Environmental and Social Assessment (ESA)

"Improved Governance of the Natural Parks across the Wakhan Corridor"

(PAK-AKDN-CHI-003)

Developed by

Aga Khan Rural Support Program (AKRSP)

The Project Implementing Partner

1 PROJECT INFORMATION

Project Name:

Improved Governance of the Natural Parks across the Wakhan Corridor

Project Location:

Broghil Valley in Chitral District, KP, Pakistan

Implementing Partner:

Aga Khan Rural Support Program (AKRSP)

1.1 PROJECT DESCRIPTION

The objective of this project is to improve natural resources management practices through cooperation to minimize the risk of conflicts along the shared borders of the Natural Parks, benefitting communities living on both side of the border. The anticipated results of intervention are;

1. Improved participatory governance of Park resources and inclusive access to information as well as diversified livelihood options for local communities.
2. Enhanced close border connectivity and sustainable routes for tourism development and cross border engagement.
3. Inclusive governance mechanisms established between local authorities and communities through the development, implementation and management of the Park Management Plans

The following important activities will be undertaken in vicinity of Broghil National Park;

1. **Construction of a Resource Center (24mX24m) in Garel, Pakistan (nearest village to Sarhad Broghil, Afghanistan) providing veterinary services (by Public Livestock Department), Park information and community interaction hub.** The building will constitute meeting hall, space for veterinary unit (managed by Livestock Department), park management committee office, display center, lodging facilities, kitchen and toilets. The center will facilitate tourists and others (also those from across the border) by providing important information about travel conditions, local settlements, important tourist sites, lodging facilities, markets and other resources. The members of Cluster Organizations and Park Management Committees will use the facility to conduct meetings and for other interaction. The land for resource center will be donated by communities/park authorities and construction activities will be undertaken through contractors, providing maximum labor work opportunities to local communities.
2. **Construct a 10-kW hydropower station to provide electricity to the Resource Centre and local community.** The PowerStation will provide electricity to resource centre and the 23 households in the Garrel Village. After completion, this station will be handed over to Cluster Organization for post project maintenance and operation. Availability of sustainable and affordable means of the electricity will reduce dependency of the communities on peatlands.
3. **Construct pony tracks from Lake Lashkargaz to Qurambara Lake, an important tourism site and cross border route.** The trails will facilitate pastoral communities while migrating to pasturelands and also improve access of tourists to the scenic sites. The width of the trails will be kept between 3 to 5 and total length of the tracks will be about 20 km.
4. **Develop Park Management Plans, inclusive of natural resource enhancement needs, in coordination with Park Authorities and local communities.** For this purpose, a national level expert/consultant with required experience will be engaged to undertake this assignment. Under the activity the local communities will be trained on conflict resolution, livestock management, participatory park management and model sheds/corral will be constructed in upland pastures to

minimize predators attack on livestock. Stakeholders including local Park authorities will be involved and oriented to changes and updating in the park management plan. The local communities will also be facilitated for exposure visit to well managed national parks across the country.

During 2022-23, Chitral received severe heavy damages to the infrastructures necessary for the well-being of the community. Funds from the Afghanistan side were reappropriated to restore critical infrastructures particularly Hydropower Stations located in Upper Chitral. 05 MHPs will be made operational to restore electricity to local communities. Following are the MHPs identified for rehabilitation.

1. **Ghuru MHP;** Capacity: 250 kW, Location: Ghoro Parkusap Mastuj Upper Chitral

Intake Channel will be reconstructed over 1250 feet length as well as poles, conductors, insulators etc, will be provided for Transmission & Distribution (T&D) system improvement. For T&D Works, 30 Low Transmission poles, 100 kVA transformer, 10000-meter conductor and related accessories will be acquired.

2. **Miragram MHP;** Capacity : 50 kW, Location: Miragram No 1, Upper Chitral

The power house, channel, forebay and silting basin will be constructed in the new site because existing place was rendered by floods unfeasible for any kind of construction works. Channel length at new site could be around 1500 ft to 2000 ft. Installation of turbine, penstock, step up transformers, high transmission (HT) poles, and conductors will also be done in this MHP. Around 01 turbine, 01 generator, 02 control panels, 01 75kVA transformer step up, 20 HT poles and penstock pipes.

3. **Jamalandeh Kosht MHP;** Capacity: 200 kW, Location: Jamalandeh, Upper Chitral

Pipe spillway (540-ft) will be installed across the whole length of MHP which got damaged because of the floods. In the channel, covering will be provided over 400-ft and rehabilitation works over 500 feet will be done for improvement of civil structure.

4. **Chapali MHP;** Capacity: 250 kW, Location: Chapali Kargen, Upper Chitral

Channel need rehabilitation and strengthening including other hydraulic structures for mitigation of natural damages. The length of channel is 1300-ft

5. **Zondrangram MHP,** Capacity: 250 kW, Location: Zondrangram, Upper Chitral

The damaged portion of channel is around 600-ft needing rehabilitation and around 700-ft covering will be provided in critical sites. Intake protection wall of 150-ft will be constructed for flood mitigation. The wooden poles in HT line will be replaced and around 70 poles will be purchased.The turbine will also be replaced.

The implementing partner has requested an extension of the project duration until 31st of December 2025 to complete initially proposed works for the Pakistan side and to undertake rehabilitation of Micro Hydropower Stations (MHPs) affected floods 2022 with the reallocated budget from the Afghanistan side.

Project concept and idea evolved from continuous engagement of AKRSP (through the completed and ongoing PATRIP Foundation-funded works under “All Weather Access Road” project) with field level stakeholders including local communities through their representative Village Organizations, Women Organizations and LSO, the local District Administration and Park Authorities (Wildlife Department KPK) in the area.

AKRSP social mobilization team will lead community mobilization, organization and agreements during the implementation period and establish criteria for community contribution, support, facilitation and participation in project through their representative VO/WO and cluster level organization. This will provide an enabling environment for initiation, implementation and maintenance of the infrastructures and conflict management as/if required. Per AKRSP's implementation approach and requirements set forth by local administration, skilled/unskilled labour (to possible extent/per availability) and local materials for works will be facilitated by local communities.

All the construction work will be outsourced to contractor(s), in line with procurement guidelines of PATRIP Foundation and AKRSP. Contractors will be bound to engage labor in line with requirements set-forth by the donor through ESMP (and relevant annexures) for this project. In view of the COVID-19 related situation, standard SOPs by Government and AKRSP will also be enforced on all worksites.

For all project work including construction activities in vicinity of Broghil National Park, an NOC was already obtained from local Authorities (DC Office) in Chitral. AKRSP has signed MoU with KP Wildlife Department for carrying out this project and other development work in an environmentally responsible manner. The proposed rehabilitation projects are community owned and managed as well as developed by AKRSP therefore no NOC will be required.

1.2 Analysis of Alternatives

The Broghil National Park, Pakistan and Wakhan National Park, Afghanistan are in the high-priority conservation eco-system due to its biological significance and sharing border with Tibetan and Central Asian Mountain Steppe. The pastoral Wakhi community on both sides of border is the custodian of the indigenous livestock breeds, traditional knowledge and local environment and is characterized a distinct national bio-cultural identity. Recurring conflict exist over the use of park resources due to non-inclusive governance approaches, lack of community ownership of park management plan, high dependence of locals on natural resource base for survival and inefficient/inadequate infrastructure limiting livelihoods diversification, where tourism holds a great potential. This is a unique biodiversity which necessitates local and cross border cooperation for conservation of depleting natural resources, some shared (on both sides of border) and strengthening natural parks management approach by making it inclusive and locally owned. The Pakistani government is also considering formalising Broghil as a formal border point, thus presenting a great opportunity for formal and enhanced socio-economic exchange, cohesion and cooperation in time across border through joint forums/management efforts.

The ongoing engagement with different stakeholders in Broghil through PATRIP Foundation supported work, especially the ongoing "All Weather Access Road Project" project, and with AKDN agencies on Afghanistan side, provided an opportunity to discuss the issues and cause of conflict in vicinity of Natural Park(s) on both sides and ways to minimize it. This continuous engagement with local communities and Park Authorities led to design of this action and activities to systematically lower conflict in park area, promote safe and sustainable use of natural resource base and provide locals with diversified livelihood opportunities which in return strengthens the project objective i.e. "Increase cooperation and natural resources management to diminish the risk of conflict along the shared borders of the natural parks".

This project (and planned activities) aim to preserve and in time improve the unique bio-diversity and fragile environment of the region and cross-border interaction for this purpose. The design of action has evolved over time, catering to needs and issues unique to focal parks. AKRSP will work closely with park authorities to commit resources for upkeep of the works once finished and continue working with locals in light of the park management plan. AKRSP will also work closely with communities,

building necessary capacities where required for minimizing conflict, promoting safe use of park resources and diversifying livelihoods to lower pressure on natural resource base.

The Micro Hydropower Projects (MHPs) have been shortlisted based on criteria such as having the largest user base and easy accessibility. This strategic selection ensures that the projects can be completed within the given timeline.

1.3 LAND ISSUES

The project is primarily working for improvement of Governance of Natural Park in Pakistan and small-scale land acquisition is needed for the project infrastructures including a resource Centre and Hydropower Station in Broghil Valley. These infrastructures will be constructed on land provided by community on voluntary basis. Pony trails and corral will also be constructed on communal lands. AKRSP will sign MoU with the respective community organization (Cluster Organization) for making provision of land as well as maintenance of community infrastructures after completion. Communities through initial discussions are in agreement to donating land and at this point in time no land issues are foreseen for planned infrastructure.

On the other hand, for the additional activities, which are rehabilitation and improvement of existing micro-hydropower systems, no land acquisition is required as the community has already agreed to the rehabilitation and improvement efforts. Since these projects involve upgrading or repairing existing infrastructure rather than constructing new facilities, the focus is on collaboration with the local community to implement improvements effectively.

2 E&S ASSESSMENT JUSTIFICATION

The project is in vicinity of Broghil National Park and thus has been classified as “Category B” project. The project will focus on the improved management of Broghil National Park and for this purpose necessary infrastructures will be constructed in Broghil valley so that communities will ensure sustainable management and utilization of natural parks resources. This project requires a site-specific ESM Plan for the development of these infrastructures, to address potential Environmental and Social risk impacts, by adopting different mitigation measures throughout implementation. This assessment uses and builds on findings of a recent ESA done for ongoing PATRIP Foundation funded project “All Weather Access Road”, in Broghil. Meetings and consultations with key stakeholders were also done to assess the issues related to ecological, physical and socio-economic environment, especially those arising out of ongoing COVID-19 related challenges, with measures proposed in ESMP to mitigate/manage negative impacts while enhancing positive ones. The newly proposed activities for rehabilitation are outside the Broghil National Park area therefore there is no need to update or revise MoU with Wildlife Department.

2.1 APPLICABLE STANDARDS

This ESA aims to help project to achieve compliance with the E&S standards set in E&S Policy of PATRIP Foundation and to fulfil International, national, and local legal and institutional requirements for environment safeguard issues. The other applicable Standards in context of Broghil National Park are;

- KfW Sustainability Guidelines requirements, which encompasses acceptable international standards such as World Bank Group Sustainability Framework as well as relevant Environmental Health & Safety Guidelines for the purpose of the project.

- The Khyber Pakhtunkhwa Wildlife and Biodiversity (Protection, Preservation, Conservation and Management) Act, 2015 was enacted to holistically manage Protected Areas in a sustainable manners for the best interest of the indigenous communities and local stakeholders and conservation of biological diversity and realization of its intrinsic and extrinsic values through sustainable use and community participation. The Government has declared Broghil National Park vide Govt. of Khyber Pakhtunkhwa notification NO: S.O. (Tech) Envt/viii-10/2005/kc dated: 25-08-2010 under section 16 of the Wildlife (Protection, Preservation, Conservation, and Management) Act, 1975.
- Convention on Biological Diversity (CBD), entered into force in 1993, addresses biological diversity at the genetic and ecosystem level, and provides a framework for its conservation and sustainable use. The overall objectives are the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising from the utilisation of genetic resources. The Convention was developed in recognition of the environmental, social, cultural and economic value of biological diversity, both now and in the future, and its significant on-going reduction around the world. As a Party to the Convention, Pakistan is obliged to take general measures for the conservation and sustainable use of biological diversity and adopt measures for in-situ conservation, including a system of protected areas, the restoration and rehabilitation of degraded areas, and the development of legislation and other regulatory provisions for the protection of threatened species and their populations.
- Ramsar Convention, 1971, is also called Convention on Wetlands of International Importance especially for waterfowl. It is an inter-governmental treaty that embodies the commitment of its member countries to maintain the ecological character of their wetlands of international importance and to plan for their sustainable use. The Broghil valley presents, besides about 750 km2 of snow and glacier area component of wetland ecosystem, a high-profile mosaic of lakes, oasis, peatlands and pastures, fed by glaciers at a considerably large area of more than 200 km2. This is a landscape dotted with more than 30 lakes and about same number blocks of peatlands, and also with the river bed and the river tributaries from the interior valleys. These cover an area of more than 45km2 and offers a large sum of diverse wetlands in a short span inter-woven with and dependent upon the high alpine grassland's ecosystem.
- The Convention on Migratory Species of Wild Animals (CMS), also known as Bonn Convention, is aimed to conserve migratory species of wild animals and birds throughout their range. It is an intergovernmental treaty and has been ratified by Pakistan. The valley is a staging ground for large number of avifauna species, while migrating from Central Asia and Russia to Indus plains and beyond, cross the international boundaries of Pakistan at Broghil. Similarly, the large animals and birds like Snow leopard, Brown bear, Blue sheep, Marcopolo sheep, eagles, falcons and others share the habitat of Broghil valley cyclically and predictably with Wakhan and Tajikistan besides GB. Ibex and Urial are also not confined to Broghil valley but have part of their life in the valleys of Wakhan (Afghanistan) and Tajikistan, besides in GB. Most of these species are threatened and endangered. It is evident that Broghil Valley meaningfully portrays for application of Bonn Convention, and as Member State, the Government has the obligation to protect these migratory species of international boundaries and their habitats requirements in the country.

3 BASELINE CONDITIONS

3.1 INTRODUCTION

3.1.1 Purpose

The main objectives of this ESA are to identify impacts and risks of proposed project activities, ensure compliance to Government of Pakistan (GoP) environmental laws and regulations and the PATRIP safeguard requirements, and recommend appropriate measures that will mitigate negative impacts of project while enhancing the current condition of the immediate environment in the project area. The ESA has considered information collected during the feasibility / design stage, the experience and learning through the previous PATRIP Foundation funded interventions in Broghil Valley, consultations with key stakeholders and review of secondary information. The resultant ESMP will cater to key issues and challenges identified through the ESA while at the same time will be flexible to accommodate any evolving situation during the implementation. The ESA examined the potential adverse impacts of construction activities on important and rare species of high-altitude alpine wetlands and alpine pastures which are endemic to the area and is regarded as an important biodiversity hot spot with rare habitats and distinct fauna, flora and ecology. ESA has analysed if planned interventions will impair or degrade the critical habitat function and if there is effect on wildlife. The ESM plan has been developed in view of this analysis to minimize any potential adverse impacts on unique biodiversity in valley rather protect it.

3.1.2 Sources of information

Relevant information was obtained by reviewing secondary data available on the subject and consultations with Local Communities, District Administration, Wildlife Department, Snow Leopard Foundation (SLF), Local Bodies Representatives, Project technical staff etc. The stepwise activities comprise:

- Primary Consultation was made with the District and Tehsil Administration to obtain NoC for the implementation of the Project.
- Consultation were also made with DFO Wildlife Chitral regarding scope of work and its implication on wildlife, communities. A detailed MoU of cooperation and coordination covering scope of work of this project and other is signed at the departmental level.
- Consultations with Village Conservation Committees (VCCs) and local community's council representatives to solicit their feedback on project designs and identification of possible positive and negative impacts of the project and their role / involvement.
- Consultations with International NGOs (WWF, FAO) representatives having prior work experience in the project area were made during the course of ongoing PATRIP funded project, which has been considered for this project as well.
- Review of PATRIP and GoP policy including legal requirements
- Review of relevant documents for secondary information and data collection including;
    - Broghil National Park Detailed Proposal
    - Yarkhun Area Valley Profile
    - Village Development Plans for Yarkhun UC and Broghil Valley
    - Environmental and Social Management Plan (ESMP) of All Weather Access Road Project
- The ongoing consultations and feedback provided by Environment lead at GFC helped shape this assessment and resultant ESMP.

AKRSP has presence in Broghil valley for the past many years and in addition to physical works such as roads, bridges and micro hydro power generation it has actively undertaken community organization

into VOs, WOs and LSO to work in an organized manner in best interest of the communities. AKRSP has also undertaken similar community organization and mobilization activities through other PATRIP funded projects, which include the recently concluded Tourism Promotion project and ongoing "All-Weather Access Road" project in Broghil valley. The agency has thus developed good understanding and knowledge of local norms, conditions and environment (socio-economic and physical).

As part of its reporting and monitoring activities regular data collection is taking place and some of the historical knowledge/information was used to this end.

The basic idea of this project evolved from stakeholder engagement during the previous projects especially the All-Weather Access Road Project, which has a detailed ESMP and stakeholder engagement plan. The initial concept of project was discussed with local communities, Wildlife Department and District Administration in the 1st quarter of year 2020 who ensured full support if project was to advance to implementation. The feedback from these stakeholders has been a driver for presentation / analysis of some of the findings and actions included in ESMP.

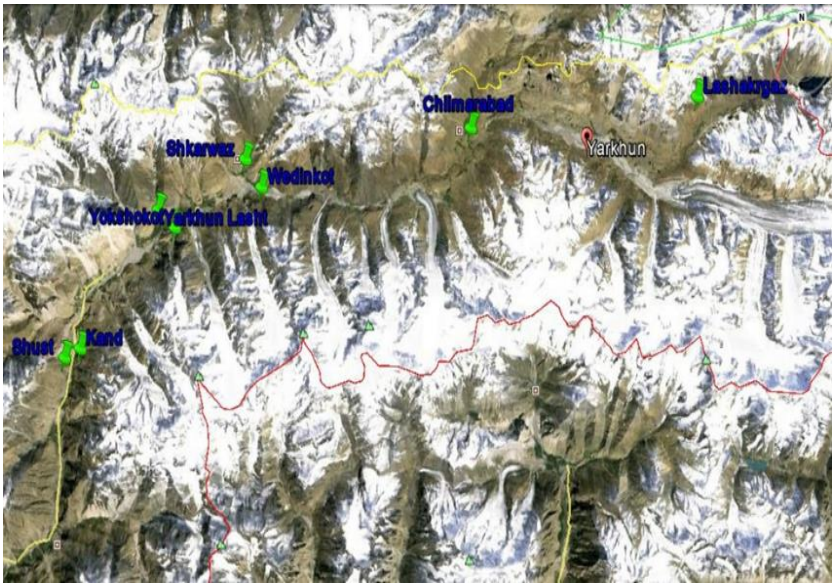
AKFP and AKRSP regional management and project focal person have been in regular communication with local (and that at provincial level) Wildlife Department and District Administration, regarding shape, size and approach to implementation of actions included in the project.

As included earlier, an MoU between AKRSP and Wildlife Department, facilitated by AKFP, is signed, which includes formal coordination and collaboration for implementation of project activities and more for long term environmental preservation and development of the communities while working together to mitigate chances of conflict.

3.2 PHYSICAL ENVIRONMENT

3.2.1 Location and Geography

Broghil valley and the target villages in Upper Chitral are situated in the far north of Chitral, at a distance of 100-250 km. The Broghil valley fall in Yarkhun Union Council (UC). While other target village in upper Chitral falls in Yarkhun, Mastuj, Booni and Kosht Union councils. The altitude of the valley varies from 4,593-14,000 feet. The Akroi darashot is the lowest point, with an elevation of about 8,778 feet, while Qurambara Lake is the highest point, having an elevation of 14,121 feet.



In the target villages, both in Broghil and upper Chitral more than 80% of the area is covered by snow/glaciers and rock/boulders, which are non-productive in terms of crops, wood, and fodder. The valley runs narrowly from southwest to northeast along the Yarkhun River, with high mountains on both sides. The slopes on both sides of the river provide settlements and pastures.

The area is made up of high mountain peaks, wide plains, steep slopes, and deep gullies inhabited by Wakhi and Khow people. It is connected to the Wakhan Corridor of Afghanistan through Broghil Pass and Kand khun Pass. The Wakhan Corridor is a narrow strip of territory in northeastern Afghanistan

that extends to China and separates Tajikistan from Pakistan. It is an important transit path of the ancient Silk Road route and is about 350 km long and 13-65 km wide.

The Broghil Pass remains open for informal movement of communities for the large part of the year, as the population of both sides have family and tribal relationships with each other. Another important pass, "Darwaza," connects Broghil with Afghanistan in the west. In the southeast, the valley is connected with Gilgit Baltistan through Darkot Pass. In the south the area is connected with Afghanistan through Arandu pass.

3.2.2 Climate

Located at a height above 8,000 ft, the climatic condition of the area is characterized by semi-arid conditions. The climate in this tundra biome is cold and windy and rainfall is scant. The temperature remains below freezing point for the larger part of the year. The major portion of precipitation is received in the form of snow. The snow-spell starts in September and continues till late April. However, intermittent rains come in late July and early August. The average precipitation has been recorded at about 1,000mm. It remains pleasant from May to September, when the area enjoys a moderate climate, while the nights still get cold.

3.2.3 Rivers and streams (drainage system)

The Yarkhun River is the first main tributary of Chitral River, which originates from Chanter Glacier in the extreme northeast of the valley. Through the course of its flow from Chianter to Darband, it is called Broghil River. From Darband onward it is named as Yarkhun River. The Broghil River collects numerous tributaries from Chianter to Darband, locally called ***Xerao*** meaning stream. The stream flows vary between summer and winter.

3.2.4 Lakes and Hydrology

There are more than 30 natural lakes of various sizes in Broghil valley. In Broghil Valley, Surkheng is the largest lentic lake of 20 hectares and others are smaller. Another important lake is Qurambara, which is the largest lake with surface area of 270 hectares in the valley, however it is placed under the administrative control of Gigit Baltistan (GB) as it's out flow is toward Ishkoman valley in Gilgit. No fish or fauna has been observed in these lakes and amphibians like toad and frog have been sparsely found. The shallow portions of both these lakes have phytoplankton, zooplankton and micro invertebrates. The emergent vegetation like Polygonum and Juncus and submerged vegetation like Chara have been observed on the shores of these lakes.

3.2.5 Glaciers

Glaciers are included as component land form of wetlands, although biologically least active but make the reservoirs of water to feed the streams and rivers and other wetlands. The largest glacier in Broghil valley is Chiantar Glacier of 34km length. At the north-eastern end of this lays the Qurambara Lake at elevated position like a water plateau and all other lakes are also in the lap of this glacier. Other important large glaciers include Chati Boye, Chokzard, Zindikharam, Barbin, Darkot, Petchus and Koi, which also perpetuate the sub glacial streams and springs to feed the lakes and peatlands.

3.2.6 Peatlands

Peat is a special type of grass which grows in marshy areas. Peatlands in Broghil Valley and adjacent villages have critical ecological role for wetlands fauna and flora, grounds for birds and grazing lands for ungulates and other wildlife species. Peat is locally called "cheem" which is primary source of fuel for cooking and heating due to shortage of fuel wood. When dried it combust to produce heat and large amount of smoke. According to local communities that it was some 50-60 years back that the

people of Broghil valley learnt the extraction and use of peat for fuel and this was then introduced by a migrant from Pamir. Since then peatlands have been capitalized on as fuel source. Today peatlands fulfill almost 80% local energy needs. During summer seasons (May-September) the daily consumption of peat per household is around 40-50 kg, while in winter this rate jumps to almost 80-100 kg per day per household. In summer season the in-house energy requirements are supplemented through other means as well e.g. fuelwood, animal dung, agriculture residues etc. But in winter due to heavy snow fall and drop of temperature the mobility of the local communities is greatly restricted and they remained confined to their houses. The use of peat also varies from hamlet to hamlet within Boroghil valley. In villages located at lower elevation e.g. Kismanjha, Jungle, Pechuch (Garamchasma), Koi and Vadinkhot the primary sources of energy are fuel wood, animal dung and agriculture residues. Peat is used as secondary source of fuel in these villages. This is due to the fact that some remains of birch, willow and juniper forests still exist in these villages or nearby areas.

3.2.7 Pasture and grazing lands

The lush green meadows and plains are utilized as pastures for grazing livestock and collecting fodder. These pastures and rangelands are the most important Common Property Resources (CPRs) that significantly contribute to the local economy. The major reliance on the natural resource base is for grazing and collecting fodder. Foothill grazing usually continues throughout the year. Pastures, especially the alpine and sub-alpine ones, are used for dual purposes; grazing and fodder collection from early May to the end of September. The animals are taken to high pastures in patches. During the early spring season, April-May, the animals graze in the plains and foothills located in close proximity to residential areas and agricultural fields. However, with the cultivation of buckwheat and other agri-crops, they are taken to high pastures for grazing to avoid damage to agricultural crops and capitalize on the fresh forage that emerged. During this period, it is ensured that livestock do not enter the agricultural fields. To ensure controlled grazing, a traditional system called “Sot Siri” is used. Similarly, other traditional tools are used to ensure the sagacious use of natural resources, especially pastures.

3.2.8 Agricultural lands

The average landholding size in Broghil and the target villages of upper Chitral is comparatively higher than other parts of the district. In the target villages the average landholding size is calculated to be 4-5 Chekoram (local unit of land measurement equivalent to 2.14 Kanals, approximately 11,664 sq ft). Wheat, Wild Beans, Barley and on a small-scale Potato are grown in the area. Agriculture yield is low and is hardly sufficient to meet the in-house requirements.

3.3 BIOLOGICAL ENVIRONMENT

3.3.1 Flora

There are virtually no forests in Broghil valley and in the adjacent areas, however, scattered tree growth is found in the lower parts of the valley. The arid cold climate and high altitude prevent the tree growth and most of the park area is above the tree limit. The scattered trees are mostly birch, poplar, juniper, willow and sea-buckthorn. The mountains and pastures above Garamchashma village have no tree growth. Broghil valley is an alpine tundra, the treeless mountain tract, where vegetation is composed of dwarf shrubs, sedges and grasses, mosses and lichens. The area of pastures in Broghil an adjacent Valleys consists of grasslands, sparse grasses and trees, and peatlands which are pastures, self-generating and self-maintaining vegetation used for livestock and wildlife grazing. They provide the basic livelihood for human survival in the area. People depend on the forests and pastures for timber, fodder and fuel. The pastures in Broghil valley and adjacent areas are subjected to mismanagement for early arrival and late departure of livestock besides un-proportionate stocking to

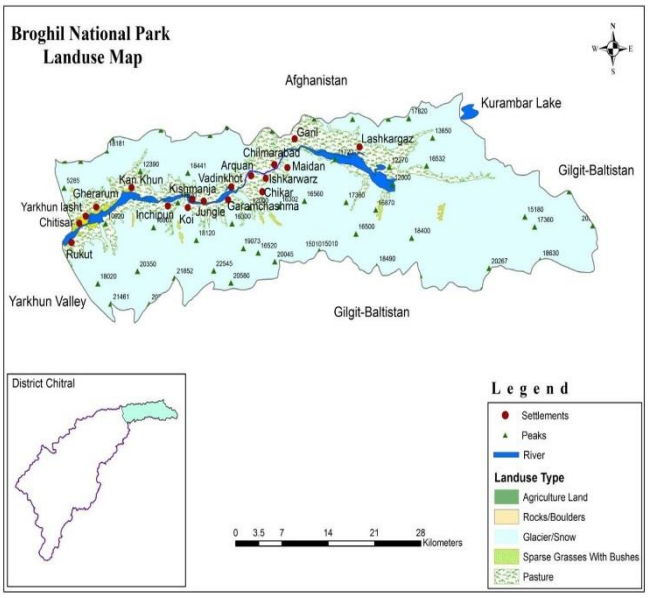
the carrying capacity to various portions of pastures. Overgrazing increases soil erosion and surface run off and adversely affect productivity and biodiversity. The appropriate level of grazing is usually effective in maintaining native grasses, herbs and shrubs diversity. Therefore, proper and controlled grazing system would sustain the plant species richness and give better livestock productivity.

3.3.2 Wildlife and Biodiversity

Yarkhun valley in General and Broghil valley in specific by virtue of its altitude, harsh terrain and climate makes one last limit for large mammal species. Globally endangered and vulnerable according to IUCN red list of species and CITES appendices have also been reported in the area such as Urial, Snow leopard, Brown, Marco polo sheep and Blue sheep. Himalayan Ibex, Tibetan wolf and Golden marmot are commonly occurring, which are protected animals under KP Wildlife laws. However, these small populations are not isolated in Broghil valley and they mix with their relatives in adjacent valleys of Yarkhun, Ishkoman and Wakhan. These populations in Broghil Valley then provide a vital link between the populations of adjacent valleys to help keep up the genetic viability of these populations in the region.

Small mammals fauna forms an indispensable component of any ecosystem. Royle's mountain vole is categorized as "near threatened (NT)" with decreasing population and the cape hare is also listed "vulnerable (V)" in the 2005 red list. None of these species are represented in the southern parts of the country which gives additional conservation significance of these species with small populations of small mammals.

Conspicuous bird species reported in Broghil Valley are Ruddy shelduck, Himalayan snowcock, Chakor, Golden eagle, Griffin vulture, Alpine chough and Snow pigeon. The area is known for migratory route and one important corridor of Indus Flyway for many waterfowl, passerines and prey birds species of Pamir and Siberian summer breeding grounds. The wetlands and other habitats of Broghil valley are staging and juvenile rearing grounds of many migrant species. Ruddy Shelduck, regionally rare waterfowl species, is breeding in these wetlands, and also many other species, both latitudinal and altitudinal migrants in Pakistan.



Reptiles and amphibians are important vertebrate component of the biological systems as they will demonstrate different concepts of physiological and behavioral adaptations to different climates. Two species, one the Green toad and the other Caucasian rock agama have been observed.

3.4 HUMAN, SOCIO-ECONOMIC AND CULTURAL ENVIRONMENT

3.4.1 Human Socioeconomic and Cultural

3.4.2 Population Dynamics

Even though local populace migrated from different areas of Afghanistan, Central Asia, China and other parts of Chitral with diverse socio-cultural background, but with the passage of time they somehow managed to get assimilated into a single culture and communal setup. Today almost 100% population of the area shares the same medium of communication i.e. language, same socio-cultural practices including livelihood means, same religious norms/beliefs and the same housing patterns. The Broghil area is comprised of 143 households and 1489 souls. The valley is comprised of 12 big and small hamlets. The average household population is about 10 individuals.

S #	Village name	# of HH	Male	Female	Total
1	Lashkargaz	16	108	92	200
2	Garil	10	80	70	150
3	Chilmarabad	27	160	140	300
4	Ishkarwaz	18	100	90	190
5	Medan	3	15	15	30
6	Arquan	3	12	11	23
7	Chikar	20	120	100	210
8	Garumchasma	30	135	125	260
9	Vadinkhot	3	13	7	20
10	Kishmanja	3	17	15	32
11	Jungle	3	7	5	12
12	Koi	7	32	30	62
	Total	143	799	700	1489

While in the adjacent villages of Broghil valley where the project will be implemented, the total beneficiaries are 13863 in 07 villages. The following are the details of the target villages for additional activities.

S #	Village name	# of HH	Male	Female	Total
1	Ghuro	400	1355	1045	2400
2	Miragram-1	100	450	433	883
3	Jamalandeh Kosht	400	1623	1577	3200

4	Chapali	500	2100	2051	4151
5	Zondrangram	400	1690	1539	3229
	Total	1800	7218	6645	13863

3.4.2.1 Occupation

The sources of income and occupations of the area present a mixed picture. Local people have limited livelihood opportunities due to remoteness and severe climatic conditions prevailed for most of the time. Livestock raring and other pastoral activities supplemented by limited agriculture are the chief sources of livelihoods. Additional income is generated through localized trade in handicraft, livestock, livestock byproducts i.e. animal skins, carpets and ropes made of animal wool etc. and tourism.

Farm Income: Wheat and barley are cultivated in the lower part of Broghil valley and the nearby villages. However, the production is not enough to fulfill even the in-house needs. The primary purpose of cultivating these crops is to supplement the fodder demand, especially during the winter season when the stall feeding of livestock becomes a crucial issue. Nevertheless, some ultra-poor families also include these crops in their daily diet. Although the average landholding size is quite high as compared to other parts of the district, crop production per acre is much lower. The entire area is in a single cropping zone. To supplement the nutritional needs and fodder production, the residents also grow potato, alfalfa, and wild beans. Wild beans are grown primarily for fodder production, but when fresh, they are also used as a food item.

Livestock nurturing and husbandry practices are the most important and potent sources of livelihood. The residents are traditionally livestock herders, and grazing land is an important asset to them. They use cattle to plow farms and as a means of transporting people and goods. Livestock is a significant source of proteins (milk and meat) and cash. The residents also use animal dung as fertilizer and as a source of household energy. Almost every household, rich or poor, is engaged in livestock rearing and basic husbandry practices in one way or another to survive in this climatically unfriendly area. Of the total income generated, about 90% comes from livestock rearing and animal husbandry practices. Livestock rearing is practiced for fulfilling in-house daily requirements as well as generating income through trade. Livestock also supports agriculture activities. Distribution of Livestock Population is shown below.

Table-Livestock in Broghil valley

S#	Village name	Yaks	Horses	Donkeys	Sheep	Goats	Cows	Oxen
1	Lashkargaz	180	16	40	400	300	23	37
2	Garil	160	9	17	231	184	36	38
3	Chilmarabad	180	16	23	400+	350	20	60
4	Ishkarwaz	72	12	16	170	150	20	16
5	Arquan	24	04	04	60	50	09	07

6	Chikar	120	15	25	350	300	60	40
7	Garumchasma	110	17	25	400	800	67	64
8	Koi	15	06	05	50	50	15	10
9	Kishmanja	30	2	03	-	130	7	-
10	Jungle	-	01	2	15	40	5	3
11	Midan	30	4	4	60	50	10	6
12	Vadinkhot	6	2	3	-	50	9	6
	Total	**927**	**104**	**167**	**2136**	**2454**	**281**	**287**

Table-Livestock in the target village for additional activities

S#	Village name	Yaks	Horses	Donkeys	Sheep	Goats	Cows	Oxen
1	Ghuro	-	4	5	455	613	125	44
2	Miragram-1	-	2	4	145	271	84	22
3	Jamalandeh Kosht	-	7	9	322	500	355	120
4	Chapali	-	6	2	411	729	490	173
5	Zondrangram	-	-	-	766	560	400	110
	Total	-	19	36	2554	3560	1676	548

Off Farm Income: The Broghil Valley and the target villages have great potential to attract tourists from all over the world. However, the contribution of tourism to the local economy is very insignificant, only 1.5% of the total. Nevertheless, it has the potential to grow in the future. Supplemental income is generated through the trade in animal skins, handicrafts, and carpets made of wool. But due to the unavailability of nearby markets and lack of basic skills to produce quality goods, the contribution of this sector to the local economy is very small. The majority of the local products are exchanged during festivals and ceremonies, including weddings and religious ceremonies.

The second-largest sector contributing to the local economy in terms of cash and in-kind capital is labor outside the area. With the onset of winter, a major portion of the labor force, between the ages of 18-50, migrates to GB, Chitral, and down districts in search of work. The majority of these are unskilled laborers and are engaged in low-yielding professions. A small number of individuals are reported to have government or private jobs. The overall contribution of employment to the local economy is 10-15 % (EST).

During the lean months, the poor usually rely on informal credit from shopkeepers and other sources, including relatives and wealthy villagers. The debt is paid back without any interest. The time frame verbally agreed for the payment of debt varies from six months to one year.

Basic Civic Facilities

The physical infrastructure in the valley is lacking and needs improvement to support regional development and resource conservation. The valley is connected to the lower parts of district Chitral through an unmetalled link road, which is often subjected to landslides and water intrusion. Access to communication services such as telephone, mobile service, TV and newspapers is not available, and radio transmissions are the primary source of information and entertainment. However, some parts of the target village in Yarkhun have access to mobile services.

The health facilities in the area consist of four dispensaries established by Aga Khan Health Services and a poorly equipped government dispensary established at Shuist , Brep and Garamchasma villages. The available health facilities are poorly equipped with the necessary equipment and human resources to meet the local requirements. Villagers often have to travel on foot for two to four days to get medical help for their minor ailments.

The education facilities are also substandard. There are 7 government schools, 3 AKES and 4 primary schools in the area. Furthermore, 2 government, 2 AKES and 3 community-based middle schools are present in the area. Along with these, two colleges are also present in the area.

The sole police station is located in Yarkhun Lasht, and there are five placements of Chitral Scouts located at Pawor, Dubargar, Yarkhunlasht, Kismanjah and Ishkarwaz villages. In total, 106 personnel of Chitral Scouts are posted in these posts. The local communities of Broghil use the wireless systems of the Scouts to seek help and services in times of emergency.

The valley also lacks access to power. Through the technical and financial support of AKRSP Chitral, a micro hydel power station has been established in different locations in Broghil and adjacent villages. Most of the MHP were damaged due to the floods in 2022-23.

To ensure a sustained supply of wheat to Broghil Valley, the government has established a wheat depot in Yarkhun lasht and Vadinkhot village. Other civic facilities including a sewerage system, portable water supply system, and emergency services are not available. There are also no formal credit facilities available within the village or in the nearby vicinities of the area, except for the local shopkeepers and wealthy villagers.

3.4.2.2 Social Mobilization and Institutional Base

Social mobilization activities were started in the valley as soon as AKRSP operations started in GBC. The institutional base in the valley is made of 9 Village Organizations (VOs) and 8 Women organizations WOs) and 10 Vos and 7 Vos in the target villages that cover almost 100% of the households. VOs/WOs exist at the hamlet level having 15 to 400 members which are involved in saving mobilizations and implementation of program packages at the grassroots level. As an umbrella of V/WOs, one Cluster Organization at the valley level having representation of all VOs and WOs, has been established to address community-level conflicts, supervision, and post-project maintenance with other stakeholders. Details of V/WOs are appended below;

Tabel- Details of Village organisation and Women organisation in Broghil

S#	Name of VWOs	Type of Organization	Date of Formation	Covered HH	Members	Saving
1	VO Arquan	VO	1999	11	18	9,996

2	WO Chikar	WO	1988	25	49	77,369
3	VO Garamchashma	VO	2016	32	32	18,000
4	WO Garamchashma	WO	2002	28	30	46,486
5	VO Inchipun	VO	2013	8	26	22,210
6	WO Inchipun	WO	2016	8	20	7,000
7	VO Kishmanja	VO	2001	12	21	30,000
8	WO Koi	WO	2015	8	24	12,000
9	VO Garil	VO	2015	18	33	23,400
10	VO Lashkargaz	VO	2015	19	34	23,000
11	WO Garil	WO	2002	18	31	50,864
12	WO Lashkargass	WO	2015	19	29	12,000
13	VO Chilmirabad	VO	2016	28	69	212,250
14	VO Ishkarwaz	VO	2014	15	22	31,000
15	VO Maidan	VO	2013	8	22	24,546
16	WO Chilmarabad	WO	2017	28	47	6,120
17	WO Iskarwaz	WO	2002	15	22	10,075

Tabel- Details of Village organisation in the target villages

S#	Name of VWOs	Type of Organization	Date of Formation	Covered HH	Members	Saving
1	VO Ghuro	VO	1994	400	400	200,000
2	VO Miragram-1	VO	2008	100	100	15,000
3	VO Jamalandeh Kosht	VO	2001	320	320	3,130,000
4	VO Chapali	VO	1999	240	240	25,000
5	VO Zondrangram	VO	2000	400	4000	40,000

4 IMPACT ASSESSMENT

Improved Governance of the Natural Parks across the Wakhan Corridor Project is expected to have potential positive and negative impacts effects during construction of project supported infrastructures. This section of the report presents the identified potential impacts (social, economic and environmental) at each stage of the project.

4.1 IDENTIFIED NEGATIVE ENVIRONMENTAL AND SOCIAL IMPACTS

4.1.1 Ecological Impact

Impacts:

The project may have a negative impact on the ecology of the area during construction due to increased movement of people to the project site. The noise and disturbance associated with the construction works may impact species that require an undisturbed and/or interior habitat whereby they will further shift to marginal areas. The project staff and other labour may involve in hunting of precious wild species because the Broghil has abundant and fairly distributed population of wildlife.

Contamination of the streams and rivers from debris can have a serious environmental effect on the fauna and flora along the streams and rivers. Effluent and run off from working sites, if not properly handled, will affect the water quality in the rivers due to siltation which affect the aquatic life.

While micro-hydropower projects are touted as environmentally friendly alternatives, they still carry ecological implications. Construction often involves diverting watercourses, leading to habitat alteration and potential loss of aquatic ecosystems. Furthermore, during the construction of water channels and the forebay of the micro hydel, there is a chance of soil erosion and sedimentation of the nearby water body.

The transmission line construction and operation may result in bird electrocutions and collisions, and changes in predator-prey relations.

Mitigation:

- The applicable guidelines, regulations and acts related to national parks will be duly followed by all project staff, contractors and other associated people working in the project area. For this purpose, the project staff will be trained and provided orientation by the district wildlife staff before initiation of the project. These regulations will be made of sub-contract agreement.
- Impacts on birds can be mitigated using markers on transmission lines that decrease the risk of bird collisions.
- While planning and laying out activities, sensitive natural environments should be identified so that alternate routes and designs may be considered. Wherever possible, pony track improvement activities need to be implemented in a way to avoid sensitive areas and disturbance of flora and fauna. Groundwater recharge areas and peatlands will also be avoided.
- Any activity such as blasting or causing huge disturbance will be avoided and instead pickax and shovel will be used for excavation. Moreover, use of heavy machineries will be well informed to the designated officer of the National Park if needed.
- All project / organizational staff, contractors and labor will be bound to ensure cleanliness within the park and all kinds of waste materials will be properly disposed at designated points.
- Engage local community institutions (village and women organizations, CO and LSO) in conservation and awareness raising including watch and ward in the Broghil area.

- Educational measures (with support of Wildlife Department) aimed at informing the travelling public / tourists about the reasons for not feeding wildlife, removing plants, littering, etc., and to instill a general appreciation of the desirability of conservation.
- Designating rest areas, waste collection points and other facilities together with communities and Wildlife Department to facilitate tourists but at the same time saving park area from negative impact of increased traffic/tourists.
- Local labour will be engaged to avoid influx of outsiders and reduce disturbance to the local environment
- To support downstream ecosystems, implement flow release regimes that mimic natural flow patterns.
- Incorporate habitat restoration measures into project planning and conduct thorough environmental impact assessments.
- To minimize downstream sedimentation, implement sediment management strategies such as sediment traps and periodic dredging.
- Ensure project design reflects local ecological knowledge and needs by engaging with local communities and stakeholders to address concerns.

4.1.2 Impacts on Physical environment

4.1.2.1 Soil Erosion and Contamination

Impacts:

Soil will become susceptible to erosion due to cutting and filing which may in some instances lead to land sliding and water pollution if not addressed properly and timely. Clearing and excavation may cause accelerated or uncontrolled sedimentation in the water courses. Moreover, further possibility of soil contamination may occur during use / handling of construction materials such as stones, sand, gravels, fuel, lubricants, paints, and disposal of solid waste. All these have the potential to contaminate ground or surface running water.

Mitigation:

- Efforts will be made to avoid and minimize solid and liquid wastes generation, and if any generated, should be stored at designated places prior to disposal. Furthermore, solid waste generated will be segregated into biodegradable and non-biodegradable wastes. Non-biodegradable and recyclable waste should be handled. Efforts will be made to compost biodegradable wastes in small-size compost pits.
- Soil erosion will be controlled by applying engineering as well as bioengineering techniques. Disposal of spoils and debris on the valley side will be strictly prohibited and only done at pre-identified places.

4.1.3 Construction Spoils/Waste

Impacts:

Activities like cutting of earth and rock mass for land leveling will generate waste/debris. Furthermore, waste materials such as food remains and packaging materials will also be generated from workers' activities. Waste from building construction can potentially impact wildlife and livestock populations if on or closer to grazing areas. Waste of non-biodegradable nature if not disposed of properly will render the areas useless for grazing activities. Inappropriate disposal of these wastes may obstruct water flow and may cause stagnancy of water and a filthy smell resulting in health problems for workers, local residents and fish or other aquatic life.

Mitigation:

- Construction waste and debris will be either reused if possible or disposed-off at proper designated locations.
- Construction sites will be provided with proper waste management facilities such as dust bins and earthen pits.
- All waste fuel, oils, lubricants and containers etc. will be stored separately and provided for recycling.

4.1.3.1 Hydrology and Drainage

Impacts:

Potential impacts in hydrology and drainage are the risk of increasing sedimentation and siltation of waterways during construction phase which may also lead to obstruction in flow. The sewerage water from the resource center will also pollute the water if no proper sewerage/ water management system is developed.

Mitigation:

- Existing natural drainage system, including irrigation channels will not be disturbed.
- Proper sewerage / drain water management system will be installed for waste water treatment and disposal.

4.1.3.2 Air quality

Impacts:

The transportation of materials and equipment and construction work generates a lot of dust and various other emissions which stimulate respiratory reactions in people and livestock closer to site. Though the dust from quarrying and vehicular transport may be short term to people in the areas, their impact can be long term if result in respiratory diseases. Increased movement of labours is also expected to increase the levels of noise coming from the people working in the project site.

Mitigation:

- The excavation and construction sites will be sprinkled with water to keep them moist for dust control.
- Vehicles carrying earth, sand or stone will be covered with tarpaulin sheets to avoid spilling.
- No firewood for cooking and heating bitumen, and incineration of wastes will be allowed by the Contractor.

4.1.3.3 Noise Level

Impacts:

Noise emission from quarrying operations can cause nuisance to local residents and workers. In such a situation, human dwellings are particularly vulnerable to nuisance from noise. During the construction phase, ambient noise will increase temporarily and intermittently in the close vicinity of active construction fronts.

Mitigation:

- Timing of construction activities only between 7 AM to 6 PM to avoid disturbance to nearby communities at night.

- Blasting will be avoided and in place, excavation machines will be used for cutting any hard rocks.

4.1.3.4 Borrow Pits and Quarry Sites

Impacts:

Construction materials, such as stones, gravels, sands will be collected and transported from riverbeds and other streams along the road. Soil erosion may arise if borrow pits are not stabilized/restored properly.

Mitigation:

- Only wastelands will be used for borrowing which should be located outside protected and forest areas, settlements, and water sources.
- Stone from rock cutting (tracks) will be used to possible extent.
- Suitable size of borrow pits and quarry sites (outside protected areas) will be operated as per required volume of materials.

4.1.3.5 Siltation and Contamination of Rivers

Impacts:
Disposing construction materials such as excavated spoils and debris near water bodies will result in siltation and contamination of river.

Mitigation:

- Prohibit disposal of excavated spoils and debris into streams, water bodies or river water by identifying proper waste disposal and/or storage sites.
- All chemicals and oil will be stored away from water and on stable platform with catchments pits for spills collection.
- All waste arising from the construction sites will be disposed in an environmentally accepted manner. Waste will be collected and/or stored (e.g. waste oil, lubricants, and paints) prior to disposal or transported to the approved disposal sites.
- No vehicle or equipment will be washed, parked or refueled near water source/body
- No sanitary wastewater will be discharged into a close-by water body, stream or river water.

4.1.4 Socio Economic Impacts

4.1.4.1 Occupational Health and Safety

Impacts:

Construction projects always have direct occupational health and safety risks to the employees and people around the project area. Risky operations will take place during construction such as rock cutting, handling of hazardous waste and other inflammable materials. Moreover, both labour and local communities' people are exposed to various types of risks such as spread of COVID-19, dust, noise and strong smells etc. While installation of transmission lines, there is a high risk that worker will fall from electrical poles and also electrocution. If not well managed, these can lead to injury or health issues.

Mitigation:

- The Contractor will be required to have an effective workers health and safety Plan and also train his workers on first aid and other emergency response. Construction contracts may include standard workers health and safety measures and contractors will be bound to implement them fully. Contractors are required to take full precautions to protect the health and safety of workers while implementing the project.
- The Contractor should follow all the SoPs provided by the government while construction work.
- There is a need that contractors should maintain adequate hygiene / sanitation in and around the construction site to reduce or control the spread of diseases.
- The contractor will need to provide protective gear to all its employees and impose their use. These may include protective masks, reflective ware, dust protection masks, leather boots, and hard hats for workers in places of quarries and other similar nature of work.
- Close supervision of the workers to ensure that they are putting on protective clothing is necessary and proper warning system for workers during risky operations such as operation of heavy machinery and blasting (if required).

4.1.4.2 COVID 19

Impacts:

The incidence of COVID 19 has been significantly decreased in the entire country however its risk will remain for many years. Due to increased number of laborers and people concentrating at construction site, the probability of Corona infection will be there and if it happens, it can affect continuity and completion of operations on time.

Mitigation Measures:

- The Organizational SOPs as well as Government Guidelines will be made available and key stakeholders will be oriented to those.
- Staff, contractors, labour and other communities will use protective gears/PPEs while participating in any project supported activity.

4.1.4.3 Conflict

Impacts:

There might be movement of people into project area for employment especially in case of skilled labor and the contractors will have to recruit people both from within and outside the project area. This might lead to some conflict amongst local communities and those from outside based on cultural and income differences.

Mitigation:

- Local activists and members of community organizations should be taken on board and well informed about terms of engagement of non-local labour. The nonlocal labour should be given orientation to respect local values and customs and to avoid any interference in communal level activities.
- The community members (through respective VOs, WOs and LSO), in addition to project staff and contractors will be entrusted for the conflict management at local level.

4.1.4.4 Social and Culture

Impacts:

Local communities may be disrupted and inconvenienced by dust, noise, heavy equipment traffic on existing roads and safety hazards. In Presence of non-local people, local people especially women may feel obstructed in free movement, performance of daily chores and other local cultural practices. There is also a potential for increase in criminal and unsocial activities as a result of non-locals working on the project.

Mitigation:

- All the non-local labour and staff will be given orientation on local cultural practices.
- The contractors will ensure their labour is not engaged in any uncultured activity.
- Avoid any unnecessary movement of non-local people in community centers.
- Emphasis will be given for engagement of local labour in construction activities.

4.1.4.5 Employment opportunities

Impacts:

The project activities will provide employment opportunities to people and after completion they may face un-employment and loss of income. This may result in nutritional loss, negative effect on children's education and increase vulnerability to seasonal changes and shocks due to deprived cash base for availing these facilities/services.

Mitigation:

- The local communities will be engaged alongside skilled labour to get on job training so that they can be able to use these skills for income generation elsewhere after project.
- Provide orientation to locals about benefiting from resultant and emerging employment/income opportunities especially from increased flow of tourists.

4.1.4.6 Cross Border Movement:

Impacts:

As a result of infrastructural development and improvement in vicinity of Broghil Valley, cross border movement of people is expected to pick-up and local level trade will also be influenced providing locals on both sides with better economic-opportunities and access to services. However, this could also lead to some negative impact such as smuggling of different goods, food items and animals. These kinds of activities may cause monetary loss to Government of Pakistan in terms of public revenues (duties and taxes).

Mitigation

- Discussions with scouts for potential negative impact and their increased vigilance.
- Organize awareness campaigns to discourage illegal trade or other activities across the border and discussion with local LSO for local level vigilance committees' formation to check and discourage smuggling and trade of contraband items.

4.1.5 Positive Impacts

4.1.5.1 Tourism

Impacts:

The improvements will attract more tourists to the Broghil valley to enjoy scenic beauty of area providing more employment / income opportunities for the local population.

Enhancement Measures:

- Local population should be given support and training on hosting tourist and tourism management to establish home-based guest bases.
- Develop promotional materials on tourism to attract greater number of local and non-local tourists.
- Local product awareness and showcasing / selling to tourists.
- Train locals in tourism related livelihoods e.g. tour guides, food preparation / selling, car rentals etc.

4.1.5.2 Cross Border linkages

Impacts

These activities will create opportunities for cross border linkages, collective management of resources, tourism, trade and other social relationship which in long run will create durable peace and harmony amongst the border communities of both countries.

Enhancement Measures

- Policy advocacy with relevant establishment to open up a formal transit route and remove security barriers for cross border movement of the local communities.
- Facilitate regional forum / mechanism for establishing close coordination between Pakistan and Afghanistan

4.1.5.3 Access to Electricity

Rehabilitating micro-hydropower systems can provide rural communities with access to clean and reliable electricity. This reduces their reliance on traditional energy sources like firewood or kerosene lamps. In turn, this access to electricity facilitates the operation of schools, healthcare centers, and other essential services. As a result, it leads to improved educational outcomes and healthcare delivery in remote areas.

Micro-hydropower systems produce renewable energy with minimal environmental impact. This reduces reliance on fossil fuels and mitigates greenhouse gas emissions. It contributes to climate change mitigation efforts and promotes environmental sustainability.

Ownership and management of micro-hydropower systems by local communities empower them to control their energy resources. This fosters self-reliance and resilience. It encourages community participation in decision-making processes and promotes social cohesion and collective action.

Enhancement Measures

- Provide training programs to community members on the safe and efficient use of electricity, technical skills in renewable energy systems, and small-scale enterprise development to empower community members to take full advantage of electricity access.

- Strengthen healthcare and educational services by equipping them with electrical-related facilities and appliances.
- Foster community ownership and governance of electricity infrastructure through participatory decision-making processes, transparent management structures, and accountability mechanisms.

4.1.5.4 Investment & Development Opportunities

Impacts:

This project will provide an enabling ground to other Government, non-government, and Private Sector Organizations for investment in the area because with the increasing number of tourists in the area investors will be automatically attracted.

Enhancement Measures:

- Increase awareness about area and its potentials at relevant forums.
- Capacitate locals (VOs, WOs, LSO) and facilitate them to access potential investors and development partners for investing in the area.

4.1.5.5 Employment Opportunity

Impact:

The construction sector activities are expected to recruit most of the local people which will provide income/livelihood opportunities to them. After development of these facilities, there will be more tourists coming to area and with it increase employment opportunities around tourism.

Enhancement Measures

- Local communities capacitated to take benefit from the increasing tourism / business opportunities.
- Productive skills and training for locals to get benefit from new employment opportunities in post project phase.

4.1.5.6 Reduce Degradation of natural Resource

Impacts:

The project will reduce degradation of natural resources through improved park management resources as well as providing alternative sources of fuel wood such as promotion of hydropower station.

Enhancement Measures:

- Promote productive utilization of energy for not only heating and cooking but also business purpose and for this purpose, basic electrical and mechanical equipment will also be provided to targeted households.

4.1.5.7 Increased Access to Basic CIVIC Services

Impacts

Upon completion, resource center will provide important veterinary services to people of the valley, where livestock is the most precious livelihoods asset resulting in improved productivity. The project activities in general and resource center in particular, provide a place for community and park

authorities/rangers regular interaction leading to coordinated / joint efforts for sustainability of park resources.

Enhancement Measures

- Local communities will be given awareness about information about other services available through the center.
- Lobbying and advocacy with relevant departments to expand civic facilities to these areas which have been hitherto inaccessible.

4.1.5.8 CONFLICT MITIGATION

Impacts

The updating / revision of the Broghil National Park Management Plan together with communities and Wildlife Department will make it more realistic and create joint ownership. It will increase trust and confidence of both parties in each other and mitigate the current level of conflict arising from existing non-inclusive approach to park governance. The orientation and capacity building for this purpose will also stir responsibility in communities for sustainable use of park resources, a basic cause of conflict with authorities and within communities.

Enhancement Measures

- Local communities will be given orientation, awareness and information about importance and safe use of resources and cooperation/coordination with authorities.
- Locals will be alerted to livelihood / income opportunities arising out of different works during implementation and post completion.

4.1.6 RESIDUAL IMPACTs

Impacts:

In a post completion stage, there will be increased influx of tourists and transport to Broghil valley, since Government is also trying to promote tourism in this area. Increased noise and air pollution may be a problem in the long run and influx of tourists and increasing business activities may cause waste generation and negatively affect wildlife population and movement in the area.

Mitigation:

- In Broghil area, it is very difficult to establish plantation due to harsh weather and limited growing season, therefore to reduce impacts of pollution, plantation should be established in lower areas.
- Conservation measures should be supported to reduce impacts of increasing human activities on wildlife population.
- Proper sensitization of tourists and locals to conserving the environment and wildlife habitat has to be a continuous process etched through an agreement between, District Authorities / Wildlife Department and LSO / VOs / WO

5 KEY FINDINGS OF STAKEHOLDER ENGAGEMENT

AKRSP has closely engaged all important stakeholders such as District Administration, Wildlife Department, local communities and elected representatives in the consultation and planning process of the project as well as in the ongoing activities of All Weather Access Road Project. The responses of

the stakeholders are summarized, including and building on the ones received for ongoing AWARD project (where a detailed ESMP is being implemented).

Concern/Suggestion	Stakeholder	Responses by the Project	Limitations
• Engage communities at all stages of project implementation • Facilitate communities and Authorities in resolution of conflict within Broghil National Park area • Fully comply with District Administration SOPs for COVID 19. • Provide all information related to project to administration if and when required. • Provide technical assistance to District Administration for carrying out developmental activities in the Broghil area • Engage local labour for the execution of the development work • Do not engage any foreigner(s) without prior permission from the Competent Authority	• District Administration	• On the basis of government recommendation, AKRSP will incorporate these suggestions into organizational and project implementation SOPs. • Project related information, fact sheets and other related information will be shared with the administration. • COVID 19 SOPs of Government will be provided to Staff and contractors working on the project site.	Broghil is a sensitive border area and the project implementation approach has to be tailored to conditions set by authorities through NOC or at a later stage.

• The applicable guidelines, regulations and acts related to national parks should be duly followed by all project staff, contractors and other associated people working in the project area. • The environmental integrity of the area should not be disturbed and project(s) should be implemented in consultation with wildlife department. • Flora and Fauna of the park should be fully protected and due care taken while implementing the project. • All project / organizational staff, contractors and labor should ensure cleanliness within the park and all kinds of waste materials should be properly disposed at designated points • Facilitate Wildlife Department in mobilization of communities for conservation and sustainable management of the National Parks	• Wildlife Department (KPK)	• Provide orientation and information of ongoing developmental activities in the project area. • Develop required Environmental and Social Management Plan (ESMP) in consultation and consensus of the local wildlife department. • Share designs of the infrastructure project with wildlife department when/if required. • Facilitate community mobilization during construction work. • Facilitate wildlife department staff in periodic visit(s) to project activities. • Coordinate project activities with concerned Wildlife Department officer. • Organize awareness session(s) for park's management	The National Park Plan has been not formally declared due to community disagreement regarding demarcation of the park.

• Engagement of local labour in construction works in place of non-local labour • Involvement of community in project implementation • Project Sustainability	• Community/Elected Representatives	• AKRSP will hold dialogues with communities to share each and every details of projects and create broader understanding about project. • Project committee having representation of community organizations will oversee the construction work • AKRSP will facilitate both Administration and Cluster organization to collectively work for sustainability of the project.	• Remote location. And thinly distributed population. • Lack of technical skills

5.1 MANAGEMENT & MONITORING

Topic	Mitigation Measure	Indicator	Means of Verification	Responsibility	Monitoring Procedure
Ecological Impact	• Training or orientation of staff on the applicable guidelines, regulations and acts related to national parks • Regulations or acts relating to national park should be made part of contractors' agreement. • Any activity such as blasting causing huge disturbance should be avoided and in place it machine excavation should be use. • Use markers on transmission lines that decrease the risk of bird collisions. • All project / organizational staff, contractors and labor should ensure cleanliness within the park and all kinds of waste materials should be properly disposed at designated points. • Engage local community institutions (village and women organizations and LSO) in conservation and awareness raising including watch and ward in the Broghil area. • Educational measures aimed at informing the travelling public about the reasons for not feeding wildlife, removing plants, littering, etc., and to instill a general appreciation of the desirability of conservation. • Awareness on laws prohibiting hunting, transport of hazardous substances, and removal of plant materials from the park and inspection of the contents of vehicles entering / leaving the park, for poached animals and plant materials. • Identification of rest areas with garbage bins and toilet facilities to discourage indiscriminate stopping along the roadside and littering.	• Number of person trained / oriented to regulation of national park and ESM guidelines. • Number of awareness sessions organized	Site Observation	Contractor/ AKRSP / Wildlife Department and Communities	Site Inspections

Soil Erosion and Contamination	• Efforts will be made to avoid and minimize the solid and liquid wastes generation and if any generated that should be stored at designated places prior to disposal. • Standards Engineering Techniques will be followed for land levelling	• Number of Disposal Points • Total area stabilized	Observation	Contractor / AKRSP	Random Site Inspection and review of waste inventories
Construction Spoils/Waste	• Construction waste and debris will be either reused if possible or disposed in proper designated locations. • Construction sites will be provided with proper waste management facilities such as bins and earthen pits. • All waste fuel, oils, lubricants etc. will be stored separately and sold to or provided for recycling.	• Number of Waste Disposal points provided	Dedicated Storage areas in place.	Contractor	Random Site Inspection and review of waste inventories
Hydrology and Drainage.	• Existing natural drainage system, including irrigation channels will not be disturbed. In addition, adequate cross drainage structures will be provided to facilitate natural flow of water • Sewerage management system will be developed for proper handling of sewerage water.	• Number of water drainage and other support infrastructures constructed	Survey and Design documents	Contractor/ AKRSP	Random Site visits
Air quality	• Road surfaces, excavation and construction sites will be sprayed to keep them moist for dust control. • Trucks carrying earth, sand or stone will be covered with tarpaulin sheets to avoid spilling. • No construction contractor's plants will be established near water bodies, important geographic point. • No firewood for cooking and heating bitumen, and incineration of wastes will be allowed by the Contractor	• Dust control measures applications	Observations	Contractors	Random site inspection and inspection of roads

Noise Level	• Establishing noise sources away from the communities and sensitive ecosystems • Timing of construction activities only between 7 AM to 6 PM to avoid disturbance to nearby communities at night	• Works schedules available	No work conducted during night/ Grievance mechanism	Contractor	Random Site Visit, review of filed grievances, and review of time sheets of workers
Borrow Pits an Quarry Sites	• Only wastelands will be used for borrowing which should be located outside protected and forest areas, settlements, and water sources. • Stone from rock cutting (for road) will be used for construction to possible extent. • Suitable size of borrow pits and quarry sites (outside protected areas) will be operated as per required volume of materials.	• Proper mechanism and place for gravel and sands collection available	Collection points	Contractors	Site inspection of Borrow Pits
Siltation and Contamination of Rivers	• Prohibit disposal of excavated spoils and debris into river water. • All chemicals and oil will be stored away from water • All waste arising from the construction sites will be disposed in an environmentally accepted manner. Wastes will be collected, treated (e.g. sewage through septic tank) or stored (e.g. waste oil, lubricants, and paints) prior to disposal or transported to the approved disposal sites. • No vehicle or equipment will be washed, parked or refueled near river water • No untreated sanitary wastewater will be discharged into the river water.	• Guidelines available for proper waste management on the sites. • Number of labour given orientation on waste management measures.	Observation	Contractor/ AKRPS	Site inspection

Occupational Health and Safety	• The Contractor will need to have an effective workers health and safety Plan and also trained his workers on first aid and other emergency response. • The Contractor will strictly follow government's SOPs to avoid spread of COVID-19. • Contractors should provide and install adequate signage showing construction work in visible places for the people to see. • Adequate sanitation and hygiene systems should be maintained in the construction site to reduce or control the spread of diseases. • The contractor needs to provide protective materials to all its employees and impose their use. • Close supervision of the workers to ensure that they are putting on protective clothing and ensure workers are clear of risks/harms during activities such as blasting. • Need for the development of comprehensive work place safety regulations by the contractors.	• Health and safety plan available • Installation of road signage • Protective gears available on site	Observation, training attendance list and Grievance Mechanism	Contractor	Random site inspection
COVID 19	• The Organizational SOPs as well as District Administration Guidelines fully followed during project implementation. • Staff, contractors, labour and other communities will use protective gears while participating in any project supported activity.	• Organizational SOPs and Government Guidelines related to COVI19 available • Safety kits available	Observation and training attendance list	Staff and contractor	Random site inspection

Conflict	• Local activists and members of community organizations should be taken on board and well informed about terms of engagement of non-local labour. • The non-local labour should be given orientation to respect local values and customs and to avoid any interference in communal level activities. • The community members, project staff and contractors will be entrusted for the conflict resolution at local level.	• Formation of conflict resolution/Grievance redressal committee	Conflict resolution committee, Grievance mechanism	Contractor/ AKRSP / Local Communities	Meeting with the committee and review of filed Grievance
Social and Culture	• All the non-local labour and staff should be given orientation on local cultural practices. • The contractors will ensure that labour will not engage in any uncultured activities • Avoid any unnecessary movement of non-local people in community centers	• Workers code of conduct available	Grievance Mechanism	Contractor/ AKRSP	review of filed Grievance