural land, infrastructural developments and urban areas. **Political influence** in recruitment, official postings and transfers, leasing of forest lands also directly or indirectly contributes to deforestation. Furthermore, **poor sectoral coordination**, where sectoral policies (relevant to forestry e.g., agriculture, mining, energy etc.) are prepared by the relevant ministry or department in isolation, keeping in view sectoral priorities. These sectoral policies sometimes face issues of inter-ministerial and inter-departmental coordination as they are either not aligned to each other and or at times result in sectoral conflict. Finally, **disputes over land tenures**, which is an ignored subject in the forestry sector over the years and has resulted in frequent disputes on rights to forest land, including but not limited to, forest land ownership, grazing rights, and right to water, NTFPs, wood harvesting and other forest produce.



Table 16 Strategic Policy and Measures for REDD+ Implementation

	Underlying DoD (structured by context)			
	Demographic	Institutional	Fiscal	Legal
Deforestation	<ul style="list-style-type: none"> <li>Population pressure</li> </ul>	<ul style="list-style-type: none"> <li>Weak governance (poor law enforcement)</li> <li>Political influence</li> <li>Poor sectoral coordination</li> <li>Lack of land use planning</li> </ul>	<ul style="list-style-type: none"> <li>Economic development priorities</li> </ul>	<ul style="list-style-type: none"> <li>Unclear demarcation of boundaries</li> <li>Disputes over land tenure</li> </ul>
Forest degradation	<ul style="list-style-type: none"> <li>Population pressure</li> <li>Poverty and lack of livelihood-options</li> <li>Livestock pressure</li> <li>Climate change, coastal erosion due to wave actions</li> </ul>	<ul style="list-style-type: none"> <li>Unsustainable forest management</li> <li>Low awareness</li> <li>Man-made fires for fresh grass regeneration</li> <li>Human negligence</li> </ul>	<ul style="list-style-type: none"> <li>Competing demand of water for agriculture</li> </ul>	
Strategic policy and measures	<p><b>Promote sustainable and participatory forest management</b></p> <ul style="list-style-type: none"> <li>Strengthen capacities of stakeholders in rural areas for up-take of sustainable livelihoods, especially forest dependent communities and extension organisations.</li> <li>Develop communication strategy to raise awareness.</li> <li>Develop planning framework (forestry, grazing, range management).</li> <li>Strengthen capacities for preparation and execution of participatory forestry management plans.</li> <li>Prioritize implementation of the Strategy Options.</li> <li>Undertake forest protection, restoration activities</li> <li>Develop participatory Benefit Sharing Mechanism</li> <li>Promote Payment for Ecosystem Services schemes.</li> </ul>	<p><b>Improve governance- and law enforcement structures and counter political influence.</b></p> <ul style="list-style-type: none"> <li>Strengthen capacity of relevant institutions to carry out law enforcement and forest monitoring, including judiciary with regards to forestry.</li> <li>Strengthen EIAs and SEAs implementation through building capacities and updating EIAs and SEAs regulations as per international guidelines.</li> <li>Overall strengthen awareness and empower stakeholders (both right holders and duty bearers) to carry out their respective mandates with regards to forestry and forest lands.</li> </ul> <p><b>Facilitate sectoral coordination.</b></p> <ul style="list-style-type: none"> <li>Strengthen intersectoral coordination and awareness of forest sector.</li> <li>Activate Federal Forestry Board policymaking as provided in the National Forest Policy.</li> <li>Operationalize and strengthen National Steering Committee on REDD+ and provincial REDD+ Management Committees.</li> </ul> <p><b>Improve framework for land-use planning and land tenure.</b></p> <ul style="list-style-type: none"> <li>Create and/or strengthen institutions for land use planning at national and provincial level including use of modern technology and participatory approaches.</li> </ul>	<p><b>Increase understanding of forest sector importance in setting of national economic development priorities.</b></p> <ul style="list-style-type: none"> <li>Research for increased information on the values of ecosystem services.</li> <li>Build capacity for natural capital accounting of key forest biodiversity resources.</li> <li>Create awareness and understanding on values of ecosystem services and key forest biodiversity resources among policy makers.</li> </ul>	<p><b>Strengthen and synchronize policies and legislation.</b></p> <ul style="list-style-type: none"> <li>Review and synchronize sector legislation (e.g. Mines Act, Forest Act)</li> <li>Review national and provincial policies and regulation with regards to land use and tenure.</li> </ul> <p><b>Ensure clarity of forest land ownership at field level.</b></p> <ul style="list-style-type: none"> <li>Facilitate boundary demarcation on forest land including sign-posts/boundary pillars as well as preparation of maps (using GIS technology)</li> <li>Collaboration with Survey of Pakistan and Land Revenue departments.</li> <li>Strengthen local level documentation on rights and ownerships as well as capacity for conflict resolution.</li> </ul>

The implementation of following complementary policy and measures is proposed to enhance the outcome of the Strategic Options:

- i. **Effective Forestry Management Planning:** REDD+ requires a multi-stakeholder and multi-sectoral approach and the conditions that cause people to decide how to use (or not to use) the land. Engaging forest dependent communities and other relevant sector stakeholders in forestry planning, monitoring and benefit sharing is therefore essential for effective forest management.
- ii. **Strengthening policies, laws and regulations:** Includes strengthening of current forestry laws and policies at provincial and national level to ensure that they do not lead to or encourage deforestation, forest degradation e.g., Forest Act, Mines Act, Climate Change Policy, water, energy and other relevant policies.
- iii. **Addressing/resolving land tenure conflicts:** The land tenures are complex issues and need to be addressed through multifarious initiatives including improvement in laws, policies, as well as improving the ground level knowledge and documentation of rights and ownerships, etc. An important action can be to engage revenue departments at province level for comprehensively documenting the rights of right holders, along with their details so that these are connected to a long-term plan for resolving all tenure issues and related conflicts.
- iv. **Strengthening institutional capacities** includes law enforcement and forest monitoring with investments focused on trainings, systems development and technology induction at provincial and national level. A comprehensive skills gap analysis and TNA can be done as well as institutional analysis with a focus on issues to enhance operational and HR capacities. The HR capacities can be improved in two broad categories, i.e., one that includes ranks of Divisional Forest Officers and below for capacity development related to implementation and forest management, while the senior cadres need to be trained in strategic and policy domains. For system level aspects, system performance and efficiency may be improved with latest technologies, e.g., GIS, RS, drones for surveillance and digitised data collection and digitised management.
- v. **Strengthen Cross-Sectoral Coordination:** The existence of REDD+ drivers beyond forestry sector entail engaging with a wide range of stakeholders at every level. To this end, a multi-stakeholder nested approach is needed at national, provincial/sub-national, and at local community levels (both vertically and horizontally) for effective forest management. At the vertical level, the coordination mechanism entails establishment of systems to strengthen participation from grass roots level to the higher echelons of the forest departments and nationally. At the horizontal level, a cross-sectoral coordination mechanism, under the architecture proposed by this strategy, can be developed<sup>21</sup> and strengthened. In this regard, the strengthened **Federal Forestry Board** is an important platform for effective and coordinated policymaking and implementation, as provided in the National Forest Policy. There is a need to reconstitute the board as well as re-functionalize.
- vi. **Development of national and provincial land-use policies** is crucial to reduce pressure on the precious forest as well as other land types and to regularise land conversion. This is essential that a centralised forum undertakes such an initiative for example, Planning Commission of Pakistan, so that future policies are representative of all federating units, based on evidences, trends and international best practices. This can be done by engaging specialised organs of government like Survey of Pakistan, etc.

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<sup>21</sup> Some provinces already have these departments, while others need to strengthen them.

- vii. **Strengthening EIAs and SEAs implementation** by working with respective EPAs for strengthening and updating EIAs and SEAs regulations as per international guidelines related to forestry and biodiversity. While policy exists, the EIAs are seldom taken seriously, so it is important to ensure that all projects influencing forests are properly assessed for their environmental impacts and are mitigated.
- viii. **Enhancing awareness and capacities** among stakeholders to carry out their respective mandates and implementation of Strategy Options. This can be at the provincial and national level with relevant ministries / attached departments to encourage coordination and reduce conflicting policies and regulations. This also requires engagement with communities, CSOs, and academia for capacity building and sensitization through awareness campaigns, use of social media platforms, etc.
- ix. **Working with and strengthening the judiciary** with regards to forestry, e.g., provision of (additional) special forest magistrates for speedy trials, awareness campaigns targeting judicial academies is required for, and also supporting speedy legal processes and enforcement. A database of legal cases may be maintained for easy references.


## 6.2 Roadmap for REDD+ Implementation of Policy and Measures

No	Topic/activity	Time Frame	Responsible
<b>1.</b>	<b>Sustainable Forestry Management Planning</b>		
1.1	Prioritize and develop Provincial REDD+ Action Plans for Implementation of Strategy Options	Short term	NRO, Provincial Management Units, MoCC, private sector, other stakeholders
1.2	Determination of the best areas to implement each strategy option based on hotspots of deforestation and provincial interests	Short term	National REDD+ Office (NRO), Provincial Management Units
1.3	Prepare participatory forest restoration plans for degraded and deforested sites	Short term	Provincial Forest Departments, Provincial Management Units,
1.4	Design and coordinate a programme to finance the implementation of the REDD+ activities in their different phases and from the public, private, bilateral and multilateral sources, Green Climate Fund, etc.	Short term	NRO, MoCC, Provincial Forest Departments
1.5	Development of participatory management planning framework (forestry, grazing, range management) as well as management plans for forests and forest protected areas.	Short term	Provincial REDD+ Cells, Provincial Forest Departments
1.6	Promote sustainable livelihood for forest dependent communities from forest conservation, NTFP, etc.	Medium term	Provincial Forest Departments, NRO/MoCC, Provincial Management Units, private sector, other stakeholders
1.7	Promote social forestry and farm forestry and urban forestry	Short term	Provincial Forest Departments, Provincial Management Units, MoCC, private sector, other stakeholders
1.8	Create livelihood incentives for local communities through establishment of community-based nurseries	Medium term	Provincial Forest Departments, Provincial Management Units, MoCC, private sector, other stakeholders

No	Topic/activity	Time Frame	Responsible
1.9	Identify and promote alternate energy options and energy efficient technologies for forest dependent communities	Medium term	Provincial Forest Departments, Provincial Management Units, MoCC, private sector, other stakeholders
1.10	Ensure full and correct functioning of the National Forest Monitoring System (NFMS)	Short term	NRO, Provincial Management Units, Provincial Forest Departments, MoCC
1.11	Ensure full and correct functioning of the Safeguards Information System (SIS)	Short term	NRO, Provincial Management Units, Provincial Forest Departments, MoCC
1.12	Ensure full and correct functioning of the Grievance Redressal Mechanism	Short term	NRO, Provincial Management Units, Provincial Forest Departments
1.13	Identify hotspots to promote nature-based ecotourism to create positive livelihood incentives for forest dependent communities	Short term	Provincial Forest Departments, Provincial Management Units, MoCC, private sector, other stakeholders
1.15	Identify, design and implement Payment for Ecosystem Services schemes.	Short term	Provincial Forest Departments, Provincial Management Units, MoCC, private sector, other stakeholders
1.16	Establish a clear benefit-sharing mechanism (equitable and transparent) at national, provincial and local levels.	Short term	Provincial Forest Departments, Provincial Management Units, MoCC
<b>2. Strengthening policies, laws and regulations:</b>			
2.1	Strengthening policies, laws and regulations including inter-sectoral synchronisation (e.g., Mines Act and Forest Act).	Medium term	NSC, Provincial REDD+ Management Committees
2.2	Strengthening the judiciary with regards to forestry (e.g., provision of special forest magistrates for speedy trials, awareness campaigns targeting judicial academies).	Medium term	MoCC, Judicial System, NRO
2.3	Development of national and provincial land-use policies.	Medium term	NSC, MoCC, NRO, Provincial REDD+ Management Committees, Provincial Forest Departments
2.4	Strengthen and/or create institutions and regulations for effective land use planning at the national and provincial level.	Medium term	NSC, MoCC, NRO, Provincial REDD+ Management Committees, Provincial Forest Departments
2.5	Develop rules and regulations to regulate tourism activities.	Medium term	MoCC, Provincial Forest Departments, Provincial Management Units,
2.6	Strengthening EIAs and SEAs implementation through building capacities and updating EIAs and SEAs regulations as per international guidelines related to biodiversity.	Medium term	NRO, MoCC, Provincial REDD+ Cells, Provincial EPAs, Provincial Forest Departments
2.7	Identify opportunities and create enabling conditions for private sector engagement in forest conservation, restoration and carbon trading.	Medium term	Provincial Forest Departments, Provincial Management Units, MoCC

No	Topic/activity	Time Frame	Responsible
2.8	Establish a mechanism to align all current projects and initiatives and those that will be implemented in the future (including international donations) to the REDD + Strategy.	Short Term	NRO, MoCC Provincial Management Units, Provincial Forest Departments
<b>3. Addressing/resolving land tenure conflicts</b>			
3.1	Address/resolve land tenure conflicts.	Medium term	Provincial Forest Departments
3.2	Clearly demarcate boundaries and prepare maps of forest land (using GIS technology) in collaboration with Survey of Pakistan and Land Revenue departments.	Medium term	Provincial Forest Departments, Survey of Pakistan, Land Revenue departments
3.3	Erect and/or maintain sign-posts/boundary pillars delineating forest lands.	Long term	MoCC, Provincial Forest Departments, other relevant stakeholders
<b>4. Strengthen institutional capacities and awareness</b>			
4.1	Develop and implement communication strategy including awareness material and campaigns.	Medium term	NRO, MoCC, Provincial REDD+ Cells, Provincial Forest Departments, INGOs, Academia, Media, other stakeholders
4.2	Build awareness and capacities of local communities and for ecotourism promotion	Medium term	NRO, MoCC, Provincial REDD+ Cells, Provincial Forest Departments
4.3	Strengthen capacities of forestry officials in preparation and execution of participatory forest monitoring and forestry management.	Short term	MoCC, NRO, Provincial Forest Departments
4.4	Strengthen institutional capacities in law enforcement and forest monitoring.	Medium term	NRO, MoCC, Provincial Forest Departments, Judicial System
4.5	Strengthening the judiciary with regards to forestry (e.g. provision of special forest magistrates for speedy trials, awareness campaigns targeting judicial academies).	Medium term	Provincial Forest Departments, MoCC, Judicial System
4.6	Development of methods and systems for land use planning and forest monitoring (e.g. RS and GIS)	Short term	NRO, MoCC, Provincial Forest Departments
4.7	Strengthening awareness and capacities among stakeholders to carry out their respective mandates in implementation of Strategy Options.	Medium term	NRO, MoCC, Provincial REDD+ Cells, Provincial Forest Departments
4.8	Create awareness and understanding on values of ecosystem services and key forest biodiversity resources among policy makers	Short term	NRO, MoCC, Provincial Forest Departments, Media, civil society
4.9	Strengthen alliances with academia and research institutes for undertaking forestry research and encourage the building of a knowledge base among stakeholders	Short Term	NRO, MoCC Research institutions and universities

No	Topic/activity	Time Frame	Responsible
4.10	Promote research for increased information on the values of ecosystem services and capacity for natural capital accounting of key forest biodiversity resources for informed decision-making and for increased understanding of forest sector importance in setting of national economic development priorities.	Medium term	NRO, Provincial REDD+ Cells, Provincial Forest Departments, Universities, Research Institutions
4.11	Advocacy and awareness for policymakers including: i) Lobbying with National and Provincial Standing Committees on Environment, and ii) Organizing exposure visits for politicians to forest ecosystem sites, etc.	Medium term	NRO, MoCC, IGF Provincial REDD+ Cells, Provincial Forest Departments
4.12	Document lessons learnt from other past and current projects.	Short term	NRO, MoCC Provincial Management Units, Provincial Forest Departments
<b>5.</b>	<b>Strengthen Cross-Sectoral Coordination</b>		
5.1	Strengthen intersectoral coordination and multistakeholder coordination of relevant sectors.	Short term	NRO, MoCC, Provincial REDD+ Cells, Provincial Forest Departments
5.2	Strengthen Federal Forestry Board for effective and coordinated policymaking and implementation, as provided in the National Forest Policy.	Medium term	MoCC, Provincial Forest Departments
5.3	Strengthen and sustain National Steering Committee on REDD+ and provincial REDD+ Management Committees	Short term	MoCC, Provincial Forest Departments



**Chapter 7**  
**REDD+**  
**FINANCING**

One of the critical challenges Pakistan faces in implementing this Strategy is access to sustainable, predictable, and adequate finances for its forests, to be able to implement the activities mentioned in the Roadmap. Being a poorly forested, highly populated and developing country, Pakistan is not able to allocate sufficient resources for undertaking REDD+ activities from current internal resources. At the same time, implementing the actions and activities needed to achieve REDD+ requires significant financing. A two-pronged approach will, therefore, be required to meet the funding requirements for REDD+: 1) identifying potential resources (national or international, public or private), and 2) reallocating and economizing spending.

Although efforts benefitting from REDD+ are underway, they may not solve the problem immediately and satisfactorily, as the financial benefits from REDD+ are not expected in the near future and even if so, they may not alone meet the needs of the country to undertake the REDD+ activities effectively.

MOCC will thus facilitate access of the provinces to regulated and voluntary carbon markets and other forums and donors to get appropriate funds to satisfy owners, right holders and other stakeholders to effectively contribute to the cause of resource conservation.

### **7.1 Domestic sources**

Although very small, the most reliable and readily available financial sources are the domestic funds maintained by the federal and provincial governments and the federating units. Most developmental work in the forestry sector is financed through these funds. In recent years various forest restoration initiatives such as, BTAP, TBTP, and mangrove restoration have been undertaken in the country with domestic financing from federal and provincial forestry allocations by government. Work targeted at the improvement of forests, rangelands, and biodiversity is linked to the REDD+ objectives in one way or another. The work, however, must be rendered more REDD+ oriented. Provinces have already started financing REDD+ activities, and such actions can pave the way for more funds from the provinces for diverse REDD+ actions. The share for the forestry sector in the Public Sector Development Programme (PSDP) and provincial Annual Development Plans (ADPs) may, therefore, be substantially increased.

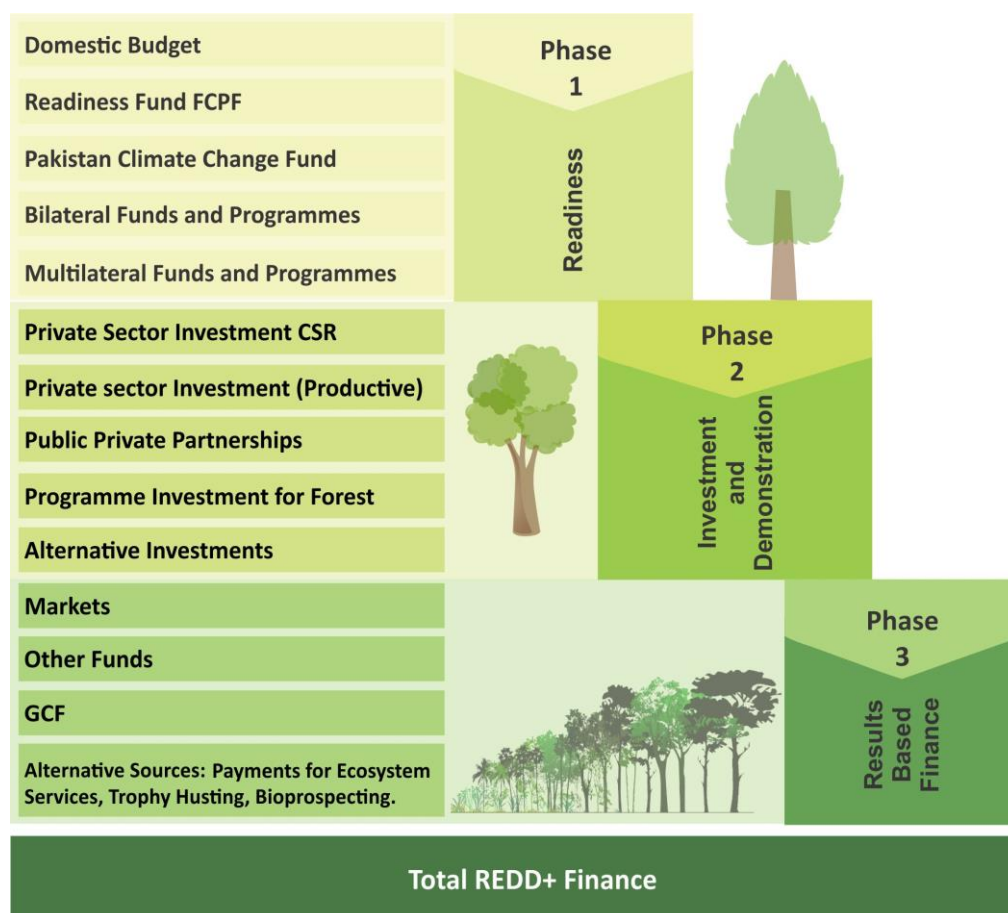
One of the major challenges for conservation of forest carbon stocks is reducing unsustainable reliance of the communities on forest resources. The federal and provincial governments may, therefore, ask all the relevant line departments to include schemes in their future plans that are oriented towards testing or full implementation of selected Strategy Options. The government in question may consider creating financial mechanisms, like taxes or tariffs, and invest the collections to support the communities residing around forests.

The activities that affect forests, like mining, oil & gas exploration, and infrastructure development (including roads, buildings, and dam construction) may, besides restoring the ecosystem, also be made to invest in programmes and activities aimed at forest restoration and reducing communities' reliance on forests. The options of Payment for Environmental Services (PES), ecotourism, and an upstream-downstream approach may also be tested for large-scale adoption.

An additional domestic source is the private sector in three alternatives: as investment for some expected returns in profitable activities considered in the Strategy Options, or as contributions to the implementation of the Strategy Options without expecting returns, or as compensation for the use of environmental services and products.



Figure 18 Financial Sources for Each REDD+ Phase



A similar example of trophy hunting showing success already exists in almost all federating units. The existing resources like national parks and other sites of historical importance could also be useful sources of generating finances for conservation by charging a fee on visitors. The REDD+ Office and Provincial REDD+ cells can also be strengthened and sustained through the establishment of a pooled fund to support core functions and pilot activities, such as the *Pakistan Poverty Alleviation Fund*. The function of the fund could later on be diversified through consensus to serve as the entity to receive results-based payments.

## 7.2 International sources

The bilateral funding sources like Japan International Cooperation Agency (JICA), UK Foreign, Commonwealth & Development Office, United States Agency for International Development (USAID), Australian Aid, etc. offer reasonably good opportunities for the implementation of the REDD+ Strategy. Similarly, multilateral support available through, for example, the World Bank (WB), the Green Climate Fund (GCF), the Global Environment Facility (GEF), the Food and Agricultural Programme of the United Nations (FAO), the United Nations Development Programme (UNDP), and the Asian Development Bank (ADB) may be tapped. Pakistan is already benefitting from these mechanisms in various fields, including forestry. However, as the funds are competitive in nature and project-based, strong funding proposals are needed to secure financing from these sources. Therefore, the federal government may build capacity of provinces and provide them support to access such facilities. On the private side, there is also a growing voluntary carbon market that could provide additional resources to well managed and preserved forests in the country.

## 8. GLOSSARY

**Above-ground biomass:** All living biomass above the soil including stem, stump, branches, bark, seeds, and foliage. (FAO, 2015).

**Afforestation:** Establishment of the forest through planting and/or deliberate seeding on land that, until then, was not classified as forest. (FAO, 2015).

**Adaptation:** Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. (UNFCCC).

**Afforestation:** has a similar purpose but is applied in areas where forests had not been covering the land for a long period.

**Agroforestry:** Collective name for land-use systems and technologies where woody perennials (trees, shrubs, palms, bamboos, etc.) are deliberately used on the same land-management units as agricultural crops and/or animals, in some form of spatial arrangement or temporal sequence. In agroforestry systems, there are both ecological and economic interactions between the different components. (FAO, 2015). Planting of new forests on lands that historically have not contained forests. (UNFCCC).

**Below-ground biomass:** All biomass of live roots. Fine roots of less than 2 mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter. (FAO, 2015).

**Capacity building:** In the context of climate change, the process of developing the technical skills and institutional capability in developing countries and economies in transition to enable them to address the causes and results of climate change effectively. (UNFCCC).

**Carbon market:** A popular (but misleading) term for a trading system through which countries may buy or sell units of greenhouse-gas emissions in an effort to meet their national limits on emissions, either under the Kyoto Protocol or under other agreements, such as that among member states of the European Union. The term comes from the fact that carbon dioxide is the predominant greenhouse gas, and other gases are measured in units called “carbon-dioxide equivalents”. (UNFCCC).

**Deforestation:** The conversion of forest to other land use or the permanent reduction of the tree canopy cover below the minimum 10 percent threshold. (FAO, 2015). Conversion of forest to non-forest (UNFCCC).

**Ecosystem services:** Direct and indirect contributions of ecosystems to human well-being. (BISE. TEEB D0, 2009).

**Emission factors:** The average emission rate of a given GHG for a given source, relative to units of activity. (UNFCCC, 2018).

**Forest degradation:** The reduction of the capacity of a forest to provide goods and services. (FAO, 2015).

**Forest restoration:** The process of returning degraded forests to their original structure, productivity, ecological integrity, and species diversity. (USDA, 2016).

**Growing stock:** Volume over bark of all living trees with a minimum diameter of 10 cm at breast height (or above buttress if these are higher). Includes the stem from ground level up to a top diameter of 0 cm, excluding branches. (FAO, 2015).

**Land-use change and forestry:** Total emissions and removals from forest and land use change activities (activities impact on three different carbon sources/sinks: above-ground biomass, below-ground biomass, and soil carbon) (UNFCCC, 2018).

**Land use, land-use change, and forestry (LULUCF):** A greenhouse gas inventory sector that covers emissions and removals of greenhouse gases resulting from direct human-induced land use, land-use change and forestry activities. (UNFCCC).

**Mitigation:** In the context of climate change, a human intervention to reduce the sources or enhance the sinks of greenhouse gases. Examples include using fossil fuels more efficiently for industrial processes or electricity generation, switching to solar energy or wind power, improving the insulation of buildings, and expanding forests and other “sinks” to remove greater amounts of carbon dioxide from the atmosphere. (UNFCCC).

**MRV:** Measurable, reportable and verifiable. A process/concept that potentially supports greater transparency in the climate change regime. (UNFCCC).

**Nationally appropriate mitigation actions (NAMAs):** At COP 16 in Cancun in 2010, governments decided to set up a registry to record nationally appropriate mitigation actions seeking international support, to facilitate the matching of finance, technology and capacity-building support with these actions, and to recognize other NAMAs. (UNFCCC).

**NDC:** According to Article 4, paragraph 2 of the Paris Agreement, each Party shall prepare, communicate and maintain successive nationally determined contributions (NDCs) that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions. (UNFCCC).

**Non-wood forest product:** Goods derived from forests that are tangible and physical objects of biological origin other than wood. (FAO, 2015).

**Reforestation:** Re-establishment of the forest through planting and/or deliberate seeding on land classified as forest. (FAO, 2015).

Replanting of forests on lands that have previously contained forests but that have been converted to some other use. (UNFCCC)

**Restoration:** Process that returns the forests to its healthy or undisturbed condition. This could be achieved through incentivizing and assisting natural regeneration or through enrichment planting.

**Registries, registry systems:** Electronic databases that track and record all transactions under the Kyoto Protocol’s greenhouse-gas emissions trading system (the “carbon market”) and under mechanisms such as the Clean Development Mechanism. “Registry” may also refer to current discussions on a system for inscribing nationally appropriate mitigation actions. (UNFCCC).

**Silvo-pastoral:** The combined use of forestland or woodland for both wood production and animal production by grazing of the coexisting indigenous forage, or vegetation that is managed like indigenous forage. (USDA, 2016).

**Sustainable forest management:** Addresses forest degradation and deforestation while increasing direct benefits to people and the environment. At the social level, sustainable forest management contributes to livelihoods, income generation, and employment. At the environmental level, it contributes to important services such as carbon sequestration and water, soil and biodiversity conservation. (FAO, 2017).

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## 10. APPENDIX 1- SUMMARY OF DRIVERS OF DEFORESTATION

#	Prioritized direct drivers of deforestation	Underlying Causes of Prioritized drivers of deforestation	Agents	Context	Feasibility of PAM
1	Commercial Agricultural Expansion	Population pressure	Public	Demographic	Low
		Weak governance (poor law enforcement)	Officials of ministries and departments, politicians	Institutional	High
		Economic development priorities	Officials of ministries and departments, politicians, private sector	Fiscal	High
		Lack of land-use planning	Officials of ministries and departments, politicians	Institutional	Medium
2	Infrastructure development (roads, habitation, tourism developments, transmission lines, etc.)	Population pressure	Public	Demographic	Low
		Weak governance (poor law enforcement)	Officials of forest department, politicians Ministry of Climate Change Judiciary	Institutional	High
		Lack of land use planning	Officials of ministries (e.g. Ministry of Climate Change) and departments, politicians	Institutional	Medium
		Economic development priority	Officials of ministries and departments, politicians, private sector	Fiscal	Medium
		Political influence	Politicians, voters/constituency	Institutional	High
		Poor sectoral coordination	Officials of ministries (e.g. Ministry of Climate Change) and departments, politicians, private sector, civil society	Institutional	High
3	Encroachments	Weak governance (poor law enforcement)	Officials of forest department, politicians, judiciary	Institutional	High
		Unclear demarcation of boundaries	Forest department officials, revenue officials, Survey of Pakistan	Institutional	High
		Disputes over land tenures	Revenue officials, farmers/land-owners	Legal	High
		Political influence	Politicians, voters/constituency	Institutional	High
4	Mining (Surface-mining)	Population demand for construction material	Public, construction industry	Demographic	Low
		Weak governances (legislation conflict between Mines Act and Forest Act, implementation EIA)	Officials of forest department, politicians, judiciary	Institutional	High
		Economic Priorities (leasing concessions)	Officials of ministries and departments, politicians, private sector	Fiscal	High
		Lack of Sectoral coordination	Officials of ministries and departments, politicians,	Institutional	High

#	Prioritized direct drivers of deforestation	Underlying Causes of Prioritized drivers of deforestation	Agents	Context	Feasibility of PAM
			private sector, civil society		
5	Unsustainable Timber Extraction	Population pressure (high demand for timber products)	Public, wood-based industry, construction industry	Demographic	Medium
		Weak governance (illegal wood extraction)	Officials of forest department, politicians, judiciary	Institutional	High
		Departmental priorities for revenue	Forest department, Finance department, politicians	Fiscal	High



## 11. APPENDIX 2- SUMMARY OF DRIVERS OF DEGRADATION

#	Prioritized Direct Drivers of Forest Degradation	Underlying Causes of Prioritized drivers of Forest Degradation	Agents	Context	Feasibility of PAM
1	Unsustainable wood extraction	Population pressure	Public	Demographic	Low
		High dependency on wood energy/ Lack of alternative energy sources	Public, energy sector	Demographic	High
		Unsustainable forest management (absence of management plans)	Officials of forest department, politicians, judiciary	Institutional	High
		Weak Governance (poor law enforcement)	Decision and policy makers at all levels, judiciary	Institutional	High
		Poverty of forest dependent communities	Public, governments	Demographic	Medium
		Lack of clarity in tenure rights	Decision and policy makers at all levels	Legal	High
		Lack of awareness	Public	Institutional	High
2	Small-scale agricultural practices	Population pressure	Public	Demographic	Low
		Lack of livelihoods alternatives	Public, private and public sector	Demographic	High
		Weak governance	Officials of forest department, politicians, judiciary	Institutional	High
		Poverty	Public, governments	Demographic	Medium
		Unclear demarcation of boundaries	Forest Department officials, revenue officials, Survey of Pakistan	Legal	High
3	Overgrazing	Livestock pressure	Public	Demographic/ Institutional	Low
		Weak governance (unsustainable, unregulated grazing)	Decision and policy makers at all levels, judiciary	Institutional	High
		Lack of awareness	Public	Institutional	High
4	Forest Fires	Man-made fires for fresh grass regeneration	Public	Institutional	High
		Human negligence	Public	Institutional	High
		Extreme weather events due to climate change (dry season)	Decision and policy makers at all levels, public	Demographic/ Natural	Low
		Weak monitoring governance/weak capacity to handle forest fires	Forest Department officials	Institutional	High
		Lack of awareness	Public, Forest Department officials	Institutional	High
5	Reduced fresh water for riverine and mangrove forests	Competing demand of water for agriculture	Agricultural sector	Fiscal	Low
		Upstream water diversion	Agricultural sector	Fiscal	Low
		National economic	Decision and policy	Fiscal	Low

#	Prioritized Direct Drivers of Forest Degradation	Underlying Causes of Prioritized drivers of Forest Degradation	Agents	Context	Feasibility of PAM
		development priorities (construction of dams, barrages, etc.)	makers at all levels		
		Low priority to forestry sector (undervaluation of ecosystems services)	Decision and policy makers at all levels	Institutional	Medium
		Climate change (drought, flood etc.)- coastal erosion due to wave actions (sea intrusion)	Decision and policy makers at all levels, public	Demographic/ Natural	Low
		Untreated sewage disposal in coastal areas	Decision and policy makers at all levels, public	Institutional	Medium

