Provincial REDD+
ACTION PLAN
Balochistan
2022-2031

REDD+
Pakistan

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Credentials

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ACRONYMS

ADB	Asia Development Bank
AFOLU	Agriculture, Forestry and Other Land Use
FAO	Food and Agriculture Organization of United Nations
FCPF	Forest Carbon Partnership Facility
FGD	Focus Group Discussion
FGRM	Feedback Grievances and Redressal Mechanism
FREL/ FRL	Forest Reference Emission Level/ Forest Reference Level
FSMP	Forestry Sector Master Plan
GB	Gilgit Baltistan
GGI	Green Growth Initiative
GHG	Green House Gases
GIS	Geographic Information System
GPS	Global Positioning System
IPCC	Intergovernmental Panel on Climate Change
KP	Khyber Pakhtunkhwa
LULUCF	Land Use, Land Use Change and Forestry
MoCC	Ministry of Climate Change
MRV	Measurement Reporting and Verification
NDC	Nationally Determined Contribution
NFI	National Forest Inventory
NFMS	National Forest Monitoring System
NGOs	Non-Governmental Organizations
NRO	National REDD+ Office
NRS	National REDD+ Strategy
OIGF	Office of the Inspector General of Forests
PES	Payment for Ecosystem Services
PFMP	Participatory Forest Management Plan
PRAP	Proposed Remedial Action Plan
PRMC	Provincial REDD+ Management and Coordination Committees
PRMU	Provincial REDD+ Management Unit
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	REDD+ Readiness Preparation Proposal
SESA	Strategic Environmental and Social Assessment
SFM	Sustainable Forest Management
SES	Social and Environmental Safeguards
SLMS	Satellite Land Monitoring System
TBTTP	Ten Billion Tree Tsunami Project
UN	United Nations
UNFCCC	United Nation's Framework Convention on Climate Change
WB	World Bank
WGs	Working Groups

SUMMARY

The Pakistan National REDD+ Strategy was approved in 2021. This Provincial REDD+ Action Plan (PRAP) has been developed to contribute to the strategy's objectives and sustainable management of the forest resources of Balochistan province.

Preparation of Balochistan's PRAP took a multi-stakeholder participatory approach. The overarching purpose of the PRAP is to increase benefits from sustainably managed and enhanced forest resources for the people contributing to their livelihoods and at the same time mitigating climate change. The specific objective of this document are to (i) Outline actions in line with ground realities to address the prioritized drivers and barriers with context specific actions[1] and related budget (ii) Improve health of the forest ecosystems by reducing deforestation and forest degradation and enhancements of biomass (iii) Define effective implementation and monitoring of REDD+ actions to address the drivers (iv) Identify social and environmental risks associated with proposed actions and suggest risk mitigation (v) Propose a clear benefit sharing mechanism associated with implementation of REDD+ activities, and (vi) Identify areas for enabling policy, legal and institutional arrangements in favour of implementing PRAP.

The PRAP outlines actions that support investment on improving local livelihoods to address local drivers of deforestation and degradation in order to achieve sub national and national REDD+ and forest policy objectives. The PRAP identifies measures and interventions that will contribute to national and global goal of reducing emissions. The Balochistan Forest and Wildlife department as custodian of the province's forests advocates that REDD+ policies and measures are designed locally and with full involvement of local institutions and communities.

The forestry resources of Balochistan are classified in five distinct categories viz. coniferous forest, scrub forest, sub-tropical desert, riverine forest and mangrove forest spread over 591,000 hectares. Balochistan abodes the world's second largest Juniper forests that contains trees as old as 2500-3500 years. The mangroves are located at three isolated sites over an area of 4,660 ha along the Makran coast - Miani Hor 4,018 ha, Kalmat Khor 407 ha and Jiwani 235 ha. Legally, the province has State, protected and privately owned forests with customary property rights exercised by Indigenous communities by virtue of their historical relationship with the forests on which their survival depends.

The main drivers of deforestation prioritized by the stakeholders included (i) Clearing forestland for agriculture, and (ii) Clearing forestland for housing colonies / settlement. Three drivers of forest degradation were prioritized by the stakeholders (i) Clearing of forest land for urban expansion such as settlements, infrastructure development etc. (ii) Clearing of forest land for agriculture expansion and (iii) Clearing of forest land for mining purposes. These drivers were analysed by the stakeholders and several underlying causes were identified.

The PRAP proposes several actions to address underlying causes of deforestation and degradation. In addition, it aims achieving energy efficiency and promoting alternative sources of energy to address the main cause of degradation i.e., extraction of firewood for energy. The second highest priority is given to water conservation, drought mitigation and enhancing forests' role in improving water balance in the province. Mapping resources and effective implementation of regulation to curb conversion of land to other land uses are other priority areas identified in this PRAP. Other efforts to improve forest resources include improving enabling policy environment for REDD+ implementation (participatory monitoring system, benefit sharing mechanism, forest law enforcement and implementation strengthened, capacity building of actors on forest monitoring system), introducing alternative incomes

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1 A set of interlinked activities that form a coherent actions for counteracting a driver of deforestation, forest degradation and/ or barriers to expansion of a forest carbon enhancement activity.

and livelihood opportunities, promoting sustainable forest-based enterprises and vocational education, and Forest based Payments from Forest Ecosystem Services.

One of the key action identified in this PRAP is continuation and refining participatory approach to forest management in which the province has already travelled a long way. In addition, integration of trees on private lands (as in case of TBTTP) has been emphasized to promote sustainable solutions to energy demands on forests.

The PRAP will make a traction through Participatory Forest Management Plans (PFMPs) with an approach that encourages harvesting trees on a rotational basis so that timber and fuel may be produced and used sustainably for local use. The PRAP suggests activities aimed at enhancing forest stocks so that forests continue to see improvement for effective REDD+ results. Balochistan Forest and Wildlife Department Balochistan will follow a site specific, landscape approach in PFMPs in which various actions are planned and implemented in a coordinated way, aiming at maximizing economic, social and environmental benefits.

The total indicative financial size of this PRAP is PKR2,135 million for ten years (2022-2031).

1 INTRODUCTION

Pakistan signed and ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1994. Pakistan also initiated a national dialogue on REDD+ in 2010 and submitted its REDD+ Readiness Preparation Proposal (R-PP) to the World Bank Forest Carbon Partnership Facility (FCPF) in 2014. The Federal Ministry of Climate Change (MoCC) through its Office of the Inspector General of Forests (OIGF) has been implementing Readiness activities after approval of R-PP in 2014 with financial and technical support from FCPF along with other bilateral initiatives and UN-REDD+ target support fund.

One of the key outputs[2] of REDD+ Readiness activities was preparation of a National REDD+ Strategy for Pakistan which was finalized in 2021 with the vision that forests provide ecosystem services and livelihood support on a sustainable basis. As part of the development of the strategy, direct and underlying drivers of deforestation and forest degradation at the national level, and barriers to enhancement of biomass and forest area/cover were assessed. The strategy also identified measures necessary to effectively address the drivers and barriers. For the implementation of recommendations proposed under the National REDD+ Strategy (NRS), it is important to elaborate the drivers and barriers at sub-national and local levels. To undertake these tasks at the sub-national and local level the strategy suggested development of Provincial REDD+ Actions Plans (PRAPs) and Participatory Forest Management Plans (PFMPs).

The PRAP of Balochistan is therefore in line with the recommendation of the NRS. This document provides details on province specific drivers of deforestation and forest degradation and describes actions to address them in order to improve forest resources of the province.

The actions also aim to capitalize opportunities and address challenges for strengthening REDD+ readiness at the provincial level.

1.1 Context of Balochistan

1.1.1 Area and Location

Balochistan is located around 30° north and 67° east bordering with Iran on the West, Afghanistan on the Northwest, Khyber Pakhtunkhwa and Punjab provinces on the Northeast and East, respectively, Sindh province on the Southeast and the Arabian Sea on the South. Geographically, the province can be divided into four distinct zones: Upper high lands (40%[3]), lower high lands (12.7%), plains (9.7%), and deserts (37.6%)[4],[5]. The coastline is about 780 kilometers long, with a few peninsulas and promontories. The total area of the province is 340,190 km² (44% of total land cover of Pakistan) and out of this 1.2% land is under forest cover[6] representing 10.8% of total forest cover of Pakistan[7]. The province is divided into 6 divisions, 32 districts and 137 tehsil councils[8]. Quetta is the provincial capital and one of the main economic hubs (besides Gwadar) of the province.

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2 National REDD+ Strategy, National Forest Monitoring System, Safeguard Information System, Forest Reference/ Emission Level
3 http://thebalochistanpoint.com/the-dwindling-forests-in-balochistan/
4 Ashraf, M.; Routray, J.K. Spatio-temporal characteristics of precipitation and drought in Balochistan Province, Pakistan. Nat. Hazards 2015, 77, 229–254
5 Ahmed, K.; Shahid, S.; Bin Harun, S.; Wang, X.J. Characterization of seasonal droughts in Balochistan Province, Pakistan. Stoch. Environ. Res. Risk Assess. 2016, 30, 747–762.
6 http://thebalochistanpoint.com/the-dwindling-forests-in-balochistan/
7 https://www.pide.org.pk/pdf/PDR/2018/Volume1/73-98.pdf (Pp76)
8 GoP, 2017. Pakistan National Census Report. Government of Pakistan.

1.1.2 Demographic and socioeconomic pattern

In 2017, the total population of Balochistan province was 12.35 million[9] (Male: 52.52%; Female: 47.47%; Transgender: 0.01%) accommodated within 1.80 million households constituting 5.93% of the total population of Pakistan. The rural and urban population constitute 72.4% (8,928,423) and 27.62% (3,406,701) of the total population of Balochistan, respectively. Most of the population of Balochistan follows Islam whereas small communities of Hindus, Christians and Sikhs also live in the province. The population of Balochistan is increasing at an average 3.37% per annum and will cross 17.73 million by 2030 and 29.68 million by 2050[10], if growth continues at current rates. Baloch (Baloch and Brahvi) and Pashtuns are major ethnic groups constituting 52% and 36% of total population, respectively.

A white paper 2020-2021[11] published by government of Balochistan reflects provincial economic outlook in terms of GDP as $ 9.13 billion compared to national GDP of $ 314.588 billion which is merely 3% of national GDP. The per capita GDP of Balochistan is $ 739.6 as compared to $ 1641 for Pakistan. A majority of the people of Balochistan depend on agriculture and livestock as their main source of livelihood. The total cultivable area of Balochistan is hardly 2.06 million hectares[12] with less than 6% of the total geographical area as cultivable land. Agriculture contributes over 50% of the provincial domestic product (PDP) of which the major crops contribute over 26%, minor crops 8%, livestock 15%, forestry 0.3% and fishery 1.5%. About 67% of the total labour force is engaged in agriculture. Although the total cropped area of Balochistan is only 3.8% of the total cropped area of the country (22.76 million ha), yet the province is the largest contributor to the national production of apples (82%), peaches (69%), grapes (97.6%), pomegranates (82%), dates (64%), almonds (93.5%) and plums (49%). Livestock are traditionally kept for meeting household milk and meat needs. Livestock development is linked with poverty alleviation in the province, as its 70% population is directly or indirectly involved in livestock rearing activities. The province is rich in livestock resources contributing about 40% of Pakistan's total livestock population.

1.1.3 Climate

The climate of Balochistan is characterized by its geographic make up. Geographically Balochistan can be divided into four distinct zones: Upper high lands, lower high lands, plains, and deserts[13].

The upper highlands, known locally as Khorasan, rise as high as 3,700 meters, with valley floors about 1,500 meters above sea levels. The highlands include Makran, Kharan and Chaghi ranges in the West and Sulaiman, Pab, Kirther in the east. The Upper High Lands fall mainly in districts Zhob, Killa Saifullah, Pishin, Quetta, Ziarat and Kalat. It comprises a number of ranges such as Sulaiman, Toba kakari, Murdar, Zarghoon, Takatu, and Chiltan ranges.

The Lower High Lands have an altitude ranging from 1970 to 3940 ft (600 to 1200 M). They are located in the south-eastern Balochistan, except eastern part of Kachi, the southern end of Dera Bugti and Nasirabad districts. Some are extension of lower high lands that exist at boundaries of Gwadar, Turbat, Panjgur, Kharan and Chaghi districts.

Balochistan has relatively small area of plains as compared to its total land area. They include the Kachi plain, situated to the south of Sibi and extending into Nasirabad Division, the southern part of Dera Bugti district, and narrow plain area along the Mekran coast stretching from Kachi to the Iranian border. The plains of Kachi, Las Bela and that of river Dasht cover sizable area. Mountains dominate the terrain, and valley floors, and piedmont plain make up only 15% of the landscape. The western part of the

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9 https://www.pbs.gov.pk/sites/default/files//population_census/Balochistan%20%20District%20wise.pdf
10 Projection is based on the current rate of population growth reported in census report 2017.
11 https://balochistan.gov.pk/budget-categories/white-paper-2021-2022/
12 https://www.dawn.com/news/351006/improving-balochistans-agriculture
13 https://balochistan.gov.pk/explore-balochistan/

province, mostly in Kharan and Chaghi districts, consists of vast plains covered with black gravel surface and broad expanses of sand dunes. The coastline is about 760 Kilometres long, with a number of peninsulas and promontories. The coastal area is not effectively connected with the interior; the steep hills rise abruptly beyond the narrow coastal plain. Ports, such as Sonmiani, Pasni and Gwadar are unsheltered. Federal and provincial governments have comprehensive development plans that feature a deep-sea port at Gwadar and a coastal highway.

The climate of the upper highlands is characterized by very cold winters and warm summers. Winters of the lower highlands vary from extremely cold in the northern districts to mild conditions closer to the Makran coast. Summers are hot and dry. The arid zones of Chaghi and Kharan districts are extremely hot in summer. The plain areas are also extremely hot in summer with temperatures rising as high as 50°C. Winters are mild on the plains with the temperature, never falling below the freezing point. The desert climate is characterized by hot and very arid conditions. Occasionally strong windstorms make these areas very inhospitable.

Average annual precipitation varies from 2 to 20 inches (50 to 500 mm). Maximum precipitation falls in the northeastern areas with annual average rain fall ranging from 8 to 20 inches (200 to 500 mm). It decreases in the south and the eastern parts and is minimum in Naukundi. In Kharan and Dalbandin area, rainfall ranges between 1 to 2 inches (25 to 50mm). Evaporation rates are higher than the precipitation and generally vary from 72 to 76 inches (1830 1930 mm) per annum.

1.1.4 Overview of the Forest Resources

Spread over 591,000 hectares, the forestry resources of Balochistan are classified in five distinct categories viz. coniferous forest, scrub forest, sub-tropical desert, riverine forest and mangrove forest. Balochistan has approximately 140,000 hectares (Ha) of *Juniperus excelsa* forests. Of this, some 86,000 ha are found in the Ziarat and Loralai districts (Achakzai et al, 2013). The dry temperate Juniper forests are the second largest Juniper forests in the world and contain trees as old as 2500-3500 years old (Marcoux, 2000). The Juniper forests provide important ecosystem services, particularly for strongly holding a highly fragile and porous mountainous watershed management. The mangroves are located at three isolated sites over an area of 4,660 ha along the Makran coast - Miani Hor 4,018 ha, Kalmat Khor 407 ha and Jiwani 235 ha (Abbas et al 2011 and 2013).

In Balochistan, forests and allied resources are regulated through two legal instruments i.e. Forest Act 1927, and Balochistan Forest Regulation 1890. The Forest Act 1927 is applicable in all those areas of the province which were previously governed by the Kalat State. While the Balochistan Forest Regulation 1890 is enforced in the areas which were previously part of the British Balochistan. Under both of these legal instruments, rules such as Quetta Reserve Tree Rules, Kalat Reserve Tree Rules and Mazri Control Rules have been framed to regulate the forest produce and non-timber forest produce. For regulation of wildlife, The Balochistan Wildlife (Protection, Preservation, Conservation and Management) Act, 2014 (BWPPCM 2014) was enacted in 2014. Rules under this Act have been framed. In order to cater for the modern era challenges and issues, a new act namely Balochistan Forest Act, 2017, has been drafted and submitted to the Balochistan Law and Parliamentary Affairs Department for vetting and further processing by the Provincial Cabinet. The proposed Forest Act 2017 will replace the Forest Act 1927. At present, Balochistan does not have any policy for the forestry sector and allied resources (i.e. rangelands, wildlife, livestock, agriculture and irrigation). In view of this situation, the province needs formulation of a coherent policy for natural resource management. Before the 18th Constitutional Amendment, the forestry sector in the province used to follow the guidelines provided in the Federal Forest Policy.

The Government of Pakistan has launched the largest ever afforestation program in the history of the country i.e., the Ten Billion Tree Tsunami Programme (TBTTP). This four-year flagship national program

(2019-2023) will increase the existing forest area of the country, including Balochistan which will make a quantum leap to the forest resource base in forest scarce province of Balochistan.

Two types of forest land tenures exist in the province - formal or *de jure*' and customary or *de facto*. Formal property rights are those that are explicitly acknowledged by the state whereas informal property rights are those that lack official recognition and protection. Customary property rights are exercised by Indigenous communities by virtue of their historical relationship with the forests on which their survival depends. The province has given formal recognition to some customary rights thereby blurring the distinction between formally recognized rights and customary rights.

Like elsewhere in Pakistan, land revenue is not collected from private forest owners or communal forests, but the State charges royalties and taxes from owners and right holders on the income generated from the sale of trees (FAO, 1974). Currently, the provisions of the Forest Act 1927 and the Land Revenue Act of 1867 (amended as the Balochistan Land Tenure Act of 1967 – amended Land Reforms Act 1974) remain the main legal instruments that determine the legal aspects of landownership, including of forest land. However, it only covers the existing power system and entitlements to management of forests and lacks clarity on unrecognized claims (carbon pools), legal and customary jurisdictions of rights, access and use patterns with respect to resources and various stakeholder categories and their stakes. **Table 1** provides an overview of existing forest tenure system in Balochistan.

Table 1: Forest tenure system in Balochistan

Legal Category / Tenure Regime		Forest type	Rights	Area and locations	Management Arrangement
Government Forests	Reserved Forest (Section 3 of the Forest Act) There is provision in Forest Act 1927, however currently none of the forests in Balochistan fall under this category		• Timber sale proceed: 100% government • Seigniorage fee to adjacent guzara owners • Community rights: Usufruct rights[14]: Deadwood, NTFP/ controlled grazing, litter		• Owned (proprietary rights), administered, regulated and managed by the Government through Forest Department. • Managed through working plans.
	State Forests (most of the government owned forests in Balochistan are declared as state forests)		• Timber sale proceed: 100% government • Community/ nomads/ Seasonal groups rights: fuel wood, HH timber, fodder/grass lands)	707000 ha	• Owned (proprietary rights), administered, regulated and managed by the Government through Forest Department. • Managed through working plans.
	Protected Forest (Section 29 of the Forest Act)		• Timber sale proceed: 20-40% to government and 60-80% to concessionists • Community rights: Usufruct rights: Timber for domestic use, deadwood, NTFP, grazing.	378000 ha	• Owned (proprietary rights), administered, regulated and managed by the Government through Forest Department. • Managed through working plans. May also be managed through joint Forest Management Communities and Government.
Private Forests	Section 38 Forests (Community Forests) (Section 38 of the Forest Act)		• Timber sale proceed: 20% to government and 80% to forest owners • Community rights: Usufruct rights: Timber for domestic use, grazing, deadwood, NTFP, litter, land for agriculture	1000 ha	• Owned jointly or severally by village owners. Administered, regulated and managed by the Government through Forest Department. • Managed through working plans. May also be managed through joint Forest Management Communities and Government.
			Total forest area		591,000 hectares

Source: Balochistan Forests and Wildlife department

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14 A usufruct is a legal right accorded to a person or party that confers the temporary right to use and derive income or benefit from someone else's property. … While the usufructuary has the right to use the property, they cannot damage or destroy it or dispose of the property

1.2   Structure of Balochistan Forest and Wildlife Department

The Forests & Wildlife Department has history of over a century, initially established under the British Colonial Rule. Later on, the department was working under West Pakistan Forest Service and ultimately separated in 1970s as a Provincial Department. Recently, the department has been restructured to create three wings: (a) forestry, (b) wildlife and (c) soil conservation. The functions and structure of each wing is described below.

1.2.1   Forestry Wing

The forestry wing envisions to enhance the vegetative cover of the province to attain the minimum international standard of 25% and is responsible for promotion, regulation and management of forest ecosystem including the management of watershed potential of Balochistan. This wing also has responsibilities of (i) effectively contribute to the carbon sink, combat climate change and reduction in the global warming and (ii) promotion and regulation of state and community forests, farm forestry, roadside tree plantation and Natural resources (like fuel wood, timber, non-timber forest products, and wildlife products). Due to diverse nature of forest ecosystems in the province, the forestry wing is divided into Northern Zone and Southern Zone which are administered by the respective Chief Conservators.

- The northern region has three forest circles (Quetta, Sibi, Zhob), planning circle, research circle, watershed circle, admin circle and range circle. The research circle establishes research /educational and training facilities for the development, conservation and strengthening the forest, wildlife and environment sectors in the province. The planning and admin circles coordinate with the Economic Affairs Division, provincial Planning Division, other relevant Ministries and Departments, and International Organizations.
- The southern region has four forest circles (Coastal, Mekran, Kalat and Nasirabad), watershed circle and admin circle. The range circle develops, manages and regulates rangelands on sustainable basis.

1.2.2   Wildlife Wing

The wildlife wing is technically administered by Chief Conservator of Wildlife and is responsible for (i) conservation of wildlife and management of protected areas including national parks, game reserves, wildlife sanctuaries, estuaries, wetlands, etc. of the province and (ii) development and management of recreational parks, arboreta, zoological parks, zoos, wildlife breeding centres at Provincial, Divisional, and District and community level.

1.2.3   Soil Conservation Wing

This wing is technically administered by Chief Conservator Soil Conservation and is responsible for managing the inter-departmental activities pertaining to soil conservation and associated policy and legislation as well as combating land degradation and desertification. This wing also assists the Government in achieving the goals and objectives of Multi-lateral Environmental Agreements (MAEs) related to combating Desertification & Land Degradation, ratified by the Government of Pakistan.

An organogram of the Balochistan Forest and Wildlife Department is provided in **Figure 1.**
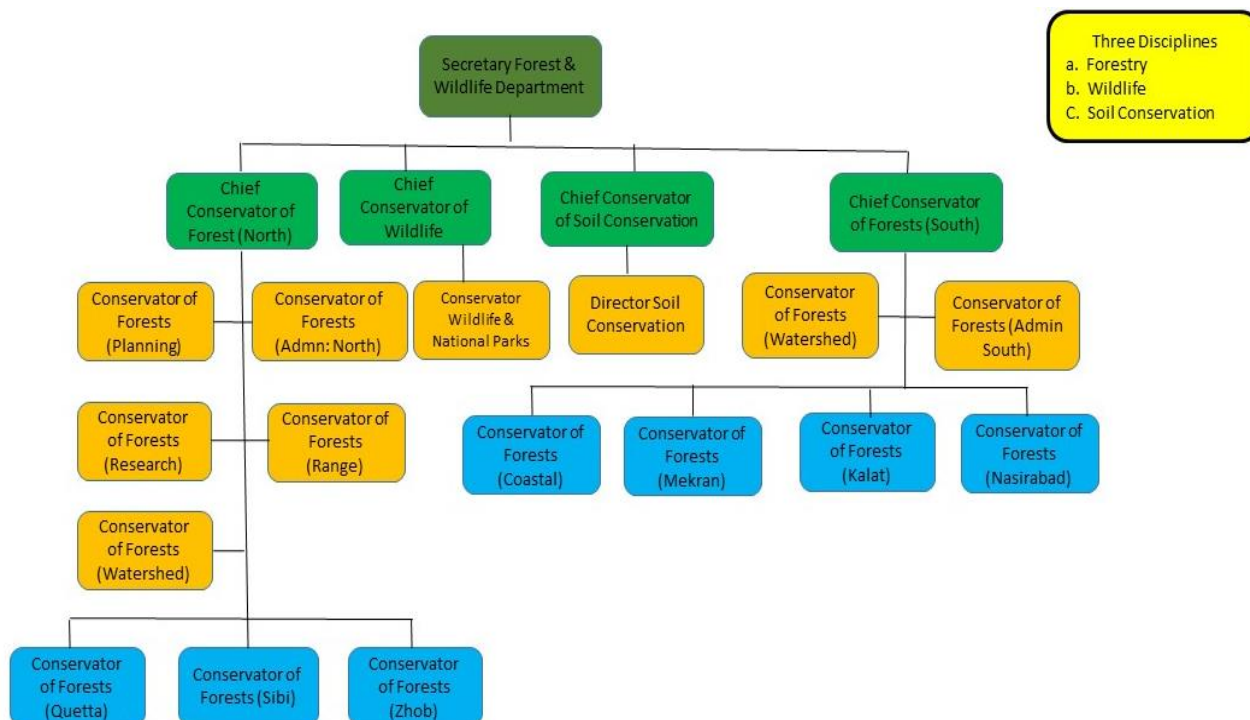
Figure 1: Institutional set up of Balochistan Forest and Wildlife Department

1.3 Stakeholders' roles and responsibilities

This exercise is based on secondary information from research and reports, and discussion with key informants from the province.

The Balochistan Forest Department and local communities are the key stakeholders of the province with the highest stake in REDD+. The community's role in checking illegal activities (mostly forest encroachment and illegal cutting and trafficking of forest trees) entails support to joint forest management and implementation of forest enhancement activities. The department also recognizes contribution of other relevant government institutions, and CSOs/NGOs for their engagement in forest development, sustainable management and capacity building activities. **Table 2** presents some of the key stakeholders that are relevant in implementing different REDD+ initiatives in the province including government, civil society, national and international organizations, communities, development projects, media, private sector etc. There are six key groups in Balochistan having different (and at times overlapping) social and economic interests and influence in forest management related decisions and their implementation:

1. **Forest concessionists** in reserved and protected forests who have legal/ customary rights over the use of certain resources from reserved/ protected forests
2. **Private forest owners** who control and use forest for their basic needs (timber, firewood, grazing, grass cutting, fodder collection, NTFP collection etc.) and get revenue through commercial forest sale.
3. **Forest communities** living in forests areas and belonging to non-owner ethnic groups and highly dependent on forests and ranked as poor forest dependent communities. Poverty and disputes with owners may compel this group for deforestation and forest degradation through illegal activities like smuggling etc.

4. **Small landowners and farmers** living in the forest vicinities with small land holdings and livestock rearing and NTFP collection as a main source of income. Most of these families/ farmers own a small farm and because the land is generally degraded and drought prone, only a small portion of it is cropped (mostly rainfed) on which generally seasonal crops are cultivated. These communities also depend on adjacent forest areas to graze their livestock[15].
5. **Local fishermen** involved in fishing and living in mangrove forests without ownership rights in mangrove forests.
6. **Refugees and Nomads** who come from Afghanistan through their traditional routes and mostly depend on the forests. Due to their non-sedentary nature, these groups are generally on the move to graze their cattle in forest valleys and try to get as many benefits from forests as they can. They cause forest degradation due to overuse of forests and trampling/grazing of regeneration by animals.

A complementarity among stakeholders may reduce the risk of conflicting uses and overlapping priorities towards forest resources leading to forest degradation.

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15 Balochistan Forest Department 2021

Table 2: Key REDD+ stakeholders in Balochistan

Key stakeholder Group	Stakeholders	Roles in Forest Management
Government Institutions	- Forest Department - Agriculture Department - Mineral Department - Planning and Development Department - Tourism Department	- Responsible for implementing REDD+ Action Plan - Providing conducive policy, legal and institutional environment for forest management planning, administration and technical support, monitoring and control of illegal activities, coordination with other government and non-government agencies
Communities	- Individual households, landowners with rights on rangelands / hillsides, forest users and dwellers - Organized communities such as Forest Conservation Committees, Village Organizations organized by development actors, Local Support Organizations or their apex institutions - Women organizations in the villages or their apex organizations - Organization of forest user/ forest owners	- Have a direct stake in REDD+ benefit and thus conserve forest resources for a longer term while responsibly using forest resources according to *de jure* or customary laws - Provide local knowledge to understand the drivers/ agents of deforestation and forest degradation - Ensuring participatory inputs for planning and development of forest management and operational plans - Implement forest conservation, protection, and management which mainly includes plantations, record of harvesting and preventing forests associated crimes (illegal cutting and trafficking of forest trees, NTFP trade etc.). - Engage in forest monitoring activities and strengthen the participatory monitoring process to ensure transparency of monitoring outputs
Civil Society Organizations	- Development initiatives from local and national NGOs may be used as incentive for forest communities - Citizens' fora and collectives for opinion building	- Organize and strengthen community organizations - Create platforms for dialogue on forest management issues - Promote rights issues particularly of children, women, youth and marginalized groups living in or adjacent to forest areas - Promote voices/concerns of poor and marginalized social groups - Offer implementation of development interventions when required
International organizations	- Development initiatives from local and national NGOs may be used as incentive for forest communities - Multi-lateral organizations with political power to influence policy and global opinion - International donor organizations	- Facilitate advocacy for environmental conservation and public awareness on unique and endemic ecosystems of Balochistan - Helping government institutions and local communities to implement the programmes and specific activities relevant directly or indirectly for forest conservation - Generate finances for development activities with positive implication for forests (including research and technology development.

Key stakeholder Group	Stakeholders	Roles in Forest Management
Private Sector	- Although limited, but wood-based industries, craft trade, nursery growers - Banks/ microfinance Institutions - Private investors and traders of NTFP - Technology developers /vendors (including water conservation, communication)	- Investing in sustainable forest management through sustainable business opportunities such as carbon tradeoffs, NTFP business; eco-tourism business etc. - Providing access to microfinance for small businesses - Creating alternative opportunities for local economies through employment and alternative income generation; - Partnerships with SMEs to for sustainable harvesting and value addition
Media	- Print media, newspapers - Electronic media including public and private sources - Social media - Institutional communique, newsletters and magazines	- Social watch in justice to weaker stakeholders (women, landless, poor) in forest management by highlighting equity issues - Mentoring and influencing decision making of government and other stakeholders on benefit-oriented forest management - Report illegal activities and highlight good practice - Inform the public on key programs and activities; and ensure rights to information - Bring opinion-makers and stakeholders together through effective communication and information sharing for identifying problems and common solutions.
Academia and research	- All regional public or private universities in agriculture, technology development and social sciences - Provincial government research institutions - Federal government research institutions with or without provincial presence - International research institutions with provincial presence (e.g., CGIAR[16] research institutions) or research projects	- Developing science of forest exploitation and conservation and providing a steady stream of forestry professionals to both government and industry - Conduct critical and neutral studies on good practice; forest diversity and environmental changes and trends - Study dynamics of drivers of deforestation and forest degradation and forest enhancement and compare effectiveness of solutions - Study and propose alternatives (to timber, to firewood, income opportunities) and economics - Silvicultural-based sustainable forest management and solutions

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16 https://www.cgiar.org/

2 METHODOLOGY

The main goal of the Balochistan REDD+ Action Plan is to *serve as a strategic set of options to addressing drivers of deforestation, forest degradation and barriers to enhancement, while ensuring local livelihoods and incentives from REDD+ activities and aligning with National REDD+ objectives of Pakistan.*

2.1 Main objectives

The main objectives of the Provincial REDD+ Action Plan are as follows:

1. Outline strategic options to address the prioritized drivers and barriers with context specific actions[17] and related budget
2. Improve the health of forest ecosystems by reducing deforestation and forest degradation and enhancement of forest biomass
3. Define effective implementation and monitoring of REDD+ interventions to address the drivers
4. Identify social and environmental risks associated with interventions and propose mitigation
5. Propose a clear benefit sharing mechanism associated with implementation of REDD+ activities
6. Identify areas for enabling policy, legal and institutional arrangements in favour of implementing PRAP

2.2 Steps followed for preparation of PRAP

The PRAP for the province has been prepared stepwise using a highly interactive process entailing consultations with representatives of the multiple stakeholders and with institutional memory holders of the subnational entity. In addition, updated secondary data, policy documents and research references have been consulted as a founding base for discussions and interventions proposed in this action plan. The methods followed are based on international best practices and examples, particularly within Asian countries[18]. The methodological steps are summarized below.

2.2.1 Review of literature

A detailed review of literature was conducted on drivers of deforestation and forest degradation in Balochistan. This included documents available with the Ministry of Climate Change, the Balochistan Forest Department and online sources. Available maps were reviewed, and these were improved to clearly mark administrative boundaries. These maps were then used to understand land use, land use change, forest cover/ forest cover change. This information was then presented to the stakeholders for triangulation and discussions on the drivers of deforestation and degradation.

2.2.2 Multi-stakeholder consultation

A consultation workshop was held in the province to undertake the tasks listed below. Since many of the drivers and barriers originate outside forestry sector, participation of relevant actors, other than

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17 A set of interlinked activities that form a coherent strategy for counteracting a driver of deforestation, forest degradation and/ or barriers to expansion of a forest carbon enhancement activity.

18 https://lib.icimod.org/record/33717
https://www.unredd.net/documents/un-redd-partner-countries-181/asia-the-pacific-333/a-p-partner-countries/viet-nam-183/communication-knowledge-sharing-2000/communication-and-knowledge-sharing-materials-2002/leaflets-and-brochures-2009/17322-viet-nam-infobrief-series-viet-nams-experience-with-developing-provincial-redd-action-plans-prap.html?path=un-redd-partner-countries-181/asia-the-pacific-333/a-p-partner-countries/viet-nam-183/communication-knowledge-sharing-2000/communication-and-knowledge-sharing-materials-2002/leaflets-and-brochures-2009, https://lib.icimod.org/record/33672

the forest sector was ensured in the workshop so that views of all relevant actors are documented (**Annex I**).

A. Prioritization of already known drivers
The participants of the workshop shortlisted drivers of deforestation and causal links from the list that was taken from the National REDD+ Strategy and literature and prioritize them based on their impact. Following elements were considered while prioritizing drivers:
- Consider the level of future threat (increasing, decreasing or stay unchanged)
- Consider its impact on forest quality, biomass density and area
- Build consensus by scoring prioritization of drivers of deforestation and forest degradation
- Drivers of deforestation and forest degradation need to be spatially linked with their geographic and socio-economic contexts
- Establish cause and effect linkages between drivers to identify problem trees (some drivers are more the effects than drivers)
- Identify barriers to enhancement of forest (biomass) as specifically as possible.

A consensus-based scoring was conducted for prioritization of drivers of deforestation and forest degradation for further analysis.

B. Causal analysis of the prioritised drivers
- The drivers of deforestation and forest degradation as well as barriers to enhancement activities prioritised [19] by stakeholders were debated in a moderated group exercise.
- Cause and effect of all drivers were analysed. The group prepared cause and effect problem trees so that interventions may be defined to remove causes as far as possible.
- The geographical hotspots of the drivers identified and spatially mapped by experts for quantification.
- The hotspots of drivers identified by the stakeholders, were randomly verified in the field.

C. Solutions and actions
- Identify strategic solutions to address causal factors identified in the earlier exercise
- Identify actions to address prioritised drivers and underlying causes
- The actions were verified through field visits for their relevance to the geographic contexts.

D. Analysis of social and environmental safeguards
Social and environmental safeguard analysis of the proposed actions and risk reduction and mitigation measures to address safeguard issues. Potential safeguards of the proposed actions were discussed and analyzed founded on the Environmental and Social Safeguard Analysis (SESA) study conducted under Pakistan's REDD+ Readiness process[20] and tailored to the Balochistan's provincial context.

E. Focus group discussions
Focus group discussion (FGDs) were also held with local stakeholders (including communities) where the proposed actions were presented, and risk mitigation measures were identified.

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19 The participants were encouraged to identify new driver, if any, or split / merge earlier drivers identified before prioritization exercise.
20 https://www.redd-pakistan.org/wp-content/uploads/2021/06/Strategic-Social-and-Environmental-Assessment-PAkistan.pdf

2.2.3   Expert group consultations

The analysis from multi-stakeholder session and FGDs was peer reviewed by expert groups and improved. This is the stage where a few critical issues related to REDD+ implementation were elaborated including:

- Outline overall distribution mechanism for potential carbon benefits emerging REDD+ activities
- Capacity needs assessment of the stakeholders in connection with REDD+ implementation
- Identify measures to address capacity gaps and enhance existing capacities
- Monitoring indicators and protocols for proposed actions
- REDD+ benefit sharing mechanism proposed to monitor distribution of benefits
- An indicative budget for interventions

2.2.4   Quantitative analysis of deforestation and degradation

A spatial analysis was conducted to understand changes in forest leading to conversion from forest to other land cover classes (deforestation). In this study, 2008 and 2012 land cover maps at level 1 (6 IPCC classes) were used for the spatial mapping. At the province level, using a 6x6 land cover classes matrix was generated to assess the conversion of the forest area to other land cover land cover classes (i.e., Forest to Cropland, Forest to Grassland, Forest to Settlement, Forest to Wetland and Forest to Other land). No recent studies are available for quantification of degradation. Therefore degradation hotspots were identified by the stakeholders during the interactive session in the PRAP workshop and were mapped accordingly after random field verification.

2.2.5   Drafting and endorsement of the PRAP

Using the material collected, the PRAP was developed which includes immediate, medium and long-term intervention. The PRAP also include monitoring protocols, safeguards and actors relevant to implement actions.

The plan was endorsed on 24th March, 2022 by Provincial REDD+ Management Committee (PRMC) in Quetta (note attached in **Annex – II)**. Discussion and feedback from the PRMC were addressed in the document and a revised documents was shared with the province.

3 DESK REVIEW: DIRECT & INDIRECT DRIVERS OF DEFORESTATION & FOREST DEGRADATION

The Balochistan government recognized REDD+ as financial incentive-based forest management scheme likely to incentivize ongoing forest management initiatives to address Drivers of Deforestation and forest Degradation (DoDD) and associated behavioral change among the local communities. The intent and approach of the government on REDD+ have been described in this REDD+ Action Plan.

The NRS provided a strong base to initiate the identification and prioritization process of province specific DoDD and barriers to enhancement. These drivers were further verified through desk review of other studies on DoDD. The summary of these references is given in **Table 3**. It is to be emphasized that Balochistan's forestry resources have received a lot of interest from researchers and, therefore, the references in the table may not be complete. Therefore, a dialogue among major stakeholders was held to further validate this prioritization of drivers for a desk analysis:.

Table 3: Drivers of deforestation and forest degradation determined from review of literature (Balochistan)

Deforestation	Commercial Agricultural Expansion	Infrastructure development (roads, habitation, transmission lines)	Mining, especially surface mining		
Literature reference	• Draft NRS (2018) • Pakistan's R-PP (2013) • Ahmed (1989)	• Draft NRS (2018) • Pakistan's R-PP (2013) • Achakzai et al. (2013) • Ahmed (1989)	• Draft NRS (2018) • Pakistan's R-PP (2013) • Achakzai et al. (2013)		
Forest Degradation	Unsustainable wood extraction	Small scale agricultural practices	Over grazing	Poorly managed Tourism	Infectious diseases
Literature Reference	• Draft NRS (2018) • Pakistan's R-PP (2013) • Sarangzai et al. (2013) • Bazai (2012) • GoP (1992a and b) • Ahmed (1989)	• Draft NRS (2018) • Pakistan's R-PP (2013) • Sarangzai et al. (2012)	• Draft NRS (2018) • Pakistan's R-PP (2013) • FAO (1983) • Islam and Adams (2000) • Ahmad et al. (2009) • Ahmad et al. (2012) • Shafiq and Kakar (2007) • Sarangzai et al. (2013)	• Draft NRS (2018) • Pakistan's R-PP (2013) • Sarangzai et al. (2012)	• Draft NRS (2018) • Pakistan's R-PP (2013) • Batool et al. (2012) • Sarangzai et al. (2010) • Bazai et al. (2012)
Barriers to Enhancement	Grazing	Droughts	Diseases	Poor soil conditions/ site quality	Natural disturbances
Literature Reference	• Shafiq and Kakar, 2007 • Achakzai et al 2013; • Ahmad et al. 2012)	• Shafiq and Kakar, 2007	• Batool et al. 2012 • Sarangzai et al 2010	• Saifullah et al. 2002, • FAO 1983 • Islam and Adams 2000 • Ahmad et al. 2009	• Shafiq and Kakar 2007

4   ANALYSIS OF DIRECT & INDIRECT DRIVERS

The following sections provide details on direct and indirect or underlying causes of deforestation and forest degradation and barriers to forest (biomass) enhancement.

4.1   Drivers of Deforestation

4.1.1   Prioritization of drivers of deforestation

The drivers listed from the literature and the spatial map with quantification of drivers of deforestation were presented to the stakeholders for further discussion and prioritization in the consultation process. Three drivers were qualified by the stakeholders based on their experience and foresight on future threat, biomass and forest area impacts, for further analysis and deliberation in the PRAP (**Table 4**).

Table 4: Ranking of Direct Drivers of Deforestation

Direct Driver	Location (s)	Future Threat	Future Biomass/ Carbon Impact	Future Forest Area Impacted	Total
(1: Very Low, 2: Low, 3: Medium, 4: High, 5: Very High)					
Clearing of forest land for urban expansion such as Settlement, Infrastructure development etc.	Zhob, Kalat, Khuzdar, Lasbela, Killa Saifullah, Sherani, Mastung, Quetta	4	4	4	12
Clearing of forest land for agriculture expansion	Sherani, Musakhel, Mastung, Killa Saifullah, Lasbela, Khuzdar, Chaghi, Mastung	4	3	4	11
Clearing of forest land for mining purposes	Duki, Harnai, Chaghi, Muslim Bagh	3	2	3	8
Floods	Nasirabad / Jaffarabad	3	2	2	7

Table 5 provides an overview of the direct drivers of deforestation identified by the group and associated under lying causes. **Table 6** provides locations noted by the participants as hotspots of the prioritized drivers. The problem tree with prioritized drivers of deforestation prepared by the participants during consultation workshop is presented in **Figure 2**.

Table 5: Direct and indirect causes of deforestation

Direct Drivers	Underlying/ indirect drivers
1. Clearing of forest land for urban expansion / infrastructure	• Poor forest land demarcation • Demand for land from stronger player for infrastructure projects, especially housing schemes and mining expansion • Insecure land tenure associated with poor law enforcement and old/ obsolete laws • Lack of coordination for effective land use planning and policies between line departments (such as planning, local government and forests)
2. Clearing of forest land for agriculture expansion	• High demand for agricultural land which pushes farmers to break more plots of land for agriculture • Low agricultural productivity due to water scarcity droughts, low water availability • Poor surface water management and conservation • Excessive groundwater extraction leading to further shortage of water • Diversion of development funds to unsustainable infrastructure schemes doing more harm • Political influence for short term decisions

Direct Drivers	Underlying/ indirect drivers
	• Lack of research base on drought mitigation • Inadequate agriculture extension services for dryland agriculture • Lack of skills and awareness • Lack of alternative income sources • Lack of incentive-based forest conservation schemes (e.g., REDD+/ PES) • Low investment in forest sector • Poor and unsustainable utilization of NTFP resources • Lack of awareness and off farm skill development opportunities and limited • Poor access to market
3. Clearing of forest land for mining	• Lack of land use policy, planning and do no harm implementation • Weak implementation of EIA guidelines associated with power dynamics • Weak law enforcement and poor monitoring • Poor coordination among forest and mining actors leading to unsustainable mining

Table 6: Locations of prioritised drivers of deforestations

Locations of prioritised drivers of deforestations		
Clearing of forestland for urban expansion	Clearing of forestland for agriculture expansion	Clearing of forestland for mining purposes
Zhob, Kalat, Khuzdar, Lasbela, Killa Saifullah, Sherani, Mastung, Quetta	Sherani, Musakhel, Mastung, Killa Saifullah, Lasbela, Khuzdar, Chaghi, Mastung	Duki, Harnai, Chaghi, Muslim Bagh

4.1.2 Quantification of drivers of deforestation

A spatial analysis was conducted to understand the changes from forest to other land cover classes (deforestation).

In this study, 2004 and 2008 land cover maps were used at level 1 (6 IPCC classes) for the spatial mapping (**Figure 3**). At the province level a 6x6 land cover change matrix was used to assess conversion of the forest area to other land cover classes.

The analysis shows that the past conversion of forestlands to crops and settlement was rather negligible. Forest conversion to other land uses is more dominating (including wasteland / pastures, built environment of official or commercial nature, mining etc.). The stakeholders, however, foresee an aggravated drivers converting forestland to infrastructure (with induction of economic initiatives) and crops (with improved access to water).

Field verification of these drivers on some of the hotspots was conducted and evidence was collected through photos and conversation with local stakeholders.
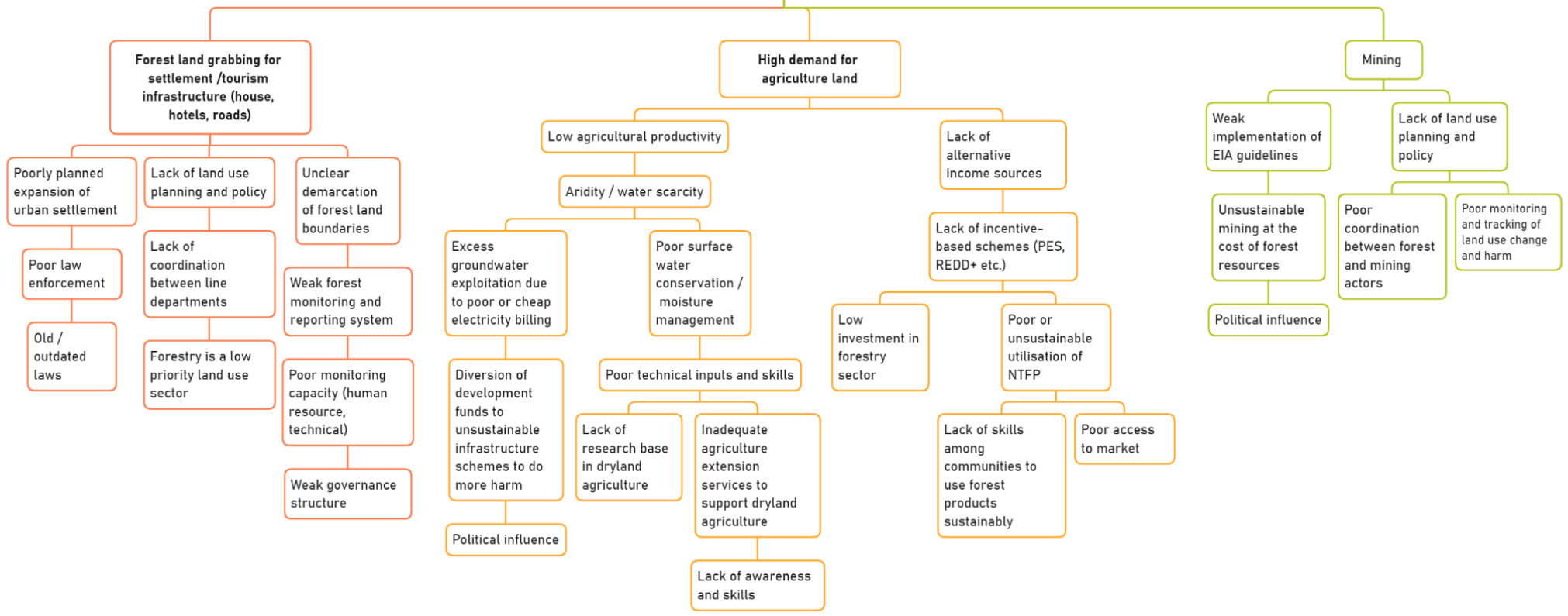
Figure 2: Problem tree Deforestation – Balochistan
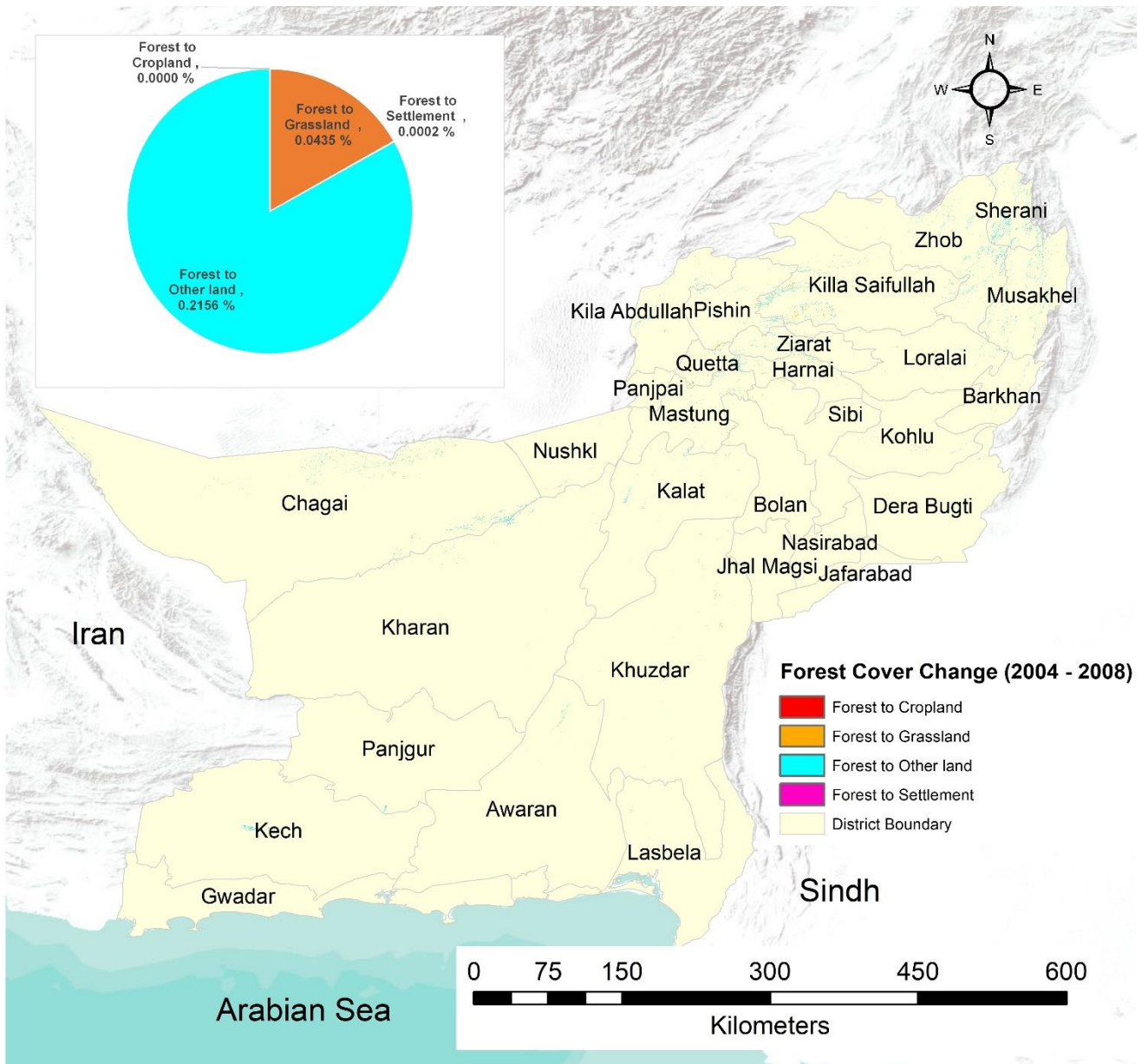
Figure 3: Forest cover change of Balochistan (2004 – 2008)

Picture 1: Urban expansion - Quetta
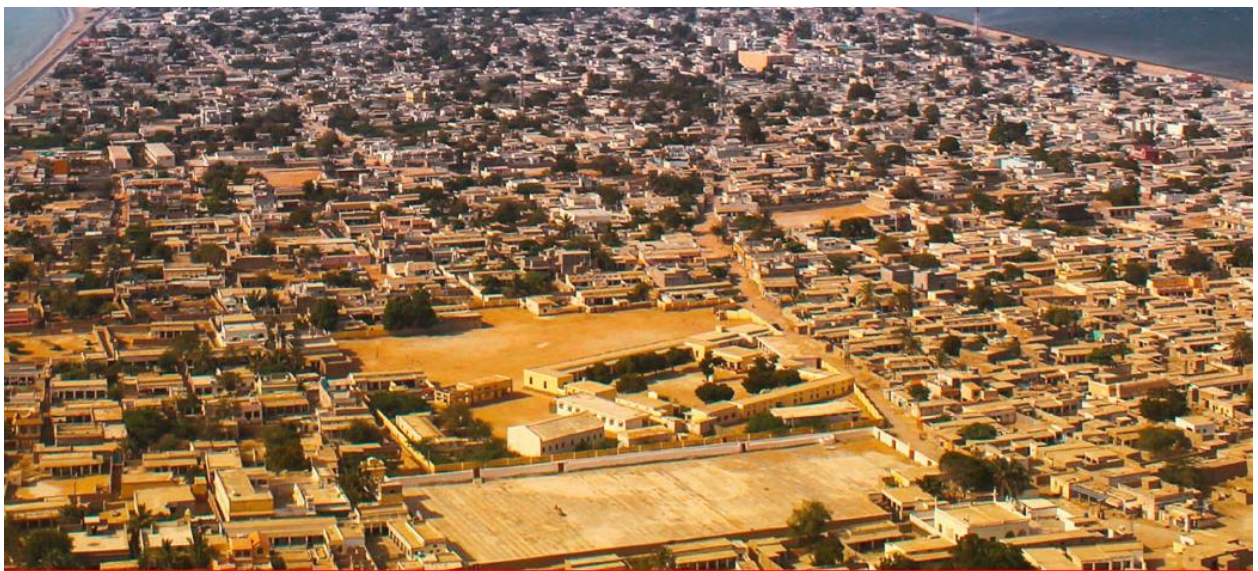
Picture 2: Urban slums south of Quetta

Picture 3: Chaghi agricultural landscape

Picture 4: Mastung agricultural landscape

Picture 5: Mining in Balochistan(Dukki)

Picture 6: Mining in Sor, Chaghi

4.2 Drivers of Forest Degradation

4.2.1 Prioritization of drivers of forest degradation

A ranking exercise by the stakeholders led to prioritizing three drivers for further deliberation in the PRAP process for Balochistan (**Table 7**).

Table 7: Ranking of direct drivers of forest degradation

Direct Driver	Location (s)	Future Threat	Biomass/ Carbon Impact	Future Forest Impacted	Total Score
(1: Very Low, 2: Low, 3: Medium, 4: High, 5: Very High)					
Droughts	Lasbela, Awaran, Panjgur, Rakhshan, Kharan, Dalbandin, Nushki, Pishin, Karizat, Zhob, Qila Saifullah, Loralai, Duki, Kahan	5	4	2	11
Fuel Wood Extraction	Kahan, Sherani, Musakhel, Kalat, Pishin, Ziarat	4	3	2	9
Heavy / free grazing	Mostly rangeland forests	3	2	1	6
Forest fires	Zhob	2	3	1	6
Diseases / mistletoe	Ziarat	2	2	1	5

Recurring drought is one of the major challenges faced by Balochistan and many areas are experiencing drought since 2013. Rainfall received since 2013 has been hardly one fourth of the usual rainfall (usual rainfall is 200-250 mm)[21]. The steepest average water table decline was reported by 2 to 5 meters in several districts[22]. The reasons for such an accelerated rate of decline were drought coupled with massive pumping of groundwater. The increased competition for groundwater has resulted in a massive overdraft and drawdown of water tables. Extreme reduction of water in tube wells, karezes and springs is common in many areas of the province. Drought affected forest trees by slowing or arresting growth, causing injury or death, and increasing their susceptibility to wildfire and insect pests. On the other hand, watershed management which is not designed for moisture management and arresting limited rainfall drivers further exacerbates dry conditions for the forest ecosystems. In addition, droughts also have huge impacts on agriculture and socioeconomic systems. The scarcity of irrigation water also severely affected crops and horticulture especially including apple, main source of income in upland Balochistan. The system entirely propels a vicious circle of desertification in Balochistan.

Moreover, logging operations, overgrazing and other similar factors are further impacting forest growth. The ever-growing population has resulted in increasing demands for wood and wood-products on a small forest resource base. All forests in Balochistan remained under continuous stress and their utilization is over and above their productive capacities. **Table 8** further describes direct and indirect drivers whereas **Table 9** provides hotspots with drivers of degradation.

Table 8: Direct and Indirect causes of forest degradation

Direct Drivers	Underlying/ indirect drivers
1. Climate change induced droughts	- Lack of climate change policy to support drought mitigation, adaptation and resilience building - Lack of natural moisture and erratic rainfall to support vegetation - Poor watershed management associated with weak institutional, technical and technological capacities particularly on dryland management

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[21] IPC acute food insecurity classification 2021. World Food Programme

[22] https://www.sciencedirect.com/science/article/pii/S2214581814000457 (2014)

Direct Drivers	Underlying/ indirect drivers
	• Exacerbation by human actions: Unregulated installation of tube wells, excessive extraction of groundwater, failure of agriculture to yield income and thus extra burden on natural resources • Lack of recognition of interconnection between watershed and water, weak engagement of water actors. • Poor governance of forest and water resources associated • Lack of coordination among line institutions (including agriculture, mining) • Lack of capacity to organize technical and technological support • Lack of political will and awareness among laws makers and communities • Forestry is a low priority sector, and not enough finances are provided to the sector
2. High demand for firewood	• High dependency on forests for firewood for energy • Lack of options and poor access to alternative energy sources by local communities • Use of fuelwood by brick industries/ kilns • Firewood selling for income due to extreme poverty and lack of alternative income • Lack of private sector involvement on investment in forestry sector / energy development • lack of incentive-based policies • Lack of awareness/ knowledge of incentive-based schemes i.e., PES/ REDD+

Table 9: locations of forest degradation with drivers

Locations of prioritised drivers of forest degradation			
Climate induced droughts	High demand for firewood	Heavy, free grazing	
Lasbela, Awaran, Panjgur, Rakhshan, Kharan, Dalbandin, Nushki, Pishin, Karizat, Zhob, Qila Saifullah, Loralai, Duki, Kahan, Panjpai, Dasht	Kahan, Sherani, Musakhel, Kalat, Pishin, Ziarat, Zhob	Lasbela, Ziarat, Zhob, Sherani, Kalat, Panjpai, Musakhel	

The prioritized drivers for degradation were further cross checked with secondary literature and random field verification of the hotspot locations identified by the participants. These locations are shown in **Figure 4**.

4.2.2 Quantification of drivers of forest degradation

No recent studies are available for quantification of degradation. However, The fuel wood consumption for Balochistan is massive with the highest per capita consumption in the country[23].

The Government of Pakistan conducted a first baseline study in 2003-2004 on "Supply and Demand of Fuelwood and Timber for Household and Industrial Sectors and Consumption Pattern of Wood and Wood Products in Pakistan". The study revealed that the per capita availability of forests in Balochistan in 2002-2003 was 0.115 hectare (ha) per capita of the population. The study also revealed that the total supply of timber and fuel wood from state forests was 0.544 million m³. On the other hand, the fuelwood consumption in Balochistan was 2.812 million m³ in 2003 that was anticipated to increase to 3.408 million m³ in 2018. The use of industrial timber was 0.593 million m³ in 2003 which was anticipated to increase to 0.791 million m³ in 2018[24]. The supply gap of wood was 2.27 million m³ in 2003 that was anticipated to grow to 3.21 million m³ in 2018. The Balochistan Forest Department chalked out their afforestation and rehabilitation programmes under TBTTP to tackle the additional area in order to achieve targeted wood production and increasing productivity level through intensive management of existing forest resources.

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23 Source: Supply and Demand Survey, Government of Pakistan, 2003

24 Supply and Demand of Fuelwood and Timber for Household and Industrial Sectors and Consumption Pattern of Wood and Wood Products in Pakistan ((Maanics Int., 2004).
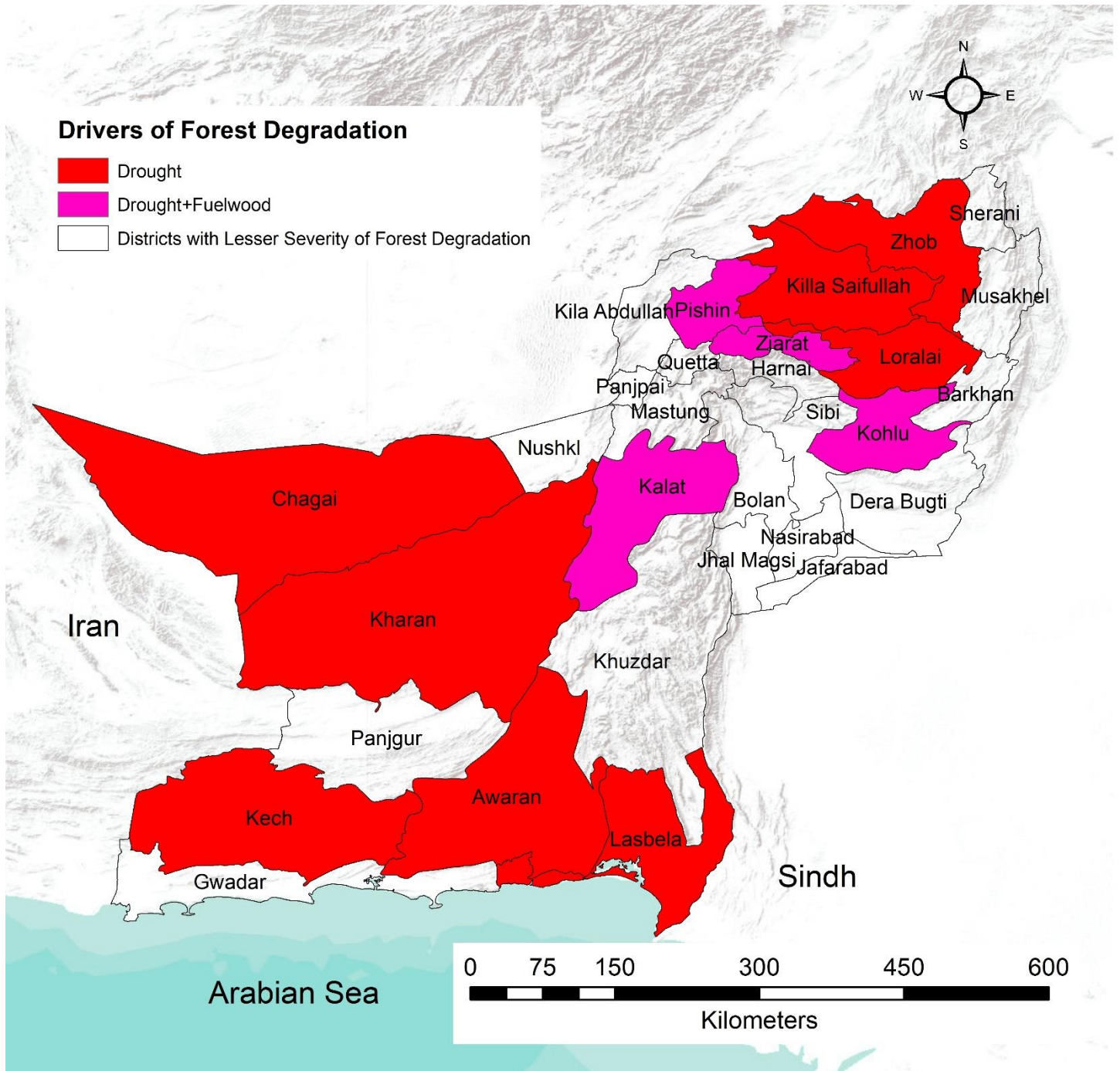
Figure 4: Hotspot areas of forest degradation in Balochistan
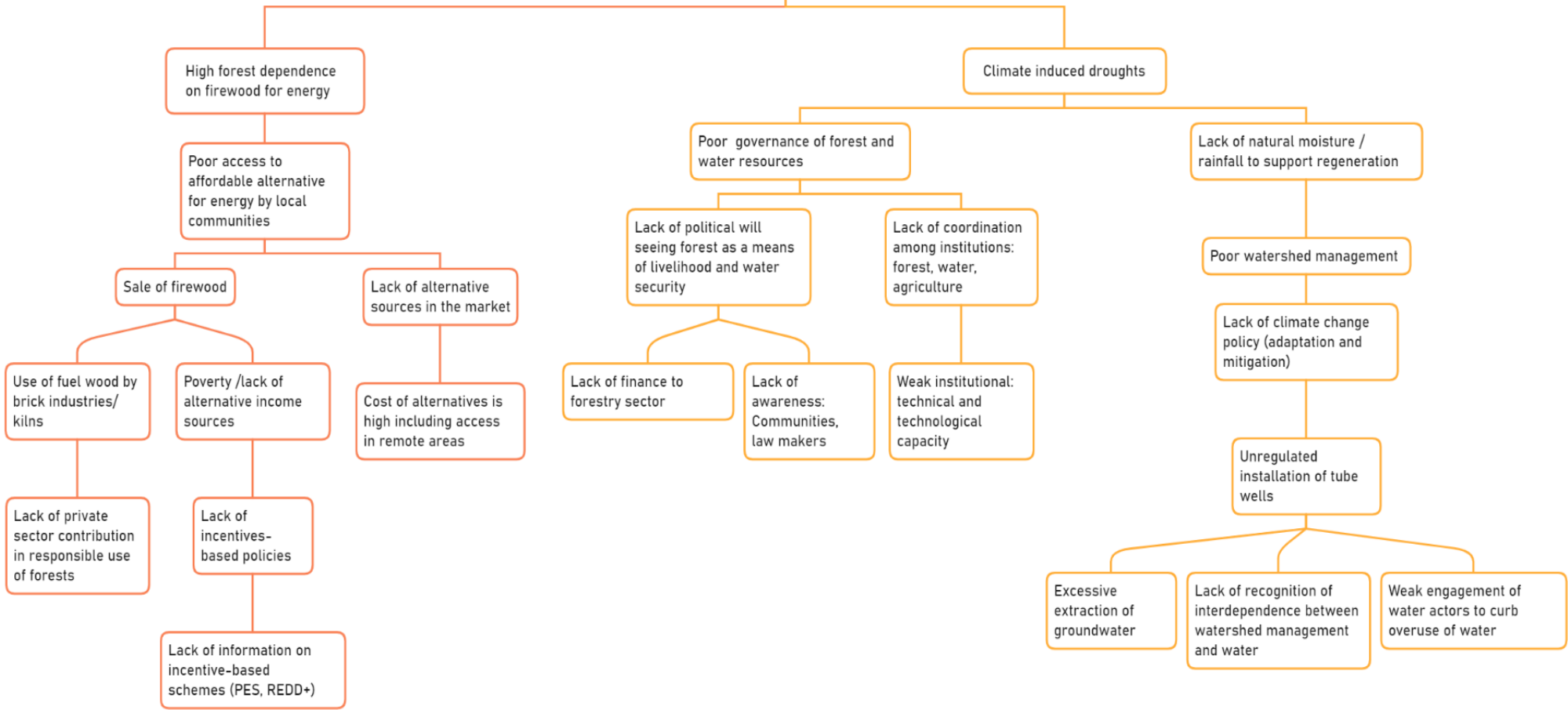
Figure 5 Problem tree of forest degradation

Picture 8: Milestone in Juniper Forest

Picture 7: Removal of juniper trees for firewood and local use

Picture 9: Living fossil of Ziarat Juniper – natural decaying process

Picture 10: Drought – a permanent crises in Balochistan

Picture 11: Grazing pressure on natural habitats in Balochistan

4.3   Barriers to enhancement of forest biomass

4.3.1   Prioritization of barriers

The Government of Balochistan is committed to enhance the provincial forest biomass through conservation, development, and sustainable management of forest resources. This commitment is manifested through different measures already in place contributing to lands restoration, biodiversity conservation and inclusive conservation of existing natural forests. Two grouped enhancement options were rated by the stakeholders. They agreed that forest restoration, sustainable management of forests, and forest conservation are the best options for Balochistan since afforestation faces several natural and technical challenges due to xerophytic conditions in the province beyond the control of the Forest department (**Table 10**).

Table 10: Ranking of options to overcome enhancement barriers

Carbon Enhancement Activities	Location (s)	Future Potential Area	Future Biomass/ Carbon Impact	Total Score
(1: Very Low, 2: Low, 3: Medium, 4: High, 5: Very High)				
Reforestation & Forest restoration	Throughout province	5	4	9
SFM & conservation	Ziarat, Sherani, Zhob, Musa Khel, Qila Saifullah	4	4	8
Afforestation	Only possible in areas where water is available	3	3	6

4.3.2 Analysis of barriers

The prioritized forest enhancement initiatives, however, face several barriers (policy, economic, institutional, social and technological). These barriers were elaborated by the stakeholders during consultation sessions (**Table 11**). The problem tree with prioritized barriers of enhancement activities is presented in **Figure 6.**

Table 11: Barriers to enhancement of forest biomass

Major Barriers	Underlying challenges
Policy/ governance barriers	• Lack of efficient land use policies and action plans • Lack of incentive-based forest policies, especially with respect to alternatives • Weak implementation and monitoring of existing policies
Institutional barriers	• Inadequate human and financial resources • Lack of coordination mechanism among departments, especially with mining • Weak law enforcement
Technological barriers	• Limited knowledge/ lack of geo-spatial tools and monitoring technology • Limited focus on dryland afforestation, drought management • High failure rate in afforestation due to dry conditions
Social barriers	• Low awareness and community interest and participation • Free grazing by large size flocks, nomadic grazing
Economic barriers	• Lack of access to international markets (PES, REDD+) • Limited resource base for economic activities • Lack of value chain promotion of NTFPs, fruits and forest ESs • Weak business plans to attract private sector (NTFPs)
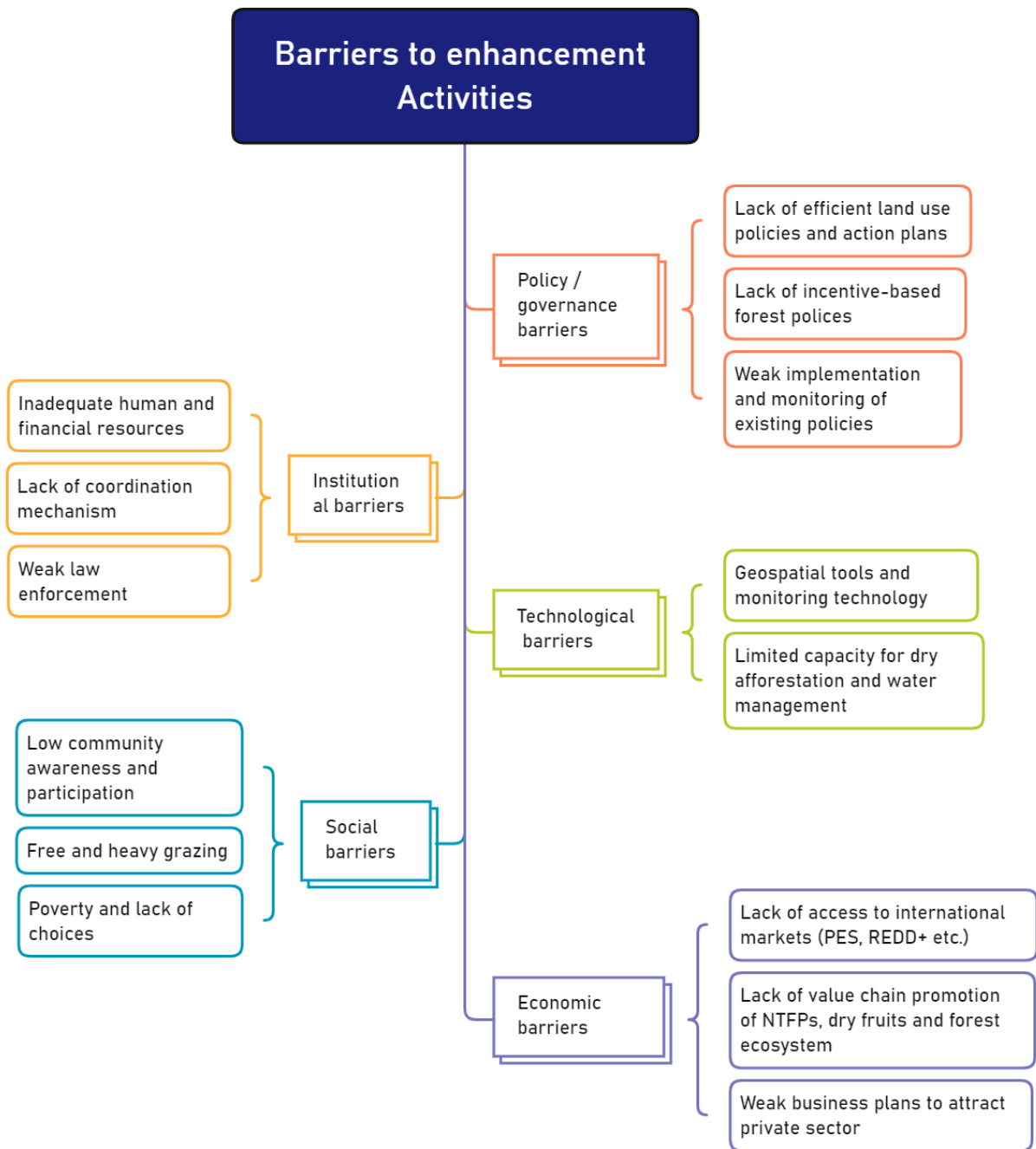
Figure 6: Problem tree of barriers to enhancement of forest carbon stocks

5   ACTIONS TO MANAGE DRIVERS, UNDERLYING CAUSES AND BARRIERS

This chapter elaborates on solutions for reducing the rate of deforestation and forest degradation in Balochistan and activities for enhancing forest carbon stocks. Different solution pathways have been elaborated and presented in this section to reduce deforestation and forest degradation.

5.1   Addressing drivers of deforestation

This section documents actions for addressing direct and indirect drivers of deforestation. An action plan is given in **Table 12**.

5.1.1   Overall actions necessary to curb underlying causes of deforestation

The stakeholders suggested that REDD+ implementation will be effective when policies and frame conditions for forestry and non-forestry sectors are in sync with each other. REDD+ implementation should include; (i) an inclusive governance framework and sound forest monitoring system to timely detect and report land use changes and (ii) well-defined interventions with associated potential benefits to enhance contributing interest from stakeholders. A dedicated support from community institutions is needed to rely on them as an extended arm to implement policy decisions. Participatory forest monitoring, therefore, is essential to track and flag drivers of deforestation so that measures may be taken to minimize them. In summary, the following immediate actions were identified to reduce deforestation trend:

- *Ensure clarity on forestland boundaries and land use.* Demarcation of forestland is essential, and all ambiguities need to be removed. In Balochistan's context this is important because often forestlands have scanty vegetation due to the process of desertification and chronic xerophytic conditions which lead land encroachers to take advancement on land and convert land use. Land uses such as agriculture, settlements and mining are critical to determine the fate of forest resource and thus need to be regulated. This may be supported by formulation of land use policy and mapping to establish benchmarks and secure forestlands for the future. Advocacy campaign for effective institutionalization and implementation of land use planning and policy will be required.

- *Improved participatory forest monitoring mechanisms at provincial and Circle levels* to flag encroachments and/ or clearing of forest land to other land uses on timely basis. This includes establishment and implementation of Provincial Forest Monitoring System at sub national level and link this with the national forest monitoring system to detect changes. The institutional structure of the sub-national monitoring and MRV system needs to be revised and strengthened through institutionalising community participation, launch of capacity building program from organised communities and staff. An effective monitoring system is also a key to track impact of actions for reducing forest degradation.

- *Coordination between departments* (esp. Forest, Planning, Land Revenue, Agriculture, Mining) for planning, monitoring and addressing conflicting land use issues. These are theoretically managed through NOC / EIA for mines, housing or other land use schemes. However, the Forest department sees this a one-sided procedure. This may also include reconstituting PRMC and other REDD+ forums in Balochistan which may be helpful multi-stakeholder structures to support informed, timely and inclusive decision making.

- **Promote forestry research base in consultation with academia** to increase understanding of how the forest and environment interact, as well as demonstrating the possible effects of climate

change. One of the important research areas identified is to determine the CO_2 sequestration potential of forests for the needs of reporting under UNFCCC.

5.1.2 Prevent forest land use change to urban expansion (settlement)

In order to address this issue, land use planning through effective coordination among different state agencies is required to prevent decisions leading to forest land use change. Since such decisions may not be easy at times, a legal protection is necessary as explained in the overall actions – such as land use policy and its monitoring.

The following actions are proposed

- Policy for provision of NOCs for settlement schemes or mining (including private housing scheme, tourist facilities) revised to include forest concerns.
- Strong accountability ensured through Environment Impact Assessment and damage recoveries / mitigation; ensure forest resource development while a settlement or mining activity is established (% area of green cover in all settlements made mandatory and mining to limit certain boundaries).
- A centralised forest resource monitoring system may be helpful in raising early warning and reporting system against illegal encroachment. Community participation may be helpful in the protocols since Balochistan is a remote context and communities are often first to learn regarding any anomaly.
- Law enforcement strengthened to curb illegal occupation for settlement or mining.
- Inter-departmental committee established to govern expansion of settlements; also, a tribunal to deal with appeal cases.

5.1.3 Reduced forest land use change for agriculture

Conversion of forestland to agriculture and urbanization is a threat to forests and leads to reducing potential of REDD+. Strengthening agricultural systems and transforming short term livelihood strategies of forest dependent poor and marginalized households to more sustainable ones should reduce pressures on clearing of forest land for agriculture practices. In addition, this is an obvious need for Balochistan's highly food insecure context where farmers suffer several constraints in securing economically viable yields from crops. Enhanced productivity and reduced fragility of agricultural system has a direct correlation with reduced pressure on livelihoods as well as forest resources. Increasing productivity of agricultural systems may not reduce deforestation in the beginning due to the fact that opportunity cost keeping forest is higher when land productivity from agriculture is higher. Therefore, this specific measure needs to be seen with strict measures on land use change to assure that high agricultural productivity does not become an incentive for deforestation.

Balochistan' natural habitat has prevalence of high value medicinal and aromatic plants. These resources may become an incentive to conserve natural habitat where these plants grow. Livelihood diversification with sustainable use of NTFP may help in reducing pressures on forests (given the literature and ground evidence that these pressures mostly come from poor communities with livelihood dependency on natural forests) and improve quality of life of forest dependent communities.

Based on the underlying causes of this driver, the PRAP proposes four main interventions/ actions as a collective solution to the loss of forest to agriculture:

1. **Agriculture productivity of existing land intensified:**
   - Use of water efficient and drought resistant technologies such as drought tolerant crop varieties, modern and low-cost high efficiency irrigation practices, water conservation / moisture management techniques etc.

- Imposing water conservation emergency to improve water balance, which includes strong policy measures in urban areas to save water
- Promotion of farm forestry to supplement supply of firewood from natural forests
- Encourage tunnel farming of niche crops through establishing public private partnerships
- Soil fertility management in dry conditions to enhance productivity
- Strengthening agricultural extension services and improving awareness levels

2. **Alternative incomes provided to reduce livelihood dependency on forests**
   - Sustainable forest-based enterprises promoted to create employment opportunities in forestry sector (NTFPs, nuts) in addition to improving access to markets, wood alternatives etc.
   - Vocational education and skill-based training opportunity for economically poor and marginalized (including NTFP traits)
   - Promote Forest based Payments (e.g., REDD+) from Forest Ecosystem Services (PES)[25] and internalising PES markets to incentivize conservation measures.

4.1.4 Reduce forest land use change for mining

Though the scale of this driver is relatively small at the provincial level, however, at the local level in most potential mining areas, this driver is very critical. This risk may also expand in future and cause more damage if not addressed in time. The EIA guidelines are available and strong coordination is required among forest and mining department to implement EIA guidelines effectively and strictly. Capacity building of forestry and mining officials is also required to implement these guidelines.

The solution tree with strategic options to address drivers of deforestation is presented in **Figure 7**.

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25 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. NRS, 2018
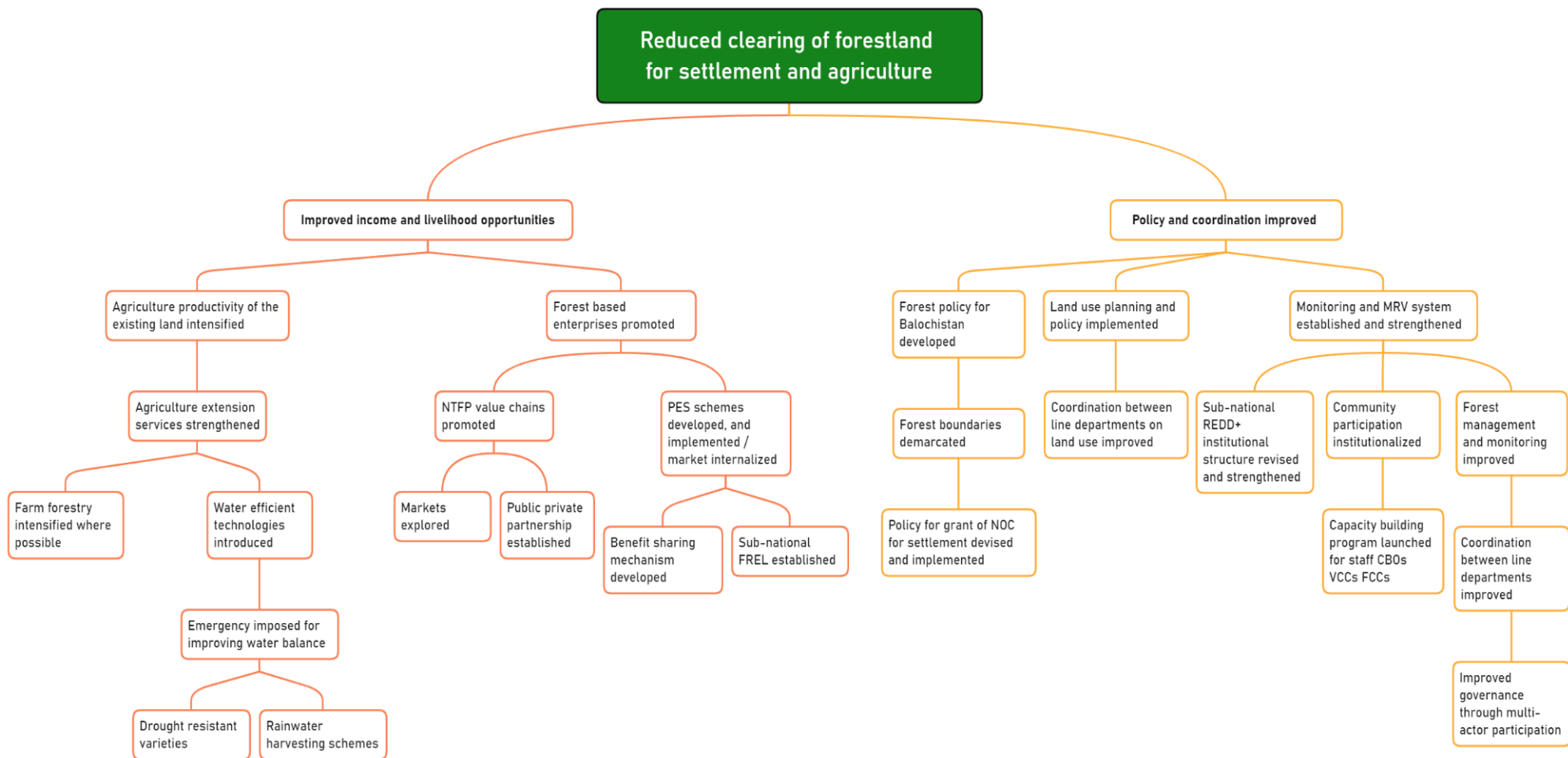
Figure 7: Solution tree of deforestation

Table 12: Action Plan for Addressing prioritized drivers of deforestation

Driver	Key underlying causes	Proposed Actions to address the underlying causes	Indicative Timeframe			Responsible Actors		Indicative targets	Indicative Budget (Rs. mill.)
			Short term (1-3 yrs)	Medium term (1-7 yrs)	Long term (1-10 yrs)	Lead	Support		
Clearing of forestland for agricultural expansion	Lack of agricultural productivity / aridity and water scarcity	• Improved cropland productivity and access to market • Select potential model forest community areas for farm forestry, vertical farming, and hybrid crop varieties etc • Include farm productivity measures in PFMPs • Strengthen agriculture extension services		✓	✓	Agriculture departments	Forest department, communities	500 farmers supported in hotspot areas	90
		• Water conservation technologies introduced • Emergency imposed for improving water balance • Drought mitigation measures / drought resistant trees and crops	✓	✓		Water department	Forest and Agriculture departments	10 watershed management sites	75
		• Integrate drought resistant trees on farmland to ensure fall back option in case of drought • Rainwater harvesting for crops, trees, livestock • Exposure visits for hotspot communities to KP/GB: agriculture and participatory forest management		✓	✓	Forest department	Communities	1000,000 trees 25 rainwater harvesting locations	40
	Lack of alternative livelihoods and employment	• Conduct detailed assessment of forest products and ecosystem services for SMEs • Regulate and enforce sustainable forest product businesses (high value NTFPs) • Develop operational procedures and register SMEs • Community awareness (social, print, and electronic media, sessions/ dialogues) on NTFP conservation	✓	✓		Forest department	SMEs Private sector	05 high value NTFP products NTFP procedure / rules	150
		• Introduce forest product certification from recognized accredited institutions to access markets • Train and educate local BDSPs to ensure market-based mechanism • Enabling business environments for SMEs • Build capacity of SMEs: Business management and technical, business, financial capacities, and linkages		✓		Forest department	SMEs, NGOs, private sector	20 BDSPs 500 youth engaged	135
		• Identify potential untapped and tapped sites in hotspots (mangroves, juniper forests) for promotion of community based eco-tourism / PES • Develop and implement PES scheme • Develop REDD+ benefit sharing mechanism		✓	✓	Forest department	Tourism department, private sector	02 PES schemes	90

Driver	Key underlying causes	Proposed Actions to address the underlying causes	Indicative Timeframe			Responsible Actors		Indicative targets	Indicative Budget (Rs. mill.)
			Short term (1-3 yrs)	Medium term (1-7 yrs)	Long term (1-10 yrs)	Lead	Support		
Clearing of forestland for urban expansion	Poorly planned expansion of urban settlements	• Inter-departmental committee and a tribunal on land use planning and grievances established • Review policies of agriculture, forests, tourism, water and power, and land revenue for land use planning • Identify sectoral measures for land use monitoring • Develop provincial land use policy • Complete demarcation of forest boundaries and linking with the digital land records	✓	✓		Revenue department	Forest, Planning & Development, Law departments	Policy and procedures 1 committee	30
	Ineffective or lack of land use planning and policy	• Policy and procedure strengthened for provision of NOCs / EIA for settlement schemes • Enforce guidelines (incl. media to publicise) • Strict monitoring of land use, including early warning from communities	✓	✓		Revenue departments Housing department	Forest department	Procedures	20
	Unclear demarcation of forestland boundaries	• Design and execute a campaign to raise awareness of the need to delineate forest and private land • Establish participatory technical taskforce to identify and assess content of land use policy • Land use mapping with revised property boundaries	✓	✓		Revenue department	Forest, Agriculture, Tourism, Mining, departments	Land use policy Forestland demarcation maps	10
	Poor coordination among actors	• Support establishment of REDD+ management units (North and South) and FGRM • Reconstitute PRMC, other bodies or review composition of Departmental Executive Committee (DEC) • Coordination between relevant departments • Regular meetings and implement decisions	✓	✓	✓	Forest department	Local government, finance department	PRMC notification Improved coordination	15
	Weak monitoring system	• Establish Provincial Forest Monitoring and MRV System and Circle level forest monitoring system • Strengthening modern geo-spatial/ forest carbon inventory tools and equipment • Develop sub-national forest monitoring web-portal and link it with national NFMS web-portal • Enhance technical knowledge of staff/ stakeholders on forest carbon/ GHG inventory techniques • Mainstream communities in forest management and monitoring	✓			Forest department	NRO, academia	Functional monitoring system # Equipment Web portal Monitoring reports	40

Driver	Key underlying causes	Proposed Actions to address the underlying causes	Indicative Timeframe			Responsible Actors		Indicative targets	Indicative Budget (Rs. mill.)
			Short term (1-3 yrs)	Medium term (1-7 yrs)	Long term (1-10 yrs)	Lead	Support		
Clearing of forestland for mining	Weak implementation of EIA guidelines	• Assess and specify (EIA) guidelines in forestry related development projects and integrate forest and other environmental laws and protocols to ensure effective law enforcement • DFOs/ PGIU staff is trained on sector specific EIA guidelines to ensure regular monitoring and adherence to the sector specific Environmental Impact	✓			Forest department	Mining department, local administration, law department	EIA guidelines and protocols	3
	Lack of land use planning and policy	• A system of NOC for mining areas with stronger compliance so that application of SOPs (do no harm guidelines) for mining become applicable • Strict monitoring and tracking of do no harm	✓	✓				SOPs Monitoring reports	2

5.2 Social and Environmental Risks of Proposed Actions

This section provides an analysis of any likely social or environmental harm on people or resources as a result of proposed actions in this plan. Major social and environmental risks associated with implementation of actions are given in **Table 13**:

Table 13: Social and environmental risks associated with implementation of proposed actions

Risk	Likelihood[26]	Impact	Mitigation measures to be facilitated by provincial REDD+ Cell
The risk of reluctance among actors on land use policy development and land demarcation issues due to its political sensitivity	• Medium	• Medium	• Ensure participation of all relevant departments with guidance from high-ranking officers to contribute to the initiative.
Poor and marginalised households losing access to land for agriculture due to implementation of legal boundary demarcations of forestland and better law enforcement.	• Low	• Medium	• Organized community institutions dialogue with losers • Alternative livelihoods options • Prior information to these communities
Elite capture in the provision of alternative livelihoods / income generating activities, farm forestry etc.	• Medium	• Low	Ensure a clear and transparent mechanism for participatory policy making, monitoring & reporting in which poor, marginalised and women groups are prioritised.
Owing to the cultural constraints, women remain out of reach for alternative livelihood options and remain unaware of useful opportunities.	• Medium: North • Low: South	• High	Follow gender action plan for REDD+ and ensure equal opportunities for women while introducing livelihood options
Resource entitlement issues may pop up with efforts to clarify tenurial issues. Conflicts may also arise when forest-based value chains are promoted.	• High	• High	Ensuring equitable and transparent benefit sharing mechanism and selecting the lands through organized community institutions.
Forest conversion in the process of delimitation of forest and private land boundaries in conflict areas as soon as the encroachers learn that they are likely to be removed or relocated.	• Medium	• Medium	• This needs to be countered by an early awareness raising campaign, including use of electronic media. • Deforestation prior to this process would disqualify the encroachers from receiving any kind of support or incentive.
A centralized technology-oriented monitoring system is misperceived as an attempt to centralize forest resources.	• High	• High	Conduct awareness campaign at community level to address misperceptions

5.3 Addressing drivers of forest degradation

Unlike other parts of country where forests serve the purpose of revenue generation, forests in Balochistan only have protection function. Balochistan has a highly fragile ecology over vast and remote landscape with arid and hyper-arid conditions. The process of desertification is rampant in Balochistan due to frequent drought spells and inclining anthropogenic pressure on limited resources (firewood

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26 Likelihood Chances of this risk becoming real. The impact refers to extent to which this will sabotage REDD+ implementation and its effectiveness

collection, grazing). The core drivers of forest degradation therefore are climate induced droughts and heaving dependence on forests for firewood collection.

5.3.1 Overall actions necessary to curb drivers of forest degradation

Founded on prior experience of participatory forest management in other provinces, capacity development in participatory forest management within the department is essential for reducing the rate of forest degradation in Balochistan and would also help to conserve and enrich forest resources. Monitoring may also become efficient and effective when both government officials and forest users have become technically sound in participatory forest management and monitoring as a result of capacity building. An action plan to address drivers of degradation is given in **Table 14**.

In addition, the complexity of the underlying causes of forest degradation warrants a stronger focus on improved forest governance which is self-accountable and accountable to the communities and citizens. Some of these measures are already available within reformed frame conditions and a matter of effective implementation.

Establishment of an effective and transparent forest monitoring system and coordination mechanism are also necessary to determine if the forest governance and management measures are going in the right direction. Regular change analysis in forest resource will determine chronic underlying causes and help identifying revised solutions if the solutions already determined are not effective.

In summary, following overall actions are necessary to address forest degradation issues:

1. ***Ensure implementation of participatory forest management practices through development of PFMP plans***. This is to assure that communities are part of the management structure at local level and forests cannot be conserved with department's command and control system only.

2. ***A centralised, functional, and empowered forest monitoring system*** which can timely detect changes in forest density classes and confirm direction of the measures to reduce deforestation and forest degradation. A common monitoring system with cross elements able to track total impact of actions against drivers of deforestation and forest degradation needs to be achieved in the province.

3. In addition, an ***effective institutional coordination*** system including non-forestry stakeholders needs to be in place to remove bottlenecks and underlying causes of forest degradation as a team (e.g., agriculture, livestock, energy)

4. ***Awareness of politicians, legislature, media, and citizens*** is necessary to enhance political and public will for supporting sustainable management of forest resources with institutionalised community participation.

5.3.2 Reduce pressure and demand for firewood

There is a severe pressure on already rather thin natural forests for firewood for heating and cooking. This is especially the case in the north where weather conditions are harsh and face a near complete lack of alternative energy sources. Fuelwood is in extremely short supplies locally and people are forced to purchase fuelwood at a remarkably excessive cost. Therefore, effective measures are required to deal with multiple options to address forest degradation – knowing the fact that the communities are also in search for cheaper and easy to access energy options and improve quality of their lives. Alternative energy sources of fuelwood for heating and cooking can reduce the demand for fuelwood from the degraded natural forests. Promotion of fuel-efficient cook stoves, solar panels and energy

plantations on barren/ private lands may also reduce the rate of degradation in natural forests. Based on the underlying causes, the PRAP proposes the following four actions as a collective solution:

- ***Multi-purpose, drought resistant, fast growing, palatable trees with high calorific wood*** need to be planted at all suitable sites with support from all possible institutions (public, private, community) to meet local demands. This may include integrated farming and agroforestry practices. This must be supported through local awareness raising, capacity development and provision of incentives to make farm / energy / agro-forestry more attractive for citizens and communities.

- ***Promote alternative and more efficient energy sources*** to reduce demand for firewood. The alternative energy refers to doing away from use of firewood for heating and cooking. This is not a convenient proposal in a vast, remote Balochistan with scattered population with very thin market base. Yet, there are no choices given a very slim forest resource base and growing need for energy. Coal has served the purpose, however in few locations where coal is conveniently available. On the other hand, coal is a source of carbon monoxide which has its own risks for the users. Other, safe and efficient energy sources need to be explored such as wind and solar. Similarly, smart startups and research initiatives may be supported to discover new options and conduct a comparative assessment. Technical training to service providers of alternative energy sources will also be encouraged so that energy users may find easy maintenance of their systems through market-based solution.

- ***Encourage fuel efficient appliances to conserve cost and resources:*** Proven models of fuel-efficient cooking technology need to be shortlisted and promoted through market-based solutions since free distribution of stoves has failed several times in other parts of country. One way of market-based solution is to train local hardware vendors on approved design and provide them a start-up incentive so that the stoves continue to be build and sold. The introduction of alternative energy sources, cook stoves and bread kilns must be designed jointly with the end-users since no single model may 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 Pakistan's Nationally Determined Contribution to UNFCCC.

- ***Discourage firewood sale from natural forests as a source of income:*** One course of action is legal (e.g., cutting and sale of juniper wood is banned and is a forest crime). However, a more sustainable pathway is to provide alternative sources of income as explained earlier for reducing deforestation trend.
  - ***Incentive based PES Schemes*** designed and implemented for attractive trade off to random wood extraction for selling. Nature oriented eco-tourism practices may be included here since Balochistan has an immense potential in this regard. PES schemes may be effective if P 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 the local communities at the local level in an easy-to-access manner.
  - ***Promote value chains*** following a sustainable harvesting methods and protocol, market access and management plan to ensure adequate natural regeneration.

5.3.3   Reduce impact of climate induced droughts and strengthen adaptation

As stated earlier, climate induced drought is a major concern in Balochistan for agriculture and forest resources. This is exacerbated by human factor (excessive use of groundwater and lack of systemic alignment of agriculture and water management systems with arid conditions). While there is a need for long-term measures to improve groundwater management and water conservation in urban areas, contribution of forests remains important to recharge groundwater by conserving watersheds for

maximum moisture conservation and infiltration. In addition, cooperation from main water users (e.g., agriculture, domestic water supply) is essential to reduce demand for water by switching to water conservation techniques. Following actions are proposed to address underlying causes:

- **Develop provincial climate change policy** to set provincial priorities and guidance to identify and address the spatial, social and environmental nature of current and future climate risks (particularly climate induced droughts), hazard exposures, vulnerabilities and adaptive capacities. This needs a strong lobbying and awareness campaign at provincial level targeting politicians, media and youth. The PRAP stakeholders conclude and suggest that Balochistan is an arid / hyper arid ecology and under a permanent crisis. Drought should no longer be considered a seasonal emergency and thus a lifestyle approach is necessary to reduce negative impact of aridity.
- **Integrated watershed management** practices need to be adopted through development of effective watershed management schemes in drought hit areas. Important activities that need to be considered in these schemes to conserve rainwater and reduce downstream flooding in barani/ rainfed forest catchments, development of check dams to reduce the sediment load and soil erosion, revival of old Karez system and planting drought resistant tree species by developing micro-catchments along hillsides.
- **Introduce water efficient practices** on pilot basis which may include desert strip farming[27] in drought hit forest catchments, Introduction of sprinkler and low-cost drip irrigation in drought hit forest catchments and wastewater treatment and diversion of treated water to irrigation channels/ canals. The wastewater treatment needs to be regulated in the province.
- **Raise drought resistant plantations** and promote **dryland agriculture** to increase the crop yields and crop production and bringing more community/ private/ forest lands under agro-forestry systems.

There is a need to strengthen and institutionalize local community participation in forest management and water stewardship and to strengthen communal controls on free grazing (and associated practices such as forest fires), which is responsible for damaging natural regeneration. Suitable context specific measures need to be encouraged for integration in the PFMPs. The solution tree with proposed actions to address drivers of deforestation is presented in **Figure 8.**

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27 http://www.fao.org/3/t0122e/t0122e0c.htm
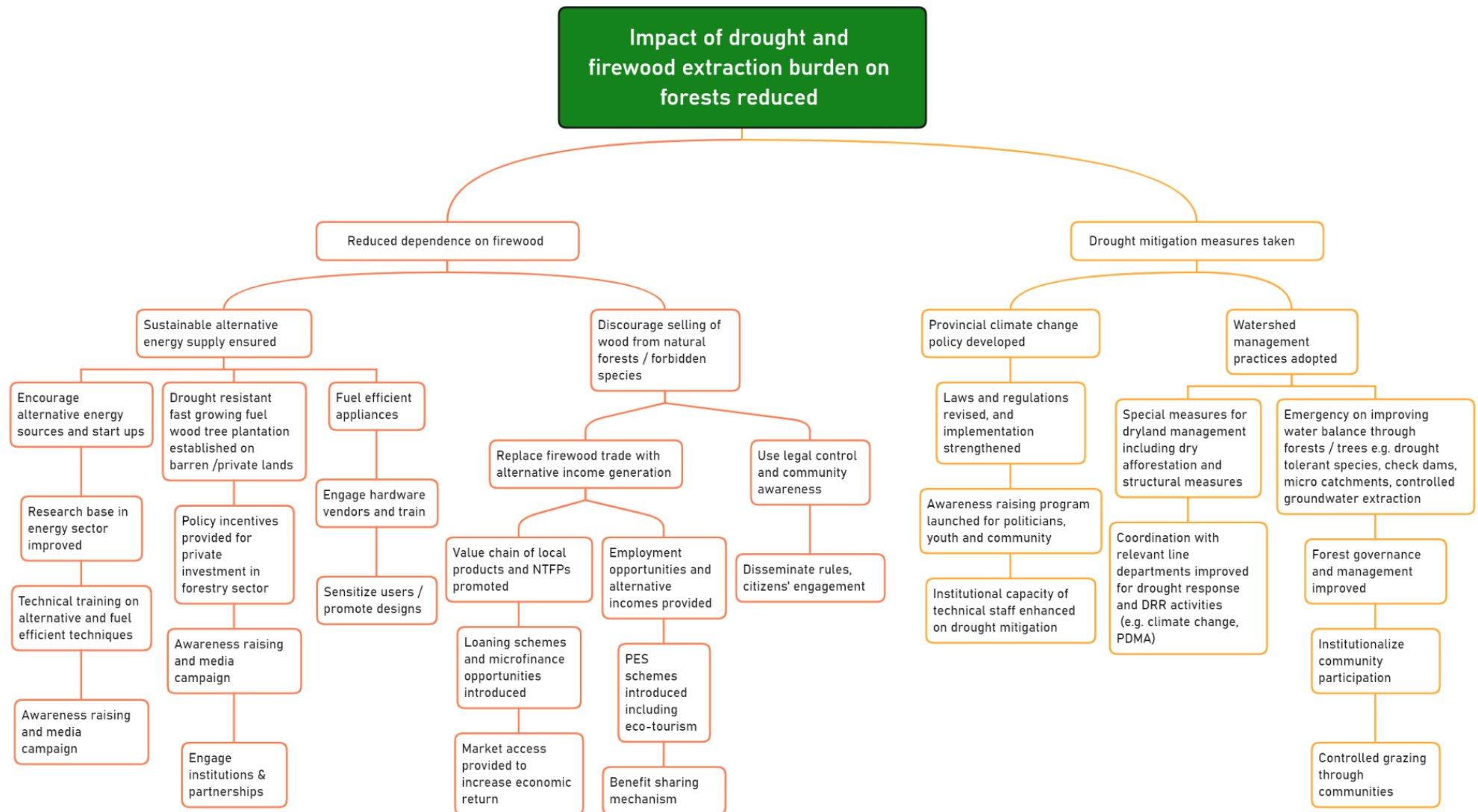
Figure 8 Solution tree of forest degradation

Table 14:: Action Plan for addressing drivers of forest degradation

Driver	Key underlying causes	Proposed Actions to address the underlying causes	Indicative Timeframe			Responsible Agencies/Actors		Indicative targets	Indicative Budget (Rs. mill.)
			Short term (1-3 yrs)	Medium term (1-7 yrs)	Long term (1-10 yrs)	Lead	Support		
High demand for fuelwood from natural forests	High burden and dependence on natural forest for fuelwood	• Strengthen legal measures against commercial fuelwood extraction • Disseminate rules / citizens' engagement	✓			Forest department	Private sector, NGOs, CBOs,	Awareness campaigns	0
		• Reassess annual fuelwood (and timber) demand for hotspot districts • Introduce afforestation schemes for reducing supply-demand gap in firewood • Engage all types of institutions to plant trees • Expand scope of large-scale afforestation projects to bridge the gap • Encourage small enterprises for producing planting stocks by proclaiming desired species		✓	✓	Forest department	Communities/ FCCs/ VCCs/ CBOs, private sector	Number of plants	40
		• Shortlist best designs of cook / heat stoves as a prototype for fuelwood efficiency • Train major hardware vendors in hotspot district on approved design for commercial manufacturing as a market-based solution. • Acquire collaboration with NGO and media to raise aware communities on fuel efficiency	✓	✓		Forest department	Market actors, farmers, communities,	10 hardware training events; At least 30% of community adopts appliances	25
	Lack of alternative energy	• Encourage startup / research on alternative energy options for hotspot areas • Develop provincial guidelines for installation of solar / other alternative energy options • Train service providers / technicians from hotspot districts for maintenance and sustainability of energy options • Provide market-based solution / incentives to the vendors of alternative energy options		✓	✓	Power Department, EPA	Forest department; Engineering Universities	05 start-ups supported; 30 service providers trained; At least 30% people adopt energy mix	70
		• Alternative income opportunities for poor communities engaged in firewood selling • Identify Forest based PES schemes to incentivize conservation. • Develop REDD+ benefit sharing mechanism		✓	✓	Forest department	Private sector	Targets explained earlier	0

Driver	Key underlying causes	Proposed Actions to address the underlying causes	Indicative Timeframe			Responsible Agencies/Actors		Indicative targets	Indicative Budget (Rs. mill.)
			Short term (1-3 yrs)	Medium term (1-7 yrs)	Long term (1-10 yrs)	Lead	Support		
Climate induced droughts	No climate change policy	• Develop provincial climate change policy • Improve related policy provisions in favour of drought mitigation • Awareness-raising at mass scale on Balochistan specific challenges • Technical capacity development of relevant actors on drought mitigation • Review and approval of new draft Forest Act 2017 and framing of subsequent rules • Improve law enforcement by increasing mobility/ patrolling capacity	✔			Forest department	All line department, communities	Climate change policy	25
	Poor watershed management	○ Specific measures for dryland management including afforestation with suitable species ○ Watershed management with structural and biological means ○ Induce institutional coordination with other actors (e.g. soil conservation) for watershed management and DRR activities		✔	✔	✔		At least 10 critical watersheds managed	100

		• Emergency measures for improving water balance
		  ○ Wastewater treatment and recycling
		  ○ Introduction of high efficiency irrigation systems with subsidy
		  ○ Punitive measures on misuse of water in urban areas
		  ○ Water recharge through afforestation
		• Structural measures to improve water balance
			✔	✔		Forest department	Agriculture department, irrigation/ water department	Emergency measures introduced by relevant actors
								
								2 delay action and 5 small dams
									600

	Weak implementation of participatory approach	• Institutionalize community participation • Prioritize forest areas / specific sites for PFMP exercise based on national PFMP guidelines • Conduct PFMP exercises and implement • Train communities on sustainable use of resources • Grazing control schemes by community institutions		✔	✔	Forest department	Law department, Communities	20 PFMPs and community institutions engaged	180

مزری (Nannorrhops Ritchieana) بلوچستان کے مختلف اضلاع میں قدرتی طور پر پایا جاتا ہے جن میں ہرنائی ،لورالائی ،ژوب ،بارکھان ، چاغی ،ہمیلہ، آواران اور گوادر کے میدانی علاقے شامل ہیں ۔اس کو مختلف علاقوں میں مزری ،پیش ،دورہ ، پیش یافش کے نام سے جانا جاتا ہے ۔اس سے صوبے کے ہزاروں لوگوں کا روزگار منسلک ہے یہ دو سے تین فٹ لمبا جھاڑی نما پودا ہوتا ہے جس کے پتے مختلف مصنوعات کے بنانے میں استعمال ہوتے ہیں جس میں چٹائی ،ٹوکری ،جھاڑو ،چار پائی کے بوان ،رسی ،چتگیر ،ہاتھ والا پنکھا،جیولری اور فروٹ بکس وغیرہ شامل ہیں ۔محکمہ جنگلات تقریباً 28 سو ئن مزری مقامی لوگوں کو ایک مناسب فیس کے عوض سالانہ کاٹنے کی اجازت دیتا ہے جس سے سالانہ تقریباً تین لاکھ روپے کے محصولات جمع ہوتے ہیں ۔ عام طور پر مزری کو ضلع آواران سے اوتھل کے راستے کراچی لے جایا جاتا ہے جہاں اس سے مختلف اقسام کی چیزیں بنائی جاتی ہیں ۔مزری کی بے تحاشا کٹائی اس کی تباہی کا ایک بڑا سبب ہے ،جب کہ دوسرے اسباب میں بارشوں کا نہ ہونا اور بغیر کسی رکاوٹ کے چرائی اور زراعت کا پھیلاؤ شامل ہے ضرورت اس امر کی ہے کہ مزری پر توجہ دی جائے اس کی بے جا کٹائی سے اجتناب کیا جائے اور اس کے بچاؤ کی تدابیر کی جائے ۔مزری نے صوبے کے لوگوں کی بہت خدمت کی ہے اب یہ بھی آپ کی توجہ کا طالب گار ہے۔

مزری بلوچستان کے لوگوں کی صدیوں سے خدمت کر رہی ہے اب یہ آپ کی توجہ کی طلب گار ہے۔

◄ مزری کی بے دریغ کٹائی سے اجتناب کیجۓ ۔

◄ اس کی حفاظت اور پرورش کیجۓ ۔

ہاتھ کی بنی ہوئی مزری کی چند اشیاء۔

Picture 12: Awareness material on high potential Mazri fiber plant

Picture 13: Guggal – a high value plant for value added NTFP income generation

5.4 Social and environmental risks and proposed actions

This section provides an analysis of any likely social or environmental harm on people or resources as a result of proposed actions for addressing underlying causes of forest degradation. Major social and environmental risks associated with implementation of actions are given in **Table 15**.

Table 15: **Social and environmental risks associated with implementation of proposed actions**

Risk	Likelihood[28]	Impact	Mitigation measures to be facilitated by provincial REDD+ Cell
The risk of imbalance between legal measures and encouraging alternative means of earning from forests – control vs support	• Low	• Medium	Acquire support from organised community institutions and ensue community-based controls and support measures
Wrong choice of species (exotic, water consumptive tree species).	• Medium	• Low	Issue guidelines and choice of species for plantation – enlist and promote xerophytic / drought tolerant species
Alternative energy is expensive to afford by common people and their hardship increases.	• Medium	• Medium	Communities' hardships already high due to shortage of firewood. Provide policy incentives to market players and regulate market prices.
Rebound effect of alternative energy with risks of higher emissions	• Medium	• High	Careful analysis of options with energy actors; and provide incentives for low emission start-ups and up scaled solutions
Natural climate calamities are not in control of Forest department or other actors and hence difficult to control underlying drivers	• Medium	• Low	Low because only concerted actions by all relevant actors will counter the impact of climate change. Catchment / watershed management will contribute its part.
Disputes within community when participatory community groups try to counter deforestation or free grazing	• High	• Medium	Institutionalise community institutions Strong skills are needed at the DFO level to mediate such disputes. Communities need to be equipped with legal justifications to counter stubborn elements; ensure graziers have suitable alternatives; ensure grievance redressal mechanism works.

5.5 Removing barriers to enhancement activities

Multi-stakeholder consultation led to identifying a number of measures to remove potential barriers to enhancement activities. Some of these measures overlap with the solution pathways for addressing underlying drivers of deforestation and forest degradation and thus have already been explained in the earlier section and compiled in **Table 16.**

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28 Likelihood Chances of this risk becoming real. The impact refers to extent to which this will sabotage REDD+ implementation and its effectiveness

Table 16: Key results identified from solution tree of barriers of enhancement

Inclusive and transparent forest management and monitoring system (at provincial and Circle levels)
• Adequate provision of geo-spatial monitoring tools ensured
• Monitoring indicators, tools, for policy measures identified and regularly monitored
• Inter-departmental coordination among forest, land revenue, tourism, agriculture, and law department
• Capacity building programme launched
• Reconstitute PRMC and conduct regular meetings
Incentives based schemes in forest policies promoted
• Incentive based (PES, REDD+) model participatory management plans designed and implemented on pilot basis
• Market based schemes internalised for fuel wood efficiency and alternative energy systems
• Advocacy with the government for development of incentive-based climate change and land use policy
Community based forest management promoted
• Institutionalisation and strengthening of community institutions
• Appropriate community based participatory grazing system adopted and regulated
• Skill development program launched on forest conservation and ecosystem services
• Scope of Billion Tree Tsunami Project expanded and strengthened to support large afforestation projects targeting farmlands, rangelands, and barren lands for energy and dryland management
• Participatory forest management plans developed and implemented

The solution tree with strategic options to address barriers to enhancement prepared by the participants during consultation workshop is presented in **Figure 9**.
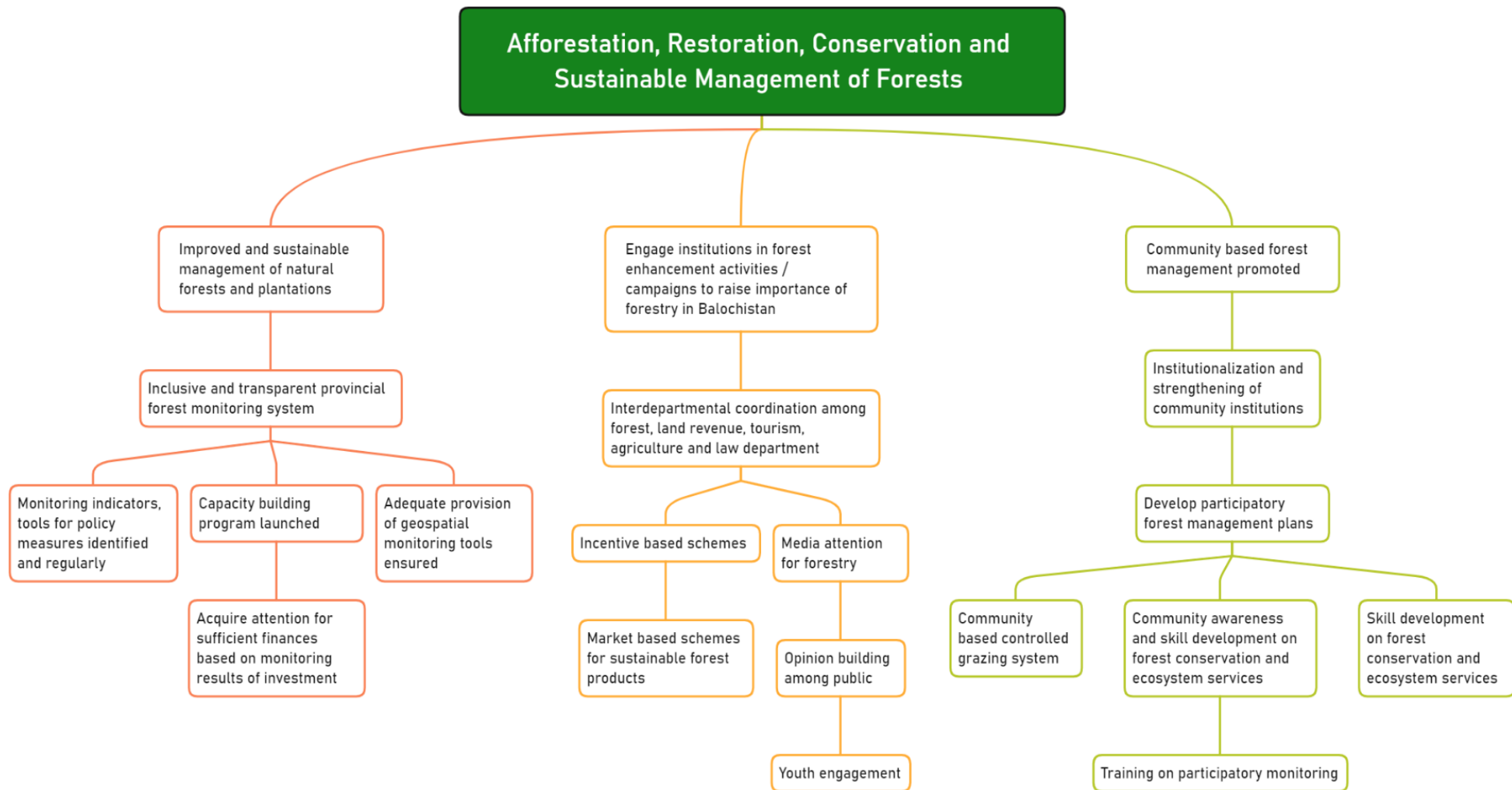
Figure 9 Solution tree of barriers to enhancement of forest carbon stocks

5.6   Indicative Budget

A total indicative budget for the actions identified in the Provincial REDD+ Action Plan is PKR 2135 million. This may include public funding as well private investment (including projects financed by international donors and NGOs to support PRAP actions). **Table 17** summarizes the Action Plan budget for short term, medium term and long-term activities and budget proportions for each activity is given in **Figure 10.**

Table 17: Indicative budget proposed for Balochistan PRAP (2022-2031) – million PKR

Proposed actions	Short term (1-3 years)	Medium term (1-7 years)	Long term (1-10 years)	Total
Improve agriculture productivity	0	75	90	165
Integrate trees on farmland	0	30	50	80
Alternative livelihoods (NTFP, skills)	55	80	150	285
Payment for Eco-system Services schemes	35	55	0	90
Provincial Forest Monitoring and MRV System	10	15	15	40
Land use policy, mapping and enforcement	25	35	0	60
Improve coordination among departments	5	5	5	15
Improved guidelines for mining	5	0	0	5
Promote alternative energy sources	0	30	40	70
Private sector incentive for fuel efficient cooking appliances	25	0	0	25
Watershed management and dry afforestation	100	200	200	500
Participatory approach through PFMP and implementation	200	300	300	800
Total	**460**	**825**	**850**	**2135**
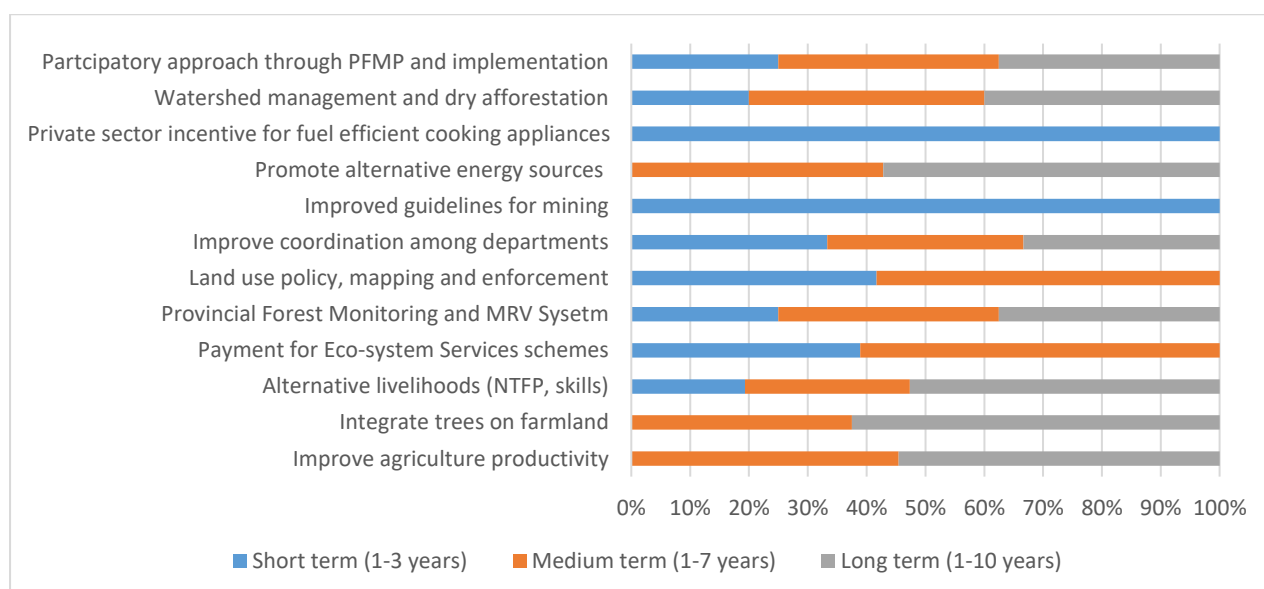
Figure 10: Indicative budget proportions for activities (short, medium and long term (%)

6 BENEFIT SHARING MECHANISM

A benefit sharing mechanism for Balochistan was proposed for pilot PES design of mangrove forests[29] which was further discussed and analysed during multi-stakeholder workshop in terms of its adoption for Balochistan PRAP. The stakeholders emphasized to adopt the same benefit sharing mechanism as it was designed and agreed through rigorous multi-stakeholder consultation process.

A proposal for REDD+ benefit sharing was drawn with flexibility to cope with diverse stake holders in various land tenure situations. An understanding between communities and FD will provide legal grounds for REDD+ implementation and benefit sharing. The REDD+ benefit sharing model comprises of Carbon and non-Carbon benefits with 'vertical' (flow of fund between different institutions from international/federal/regional to divisional level) and 'horizontal' (benefits distributed laterally between participants at the local level) components.

1. Protected / State forests

The monitory returns from REDD+ activities (Carbon credits sale) and non-Carbon benefits would be divided into three heads, i.e., government, and customary forest users as follows:

i.   80% proceeds[30] will go to the Balochistan Forest department. Out of this fund, 15% will be retained by the government of Balochistan and 5% will be allocated for MoCC on case-to-case basis.
ii. 20% of the proceed will go the customary forest users / right holders. 100% of this amount will be spent in community village development activities geared to reducing drivers of deforestation and forest degradation, preferably through Participatory Forest Management Plans.

2. Privately owned forests

The monitory returns from REDD+ activities would be divided into three heads i.e. government, private owners and customary forest users as follows:

i.   80% of the proceed will go the private forest owners. Out of this, 50% will go to the owners in cash, whereas 50% will be spent on community village development activities geared to reducing drivers of deforestation and forest degradation. These activities will benefit the forest owners as well as customary forest users with no ownership rights.
ii. 20% proceeds will go to the Balochistan Forest department. Out of this, 15% revenue will be retained by the government of Balochistan and 5% will be allocated for MoCC on case-to-case basis.

The government share and developmental share (50% from the 80% of private share) may be utilized for execution of forest enhancement activities, designating grazing areas, investing in REDD+ site specific plans and to provide livelihood trade-offs to the local communities (especially the non-owner and other deprived segments like poor and women). The scheme for flow of funds from international level to divisional/community level is given in **Figure 11.**

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29 https://www.redd-pakistan.org/wp-content/uploads/2019/02/Final-PES-Design-Document-Mangroves.pdf
30 There are voices among the stakeholders that this needs to change in favour of communities otherwise it will not help contributing to reducing emissions and controlling drivers of deforestation and forest degradation. The stakeholders' dialogue needs to continue to find a balance and a greater incentive to forest communities.
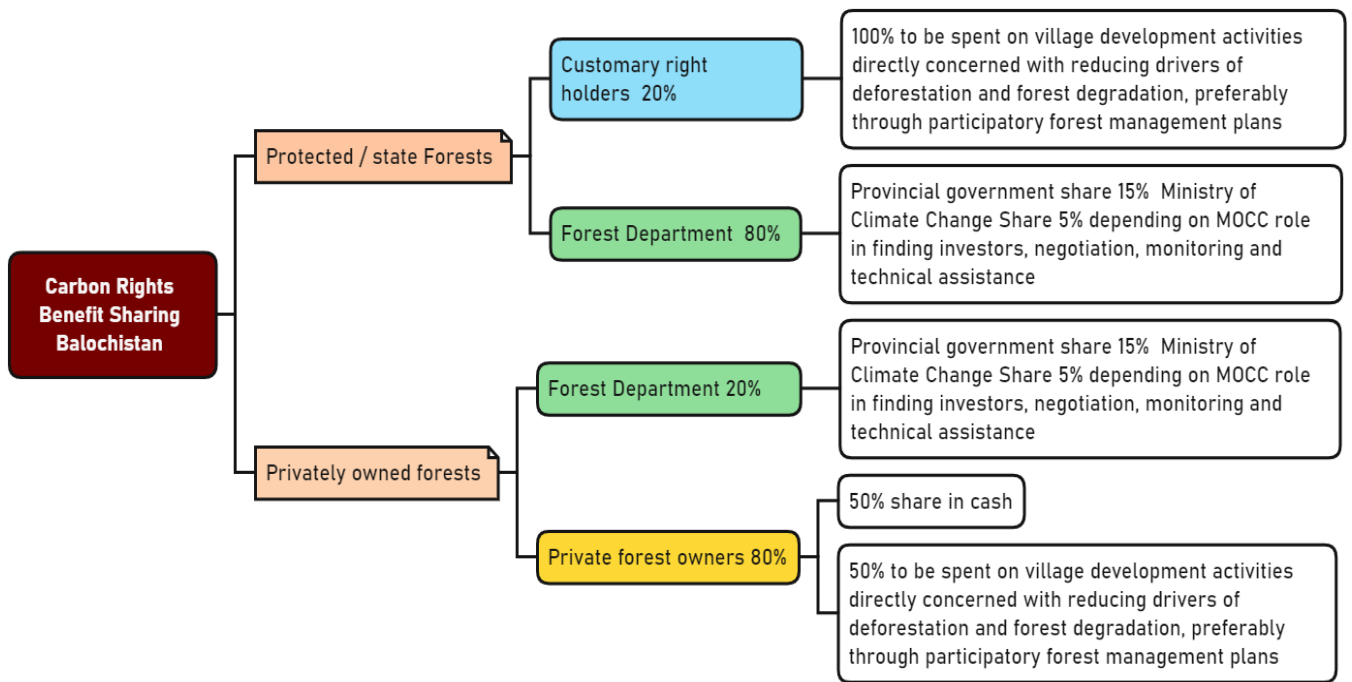
Figure 11: Flow Chart of Carbon and non-Carbon Benefit Sharing Accrued from REDD+ Programme

7 INSTITUTIONAL ARRANGEMENTS FOR IMPLEMENTATION OF PRAP

7.1 Institutional anchorage of REDD+ and responsibilities

The NRS has proposed and guided establishment of REDD+ institutions at national and sub-national level. In addition, it also proposes the establishment of certain thematic working groups to guide implementation of various technical aspects of the strategy. During consultation process, the participants proposed establishment of a number of other institutional set-ups at provincial level, regional/forest circle and district/local levels. The organogram envisaged for REDD+ implementation in Balochistan is shown in **Figure 12**.

1. **Provincial REDD+ Management Committee:** This committee will be headed by the Secretary Forests and Wildlife and will perform as an advisory and steering body in preparation of REDD+ policies, plans, laws, and institutional mechanisms in addition to conducting previously determined mandate and supervisory functions.

2. **Provincial REDD+ Thematic Working Group:** Four groups are proposed to provide technical guidance as follows:
   a. Technical working group on FREL/FRL
   b. Technical working group on Provincial Forest Inventory and MRV.
   c. Technical working group on REDD+ Social and Environmental Safeguards and Grievance Redress Mechanism.
   d. Technical working group on REDD+ Finance.

3. **Provincial REDD+ Cell:** This unit will be responsible for designing and implementation of REDD+ strategies and action plans at the provincial, administrative, and regional/ circle level in

consonance with the national and international framework. The provincial REDD+ Cell will be headed by the Project Director/ Provincial REDD+ Coordinator/ Provincial REDD+ focal person of Balochistan REDD+ Programme.

4. **Provincial REDD+ Research Unit/ Committee**
   The provincial REDD+ research unit will be based in Conservator of Forests (Research). A research committee will be formed representative of all administrative units to promote and coordinate research on REDD+ related thematic areas. This committee will also perform Quality Control checks on satellite based and forest inventories.

5. **Two REDD+ Management Units:** On administrative grounds, two REDD+ Management Units (RMUs) will be established in Quetta for Northern and Southern region, respectively. The management units will (i) support the provincial REDD+ Cell and oversee field and implementation activities of the pilot REDD+ project sites, (ii) undertake awareness raising/capacity building activities for forest staff and local communities, and (iii) collaborate with forest circles and divisions.

6. **Forest Circle Level REDD+ Social and Environmental Safeguards (SES) and Grievance Redress Mechanism (GRM):** The circle level SES and GRM will be coordinated by the respective Conservator of Forests and will ensure adherence to the Social and Environmental Safeguards.

7. **Forest Division Level REDD+ Social and Environmental Safeguards and FGRM:** The division level SES and GRM will be chaired by the Divisional Forest Officer of the Forest Division concerned. It will work as feedback providing link and resource pool for the Provincial REDD+ Management Committee. It also will serve as platform for discussions on and resolution of REDD+ related issues at the d istrict level. It will provide data and information on REDD+ implementation at the district level to the REDD+ management units/ provincial REDD+ Management Committee.
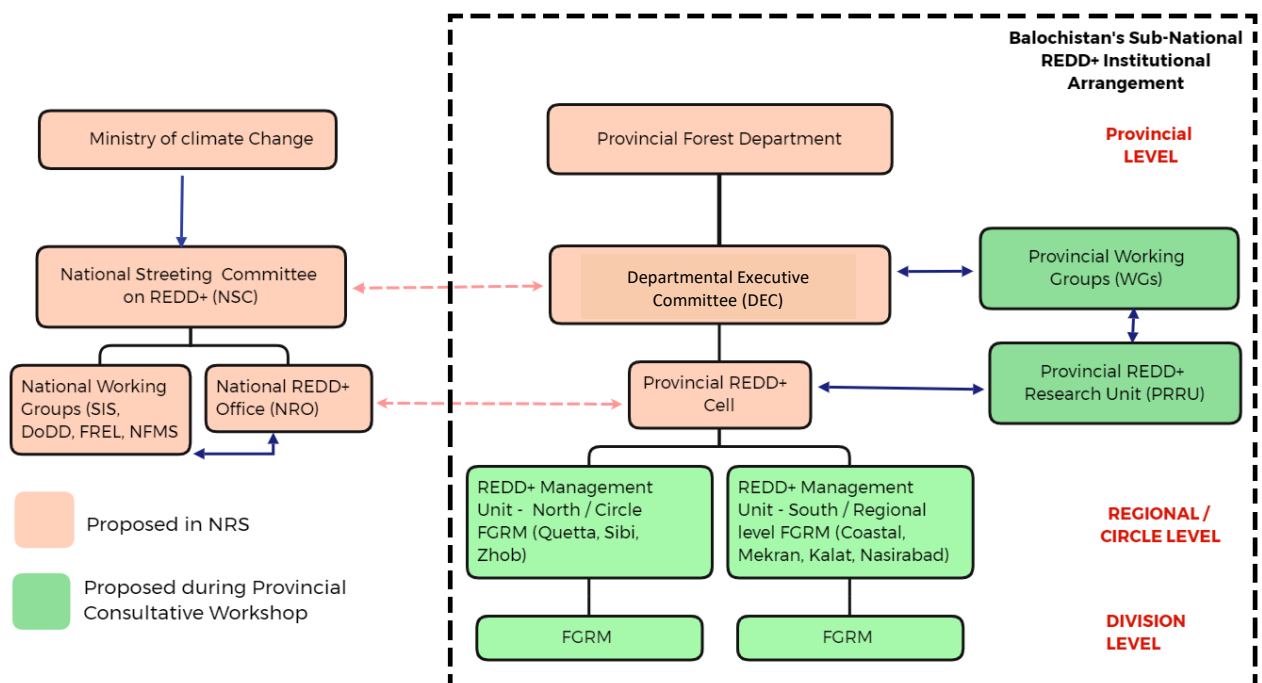

Figure 12: Sub-national REDD+ Institutional arrangements for Balochistan

7.2   Feedback grievance and redressal mechanism

A Feedback Grievance Redress Mechanism (FGRM) has been designed[31] at national level as part of national REDD+ readiness process to enable clear and effective handling of complaints or conflicts arising from the implementation of REDD+ activities. The FGRM is designed on the principles of legitimacy, accessibility, predictability equitability, transparency, rights compatibility and enabling continuous learning. The Standard Operating Procedures – SOPs for FGRM are defined and integrated into Safeguard Information System – SIS (www.pakistansis.com). A systematic stepwise procedure will be adopted for FGRM: i) Receipt and registration of feedback, grievance or complaint; ii) Investigation of the grievance or complaint; iii) Resolution to the utmost satisfaction of parties and in accordance with the rules, and; iv) Monitoring of implementation of the agreed resolution. These steps are in accordance with the FCPF guidelines. In total 30 working days are contemplated from the moment the complaint is received until its disposal. A summary of the SOPs of FGRM is given in **(Table 18)**. The aggrieved parties may decide to use the FGRM in preference to other available mechanisms.

The grievance redressal is also part of the existing provincial forest related policies and programmes in which complaint procedures are already defined and platforms to lodge complaints are available. The Balochistan province has also established its provincial FGRM for REDD+ following guidance from the national FGRM. This action plan proposes the DFO office as the main FDRM since it is locally located and is best known to the forest communities. The DFO office needs to publicize a specific desk, phone number and email address through which written complaints may be registered. If not resolved, the matter will be reported to the higher levels. The system is not operational yet, however efforts will be made to operationalize this to first sensitize DFO level staff on how to operate FGRM. Mass awareness campaign on REDD+ will also include publicity of FGRM so that they can access platforms made available to them to provide their feedback and lodge complaints.

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[31] https://www.redd-pakistan.org/wp-content/uploads/2015/08/Draft-Final-Report_final.pdf.

Table 18: Recommended FGRM mechanism

Steps	Process	Processing days	Responsibility to Receive and Deal with Complaint	Communication Tools/ Channel	Outcome
1st	Receipt and registration of complaint / grievance	5 business days	Divisional level FGRM	**Channels**: Email, complaint box, specific desk, phone number	The Complaint is received, registered, lodged and sent to complaint officer at DFO level
2nd	Investigation	15 business days	Designated Complaint Officer	**Tool**: Diagnostic questions to gather information about relevant actors/ parties, nature of complaint, the request made by claimant and position of other party, violated, or recognised legal rights, supporting witness, evidence, and prayers from parties **Channel**: Complaint officer to contact directly with the claimant and other relevant parties	The complaint is resolved or taken to a relevant level for resolution. Comprehensively document grounds for complaint and record support from rules.
3rd	Resolution	15 business days	Designated Complaint Officer	**Tool**: Written response about decision process **Channel**: Face to face meeting with parties and mutual discussion at appropriate level i.e., district, village, or province	A signed agreement.
4th	Monitoring	3 – 12 months	Provincial REDD+ focal person	**Tool**: The FGRM monitoring database from which the information will be analysed **Channel**: Coordinated FGRM monitoring system between DFO and provincial REDD+ Cell	The patterns of complaints recognized, the causes of the complaint are identified, and the effectiveness of handling of complaints by PRMUs evaluated.

7.3 Assessment of existing capacities and coordination

This capacity assessment was guided by the following:

1. Capacity-Based Needs Assessment (CBNA) report of 2014[32] (updated in 2017-2018[33]) to ensure consistency and comparability in reporting the capacity gaps;
2. Discussion on department's human and technical capacities during REDD+ Readiness consultations (R-Package)
3. Consultations on assessment of technical and extension systems at sub national level

The Balochistan province has established institutional space and resources to implement REDD+. The Forest department has its own fiscal management mechanism following the government fiscal management guidance for both public and international funded projects. The human resource is available at departmental level with requisite capacity (both academic and professional) to manage finances of government. Further capacity development is, however, required to manage donor funded projects. Also, there is no designated staff for fiscal management of REDD+ activities at provincial level. There is a need to assign dedicated human capacity to manage REDD+ in the province, since REDD+ will need full time attention to support the province in achieving a paradigm shift in the department for achieving REDD+ targets and monitoring.

The province has also established its provincial Feedback Grievance Redressal Mechanism for REDD+ following guidance from the national FGRM. However, it is not yet operational at practical level. It is expected that with an increased induction of participatory forest management plans in the province, FGRM implementation will come into practice and improve with time.

The communication strategy is not yet available and Information sharing tools/ channels need to be identified and accessible to public in English and Urdu to keep the stakeholders informed about the REDD+ processes and progress. Balochistan has a good track record in engaging print and electronic media which may provide a good start for an effective outreach strategy and engage citizens in forest enhancement activities, particularly in a province like Balochistan where vast tracts do not allow an active face to face engagement. These initiatives, however, need to become more systematic.

Balochistan Forest Department has institutional capacity for regular monitoring and inventory, however the mapping and reporting capacities in compliance to the requirements of IPCC's forest carbon emission reporting is limited. A separate building for REDD+ unit has been constructed with well-established GIS/RS Lab which is partially operational. Qualified GIS Expert, GIS Analysts and GIS Operators are required to make it fully operational.

Computer and IT infrastructure is available. However these services need to be upgraded to perform SLMS based workflows. Field equipment such as handheld GPS is also available in adequate numbers to conduct inventory and validation ground truthing. Licensed GIS and RS software are available, though not in adequate quantities. Enhancements of capacities in planning and sampling design, conducting forest inventory, data management, calculations and analysis and Quality Assurance (QA) /Quality Control (QC) is required to operationalize NFI as a regular activity for provincial level Measurement Reporting and Verification (MRV). Further upgrading of computer hardware and necessary software is also required for fully operational NFI in the Forest Department. There is also a technical support available from Balochistan University of Technology and Management (BUTM) with institutional setup and infrastructure to undertake activities related to SLMS with adequate human resources and access

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32https://www.unredd.net/documents/un-redd-partner-countries-181/asia-the-pacific-333/a-p-partner-countries/pakistan-1129/implementation-technical-including-tors-1845/mrv-and-monitoring-1852/15245-pakistan-nfms-capacity-building-needs-assessment-report.html?path=un-redd-partner-countries-181/asia-the-pacific-333/a-p-partner-countries/pakistan-1129/implementation-technical-including-tors-1845/mrv-and-monitoring-1852
33https://www.redd-pakistan.org/wp-content/uploads/2019/02/Capacity-Needs-Assessment-Technical-Capacity-Enhancement.pdf

to imagery data. BUTM has well established GIS/RS Lab with required system hardware and software and technical capacities.

Forest inventory has recently been conducted at provincial level, however, human resources and capacity enhancement in forest inventory measurements (such as Carbon accounting and GHG Inventory), generate data on drivers (forest fire, fuel wood, natural hazards etc.) data analysis, data uncertainty assessment and reporting are needed.

Another area requiring a fresh overview of capacities within Forest department and citizens is the participatory approach. Balochistan has a good capital of community institutions organized by NGOs under different community based rural development programmes. This social capital forms a strong basis and a departure point for community-based forest management, participatory forest management planning and implementation. This may be amply supported by good collaboration with the NGOs and development programmes active in the province, to start with, in the areas which are hotspots of deforestation and forest degradation.

Changes in the legal framework and policies have been covered in detail under this Provincial REDD+ Plan of Action to empower the department to smoothly implement REDD+.

7.4 Alignment with policy

National REDD+ Strategy
The NRS provides the overall guiding framework for implementing REDD+ at national and sub-national level. The Balochistan PRAP is aligned with the NRS REDD+ vision of optimizing forest ecosystem services and livelihood support on a sustainable basis and is consistent with the goals and objectives of NRS as given below:

   i.   Contribute significantly to reducing GHG emissions through avoided deforestation and forest degradation and to enhancing forest carbon stocks in order to mitigate climate change
   ii.   Provide sustainable flow of environmental services from forest ecosystems
   iii. Make available alternatives for sustainable livelihoods to people dependent on forests
   iv.   Provide the required institutional, legal, and economic conditions to ensure the sustainable management of forest resources and ecosystems
   v.   Create the necessary governance for the implementation of cross-sectoral policies
   vi.   Ensure awareness of stakeholders concerning the role of forest in sustainable development, climate change and REDD+

Based on the wider goal of NRS, the objective of this PRAP, as mentioned in section 2, is to contribute to achieve the targets set out in the NRS.

National Forest policy (2016)
The approved National Forest Policy 2016 has two main policy objectives i.e. (i) expansion of forest cover and (ii) curbing of deforestation and promotion of forest conservation. Under these objectives, the National Forest Policy envisages for both the implementation of REDD+ and the full transfer of benefits arising therefrom, such as payments for preserving carbon stock, to forest owners and right-holders. The Balochistan PRAP is, therefore, designed to contribute to the objectives of National Forest Policy through implementation of REDD+ at sub-national level in Balochistan.

Alignment with Provincial Sectoral Development Planning
This PRAP encompasses multi-sectors and related issues e.g., agriculture, infrastructure, energy, tourism, livestock, economic growth and poverty reduction. The prioritized IPs are closely aligned with provincial sectoral development plans and promote co-ordination and cooperation with all relevant

stakeholders. Also, as already mentioned, the PRAP is not a static document and would requires periodic revisions taking inputs of the relevant provincial institutions and other stakeholders in light of the experience gained from implementing the IPs.

7.5   Monitoring needs

Monitoring of actions is a critical aspect of this PRAP that helps to ensure effective implementation of the actions and tracking any undesirable change in time for alerting possible remedies. Regular monitoring must be in place with trained human resources. The PRAP proposes a dedicated Provincial REDD+ Monitoring Unit (PRMU) with relative independence in Quetta and Circle level monitoring units (both for the North and South of Balochistan).

Monitoring of PRAPs will take place at three levels:

1. Individual actions at intervention and output level to address drivers / underlying causes – recurring monitoring
2. Monitoring of safeguards remedies to assure there are no social or environmental implications – project / action-based monitoring while assuring that grievances are addressed and agreed solutions are implemented. For this, FGRM has been set up at divisional and circle levels that will report to provincial REDD+ management unit for further incorporation into provincial forest monitoring system.
3. Overall impact of actions on forest health and drivers of deforestation and forest degradation – medium and long-term monitoring

Currently, monitoring indicators for REDD+ related activities are being defined as part of sub-national forest monitoring system. However, forests have been monitored as per the standard methods/ protocols of working plans in addition of regular field staff visits and reporting. There is need of standardization and consistency in the procedures and methods for forest (including natural forests) monitoring at provincial and national level.

Several forest related monitoring tools already exist which need to be harmonized with new tools required for monitoring of PRAP without creating data redundancy. **Table 19** documents some of the currently known indicators, which were also discussed during PRAP consultations, that may help Balochistan Forest department to embed in the forest monitoring system formally, permanently and firmly and link with existing national forest monitoring framework.

Since land and forest management within Balochistan are the responsibility of multiple government institutions depending on the land cover specifications, a monitoring system that caters for all the aforementioned three levels is necessary to be designed by REDD+ management unit. There is a need to establish a thorough process for collecting, verifying, processing, analyzing and reporting data and create relevant capacities for performing these functions within the province. It is important for transparency and for empowering communities that the Forest department make information public. This will prevent unnecessary pressures to manipulate data or push for self-interpretation. The system will be linked with National Forest Monitoring System.

Table 19: Proposed forest monitoring indicators and mechanisms at federal and provincial levels

	Summary of proposed actions	National monitoring indicators	Provincial monitoring indicators	National monitoring tools	Provincial monitoring tools
Deforestation	Demarcation and digitization of forestlands. Establish Provincial Forest Monitoring and MRV System with essential capacities Introduce alternate income opportunities to diversify agriculture-based livelihoods Intensify / enhance agricultural production with water efficient techniques	Changes in national forest cover and land area (ha)	Conversion of forests to urban infrastructure; conversion of land to agricultural; expansion of mining	NFMS (SLMS) and other international studies e.g., FAO's FRA **Actors:** NRSC, OIGF, NRO, GCISC, Provincial Forest departments, Academia	Provincial Forest Monitoring and MRV System in which regular staff / community surveillance are integrated **Actors:** PRMC, Provincial REDD+ management unit, Academia, communities
Forest Degradation	Reduce dependence on firewood by developing alternate energy options (solar, wind) Drought resistant fast-growing species for fuel and fodder with strong measures on watershed management saving every drop of water Replace firewood trade (juniper, chilghoza) with alternative income opportunities (e.g. energy solutions) coupled with strict control	Decrease in forest density (percentage of forest cover), soil land degradation/ Erosion, grazing, forest fires	Reduced extent of damage from drought (e.g., fodder to compensate for drought), Firewood fuelwood collection (legal and illegal), overgrazing, wildfires, pests and diseases	NFMS (SLMS and NFI) Social/economic surveys **Actors:** NRSC, OIGF, NRO, GCISC, Provincial Forest departments, academia	Provincial Forest Monitoring and MRV System in which regular staff / community surveillance are integrated; density-based forest cover assessment **Actors:** PRMC, Provincial REDD+ management unit, divisional forest offices, communities, academia
Enhancement of Forest Carbon Stocks	Sustainable forest management with natural and artificial regeneration coupled with forest monitoring system Coordinate with multiple institutions for collaborative effort on dryland management through trees on degraded lands Acquire media support for building public opinion for trees and water conservation	Areas (in ha) afforested/ reforested/ regenerated. No of plants planted each year	Afforestation (area in ha), reforestation (no. of plants/ area reforested in ha), regeneration (counting of no. of plants and area regenerated in ha)	SLMS, NFI, Afforestation/ reforestation plans, annual plantation targets/ reports from provinces, official statistics provided by other institution on plantations **Actors:** NRSC, OIGF, NRO, GCISC, Provincial Forest departments, academia, NGOs	Provincial Forest Monitoring and MRV System in which regular staff / community surveillance are integrated; post activity visits, counting of trees on regular basis to assess survival percentage **Actors:** PRMC, Provincial REDD+ management unit, divisional forest offices, community, NGOs, academia
Conservation	Develop forest policy Balochistan with strong measures Land use and anti-encroachment, REDD+ benefit sharing, community participation for SFM and capitalizing on NTFP / PES for income enhancement and adding value to conservation Market based PES / NTFP schemes	Conservation policies/ laws/ regulations, protected area notifications of government	Implementation of laws, regulations etc., SFM, PES implementation, fire management	Protected area networks, enacted laws/regulations, guided by national Policy guidance **Actors:** NRSC, OIGF, NRO, GCISC, Provincial Forest departments, academia, NGOs	Enforcement of laws/ regulations (enforcement checks); SFM, PES targets; reduced fire incidents **Actors:** PRMC, Provincial REDD+ management unit, divisional forest offices, communities, NGOs, academia
Sustainable Management of Forests	Conduct at least 10 Participatory Forest Management Plans and implement Include DRR, drought mitigation, reducing fuelwood shortage and alternate income activities	No of Management Plans at national level	Participatory Forest Management Plans (forest types/ area covered)	Review reports of Implementation progress from provinces **Actors:** NRSC, OIGF, NRO, GCISC, Provincial Forest departments, academia, NGOs	Review of implementation progress of PFMPs (forest area/types covered) **Actors:** PRMC, Provincial REDD+ management unit, divisional forest offices, communities, NGOs, academia

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ATTENDENCE SHEET FOR PRAP, WORKSHOP, SERENE HOTEL BALOCHISTAN, DATED 2nd August, 2021

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35.	Haseeb Khan	Deputy conservator forest Ziarat	Forest and Wildlife Department Balochistan
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No. 8360-64 REDD+FP/QTA

OFFICE OF THE FOCAL POINT
REDD+ PROGRAM, BALOCHISTAN
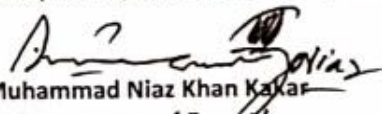Dated 13th May ,2022.

To,

Dr. Arjumand Nizami
Country Director,
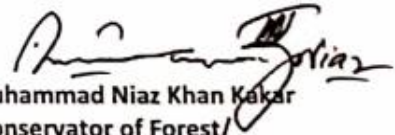Helvetas Swiss Interco operation
Islamabad.

Subject: **ENDORSEMENT OF PROVINCIAL REDD+ ACTION PLAN (PRAP) BALOCHISTAN.**

In continuation of this office letter no 8240-45 REED+FP/QTA dated 06-04-2022, wherein the provincial REDD+ action plan (PRAP) Balochistan was principally endorsed by departmental REDD+ Management Committee(PRMC) and Department Executive Committee(DEC)with some observations and commendations. Since the same have been well addressed in final draft. After thoroughly consultation with the (PRMC) and (DEC) Committees, with the consent/approval both the committees, The undersigned convey hereby endorsement of (PRAP) Balochistan for perusal and information please.

Muhammad Niaz Khan Kakar
Conservator of Forest/
REDD+ Focal Point
Balochistan

Copy to forward to:-
1. The Secretary, Government of Balochistan, Forest & Wildlife Department.
2. The Chief Conservators of Forests (North/South) Balochistan Quetta.
3. Syed Ghulam Qadir Shah National REDD+ Coordinator, Islamabad.
4. Dr.Jawad Ahmed (Deputy Director HELVETAS Pakistan.

Muhammad Niaz Khan Kakar
Conservator of Forest/
REDD+ Focal Point

Provincial REDD+ ACTION PLAN

Balochistan
2022-2031

Prepared under the REDD+ Readiness Preparation Project for Pakistan financed by Forest Carbon Partnership Facility (FPCF), implemented by Federal Ministry of Climate Change (MoCC) through National REDD+ Office (NRO), Islamabad.