

Consulting Services on Supporting the Preparation of Measures (Gender, Land Tenure, Disaster Risk Management and Climate Change) for Forest Landscape Restoration in Afghanistan

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Supporting the Preparation of Measures (Gender, Land
Tenure, Disaster Risk Management and Climate Change) for
Forest Landscape Restoration in Afghanistan
Afghanistan

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Table of Contents

Executive summary	1
1 Introduction.....	4
2 Methodology	6
2.1 Methodological limitations.....	7
3 Results	8
3.1 Gender.....	8
3.1.1 Literature review on gender and NRM in Afghanistan	8
3.1.2 Survey results and recommendations on gender	11
3.1.2.1 Badakhshan – Rupani Foundation / RGEO.....	12
3.1.2.2 Takhar – Mission East.....	18
3.1.2.3 Samangan – WHH	22
3.1.2.4 Paktia – TLO	25
3.1.2.5 Khost – TLO.....	27
3.1.3 Concluding recommendations on gender sensitive FLR activities.....	30
3.2 Land tenure.....	33
3.2.1 Literature review on land tenure in Afghanistan	33
3.2.2 Survey results and recommendations on land tenure.....	35
3.2.2.1 Badakhshan (Wakhan) – Rupani Foundation.....	39
3.2.2.2 Badakhshan (Yaftal-e Payen) – RGEO	42
3.2.2.3 Takhar – Mission East.....	43
3.2.2.4 Samangan – WHH	45
3.2.2.5 Paktia – TLO	47
3.2.2.6 Khost – TLO.....	49
3.2.3 Concluding recommendations on land tenure	51
3.3 Climate change adaptation and disaster risk management.....	53
3.3.1 Literature review on CCA and DRM in Afghanistan	54
3.3.2 Survey results and recommendations on CCA and DRM	60
3.3.2.1 Badakhshan (Wakhan) – Rupani Foundation.....	60
3.3.2.2 Badakhshan (Yaftal-e Payan) – RGEO	63
3.3.2.3 Takhar – Mission East.....	67
3.3.2.4 Samangan – WHH	72
3.3.2.5 Paktia and Khost – TLO	78
3.3.3 Concluding recommendations on climate change adaptation and DRM	85
4 Conclusions	88

List of Tables

Table 1:	Pros and cons of customary dispute resolution.	34
Table 2:	Responses to multiple choice question #3, "From what type of land do people cut trees or collect NTFP?"*	36
Table 3:	Responses to multiple choice question #16, "What type of land, in terms of ownership and use, is best for reforestation projects?"*	36
Table 4:	Various FLR and land tenure stakeholders.	37
Table 5:	Responses to multiple choice question #14, "Who controls the use of pastures?"* .	38
Table 6:	Responses to multiple choice question #15, "Who controls the use of forestland?"* 38	
Table 7:	Summary of focus group discussion and participatory mapping results for land tenure, Badakhshan, Wakhan	41
Table 8:	Summary of focus group discussion and participatory mapping results for land tenure, Badakhshan, Yaftal-e Payen	43
Table 9:	Summary of focus group discussion and participatory mapping results for land tenure, Takhar	44
Table 10:	Summary of focus group discussion and participatory mapping results for land tenure, Samangan	46
Table 11:	Summary of focus group discussion and participatory mapping results for land tenure, Paktia	48
Table 12:	Summary of focus group discussion and participatory mapping results for land tenure, Khost	50
Table 13:	Hazards, disasters and their impacts and reasons in Wakhan	62
Table 14:	Hazards, disasters and their impacts and reasons in Yaftal-e Payan.....	66
Table 15:	Hazards, disasters and their impacts and reasons in Sadat and Kamangar catchments of Rustaq	70
Table 16:	Land use types in the five project areas in Hazrat-e Sultan District covered in the initial phase (data from DWHH, inconsistencies in original source)	74
Table 17:	Hazards, disasters and their impacts and reasons in project areas of Hazrat-e Sultan	76
Table 18:	Hazards, disasters and their impacts and reasons in project areas of Paktia and Khost	82

List of Figures

Figure 1:	Badakhshan (Rupani) gender labour division.....	14
Figure 2:	Badakhshan (RGEO) gender labour division.....	16
Figure 3:	Takhar gender labour division.....	20
Figure 4:	Samangan gender labour division.....	24
Figure 5:	Paktia gender labour division.....	27
Figure 6:	Khost gender labour division.....	29
Figure 7:	An example of components of a land tenure system.	35
Figure 8:	Mean annual rainfall in Afghanistan and adjacent areas.....	56
Figure 9:	Mean annual temperatures.....	57
Figure 10:	Mean July temperatures	57
Figure 11:	Mean January temperatures.....	58
Figure 12:	Projected likely (light grey) and very likely (dark grey) mean annual temperatures in Afghanistan under different scenarios (see Figure 10)	58
Figure 13:	Changes in climatic water balance in Afghanistan under different scenarios (see Figure 10)	59
Figure 14:	Explanation of the Graphs in Figure 12 and 13	59

Figure 15:	Overview of the project area in Wakhan, perspective from north, Google Earth imagery, 2008	60
Figure 16:	Climate diagram of Wakhan.....	61
Figure 17:	Overview of the project area in Yaftal-e Payan, perspective from north, Google Earth imagery, 2004.	64
Figure 18:	Climate diagram of Shahr-e Buzurg (22 km west of the project area) and Fayzabad (25 km southeast of the project area).	64
Figure 19:	Naland village in Google Earth, 2004 (left) and ESRI World Imagery, no year, but more recent (right).....	65
Figure 20:	Climate diagram of Rustaq	68
Figure 21:	Overview of the project village Gurgan Uleya with signs of erosion on arable lands and terracing in the lower part of the image. Satellite imagery: ESRI World Imagery.....	68
Figure 22:	Overview of the project areas in Hazrat-e Sultan. ESRI World Imagery	72
Figure 23:	Overview of the project area at the village Koka Bulaq. Google Earth (no year)	73
Figure 24:	Overview of the project area at the village Lopan Kuhna. Google Earth (no year)...	73
Figure 25:	Climate diagram of Samangan (Aybak, 5-27 km south of the project area) and Kholm (23-25 km northwest of the project area, at lower altitudes and likely more arid).....	74
Figure 26:	Climate diagram of Khost (25-32 km northeast of the project areas in Khost province, at much lower altitudes and more arid) and Parachinar (Pakistan, 20 km east of the project area Astia).....	78
Figure 27:	Climate diagram of Gardez (12 km south of the project area Nawrakai-Zafrankhail and 17 northwest of project area Zahoo) and Khand Khil (20 km east of the project area Nawrakai-Zafrankhail and 25 km southwest of the project areas Shaikoh-Alikhel and Mamakhel).....	79

Annex

Annex 1	Terms of Reference
Annex 2	Forest Landscape Restoration Expert Pool Survey Plan
Annex 3	References
Annex 4	Glossary of technical terms
Annex 5	Selected information and data portals on CCA and DRM
Annex 6	Local analyses of damage caused by previous natural disasters

Abbreviations

ARAZI	Afghanistan Land Authority
AR5	Assessment Report #5 of the IPCC
BMZ	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung
CBNRM	Community Based Natural Resource Management
CCA	Climate Change Adaptation
CBD	Convention on Biological Diversity
CDC	Community Development Council
DAIL	District Agriculture, Irrigation, and Livestock department
DRM / DRR	Disaster Risk Management / Disaster Risk Reduction
ECMWF	European Centre for Medium-Range Weather Forecasts
ECP	Extended Concentration Pathway
EU	European Union
FGD	Focus Group Discussion
FLR	Forest Landscape Restoration
FMA	Forest Management Association
GD-NRM	General Directorate of Natural Resource Management (MAIL)
GDO	Global Drought Observatory
GFDRR	Global Facility for Disaster Reduction and Recovery
GIS	Geographical Information System
GIZ	Gesellschaft für Internationale Zusammenarbeit
GloFAS	The Global Flood Awareness System
IPCC	Intergovernmental Panel on Climate Change
MAIL	Ministry of Agriculture, Irrigation and Livestock
ME	Mission East
M&E	Monitoring and Evaluation
NEPA	National Environmental Protection Agency
NGO	Non-Governmental Organisation
NRM	Natural Resource Management
NRMC	Natural Resource Management Committee
NTFP	Non-Timber Forest Products
OM	Operational Manual
PRA	Participatory Rural Appraisal
RF	Rupani Foundation
RGEO	Rural Green Environment Organization
SBS	Shifting Baseline Syndrome
SPI	Standardised precipitation Index
TLO	The Liaison Office
TOR	Terms of References
UN	United Nations
WHH	Welthungerhilfe Afghanistan

Executive summary

Recognizing the ecological, economic, social and cultural value of natural resources and the urgency to reverse their severe and ongoing degradation, Afghanistan is taking steps to protect and restore forests and other natural resources. These steps include the aim to restore 100,000 hectares of forest by 2021, an effort guided by the country's National Natural Resource Management Strategy 2017-2021. GIZ's Forest Landscape Restoration (FLR) project is designed to support this national effort in five provinces (Takhar, Badakhshan, Samangan, Khost and Paktia).

Critical to the long-term success of FLR initiatives are activities that promote equitable participation in project design, equitable distribution of benefits, clear and secure rights to and rules for accessing forest resources, and community resilience to natural hazards and climate change impacts. This report, therefore, provides background information and recommendations on integrating gender, land tenure, climate change adaptation and disaster risk management dimensions into the GIZ FLR project in Afghanistan. The report findings and recommendations are based on a literature review, a mixed-method survey across the project areas, and exchange with the project implementation team.

Background and key findings

Land and natural resource degradation, driven by a range of factors, have significant impacts in rural Afghanistan. Successful FLR can make key contributions to environmental integrity, food security and human health and well-being.

Gender

Afghan men and women have different roles and responsibilities in relation to forests and rangelands. Deforestation, land degradation and climate change thus have significant gender dimensions. Changes in natural resource quality and availability, including improvement through FLR activities, often affect men and women differently. Regarding trees, for example, men are generally more involved in felling trees and cutting bigger branches whereas women are engaged in collecting fodder and fuelwood. Due to the differential labour and usage of forest products, there may be differences between men and women in terms of priorities for restoration, including the preferred species and site location.

While FLR and other natural resource projects around the world consistently attempt gender-sensitive activities, research has found that in practice, "the concern for gender often slips during the project cycle, to the point where it effectively disappears" (Watson, 2006). Consequently, project activities usually are those prioritized by men and minimize the input from women (and often other marginalized groups) thus jeopardizing the equitable distribution of project responsibilities and benefits and project contributions to overall community resilience.

The survey results and review of proposals indicate that to date, the project is not adequately collecting and integrating women's perspectives. The survey did find, however, that the majority of male respondents stated that household budget decisions are made jointly within the family, while a large share of women considered that only men make these decisions. This finding demonstrates that women may feel a lack of decision-making power within their household while men perceive equality in decision-making. This discrepancy (men feel the women are involved while women feel that they are not) has implications for the decision-making that determines the equitability, sustainability and effectiveness of project activities.

Land tenure

Throughout rural Afghanistan, customary land tenure systems are the norm as they have been for hundreds of years. In the last 40-50 years, customary natural resource management systems have mainly endured in rural Afghanistan but they have been stressed by armed conflict, insecurity, population displacement and return, population growth, and land degradation. Today, rural land ownership and land and water rights are often highly inequitable and a significant proportion of the rural population is landless.

Clear and secure land tenure rights are a critical enabling condition for FLR as without broadly accepted rules, FLR sites are at risk from poor management and accidental or intentional cutting, misuse, and degradation. The survey demonstrated, however, that some project sites have very limited rules for natural resource use and that these rules can be difficult to enforce. Further, there are specific

challenges to securing land tenure for FLR including unauthorized development of community land (land grabbing), unauthorized outsider use (usually neighbours), increased competition for land, timber smuggling, lack of local and government capacity to stop illegal use, and customary land tenure systems that are usurped or disregarded by local elites or commanders.

Land tenure rules in the project areas are made and enforced almost exclusively by local entities. CDCs or *shura* generally hold the decision making rights for land use and access including the power to exclude others. In project areas where there are more rules for common lands (Wakhan, Paktia, Khost), respondents reported that land-related disputes are decreasing. In contrast, in areas with fewer rules for common land (Samangan, Takhar, and Yaftal-e Payen) respondents reported disputes were increasing or, in Yaftal-e Payen, had mixed trends.

The project communities largely rely on local and customary dispute resolution mechanisms that are generally based on principles of restorative justice and the imperative to preserve community harmony. While most dispute resolution occurs at the local level, cases can be passed back and forth between the local level and state government entities. Customary dispute resolution comes with a range of pros and cons related to ease of access, efficacy, and bias.

Climate change adaptation and disaster risk management

In Afghanistan, climate change impacts and natural hazards are increasingly affecting people and ecosystems as temperatures increase and rainfall decreases, particularly in the spring. With most of the population heavily reliant on agriculture and natural resource-based livelihoods, people are highly vulnerable to climate change and natural disasters. Government institutions and communities, however, face a lack of adaptive capacity and limited climate and disaster risk data to inform climate adaptation planning and disaster risk management.

Looking ahead, drought is expected to become more frequent and severe while increased heavy rainfall events and accelerated snowmelt are expected to expand and intensify flash flooding. Climate change is further expected to cause climate zone shifts, for example, from boreal to temperate. These warmer temperatures may allow new species to grow in areas that were previously too cold (e.g. Wakhan) but are expected to eliminate some species from other areas that become too warm or dry including making some rainfed areas unreliable for wheat production.

Survey respondents report that climate change and natural disasters are impacting agriculture and overall living conditions in all project areas. These impacts are compounded by land degradation processes linked to population growth and high demand for local natural resources including fodder and fuel. People in the project areas have observed a range of weather shifts including longer summer seasons, shorter winters (although untimely cold spells also occur), and more unpredictable and damaging rainfall. These trends have led to impacts such as diminished rainfed and pasture productivity, destruction from flash floods and riverbank erosion, and changes in water availability. Project activities need to address these risks to avoid and mitigate land degradation, improve local livelihoods, and increase community resilience in the long-term.

Ongoing and projected climate change aggravates many of the already high disaster risks including drought, flood, landslide, and avalanche. Earthquakes are an additional hazard not linked to climate change in Afghanistan. Communities across the project areas are very interested in addressing climate and disaster risk through measures in arable and pasture lands. These include nursery establishment, rainwater harvesting, agroforestry, revegetation of degraded slopes, erosion prevention through gully check dams and protection walls, irrigation canal rehabilitation, terracing, and other soil and water conservation measures.

Key recommendations

Gender

1. Commit to gender mainstreaming that makes men's and women's experiences an integral dimension of the project design and implementation by adequately engaging men and women and assessing the different implications of project activities for men and women. This should begin at the organizational level by increasing the capacity of project staff and adding female staff.
2. Design project activities based on women's needs, capacities and interests as identified through careful collection and analysis of gender-disaggregated data on the main challenges, issues, and priorities for men and women. The genuine participation of women in decision-making about their roles and responsibilities is critical to selecting the most appropriate activities. As women

themselves may have difficulty articulating their own needs, a first step is to assist women in analysing and understanding their situation. This requires female staff with strong facilitation skills.

3. Encourage women's participation throughout the project cycle through activities such as exposing groups of women and men to other communities where more gender-equitable development is taking place, sex-segregated conversations throughout the project, developing women's groups, and ensuring women have access to relevant information through appropriate sources.
4. Ensure project activities include alternative benefits to women (and men) such as capacity development (e.g. basic literacy and enterprise development), reduction of workload (e.g. improved water access), and payment in kind (e.g. seeds and agricultural tools for women). Such activities increase the overall community resilience, independence and autonomy of men and women and consequently the sustainability and impact of FLR project activities.

Land tenure

1. Select FLR project sites where the land tenure arrangements are clear and there are no existing or anticipated conflicts over land access and use. Further, identify existing and potential land disputes and ensure these are considered in project activities. Where there are existing conflicts over water, pasture, or forest use within a community, take special care to understand these conflicts and attempt to avoid them in project activities.
2. Encourage clear and equitable forest access and use rules so that economic, disaster risk reduction, and environmental benefits are shared equally among community members including women, landless, and marginalized groups. Restrictions on forest use should avoid disproportionately impacting the most vulnerable. Equitable rules will help prevent illegal use and avoid marginalizing vulnerable community members. Further, ensure that forest protection rules are widely agreed upon within a community and designed such that they are enforceable through community mechanisms as it is not useful to create rules that will not or cannot be followed or enforced.
3. Consider building dispute resolution capacity among local dispute resolution entities (i.e. CDCs, *jirga*, *shura*, elders, FMA/NRMC) to further understanding of and expertise in conflict prevention strategies, common stakeholder grievances, monitoring disputes and other aspects of forest-related dispute resolution. This could involve peer-to-peer learning, trainings, draft guidance, lessons learned from other reforestation projects, or other support. Similar support may also be appropriate for district entities involved in forest-related dispute resolution.
4. Reinforce MAIL's 2018 Operational Manual for CBNRM (OM-CBNRM) emphasis on community management and equitable benefits by ensuring that land tenure issues are fully integrated into each step of the manual's eight-step process.

Climate change adaptation and disaster risk management

1. Ecosystem-based adaptation and engineering measures should be implemented together as along, each is unlikely to sufficiently mitigate climate and disaster risk that protects people and ecosystems in the near and long-term.
2. Ecosystem-based and engineering measures should be site-specific and planned with both local participation and technical expertise. Technical expertise is necessary to draft technically sound solutions drawing from best practices from around the region and world as well as to integrate projected climate change impacts. Local knowledge and experience is key to inform locally accepted approaches that address local conditions. Further, data and information exchange with national and international knowledge hubs is required for major aid interventions but all interventions should be implemented with community contributions and operated autonomously by communities to ensure local ownership, benefits, and sustainability.
3. Take an integrated approach to community resilience that employs ecosystem-based, natural regeneration, and physical engineering measures in combination with disaster preparedness and early warning systems in line with local capacity. Overall, activities should shift from a hazard-focused infrastructure approach toward a resilience-building approach with a holistic perspective of conflict, disasters and climate change.
4. Address broader drivers of land degradation, consider options such addressing local human population growth, developing livelihood alternatives to agriculture and natural resource exploitation and regulating access to natural resources.

1 Introduction

Afghanistan's natural resources face serious man-made and natural threats. High population growth, poverty, dependence of rural populations on natural resources coupled with a low level of resources and capacities for natural resource management are some of the major challenges for the protection and management of natural resources. Reduction of Afghanistan's natural resources during the armed conflict years has reduced livelihood options for local communities, making them even more dependent on the existing degraded natural resource base for meeting their daily requirements.

Large areas of Afghanistan used to be covered by forests, but anthropogenic activities in the last decades have diminished Afghanistan's forests heavily, to only 1% of the country's surface classified as forest, according to recent satellite images analysis. The primary factors causing the loss of forest are overgrazing/browsing by small ruminants and unsustainable firewood collection. The soils are overexploited and large areas heavily degraded, resulting in barren land prone to desertification. Climate change effects in form of extreme weather events such as heavy rains and prolonged periods of droughts accelerate the degradation of natural resources and people's livelihood.

The Government of Afghanistan recognizes the ecological, economic, social and cultural value of its natural resources and the need and urgency to stop degradation of its natural resources. To this effect in 2002 Afghanistan ratified the Convention on Biological Diversity (CBD) and in 2014 it developed a National Biodiversity Strategy & Action Plan; framework for implementation (2014-2017). In 2016, Afghanistan adopted a comprehensive National Natural Resource Management Strategy 2017-2021 (NRM Strategy) and in 2018 added the Operational Manual for Community Based Natural Resource Management (OM-CBNRM) to facilitate the NRM Strategy. Together these documents aim at promoting resilient, climate-smart and sustainable economies in rural and suburban communities. This involves setting up and consolidating structures for community-based forest management, conservation and restoration, reforestation, afforestation, sustainable use of resources, local value chains and improvement of water catchment areas. 100,000 hectares of forest resources are to be restored by 2021. Institutions responsible for the management of natural resources in Afghanistan include the Ministry of Agriculture, Irrigation and Livestock (MAIL), and in particular the General Directorate of Natural Resource Management (GD-NRM). However, the MAIL and its directorates at provincial level often lack the capacities and resources to tackle forest landscape degradation in a comprehensive way.

To support Afghanistan in this combat to restore natural resources, and in particular forest landscapes and its services, the German Federal Ministry for Economic Cooperation and Development (Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung – BMZ) has commissioned GIZ (Gesellschaft für Internationale Zusammenarbeit) to prepare and implement a project on forest landscape restoration in five provinces (Takhar, Badakhshan, Samangan, Khost and Paktia). In a first phase, measures to restore forest landscapes in Afghanistan were to be prepared together with the Ministry of Agriculture, Irrigation & Livestock (MAIL) and its provincial representations.

In July 2019, GFA Consulting Group GmbH was awarded by GIZ with a contract to support the preparation of measures for the Forest Landscape Restoration (FLR) with a focus on gender, land tenure, and climate change adaptation (CCA) and disaster risk management (DRM). The ToR for the consulting services are attached in Annex 1.

A gender perspective on the measures and project activities to be implemented is key to consider from the start and throughout the entire implementation to ensure equal participation of different groups and to safeguard and enhance women's and men's rights. This is particularly important in a context, where women are likely not to have an equal say in strategic decisions and where approaches and priorities might be different for men and women and also depend on i.e. socio-economic status, ethnicity or age.

Clear land tenure and governance systems set the ground for sustainable forest landscape restoration which will be maintained and protected in the long term run. Therefore, the analysis of the actual land tenure situation and potential conflicts is critical to understand and consider before any investments in FLR are made. At the same time, the FLR approach also aims to strengthen governance and resolve tenure issues.

CCA and DRM analysis and considerations have become indispensable, in a context which is threatened by and vulnerable to extreme weather conditions and natural hazards to increase the resilience of the landscape and communities and therefore need to be integrated into the project's activities.

The objective of this report is therefore to generate information on gender, land tenure, CCA and DRM aspects to be considered for the development of well-founded and context specific activities for the follow-up module on FLR project implementation.

The consultant team comprised four international short-term experts: Ms. Ellen Geerlings on gender, Ms. Laurie Ashley on land tenure; Mr. Stefan Michel and Mr. Gerhard Rappold on CCA and DRM. In the preparatory phase of the survey, national short-term experts supported the international experts, namely Mr. Ghulamullah Afghanyar (gender), Mr. Jamal Sharafuddin (land tenure) and Mr. Masehullah Mohammadi (CCA and DRM). The team was led from GFA's headquarters, by Mr. Manfred Fischer with the support of Ms. Julia Bayer and Ms. Elena Baumanns.

Based on a reconciled survey plan developed by the consultant team, the project implementing NGO partners, Rupani Foundation (RF), Rural Green Environment Organization (RGEO), Mission East (ME), The Liaison Office (TLO), Welthungerhilfe Afghanistan (WHH) did the mixed-method data collection in the 30 selected villages in the provinces Takhar, Badakhshan, Samangan, Paktia and Khost. The preliminary analysis was then conducted and presented by the consultant team and discussed with the GIZ project team and NGOs in a workshop. This report contains the results of a comprehensive literature review, the completed survey data analysis, workshop discussion and exchange with the project team.

The consultant team would like to thank the GIZ FLR project team, the implementing NGOs and interviewed communities for their support and cooperation to conduct the survey and share their insights experience, and hopes that the analysis and recommendations presented here will contribute to the successful planning and implementation of the FLR project in Afghanistan.

In the following the methodology is shortly presented, followed by the results section, structured into a section on each of the topics: gender, land tenure and CCA and DRM. Under each thematic result section, a literature review on the specific topic in Afghanistan is provided, before presenting the survey results for the different project regions and giving concluding recommendations at the end of the section. The report is rounded up with overall conclusions. In the Annexes the ToR for the consulting services, the Survey Plan, a reference list and a glossary on technical terms are attached, as well as additional information for the thematic result sections.

2 Methodology

After contract start in July 2019, the consultant team initiated the development of a survey plan to collect data from Badakhshan, Takhar, Samangan, Paktia and Khost and selected communities and thereby complement the knowledge and experience of the NGO's and the GIZ project team on gender, land tenure, CCA and DRM aspects to design integrative measures for FLR.

In the survey plan a mixed method approach was proposed with three components: 1) Mapping Exercise, 2) Multiple Choice Questions and 3) Focus Group Discussions (FGD). The three components complement each other and allowed a minimum of data triangulation.

The mapping exercise served as door opener to familiarize the participants with the survey topics as it dealt with a surrounding very familiar to participants, identifying the locations where e.g. natural hazards strike or community members pursue their livelihoods. The closed-ended questions aimed to further contribute to the participants' understanding of the survey and allow community members to get used to the thinking and idea behind the survey. Photos of the maps created or drawn were the outputs. Thereafter, 20 Multiple-Choice-Questions in general on livelihoods and natural resource usage, gender, land tenure and CCA and DRM, were asked to the participants of each survey session as a group, requiring the group to agree on a joint answer and enable the NGOs to draw on collective knowledge and gather relevant information in a relatively short time. The Multiple-Choice-Questions answers were recorded by using the KoBo Toolbox¹ via a mobile phone/tablet, enabling the rapid consolidation of collected data in one Excel file. In a third step, Focus Group Discussions were conducted to allow the community members to express their own thoughts freely. The FGD were guided by opening questions, followed by topic-specific questions and finalized with questions on potential project activities.

The survey duration was planned to take approximately three hours. The participants in the survey sessions were representative members of the local communities in all project sites. It was further decided to conduct two survey sessions per village/community – one to be carried out if possible by female staff members only with female participants and one only with male participants, to ensure giving women the space to express their opinions more freely and allow for a disaggregated gender analysis. For further information on the applied methods, the survey plan is attached to this report in Annex 2.

In October 2019, the reconciled survey plan was introduced by the national consultants to the NGOs by explaining the survey plan and doing a survey test run with NGO representatives to further adapt the survey plan in line with these test interview outcomes.

The survey was then rolled out by the NGOs surveyors in the project areas in respectively five communities in every project region, ME in Takhar, RGEO and RF in Badakhshan, WHH in Samangan and TLO in Khost and Paktia, totalling 30 villages. Based on first results of the survey, the consultant team also provided feedback to further optimize the survey and its implementation.

After receiving the translated survey data beginning of January 2020, the international consultants conducted a preliminary analysis of the survey results. A basic analysis ("summary reports") available within the KoBo Toolbox served to draw first conclusions from the multiple choice data. Additional descriptive statistics were used during a second stage of analysing the raw data, based on an Excel file generated from the KoBo Toolbox. The quantitative analysis was complemented with qualitative content analysis from the narrative data obtained from the mapping and FGD components.

Additionally, a comprehensive review of literature, project reports and other relevant sources was conducted for each topic. For the CCA and DRM analysis satellite imagery available at Google Earth, Bing Aerial (accessed via QGIS OpenLayers plugin) and ESRI World Imagery (accessed as Basemap via ArcMap), climate information from climate-data.org and [World Maps of Köppen-Geiger climate classification](https://climate.geog.cam.ac.uk/) were also considered.

The preliminary findings were presented and discussed with the GIZ team and representatives of the NGOs and MAIL during a workshop held in Dubai on January 15-16th 2020. The discussions and exchange with the project implementing team also served to clarify, complete, cross-check information. The proposals for project implementation prepared by the NGOs as of February 2020 were also

¹ KoBoToolbox is a free and open suite of tools for field data collection for use in challenging environments: <https://www.kobotoolbox.org/>

considered and informed the further analysis of survey data, presentation of results and the formulation of recommendations in the present report.

2.1 Methodological limitations

The support of preparation of measures on gender, land tenure and CCA and DRM was affected by some limitations related to conducting the survey and the quality of survey responses.

Regarding conducting the survey, the NGOs know the local context best, have access to the project area and people, and are the implementers of the project activities. Therefore, the survey implementation in the selected communities was planned to be carried out by the NGOs. However, this might not have been entirely clear to all stakeholders and felt as an additional task for the NGOs to conduct the survey for the consultant team.

In the frame of the contract the consultants however, could not carry out any on-site assessments which would have been helpful to support and guide the survey implementation, better understand the situation at project-site and confirm and cross-check the survey data.

The national consultants could not be integrated as planned, and the remote guidance and supervision of the survey teams and very limited feedback opportunities for the survey teams towards the consultants and vice versa partly affected the data quality in terms of accuracy, site-specificity, relevance and consistence.

The quality of the survey responses was an additional limitation across the three topics. The survey documentation often lacked detail and the notes for participatory mapping and FGD were frequently vague and short. The documentation might have suffered in some cases from insufficient understanding of terminology and vague statements by respondents. Additionally, the translation into English language might have caused some information loss and modification.

The participatory maps were of varying detail and spatial reference and could not always be clearly assigned to specific sites. In particular the areas belonging formally or informally to certain villages were often not defined. Information on used resources, crops, livestock, and pastures, but also on location of hazards and disaster impacts was not always sufficient for specific assessment and development of recommendations.

The intention of conducting two survey sessions at every village, one with male and the other with female participants and surveyors was to see if there were any differences with regards to their perceptions about climate change, conflicts, priorities, challenges and proposed activities etc. However, the qualitative content analysis of the FGD results disaggregated by gender was difficult as for some FGD the results were literally identical for female and male groups.

For the CCA and DRM analysis, available data was largely qualitative and quantitative data was only available in few cases. It was not possible in the frame of this study to obtain and analyse area-specific climate data and projections to predict climate change more specifically for the project areas. Furthermore, information on previous site conditions, in particular on forest cover and other vegetation, but also on land-use and disasters was limited. Some information was provided in the survey documentations and proposals, but most of this information was without geographic reference and not specific. Furthermore, the available spatial data allowed only for a visual assessment of physical features of project areas in GIS, but were insufficient for the originally planned preparation of GIS maps containing information on land cover, existing land use, key infrastructure, sites of previous disaster events, proposed intervention sites and other key information of importance for the planning of interventions.

3 Results

3.1 Gender

Gender does not mean focusing only on women, but rather on the inequalities between men and women. However in practice often women are disadvantaged in social, political, economic, legal, educational and physical issues. This is why there is a tendency and necessity for gender discussions and interventions to target women. Women in the target communities likely will not have an equal say in strategic decisions around FLR issues. Important decisions relevant to FLR include restoration objectives, target areas, choice of stakeholder involvement, approaches, selection of species and how to monitor progress. Approaches and priorities will be different for women and men and can also differ within these groups based on socio-economic status, ethnicity, age, displacement status and other characteristics. For this reason, it is critical to understand women's role within decision-making processes, their needs with regard to FLR and additional socio cultural conditions and rules that may influence potential project activities.

3.1.1 Literature review on gender and NRM in Afghanistan

The livelihoods of 80% of the Afghan population depend on agriculture and natural resources (MAIL, 2016). Formally, women constitute more than 40 percent of the agricultural labour force, but this figure does not include women's contributions in unpaid work (Pincha, 2019). Women's involvement in and influence over NRM, though significant, is often less visible than that of men, or is not formally recognized (Ganesh, 2007; Watson, 2006). For example, women frequently carry out labour on land over which they hold no formal tenure rights (Watson, 2006).

Deforestation, land degradation and climate change have significant gender dimensions. This refers to access, use and benefits from natural resources but also how these changes and impacts affect men and women differently. It is commonly understood that there are differences between men and women in terms of knowledge, access, and use of natural resources (Samndong, Kjosavik, 2017).

In agricultural economies such as Afghanistan, land and livestock are key assets of households. Decisions over large expenditures such as the purchase of land are negotiated between men and women with women having different levels of bargaining power (from being 'informed' to having equal decision making power) depending on many factors such as location, education, ethnic group and the relationship between husband and wife. However the actual purchase is done by men.

Afghan men and women have different roles and responsibilities in relation to forests and rangelands and therefore the division of labour is largely based on gender, but also other characteristics such as age, health status, ethnic group and marital status, play a role in determining the involvement of men and women in forest and rangeland related activities. To what extent women take part in agricultural or natural resource related work outside the house also depends on the economic status of her family, with women from poorer families and smaller farms tending to work more in the fields or in NRM related activities (Ganesh, 2017).

Men are generally involved more in physically laborious and heavy work such as felling trees and cutting bigger branches whereas women are engaged in collecting and fetching fodder and fuelwood. This difference also leads to a difference in knowledge about forest resources. Due to their different gender roles and responsibilities, men and women use forest products in different ways. For instance the general trend is that women gather forest products for fuel, food, fodder, herbs for medicinal purposes, raw materials for small-scale income-generating activities, whereas men gather wood for selling or for construction (Gurung, Thapa, Gurung, 2000). Due to the differential usage there exists differences between men and women in terms of priorities for restoration and differences in species for restoration. These may sometimes contradict each other and/or the ecological goals of FLR.

Ganesh (2017) reports that generally in cash crop farming in Afghanistan women are involved mostly in weeding, harvesting, hauling, and threshing. Most other crop-related activities (i.e., seed buying and preparation, fertilizer and chemical buying and use, sale of produce) are seen as male domains.

Importantly, however, in communities in some provinces, women are directly engaged in what are otherwise considered to be “male” activities². In share-cropping households, women may work in their family fields alongside non-family members if the woman’s husband is also among the group, while among the better-off families, women’s labour is substituted by hired help. Women’s paid engagement is higher among poorer households, as women may also work as hired farm help alongside a mahram, according to seasonal labour demand and highly correlated to household needs.

In horticulture, women manage small orchards with fruit and nut trees, beehives, and vegetable gardens, including spices and medicinal plants inside their homesteads, at small-holding farms adjoining the homestead, or in forests/community land. Women in some regions participate in the lower end of the commercial farming value chains as day labour by hand shelling/sorting almonds, apricots, peanuts, pine nuts, and walnuts in their homes for contract farmers (Ganesh, 2017).

Women from the Wakhi ethnic group in Badakhshan enjoy greater freedom and are allowed to work the fields and to go to the markets. Furthermore, in Badakhshan women are the main or equal caretakers of cattle. The income derived from milk and milk-based products in particular is culturally and traditionally seen in many regions and communities as a woman’s right. Fishery, poultry, beekeeping and honey collection is also a source of income in which women commonly engage. The produce is mostly used for home consumption or for sale at local markets (Ganesh, 2017).

Washing, sorting, carding, and spinning sheep and goat wool into yarn and then knitting is done by women across the country; women dehair by hand the small amount of spring cashmere that is exported. Women also engage in spinning wool and using sheep wool to fill cushions and pillows for domestic or local/ village consumption. The weaving of *namad* (felt carpet/rug), *qalee* (pile carpet), and *geeleeem* (rug), embroidery, and some leatherwork (saddlebags and pads) are done by women and girls in their homes (Ganesh, 2017).

Based on socio-cultural norms and practices, men and women have differential rights over land (private forests, rangelands and trees). Insecure access to land and trees can limit the ability and interest of women (and poor men) to plant or manage trees over which they may not have decision-making authority or long-term access. In contrast, more secure rights to future benefits through enhanced tenure security have been found to correlate positively with women’s likelihood of engaging in restoration (Sijapati Basnett *et al.*, 2017).

Significant gender differences also exist with respect to the types of benefits preferred by women and men; gender-specific roles in agriculture and natural resource management influence appreciation of land uses, tree cover and associated ecosystem services (Sijapati Basnett *et al.*, 2017).

Although it is generally accepted that FLR policy and practice need to be gender-sensitive; several authors have found that practice is often flawed. For example Watson (2006) noted that “... *gender relations are incorporated unevenly into NRM projects, and the way in which gender is understood varies not only between projects but also between different people working on the same project. Although many projects demonstrate an initial commitment to and awareness of the importance of gender relations, in practice the concern for gender often slips during the project cycle, to the point where it effectively disappears.*”

Indeed Pincha (2019) found that, during the “Strengthening the Resilience of Afghanistan’s Vulnerable Communities against Natural Disasters (SRACAD)” project, even though women had been given the opportunity to express their needs and priorities in sex-segregated groups, women’s priorities were pushed down to the lower end of overall lists of project activities when they were combined with the priorities expressed by men. Consequently, the priorities based on which interventions were taken up ended up being those expressed by men

The National Natural Resource Management Strategy 2017-2021 also recognizes the critical role women play in the conservation and use of natural resources and focuses on best practices to involve women in the implementation of the strategy. Still and despite the fact women play a vital role in the conservation, use and management of natural resources, they are generally excluded from decision-

² For example in some of the north-eastern mountainous areas in Pansjir and Badakhshan, women play a far wider role in livestock management and may even go to summer pastures without their families to tend to animals and produce dairy products.

making, the world over. Afghanistan is no exception to this. Key challenges mentioned in MAIL's National Natural Resource Management Strategy (2017-2021) in addressing gender are (MAIL, 2016):

- Lack of sufficient time and resources for a genuine analysis of existing gender relations and inequalities in areas they work in, and the underlying causes,
- The difficulty to question power relations in the communities they work with, as they are deeply embedded in social, political and cultural structures,
- The fact that many existing tools and guidelines on gender mainstreaming are often rather general and not easy to apply to the specific contexts in which organizations are working,
- The lack of insights in the role of gender in natural resources management specifically.

The literature (Pincha, 2019; Gurung, Thapa, Gurung, 2000; Watson, 2006; Wimpelmann, Strand, 2014; Sijapati Basnett *et al.*, 2017; FAO, 2019; Ganesh, 2017) provides valuable insights and 'lessons learned' that are relevant for the proposed FLR project. These lessons learned and recommendations also address the key challenges mentioned in MAIL's National Natural Resource Management Strategy (2017-2021).

- Prior to project design conduct a gender-analysis. A gender-analysis will help in collecting data about the different roles of women and men, as well as their specific needs and priorities. Conducting a gender-analysis at the start of a project will contribute towards ensuring that men and women can participate equally and also derive equal benefits from the outcomes.
- The need to create an enabling environment for women to speak and share their ideas and concerns. The creation of such an enabling environment should include sex-segregated conversations throughout the project cycle (design, implementation, tracking progress and evaluation).
- The need to carefully facilitate discussions with the aim of encouraging even the most marginalized persons to articulate their concerns and needs. Good facilitation can yield rich insights into women's perception of their vulnerabilities, capacities, critical needs as well as their FLR priorities. *"Often women become adapted to their own marginalised situations and thus fail to analyse their own needs. This in turn reinforces the deprived status in which they find themselves. However, when some questions are asked that helped them realise that talking about certain issues has legitimacy, conversations flowed more freely and touched upon many issues that they never talked about or thought of talking about"* (Pincha 2019: 25).
- Developing women collectives can play a significant role in stimulating women's voices and press for their priorities. These collectives offer spaces for acquiring knowledge and networking with the world beyond the home and compound. Such female-only groups make a substantial contribution to self-sustenance, poverty alleviation, and savings. Moreover, the strong presence of women's groups can act as pressure points to ensure gender-responsive legislation and policies
- Record the priorities voiced by women and their different sub-groups separately and not to mix them with those expressed by men. When women's needs are prioritized in a separate list rather than as part of a general one, and resources are set aside for addressing them, the gender gaps between needs and priorities can be effectively bridged.
- Developing inclusive selection criteria. Ensure a comprehensive process for establishing the selection criteria so that vulnerable people equally benefit from NRM and FLR interventions³.
- Leveraging those Islamic tenets which grant certain rights to women. The centrality of the *Shari'ah* in Afghan society means that customary law can be challenged, and that women's fundamental Islamic rights such as *Mahr*⁴ and *Miras*⁵ can be given wider and positive acceptance. Leveraging those Islamic tenets which grant certain rights to women – rights related to education, ownership of assets and land, livelihoods, and many more – will result in the development of multiple strategies for enhancing women's participation that are embedded in the ground realities.

³ The "Strengthening the Resilience of Afghanistan's Vulnerable Communities against Natural Disasters (SRACAD)" project evaluation gave the example where people were excluded from the distribution of tree saplings because they did not meet the selection criteria of owning at least 1 jerib of land. This selection criteria automatically excluded many vulnerable and marginalized people in the project communities.

⁴ Dowry given at the time of marriage by the groom to the bride and the amount determined at the finalization of marriage; a contractual obligation to be later paid by the husband to the wife, including in the eventuality of marriage dissolution.

⁵ Inheritance rights of female members of the family.

- In line with the above, several sources recommend engaging more deeply with men and Mullahs. Involving men and the Mullahs in communities, taking into account cultural sensitivities, can be made part of awareness-raising and information-dissemination activities. When this happens, the practical needs of women can be brought to the foreground, a process which rarely meets resistance within the communities.
- The entry point which faces the least resistance is through addressing the practical needs of women – they align with the traditional gender roles within the operational socio-cultural norms in a community. This is a valuable first step in project implementation. Addressing practical needs can be a stepping stone for addressing more strategic needs at a later stage of the project.
- Adopting gender-responsive budgeting. Earmarking budgetary allocations specifically for the needs and priorities of women. In this way, women's voices are less likely to be lost within more general lists of priorities.
- Including women's perspectives in project monitoring, course correction, and project progress reflection. This includes collecting gender disaggregated data and including women in participatory monitoring exercises in sex-segregated groups.

3.1.2 Survey results and recommendations on gender

This subchapter presents the overall findings on livelihoods, NRM use, gender labour division and control and decision-making over cash. Specific provincial level results will be discussed later on this chapter.

Although crop farming, livestock keeping and seasonal labour are important livelihood activities for households as a whole, income activities disaggregated by gender vary widely.

Seasonal labour (crop farming) was mentioned as a livelihood activity and a source of income for men by all (n=50, 100%) respondents followed by seasonal construction work and trade/small business (both n=38, 76%). Other important income sources for men include fixed employment (n=32, 64%) and selling livestock and livestock products (n=31, 62%), other casual work (n=31, 62%) and selling crops (own land) (n=28, 56%). Selling forest products (mostly timber and/or fuel wood) was mentioned by 32% (n=16) of respondents as a source of income for men. Women have fewer income generating opportunities compared to men. The most common income source for women is selling livestock products such as eggs and milk and processed milk products. This source was mentioned by 80% (n=40) of respondents as an important income source for women. Producing and selling handicrafts (such as tailoring, weaving, embroidery, knitting, sewing) are the second most common income generating activity, this was mentioned by 70% (n=35) of all respondents.

Respondents were asked who in the family has control over cash earned and who makes decisions about the household budget. Results indicate that men commonly have control over cash, this was mentioned by 82% (n=41) of respondents. Only in Badakhshan and Samangan did some respondents (n=9, 18%) mention that cash is controlled jointly within the family. Decisions about how to spend household budget are most commonly made jointly within the family according to 72% (n=14) of responses. However, the perception about who controls cash and who makes decisions about household budget varies widely if we disaggregate the results by gender! According to 72% (n=18) of male respondents men have control over cash while 92% (n=23) of female respondents claim that men have sole control over cash.

Perceptions of male and female respondents about household budget decision-making also differ widely. Only 16% (n=4) of male respondents claim that men predominantly make decisions about the household budget while 40% of female respondents claim that men make decisions about the household budget. This illustrates that perceptions, when disaggregated by gender, can vary widely.

Although some differences exist between provinces, men are usually involved in land preparation, sowing and/or planting, fertilizing and harvesting. The majority of respondents (n=40, 80%) also indicated that men are involved in nursery maintenance. Women are usually engaged in weeding as indicated by 98% (n=49) and to a slightly lesser extend in harvesting and nursery maintenance as indicated by 62% and 54% respectively. Children (both girls and boys) are most commonly involved in weeding and harvesting as indicated by 58% and 50% of respondents respectively.

Women are commonly involved in all livestock related activities except grazing and moving animals on pasture. Based on the responses women are primarily responsible for taking care of young stock and

sick animals (n=49, 98%), providing water (n=48, 96%) and feeding livestock (n=48, 96%). Men are primarily responsible for treatment of disease (n=50, 100%) and selling of livestock products (n=50, 100%), however in many cases these activities are shared with women. Boys are primarily responsible for grazing and moving animals on pastures (n=50, 100%) often assisted by female siblings as mentioned by 66% (n=33) of respondents.

All family members are involved in the collection of Non-Timber Forest Products (NTFP). Respondents mentioned men and women to be slightly more involved compared to children. However these results have to be interpreted with some caution as it became clear from the interview data that some enumerators and respondents confused NTFP with agricultural crops. The sale of NTFP is predominantly a male activity as cited by 100% (n=50) of respondents. Occasionally women and boys also sell NTFP as mentioned by 18% (n=9) and 10% (n=5) of respondents respectively.

Fetching water for household needs is predominantly a women's responsibility as mentioned by 100% (n=50) of respondents. Women are commonly accompanied by girls and boys as mentioned by 64% (n=32) and 58% (n=29) of respondents respectively. Men's involvement in fetching water for household needs was mentioned by 42% (n=21) of respondents. On the other hand men and boys are primarily involved in gathering fuelwood as mentioned by 76% (n=38) and 78% (n=39) of respondents. Girls and women were mentioned considerably less (40% and 14%) by respondents to be involved in collecting fuelwood.

In conclusion, project activities that align with women's current roles and responsibilities include nursery management, livestock production and poultry keeping and dairy processing in particular as well as harvesting and processing of NTFP's such as nuts, fruits and medicinal plants.

As the results indicate the majority of male respondents are of the opinion that decisions about household budget are made jointly within the family, so for them there is no reason to change anything as they are unaware of any inequalities. In contrast, a large share of women consider that only men make decisions about household budget, these respondents may feel a lack of decision-making power within their household. This is important to consider when planning project activities as these different perceptions may have implications for the sustainability and effectiveness of project activities. It also illustrates the importance of collecting gender-disaggregated data.

3.1.2.1 Badakhshan – Rupani Foundation / R GEO

Within the project target communities in Badakhshan many forests have disappeared over the last 50 years due to war and economic need. However, some forest cover is coming back as people have started planting trees. An attitude change has taken place within community members but also at the level of institutions (government and the (I)NGOs). Overall people have started valuing their natural resources and people seem to focus more on the future. District government and local NGO's are encouraging wildlife and forest conservation. This attitude change has triggered many positive changes, particularly in the past 5-10 years, such as the planting of trees collectively on communal land or individually on private land, community work on water infrastructure, a reduction in conflicts and a positive vision of the future. People believe that forest cover will increase in the future and the villages will become green and beautiful.

However, many challenges remain and these include greater fuel and timber wood demands in the future due to increasing population, unequal access and control over some key resources, violation of rules and regulations by some powerful community members but also government officials (district border security officials), conflicts over natural resources & illegal fuelwood collection, crop diseases, overgrazing, degradation of pasture and forest land due to river erosion and other natural disaster and climate change related issues. The village of Qala-e-Panja seems to be most deprived of natural resources and reports increasing number of conflicts over natural resources.

3.1.2.1.1 Badakhshan (Wahkan) – Rupani Foundation

Income sources for men and women

In the Rupani project area of Badakhshan men depend mostly on seasonal construction work (n=10), other casual work (n=10), selling livestock and livestock products (n=10) and seasonal agricultural labor (on other people's land) (n=7). Information on income sources for women is missing from the survey data.

Control over cash and household decision-making

Female respondents indicated that cash is controlled jointly (n=3) or it is controlled by women (n=2). Male respondents are of the opinion that cash is controlled by men (n=3) or jointly within the family (n=2). With regards to who makes decisions about household budget female respondents indicated that decisions are made jointly (n=3) or by women (n=2). Men on the other hand indicated that decisions are made jointly in 4 cases while 1 male group indicated men that decisions are made by men.

Gender labour division crop production

In Badakhshan there is a clear division of labour within crop farming. Men are solely responsible for land preparation (n=10) and fertilizing (n=10) while weeding is done by women (n=10). Nursery maintenance is commonly shared by men and women (n=7), done by men alone (n=2) or done by women alone (n=1). Sowing and planting is predominantly done by men (n=9), only one group mentioned the task is shared between men and women. Typically men and women are involved in harvesting (n=9), only one group mentioned it is done solely by men.

Gender labour division NTFP collection & sale

Information on collection and sale of NTFP is missing from the survey data.

Gender labour division livestock

Livestock related tasks such as taking care of young and sick animals, feeding livestock and providing treatment for sick animals are exclusive women's tasks while grazing and moving animals around on pasture and selling livestock and livestock products is done by men. Providing water is generally shared between men and women (n=9), only one group mentioned it is done by men only. Collecting fodder is either done by women and men together (n=5) or by men alone (n=5).

Gender labour division household needs

Fetching water for household needs is commonly done by women and men (n=8) or by women alone (n=2), while fetching fuelwood is the responsibility of men only (n=10).

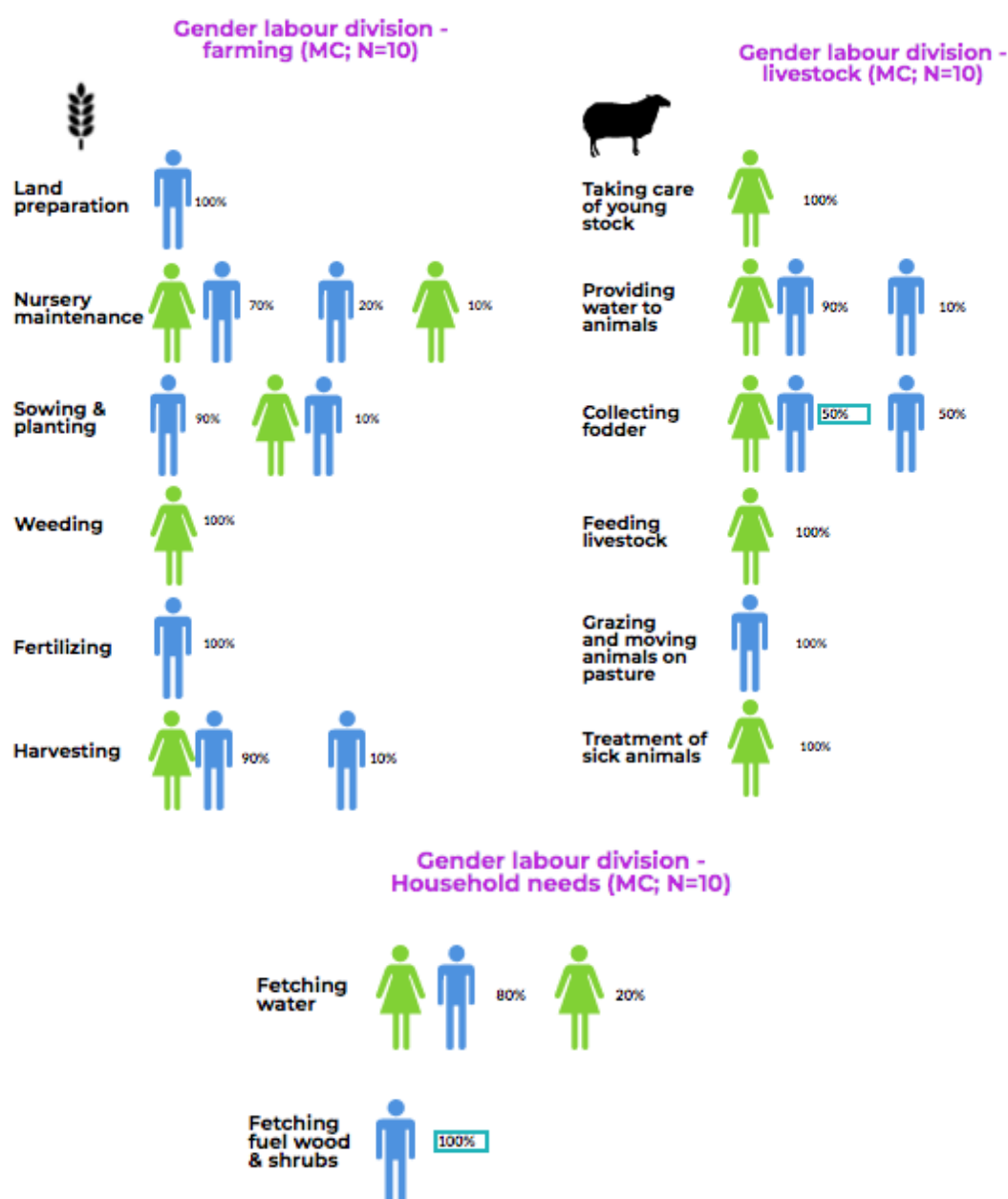


Figure 1: Badakhshan (Rupani) gender labour division

3.1.2.1.2 Badakhshan (Yaftal-e Payen) - RGEO

Income sources for men and women

In the RGEO project area of Badakhshan men depend mostly on seasonal labour (n=10), seasonal construction work (n=10), other casual work (n=10), trade or small business (n=9), fixed employment and selling crops from won land (n=7) as a source of cash income. Women on the other hand primarily depend on producing and selling handicrafts (n=10) and selling livestock products (n=9).

Control over cash and household decision-making

Perceptions about who controls cash and who makes decisions about household budget vary widely between male and female groups; female respondents generally indicate that men control cash (n=4) while male respondents are of the opinion that cash is controlled jointly within the family (n=4).

Perceptions about who makes decisions about household budget are more equal between male and female respondents; all female respondents (n=5) and four out of five male groups indicate that decisions are made jointly within the family.

Gender labour division crop production

In Badakhshan there is a clear division of labour within crop farming. Men are solely responsible for land preparation (n=10) and fertilizing (n=10) while nursery maintenance is done by women (n=10). The task of weeding is shared between men and women (n=10) and typically all family members are involved in harvesting.

Gender labour division NTFP collection & sale

The collection of NTFP is done by all family members while men are primarily responsible for the sale of such products (n=10).

Gender labour division livestock

Livestock related tasks such as taking care of young and sick animals, providing water, feeding livestock and providing treatment for sick animals is equally shared between men and women except for the collection of fodder, this is commonly done by men (n=10) and boys (n=10) and grazing and moving animals on pasture, which is the sole responsibility of boys (n=10) and girls (n=10).

Gender labour division household needs

Fetching water for household needs is done by all family members while fetching fuelwood is the responsibility of men only (n=10).

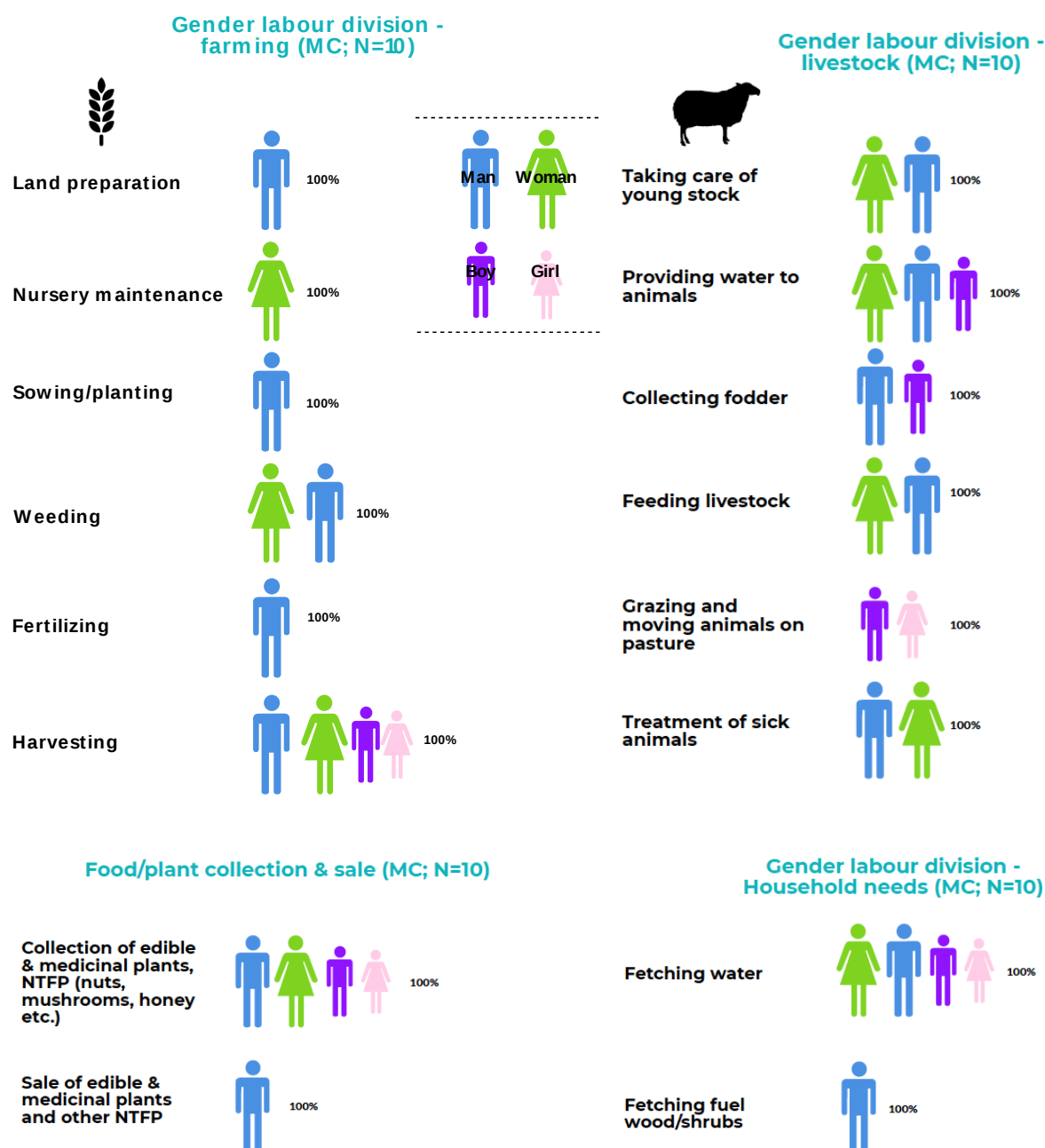


Figure 2: Badakhshan (RGEO) gender labour division

3.1.2.13 Review and discussion of project activities from a gender perspective for Badakhshan Rupani/RGEO

RGEO's and Rupani's project approach and activities have been reviewed from a gender perspective. The main source of information used for this review is the NGOs proposal but also the survey results and discussions during the Dubai workshop have been included in the review.

The review is divided in two sections; 'positive points' describe innovative approaches or activities for social development and/or gender related to FLR. These points might serve as good examples for the other NGOs. The second section titled 'main points for improvement/consideration' refer to issues that are either unclear or not well described in the project proposal or an opportunity to improve gender mainstreaming into the project approach/activities.

Even though RGEO and the Rupani foundation operate in the province of Badakhshan, the regions are quite different in terms of women's roles and responsibilities. This is predominantly explained by the different ethnic groups in both regions. Ismaili, women from the Wakhi ethnic group in the Rupani project area enjoy greater freedom compared to women from other regions and are allowed to work the fields and to go to the markets. This has allowed Rupani to develop project activities that require women to be mobile and move around. The following section provides a review of Rupani's project activities from a gender perspective, followed by the review for RGEO.

Positive points - Rupani:

- The FMA resource mapping and resource planning workshop included a good balance between male (n=185) and female (n=210) participants.
- Rupani has a good balance of male (3) and female (3) staff members. Having female staff members is a necessity for working with women groups and addressing women's needs.
- An education and outreach campaign will be carried out using the RF mobile education truck to educate local villagers on forest benefits, sustainable management and use
- There has been no fruit grown in the villages before, nor were there vegetables grown before. During discussions with local women Rupani found out that one of the key reasons that people don't grow them much is because household women don't know how to properly cook vegetables. So by adding cooking training to the project activities Rupani will increase overall food security and women's capacity to improve household diet and diet diversity. Growing and selling vegetables will also create an income earning opportunity for women.
- Women are included in the village monitoring teams.

Main points for improvement/consideration - Rupani:

- No explicit mention of specific challenges experienced by women in terms of use, access and control of NRM in the background and problem analysis.
- Specific project activities targeted at women have been designed, these include fruit tree plantations, vegetable gardening and cooking. However it is not clear whether these activities emerged from discussions with women or whether these activities have been suggested by men for women.
- How to ensure that women will not only be used as (cheap) labour (as results indicate men usually have control over household cash)?

Positive points - RGEO:

- Widows working as foster moms looking after seedlings/saplings in their compounds => this approach targets the most vulnerable in the community and it is a home-based activity that doesn't require ownership of land.
- Forest guards policing and teaching in village mosques.
- Using the holy Koran to explain the benefits of environmental conservation => using culturally appropriate and trusted sources for raising awareness and behavioural change.
- Environmental awareness trainings held in schools => Involving children from an early age on might develop them into more aware and responsible young-adults.
- "Female involvement in environmental support has been limited in the past. Future projects will take into account income generation projects, as well as involvement in project development." => There is awareness about women's limited involvement in the past and a commitment to improve women's involvement in the future.

Main points for improvement/consideration - RGEO:

- Beneficiaries of target districts and target villages are not disaggregated by gender. It is not clear if women and if so, how many participated in inception workshops and awareness and orientation meetings.
- No mention of specific challenges experienced by women in terms of use, access and control of NRM in the background and problem analysis.

- 29 women managed home-based nurseries will be established. What was the decision-making and prioritization process that led to this activity? It is not clear whether these activities emerged from discussions with women or whether these activities have been suggested by men for women.
- RMA membership includes 36 male and 16 female members: how will women be supported in expressing their opinions and needs as a) it is clear that women in mixed groups have difficulty in speaking out and b) they are outnumbered by men in the meetings?
- It is not clear if and how women have contributed to the development of the village management plans.
- Women's involvement so far seems to be restricted to the management of the home-based nurseries. How about involvement in decision-making in other relevant NRM issues in the village or involvement in the other activities such as silvi-pasture, Ferula cultivation, ceremony plantings etc.? What are the benefits for these women managing the nurseries? Will they be paid in cash or in-kind. How to ensure that women will not only be used as (cheap) labour (as results indicate men usually have control over household cash)?
- It is not clear whether the voting and priority setting (paragraph 5.2, page 12) included women?
- In the future poultry keeping, beekeeping and modified cooking stoves will be introduced for women. What was the decision-making and prioritization process that led to these activities? It is not clear whether these activities emerged from discussions with women or whether these activities have been suggested by men for women.
- Will the community-level monitoring committees include women?

3.1.2.2 Takhar – Mission East

Many years ago (50-60) people remember the area to be green. Forests prevented the sort of natural disasters such as floods, landslides, and gully erosion which are occurring now. At present there are no forests or remaining tree stands left in the project area. Bushes, shrubs and animal dung are now commonly used for fuel in addition to wood from fruit and non-fruit trees grown in private orchards. Commonly grown trees in private orchards are apple, apricot, pear, pistachio, almond and some grape.

Like the other provinces, deforestation in Takhar has caused erosion, destruction of stream beds, flooding, and destruction of pasture and crop land. Floods have also caused the loss of houses and livestock and it has cut off several communities from the outside as roads were destroyed. The most important reason for deforestation is poverty; people didn't see any alternative but to cut the trees to sustain their livelihoods. Landslides and earthquakes have also occurred in the area. Livestock owners are increasingly forced to sell of large numbers of their livestock as these can no longer be sustained with the prevailing resources.

In Takhar people do not have any rules and regulations about using the forests. Consequently there are no dispute resolutions specifically for the use of natural resources (except irrigation water). Commonly disputes are solved by the elders and CDC members. Resources are commonly under the control of men. Women have very little control over natural resources such as arable land, fertile trees, livestock, water resources and communal grasslands, but often women provide labour in crop and livestock production and collecting water and fuel wood/shrubs.

Potential project activities mentioned during the FGs include reforestation, watershed management, implementing rules and regulations for NRM use (including pasture land) and enforcement of rules and regulations, terracing, check dams, capacity building in nursery establishment and maintenance, creating job opportunities, Increase medicinal plants, fodder bank for storage of animal fodder. Women mentioned the following potential project activities for women: vegetable gardens, increasing women's capacity, small business development, involvement of women in community level decision-making, income earning activities for women, establishment of women Self-Help-Groups, poultry keeping and awareness raising about healthy nutrition for women and children The need for basic healthcare was also mentioned as several communities are cut off from the outside world in winter without access to healthcare.

Income sources for men and women

Seasonal labour (n=10), selling livestock and livestock products (n=10), trade or small business (n=9) and selling crops from own land (n=9) are the predominant income sources for men in Takhar. Fixed

employment (n=7), other casual work (n=6) and seasonal construction work (n=5) are also relatively important. Women primarily depend on selling livestock products (n=9) and seasonal agricultural labour (on other people's land) as an income source. Producing and selling handicrafts was mentioned in six groups out of ten as being an income source for women while selling of crops (from own garden) was mentioned in four groups. Compared to the other provinces the results seem to indicate that women within the project communities in Takhar seem to have a slightly wider range of income generating opportunities.

Control over cash and household decision-making

Perceptions about who controls cash and who makes decisions about household budget are the same for male and female group responses in Takhar; all agree that men have control over cash. On the other hand perceptions about who makes decisions about household budget differ a lot between male and female groups; all male groups (n=5) indicate that decisions are made jointly within the family while only one female group states the same. The remaining four female groups state that men alone make decisions about household budget.

Gender labour division crop production

Children, particularly boys are very much involved in crop production activities in Takhar. Land preparation is done predominantly by men and boys (n=9), only one group mentioned women, men and boys are involved in land preparation. Nursery maintenance is most commonly done by women, men and boys (n=5), men and boys (n=3) and women and men (n=2). Sowing and planting is done by men and boys (n=9). Only one group mentioned that women are also involved in this activity along men and boys. Occasionally hired labour or other community members assist men and boys with planting and sowing (n=1). Weeding is very much a family effort; 9 groups mentioned that all family members are involved (men, women, boys and girls). One group mentioned that men, women and boys are involved.

Fertilizing is very much a job of men and boys (n=9) although one group mentioned that in addition to men and boys, women are also involved. Harvesting, like weeding, is also a family effort; eight groups mentioned adults and children to be involved, while two groups mentioned adults and boys are involved. Interestingly all groups mentioned that other community members are also involved in harvesting. Clearly, harvesting in Takhar is a community effort and families help each other during harvest time.

Gender labour division NTFP collection & sale

NTFPs are commonly collected by men and women as mentioned in seven groups. Two groups mentioned that the whole family is involved (women, men, boys and girls) and one group mentioned it is usually done by men and boys. The sale is mostly done by women and men (n=4) or women men and boys (n=1). Three groups mentioned only men and boys to be involved in the sale of NTFP and two groups mentioned that men are only involved in this activity.

Gender labour division livestock

Livestock related tasks are very much shared between men and women with boys, and occasionally girls providing a helping hand. Four groups mentioned women and men to be responsible for taking care of young stock while four other groups mentioned men and women are commonly assisted by boys during these tasks. One group mentioned men and women are assisted by girls and finally one group mentioned men only to be involved in this task. Providing water is mostly shared by all family members (adults and children) (n=7). Two groups mentioned it is done by women, men and boys and one group mentioned it is commonly done by women and children. Collecting fodder is most commonly done by the whole family (n=4) or adults assisted by boys (n=2). Two groups mentioned men and children to be involved while another two groups mentioned men and boys to be involved in collecting fodder. Similarly feeding of livestock is commonly done by all family members (n=4), adults assisted by boys (n=4) or adults only (n=1) or men and boys only (n=1). Like the other provinces grazing and moving animals around is typically a task of children (n=5) or boys only (n=5). Furthermore all groups mentioned that families may also hire shepherds for moving around large herds. Treatment of sick animals is most commonly done by women and men (n=8) or men only (n=2). Finally, selling of livestock or livestock products is done mostly by men only (n=5) or men and women (n=3). Two groups mentioned it is done commonly by men and women assisted by boys (n=2).

Gender labour division household needs

Fetching water for household needs is predominantly done by women and children (n=8). Two groups mentioned that it is done by all family members. Fetching fuel wood on the other hand is most commonly done by men and children (n=5) or men and boys only (n=2). Two groups mentioned all family members are involved in collecting fuel wood and one group mentioned all family members except girls to be involved in this activity.

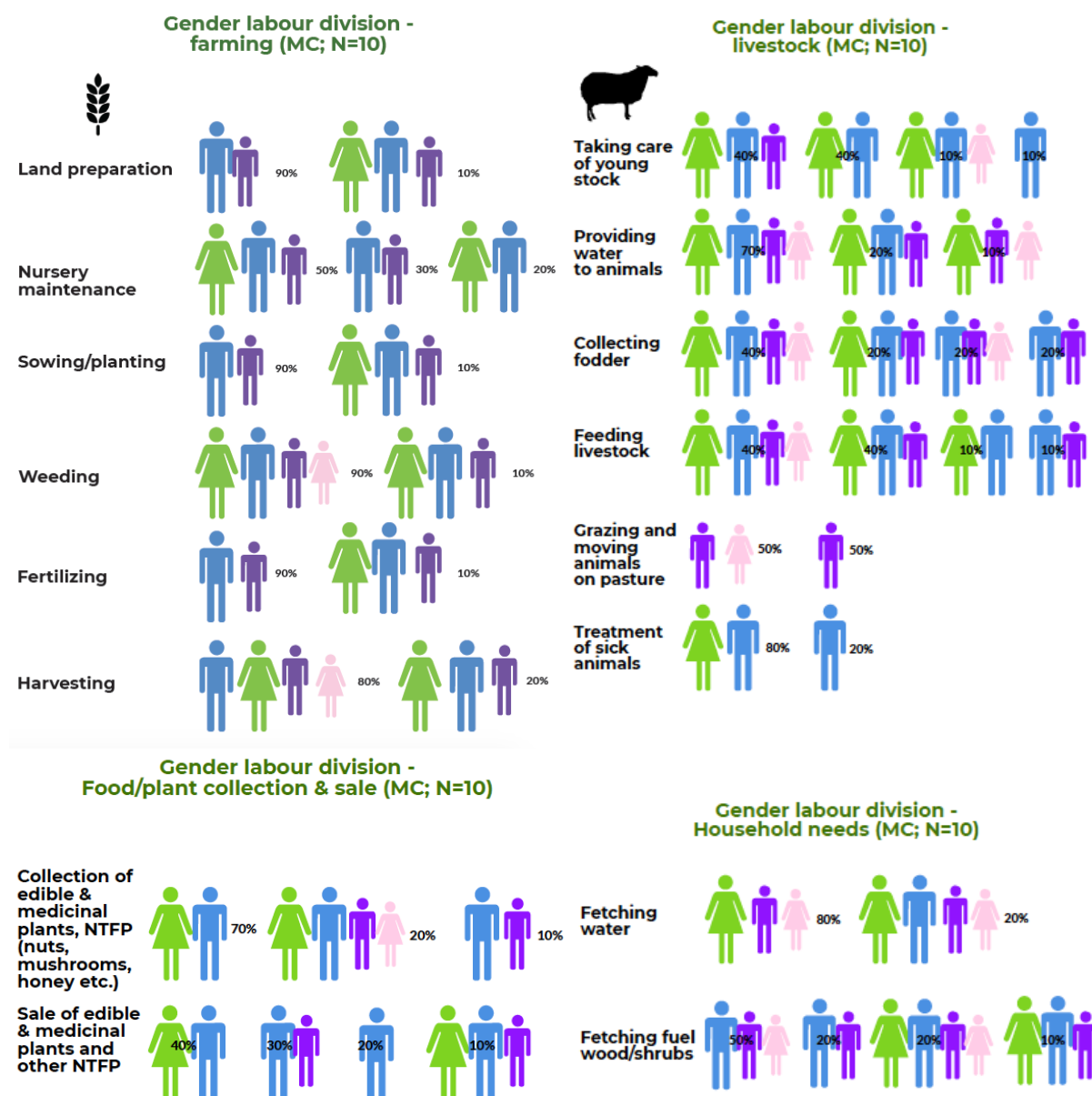


Figure 3: Takhar gender labour division

3.1.2.2.1 Review and discussion of project activities from a gender perspective for Takhar - Mission East

The following section provides a review and discussion of Mission East project activities from a gender perspective. The review is based primarily on the ME project proposal but survey results and discussions during the Dubai workshop have also been taken into account.

Positive points

- The project provides a learning opportunity for students of the agricultural vocational training college (assuming that both male and female students are involved),

- School boys and girls are included; engaging children from an early age on and letting them work together will raise their awareness about the importance of natural resources and sustainable ways of NRM use. Working together may increase their participation in community decision-making and reduce some of the barriers with regards to access to resources in the future.
- Reintroduction of the *Asafoetida* trees which used to be an endemic specie, are low maintenance, contributes to prevention of erosion and is a high value product.
- Women are encouraged to participate in the exchange visits, the fact that women will need a *Mahram* is taken into account. Separate exposure visits will be organized for women as well.
- Project staff training will likely include the topics of inclusion and women's empowerment issues.
- Women's SHGs will be established. Women will first receive basic training skills which will build their capacity. After these essential trainings, the SHGs will each be trained further in FLR and NRM techniques to help them utilize the natural resource base in more sustainable and economically profitable ways.

Main points for improvement/consideration:

- It is unclear whether women have been involved in all the PRA exercises like resource mapping, social mapping and hazard mapping in sex-segregated groups, in mixed groups or not at all.
- Overall the proposal lacks gender disaggregated data, e.g. results of the PRA exercises have not been presented in a gender disaggregated way. The proposal mentions 'community people' and 'beneficiaries' but it doesn't distinguish between male, female or other groups. Key challenges and problems have been identified but it is not clear which challenges and problems have been specifically identified and prioritized by women, if this has happened at all. Consequently it is unclear what the specific concerns, needs and priorities are of women and men. This is a pity because a lot of effort has been put into interviewing women and men's group separately.
- The report noted that: *"It was noted that women contribution in one village was very restricted, hence female staff encouraged them to attend"*. It is not clear what is meant here. How were women encouraged and how successful was this? What sort of meetings were they meant to attend? Why was their involvement restricted?
- Women groups mentioned the following potential activities: "vegetable gardens, increasing women's capacity, small business development, involvement of women in community level decision-making, income earning activities for women, establishment of women Self-Help-Groups, poultry keeping and awareness raising about healthy nutrition for women and children". The need for basic healthcare was also mentioned as several communities are cut off from the outside world in winter without access to healthcare. Three activities have so far been proposed by the project for women, these are: 1) household nurseries, 2) production of bio-briquettes and 3) gabion weaving. However, none of these activities appear to have been mentioned in the women's Focus Group discussions. So, it is unclear how the FGs have led to the proposed activities. What was the decision-making and prioritization process that led to these three activities?
- It is not clear whether these activities emerged from discussions with women or whether these activities have been suggested by men for women.
- How to ensure that women will not only be used as (cheap) labour (as results indicate men usually have control over household cash)?
- Only 5 women will be involved in each village for the home-based nurseries. How to avoid conflicts of women that would like to be involved but are excluded?
- Green waste which is proposed to be used for bio-briquette production is often used for poultry and livestock feeding, how to ensure that bio-briquette production will not compete with the needs for poultry or livestock feeding?
- The proposal is activity/output focused, lacking process description and a clear engagement strategy. What is the engagement strategy for female beneficiaries and other vulnerable groups such as the landless, poor and vulnerable? E.g. how will consent from male relatives be obtained?
- RMA membership includes 55 male and 20 female members: how will women be supported in expressing their opinions and needs as a) it is clear that women in mixed groups have difficulty in speaking out and b) they are outnumbered by men in the meetings?

- Watershed Associations will be established and trained. Will women be included in these associations? Women have strategic interest in water issues as they are (partly) responsible for household water needs, providing drinking water to livestock, washing dishes and clothes, watering kitchen gardens etc. Also women are as much impacted by shortage of water or natural disasters such as erosion and flooding so they should be included in any decisions about community water use/distribution and watershed management.
- Has the burden on women (and men's) time and labour been considered? Women have to divide their time between unpaid domestic work, child care and productive work such as livestock and crop production. Additional demand on their time might leave less time for other duties or may prevent women from engaging with the project. Has this been considered, or have provisions been made to support women in their other duties so they are able to engage with the project?
- Does the monitoring group include any women and will gender disaggregated monitoring data be collected and what about data on other vulnerable groups? (wherever relevant)?

3.1.2.3 Samangan – WHH

In the project area there are no forests or remaining tree stands. Deforestation was caused by internal war and conflicts in the past. Bushes, shrubs and animal dung are now commonly used for fuel. People also buy fuel wood in the city bazaar. The communities also lack grazing land. Some villages in the project area buy truckloads of fuel wood, shrubs and animal fodder from neighbouring villages. The cost of one truck load is AFN4000. Livestock is grazed in pastures very far away from the communities (in "Khuram Wa Sarbagh").

In the past 10 years people have started establishing private orchards of almond, pistachio and apple trees. However, in the project area a very low share of people (20%) actually own private land, the rest of the community members depend on government land which they rent. In Samangan because there are no forests people do not have any rules and regulations about using the forests. Consequently there are no dispute resolutions specifically for the use of natural resources (except irrigation water). Commonly disputes are solved by the elders.

The ownership, control and use over natural resources in the community is the same for male members independent of ethnic background. However, women don't have access and control over natural resources. The communities have been frequently affected by droughts and floods. In Samangan there is a huge problem with pasture land degradation, loss of pastureland due to conversion to agricultural land, erosion and flooding and lack of animal fodder. Consequently many livestock were sold or died. Drought and floods have also destroyed crops.

Proposed project activities include reforestation, establishment of gabion walls to protect against flooding, capacity building on NRM/conservation agriculture/crop pest management, creating income earning activities (including for women), build storages for agricultural produce, and obtain drought resistant crops. People also asked for certified wheat seeds and fertilizer.

Income sources for men and women

In Samangan seasonal labour is by far the most important income source for men, it was mentioned in all groups (n=10). Furthermore seasonal construction work (n=7) and selling livestock and livestock products (n=7), followed by selling crops (n=6) and trade/small business (n=6) are also relatively important sources of income for men. Producing and selling handicraft were mentioned by seven groups as an income source for women followed by selling livestock products (n=5) and selling crops (n=4).

Control over cash and household decision-making

Like Badakhshan perceptions about who controls cash and who makes decisions about household budget vary widely between male and female groups in Samangan; female respondents generally indicate that men control cash (n=4) while male respondents are of the opinion that cash is controlled jointly within the family (n=3). Perceptions about who makes decisions about household budget also vary between male and female respondents; all female groups (n=5) indicate that decisions are made only by men while only two male groups stated the same. Three male groups mentioned that decisions are made jointly within the family.

Gender labour division crop production

Land preparation is done predominantly by men only (n=9). One group mentioned men are assisted by boys. Nursery maintenance is done commonly by women and men (n=9). One group mentioned that adults are assisted by children. Sowing and planting is mainly done by adults (n=4) or adults and boys (n=2). Three groups mentioned only men and boys to be involved in planting and sowing and one group mentioned only men to be involved. Weeding is commonly done by all family members (n=5) or adults and boys (n=3). One group mentioned only adults to be involved in weeding and another group mentioned only men to be responsible for weeding. Men are predominantly involved in fertilizing (n=9). Only one group mentioned that adults and boys are involved in fertilizing. Harvesting is mostly a family effort (n=6). Two groups mentioned adults and boys to be involved. Adults only and men only were mentioned once each. Furthermore three groups mentioned that in addition to all family members sharing the task of harvesting, hired labour is sometimes used to assist with harvesting.

Gender labour division NTFP collection & sale

Collection of NTFP is considered a family effort by most groups (n=8). One group mentioned adults and boys are involved in this activity and another group mentioned only men are involved. Selling of NTFP is most commonly done by men only (n=6). Four groups mentioned it is a task shared by women and men.

Gender labour division livestock

In Samangan, livestock related activities are generally shared between men and women and they are regularly assisted by children. Taking care of young stock and sick animals is generally done by adults only (n=4) or adults assisted by children (n=4). One group mentioned adults and boys to be involved, while another group mentioned only men to be involved. Similarly providing water to animals is mostly done by adults and children (n=5), adults and boys (n=3). One group mentioned men and boys to be responsible for providing water and another group mentioned only men are involved in this activity. The labour division of fodder collection varies considerably between groups in Samangan. Two groups mentioned fodder collection is commonly done by adults and boys and two groups mentioned all family members to be involved. According to three groups, only men and boys are involved. Two groups mentioned only adults to be involved while finally one group mentioned it is the sole responsibility of men. Similarly labour division of feeding of livestock varies considerably between groups in Samangan. Three groups mentioned all family members to be involved while two groups mentioned adults and boys to be responsible for feeding livestock. Women and children and women and girls were mentioned each by two groups to be responsible for feeding animals while one group stated it was the sole responsibility of men. Grazing and moving animals around on pastures is the sole responsibility of children. Additionally 6 groups mentioned that they pay shepherds to herd their flocks. Treatment of sick animals is commonly the responsibility of adults according to nine groups. One group mentioned it is the sole responsibility of men. Selling of livestock and livestock products is done by women and men according to eight groups. Two groups mentioned it is the responsibility of men only.

Gender labour division household needs

The task of fetching water is mostly shared between family members as mentioned by half of all groups. Two groups mentioned it is usually done by adults and girls, while two other groups mentioned it is done by adults and boys. Finally one group mentioned it is predominantly a task of women assisted by children. Collecting firewood is mostly done by men and boys according to five groups or adults and boys as stated by four groups. Only one group mentioned men are solely responsible for collecting firewood.

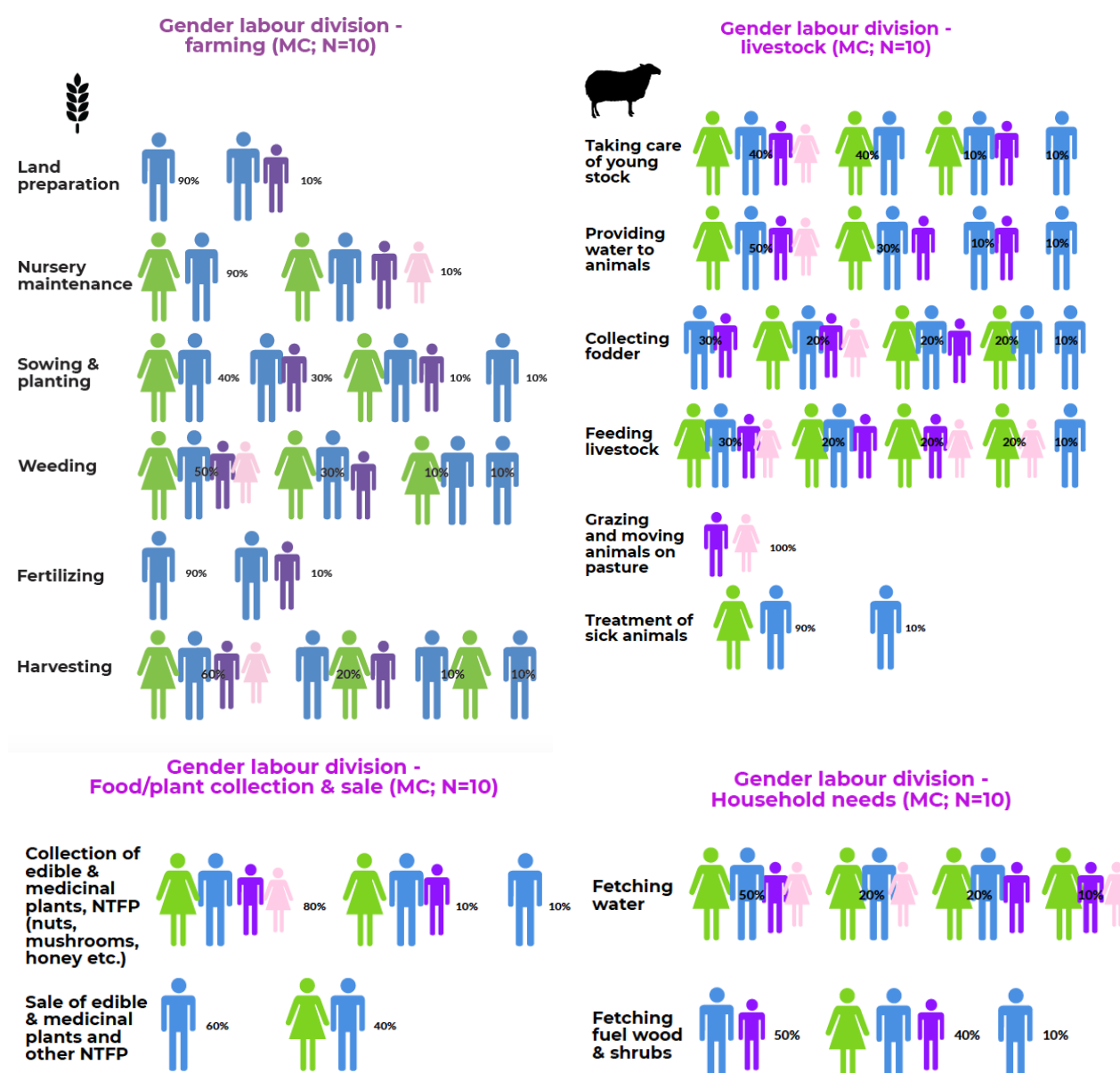


Figure 4: Samangan gender labour division

3.1.2.3.1 Review and discussion of project activities from a gender perspective – Samangan - WHH

The WHH project proposal and discussion during the Dubai workshop provided valuable information for the gender-sensitive review of proposed project activities. WHH's proposal includes several gender mainstreaming strategies that may be valuable for other NGO's to explore.

Positive points:

- Empowering women and promoting gender inclusiveness is explicitly mentioned in the proposal as one of the aims of the project and it is recognized as being a prerequisite for economic development and sustainable reforestation efforts.
- WHH will bring women at the centre of its proposed action to ensure men and women equally benefit from the resources, knowledge and opportunities provided by the project. WHH will specifically focus on gender-sensitive approaches for both men and women.
- WHH is planning to introduce climate change adaptation interventions and gender-transformative approaches into this project.

- WHH will ensure women and youths are part of the FLR activities and ensure at least 25-30% participation of the women and youths into the FLR interventions. WHH developed Scouts engagement into the FLR intervention at district level, an initiative to grant youth's participation into the FLR interventions including implementation, monitoring, evaluation and quality assurance.
- Much of the data presented in the proposal is gender-disaggregated.
- WHH will explore options to form an association, formal or informal, for women-owned nurseries only.
- Further involvement of women in the project is planned concerning innovations in household-level water conservation, working with women activists and champions, by using the "positive deviance" approach, a human-centred methodology for enhancing community engagement. WHH will ensure the maximum participation of women in the proposed livelihood activities.
- WHH proposes engaging scout groups to ensure proactive participation of youths on forestation activities.
- "WHH will work with its core team and experts to make all below listed training topics gender sensitive. Women and girl's engagement into the various activities will exemplified through technical trainings of activities to ensure specific needs of women and girls are considered. As inception activity, WHH will ensure that its FLR team is equipped with required knowledge and training skills on gender and socio-culture topic prior to make the community training topics gender sensitive. WHH under this action has already proposed GIZ a TOT to mainstream gender and socio-cultural issues on reforestation to be provided to the core FLR team of NGOs."

Main points for improvement/consideration:

- No mention of specific challenges experienced by women in terms of use, access and control of NRM in the background and problem analysis.
- It is not clear how the gender-transformative approaches will be applied within the project.
- "WHH will also cover 200 women under this action to promote production and utilization of bio-briquettes moulds and stoves at the community level as intervention to equip communities against errant use of forest production as fuel wood." It is not clear whether this particular activity emerged from discussions with women? Green waste which is proposed to be used for bio-briquette production is often used for poultry and livestock feeding, how to ensure that bio-briquette production will not compete with the needs for poultry or livestock feeding?

3.1.2.4 Paktia – TLO

The landscape dynamics in Paktia are similar to Khost. In some communities in Paktia pine nuts and walnuts are collected. However not all communities in Paktia have access to pine nut and walnut trees. Willow and poplar trees are commonly used for firewood. Almond, apricot and peach trees are grown on private land. Economic need, war and conflict and lack of livelihood alternatives have all contributed to deforestation in the area. Fuel wood is scarce and long distances have to be travelled for fuel wood/fuel shrub collection. The deforestation has caused soil erosion and floods. Water availability has decreased as well as fodder crops for livestock.

Only the community elders [men] have control over the use of natural resources and they assign/hired local community members for the protection of forest and natural resources in their areas. Enforcement of rules is done by community elders and religious leaders. Fines are generally levied on those that break the rules.

Potential project activities mentioned during the FGs include establishment of orchards, the construction of a protection wall against floods along their agricultural fields, building an underground storage for apples, potatoes, unions and others, poultry farming, embroidery, handicraft program, kitchen gardening, beekeeping, dairy processing, food preservation. Other things mentioned but lacking detail include 'job opportunities', 'training', 'water management', 'watersheds' and 'livestock rearing'.

Income sources for men and women

In Paktia results indicated that men depend predominantly on seasonal labour (n=10) and seasonal construction work (n=9), followed by other casual work (n=6), selling NTFP (n=5) trade or small business

(n=4), selling livestock and livestock products (n=4), selling crops (n=4) and fixed employment (n=3). Women on the other hand primarily depend on selling handicrafts (n=10) and livestock products (n=8).

Control over cash and household decision-making

Perceptions about who controls cash and who makes decisions about household budget are the same for male and female group responses in Paktia; all agree that men have control over cash. Perceptions about who makes decisions about household budget differ only very slightly between male and female respondents; all female respondents (n=5) and four out of five male groups indicate that decisions are made jointly within the family.

Gender labour division crop production

Similar to Khost in Paktia crop production activities are generally dominated by men. Men are solely responsible for land preparation (n=10), fertilizing (n=10), sowing and planting (n=10) and nursery maintenance (n=10). The task of weeding is commonly done by women and children according to seven group responses and shared between all household members (men, women and children) according to three group responses. Harvesting was mentioned a sole activity of men by eight groups or shared between men and women (n=1) or done by men and children (n=1).

Gender labour division NTFP collection & sale

The collection of NTFP is done by all family members (n=9) or children (n=1) while men are primarily responsible for the sale of such products (n=19). One group mentioned that both men and boys are involved in the sale of NTFP.

Gender labour division livestock

Livestock related tasks are predominantly carried out by women or tasks are shared by men and women. The exception is grazing and moving animals around on pasture, this is done by children, both girls and boys (n=8) or boys only as mentioned by two groups. Nine groups mentioned that taking care of young stock is shared between men and women. Only one group mentioned it is the sole responsibility of women. Providing water is done by women alone (n=6) or by women and girls (n=4). Collecting fodder is done primarily by women alone (n=9), only one group mentioned this task is done by men only. Feeding of livestock is the responsibility of women alone (n=7) or women and girls (n=3). Men were mentioned to be responsible for the treatment of sick animals in six groups while four groups mentioned the task is equally shared between men and women. Finally the selling of livestock and livestock products was mentioned in six groups to be a shared task of men and women, while in four groups it was mentioned to be the sole responsibility of men.

Gender labour division household needs

Fetching water is carried out by women alone as mentioned in seven groups or by women assisted by girls as mentioned in three groups. Fetching fuelwood is predominantly the responsibility of men and boys (n=7) while three groups mentioned that only children collect fuelwood.

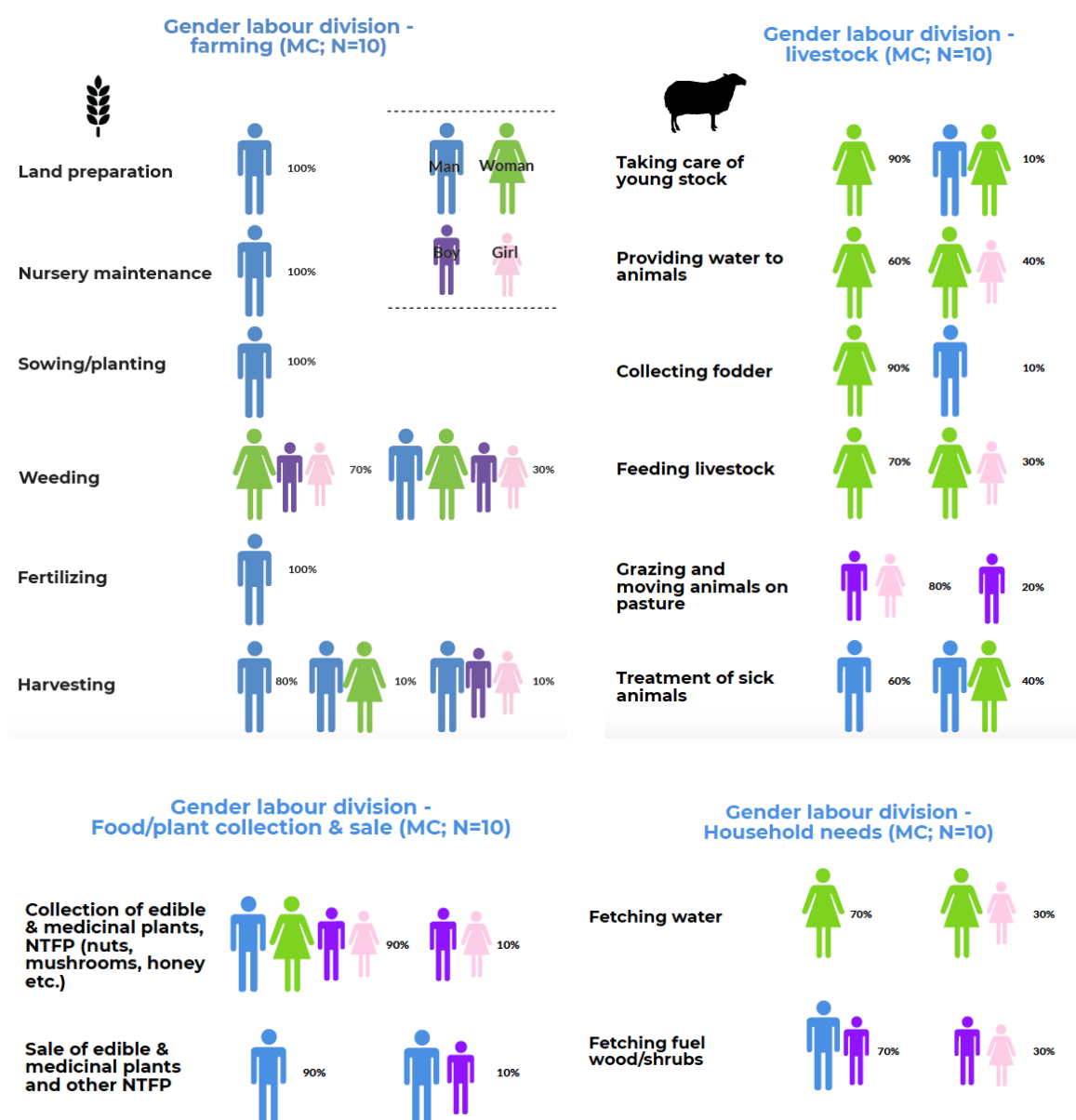


Figure 5: Paktia gender labour division

3.1.2.5 Khost – TLO

In Khost the project area has been heavily deforested. People didn't see any alternative but to cut the trees to sustain their livelihoods. The wood is used for selling or for household needs such as cooking and heating. In some communities the firewood is so scarce these days that people have to buy their fuelwood from outside. However many people can't afford this and therefor remaining trees and shrubs continue to be cut. Long distances are covered in search for remaining trees and shrubs. In Khost people collect pine nuts and to a limited extend walnuts as NTFP. Pine nut trees are protected and in contrast with other tree species, the number of pine nut trees has increased. Because vegetation has disappeared the landscape is increasingly vulnerable to droughts and other natural disasters. The deforestation has caused soil erosion and heavy flooding. These floods have already taken the lives of several community members. Grazing land is heavily degraded and there has been a decline in fodder crops.

Only the community elders [men] have control over the use of natural resources and they assign/hired local community members for the protection of forest and natural resources in their areas. Resources are divided based on the number of household members. However, in some communities, access to natural resources depends on the number of male household members only. This means that

households without sons or with a low number of male members are disadvantaged. Traditionally villages have a (male) representative in the forest protection committee, and one tribal elder is selected by the representatives of villages to lead and guide the forest protection guards (locally called *Arbaki*). Women are not involved in the decision-making process.

The community members are interested in reforesting their area. They would like to focus on species that have high revenues (such as pine, almond, and walnut). It is unclear which preferences women have with regards to tree and shrub species. Other desired project activities as mentioned during the focus group discussions include establishments of orchards, nurseries for pine, walnut and almond, the construction of a protection wall against floods along their agricultural fields. Other things mentioned but lacking detail include 'job opportunities' and 'livestock rearing'.

Income sources for men and women

In Khost men depend mostly on seasonal labour (n=10), seasonal construction work (n=10), fixed employment (10), trade or small business (n=10), selling NTFP (n=8) and other casual work (n=7) as a source of cash income. Women on the other hand primarily depend on selling livestock products (n=9).

Control over cash and household decision-making

Perceptions about who controls cash and who makes decisions about household budget are the same for male and female group responses in Khost; all agree that men have control over cash. Perceptions about who makes decisions about household budget differ very slightly between male and female respondents; all male respondents (n=5) and four out of five female groups indicate that decisions are made jointly within the family.

Gender labour division crop production

In Khost crop production activities are generally dominated by men. Men are solely responsible for land preparation (n=10), fertilizing (n=10) and nursery maintenance (n=10) while weeding is done only by women (n=10). Sowing and planting as well as harvesting was also mentioned to be the primary responsibility of men (both n=10), however in one group it was mentioned that men and women share the work of sowing and harvesting.

Gender labour division NTFP collection & sale

The collection of NTFP is done by all family members while men are primarily responsible for the sale of such products (n=10).

Gender labour division livestock

Livestock related tasks are predominantly carried out by women in Khost according to the group responses. Taking care of young and sick animals, providing water, collecting feed, and feeding livestock were mentioned by nine out of ten groups to be the sole responsibility of women while one group indicated that these tasks are shared between men and women. Selling of livestock products was mentioned by all groups to be equal responsibility of men and women. Grazing and moving around animals is the sole responsibility of children, both girls and boys. Finally providing treatment for sick animals is the only livestock related task that is considered the sole responsibility of men.

Gender labour division household needs

Fetching water is carried out by women alone as mentioned in nine groups or by women assisted by children as mentioned in one group. Fetching fuelwood is predominantly the responsibility of children (n=9) while one group mentioned that men and children collect fuelwood.

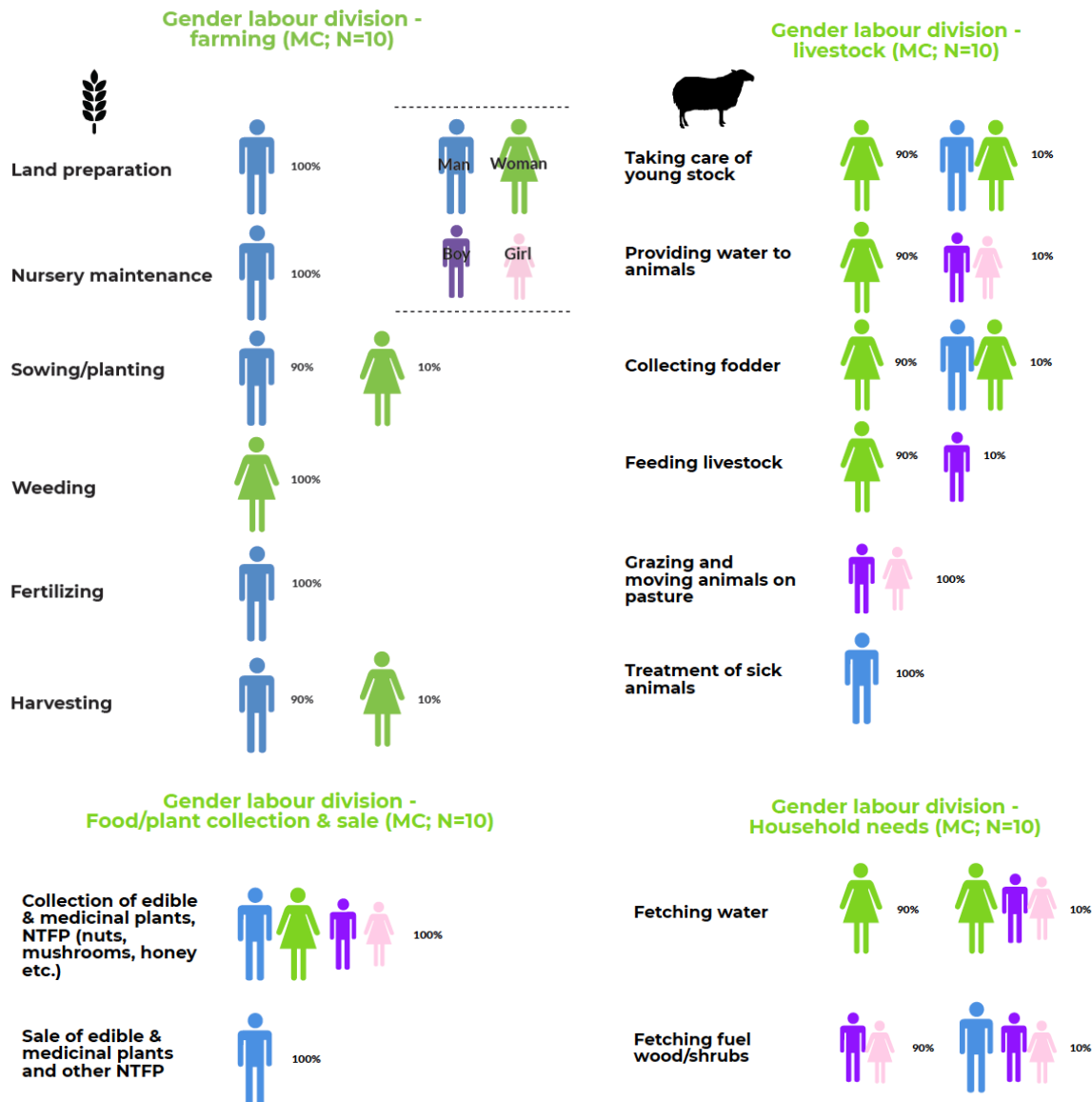


Figure 6: Khost gender labour division

3.1.2.5.1 Review and discussion of project activities from a gender perspective – Paktia / Khost -TLO

Paktia and Khost provide quite a challenge for mainstreaming gender into project activities. As discussions during the Dubai workshop as well as the survey results indicate, these provinces are among the most conservative provinces nationwide when it comes to women's rights, mobility and access to resources. One such example of conservative cultural norms is the fact that women are not allowed to be members of the FMA's. The difficulty of working with women and mainstreaming gender into TLO project activities is clear. However, small steps can be made, starting with the hiring of female project staff, and addressing practical needs first. Below, in more detail a discussion on points for improvement and consideration are mentioned based on the review of the project proposal and the discussions during the Dubai workshop.

Positive points:

- A wide range of species are considered which contribute to livelihoods, income and animal feed and are adapted to local circumstances (e.g. walnut, almond, cumin, ferula asafoetida, alfalfa, and other drought-resistant trees and crop seeds). Considering climate adaptability and altitude.

- Indigenous knowledge can play a key role in the success of forest landscape restoration activities. TLO will consult with rural communities (assuming both men and women will be consulted...?) and consider local knowledge and recommendation in the selection of sapling varieties and seeds for plantation in the selected FLR sites.
- Additionally, the ToR of two Female FLR Assistants will also include Monitoring and evaluation component activities to ensure that female lead activity is monitored, progress and results are recorded on time.

Main points for improvement/consideration:

- Beneficiaries of target districts and target villages are not disaggregated by gender. It is not clear if women and if so, how many participated in inception workshops and awareness and orientation meetings.
- No mention of specific challenges experienced by women in terms of use, access and control of NRM in the background and problem analysis.
- TLO hired a Project Manager, and 2 FLR Officers at the provincial level to carry out the project planned activities during the inception period from 1 July 2019 to 28 February 2020. Eventually two Female FLR Assistants may be hired. What is their role? Why assistants and not FLR (field) officers? How to work effectively and meaningfully with female community members without female FLR officers?
- In Paktia and Khost FMA's only have male members. Due to cultural norms women can't be member of the FMA's. So how to ensure that women's concerns and needs are taken on board? This has not been clearly described.
- Even though TLO has organized separate sessions for women (mapping exercise, multiple-choice questions and FGD) it is not clear how the results of these exercises have fed into the design and decisions about community activities.
- "The technical survey included -transect walk, selection of areas for construction of check dams, terracing, excavation of trenches, eyebrow, rainwater harvesting ponds, nurseries establishment, tree plantations, forage crops, and medicinal plants seed cultivation and construction of reservoirs for irrigation planted saplings and agricultural land irrigation system improvement (page 7)". Were any women involved and if so, how?
- "Women will be especially involved in the protection and harvesting of fruit products, medicinal plants, and daily use of forage crops, livestock keeping, and produced dairy products." Women will be providing their time and labour for the protection and harvesting but what benefit will they get from it? How to ensure that women will not only be used as (cheap) labour (as results indicate men usually have control over household cash)?
- It is not clear whether these activities emerged from discussions with women or whether these activities have been suggested by men for women.
- Indigenous knowledge can play a key role in the success of forest landscape restoration activities. TLO will consult with rural communities and consider local knowledge and recommendation in the selection of sapling varieties and seeds for plantation in the selected FLR sites. How will gendered indigenous knowledge be considered as men and women have different knowledge sets.
- Energy-saving 100 stoves will be distributed to poor families living in the targeted villages of 10 landscape areas. What will be the selection criteria and how to prevent conflict and jealousy?

3.1.3 Concluding recommendations on gender sensitive FLR activities

A critical issue in the survey results, project proposals and based on discussions in Dubai is the lack of gender disaggregated data among the NGOs. Therefore a proper gender analysis could not be done and recommendations will have to be based on the literature review and anecdotal data from the survey results and one-on-one conversations with the NGO representatives during the Dubai workshop. Even though all NGO's have put in great effort to conduct Focus Group discussions in sex-segregated groups this hasn't resulted in a clear analysis and presentation of challenges and needs expressed by women and men separately. In fact the majority of the results from the FGs with men and women were either very similar or identical. From the proposals it is unclear what the process was that lead to the suggested

project activities for women. From some of the discussions in Dubai it became clear that (some/most) activities targeted at women presented in the project proposals have been decided upon by men while ideally project activities for women should have resulted from a participatory process with women.

Ultimately the resilience of communities depends on the resiliencies of all community members combined. The success of FLR efforts is thus dependent on its ability to include the voices of the most vulnerable and marginalized and to translate the needs and priorities of these groups into tangible project interventions that result in equal benefits to all involved.

Therefore the main and most important recommendation is that any gender-sensitive project should start with the collection of gender-disaggregated data and gender analysis of main challenges and issues for men and women⁶. Results should then feed into the design of appropriate activities for women and men based on identified challenges and needs.

During the Dubai workshop most NGO's expressed the difficulty they had to really understand what women's needs are. Often women have difficulty articulating their own needs. This often results in others (NGO's or government or men) deciding for them. An example of a common activity often suggested for women is establishing handicraft centres for women. However, in practice these don't work and are not productive (as results indicated in Badakhshan). Sometimes women even mention these handicraft centres as something they would want as they have heard about these from others and because they lack the skills to critically assess their own needs.

A first step would be to assist women in analysing and understanding their own situation. This requires female staff with strong facilitation skills. There are several PRA tools that can help create awareness among women about their own situation and challenges. For example a time line of one day/week where a woman describes a day or week in her life might point to some work being particularly time consuming (e.g. water collection), this issue can then be further used as a discussion topic in a focus group discussion. A gender labour division diagram may also point to these issues. Other PRA exercises may point to challenges in accessing certain natural resources. However it should be noted that sometimes main challenges and needs are not directly related to natural resources. (Chronic) health problems, lack of access to healthcare services, lack of access to information, lack of basic skills, lack of decision-making power and conservative attitudes can all prevent women from participating effectively in NRM/reforestation projects and these issues might need to be tackled first.

Another issue to be aware of is the fact that even though women might be allowed to earn an income, whether they can dispose of their income is quite a different thing. The survey results and several literature sources (Maletta, 2004; CSO, 2017) suggest that a large proportion of women can't spend the money that they would potentially earn through FLR project activities. Alternative rewards and benefits, in addition to cash, should therefore be considered.

Other recommendations & suggestions include the following:

- Commitment for gender mainstreaming FLR project activities at organizational level is crucial! This starts with increasing capacity of project staff and having female staff.
- Start with the collection of gender-disaggregated data and gender analysis of main challenges and issues for men and women and use this information as a starting point for decision making about project activities.
- Pay attention to the factors of "time" and "hardship" while promoting new technologies and practices. Participation may present an additional burden for women whose schedules are already overstretched. Women have to divide their time between unpaid domestic work, child care and productive work such as livestock and crop production. Additional demand on their time might leave less time for other duties or may prevent women from engaging with the project. Has this been considered, or have provisions been made to support women in their other duties so they are able to engage with the project?
- Expose groups of women and men to other communities where more gender-equitable development is taking place.

⁶ A guideline for gender analysis and mainstreaming gender in forestry can be found here: FAO (2019) How to mainstream gender in forestry. A practical field guide. Online source: <http://www.fao.org/3/a-i6610e.pdf>

- Make sure women are comfortable to speak and share their ideas and concerns. This should include sex-segregated conversations throughout the project cycle (design, implementation, tracking progress and evaluation).
- Make sure to encourage even the most marginalized persons to share their concerns and needs. Good facilitation can yield rich insights into women's perception of their vulnerabilities, capacities, critical needs as well as their FLR priorities.
- Developing women's groups (e.g. Self-help groups, saving groups) can play a significant role in stimulating women's to speak out and share their concerns and their priorities. These groups may collectively pursue opportunities and strategies to negotiate with the existing cultural norms
- Make sure to explicitly address both men and women's priorities and not to mix them.
- The entry point which faces the least resistance is through addressing the practical needs of women – they align with the traditional gender roles within the operational socio-cultural norms in a community. This includes identifying women's specific roles in and supporting them in these roles, e.g. nursery maintenance, dairy processing and selling, poultry production, medicinal plant collection and processing, household food production and processing etc..
- Addressing practical needs can be a stepping stone for addressing more strategic needs at a later stage of the project.
- Engaging more deeply with men and Mullahs.
- Consider gender/consult women even if women's needs are not obvious in the first instance (e.g. irrigation canals).
- Where it is inappropriate for women to move around alone, consider having women move around in groups or, if necessary with a (younger) Mahram, to visit sites and participate in activities.
- Access to information is often more restricted for women, consider appropriate sources.
- Work with couples is often more acceptable than women working alone. The wife engages with women groups and the husband works with male groups.
- Engaging women agriculturalists/NRM staff for training of women farmers and having appropriate tools desired by women.
- Combining dissemination of NRM/DRR information with community-based literacy classes.
- A focus on women tends to imply that the problem -and solution- could be confined to women. Instead try and focus on social relations and power dynamics through which women are positioned as a subordinate group in the division and access of resources, responsibilities, capabilities, power and privilege.
- Female role models and collectives, as well as supportive men, can lead the way in challenging discriminatory gender norms and power dynamics to bring about systemic change.

As survey results indicate the majority of NGO proposed activities are in line with current accepted gender roles. These include the management of tree nurseries, kitchen gardening and poultry keeping among others. Other potential enterprise opportunities for women in farm and NRM-related activities could include beekeeping, producing dairy products, kitchen gardening, collecting and drying fruits and nuts, growing and/or collecting medicinal plants, silkworm production, making jam and other conservatives. These activities have all been implemented successfully throughout Afghanistan by different organizations. This is not an exhaustive list, there are likely more innovative project activities that could be developed such as energy saving stoves, and other technological solutions to reduce firewood consumption. Women can also play a role in ecology-based innovations to reduce the risk of disasters and increase the overall resilience of communities.

The above mentioned activities are not a prescriptive list for the NGO's to implement but rather examples of potential activities. More important than the type of activity should be the genuine participation of women in decision-making about their own roles and responsibilities and the selection of most appropriate activities for them to ensure project sustainability and effectiveness. This is also true for the already proposed NGO activities as it became clear that many of these activities have been proposed by men for women. Project activities should be tailored and adapted based on women's needs, capacities and interests. Furthermore, it is important to extend the focus beyond income generation and consider the creation of alternative benefits to women (and men) such as capacity development (e.g. basic literacy and enterprise development, basic health and nutrition information provision), reduction of

workload (e.g. through providing access to water), payment in kind (e.g. seeds and agricultural tools for women) and others. Such activities increase the overall resilience, independence and autonomy of men and women and communities as a whole and consequently the sustainability and impact of FLR project activities.

3.2 Land tenure

The purpose of highlighting land tenure in the FLR project is to promote a rights-based FLR approach. Clear and secure land tenure rights are a critical enabling condition for FLR as without broadly accepted rules, FLR sites are at risk from poor management and accidental or intentional cutting, misuse, and degradation (Higgins *et al.*, 2018; McLain *et al.*, 2018; Larson, Springer, 2016). Local land tenure arrangements affect if and how FLR efforts will be implemented and sustained overtime. This approach entails project design and implementation that ensures:

- community members have clear and secure rights to forest resources,
- forest benefits are equitably shared among community members, and
- the project improves capacity and relationships among community members and relevant groups and institutions to manage forest land (McLain, Guariguata, Lawry, 2017) .

This land tenure section aims to identify the current land tenure situation in the project areas, including existing local land dispute resolution mechanisms, and the relevant stakeholders. This section also provides recommendations for how the project can support equitable and transparent land administration and avoid and address land related conflicts.

3.2.1 Literature review on land tenure in Afghanistan

Land tenure in Afghanistan

Throughout rural Afghanistan, customary land tenure systems are the norm as they have been for hundreds of years; statutory law, in contrast, generally has little influence (Alden Wily, 2004). Both private and community lands are held and utilized according to established community norms and practices and Sharia law, which may be interpreted differently in different areas. These customary arrangements are often strongly endorsed and adhered to by local people. Area boundaries and rights of access, transfer, and decision making authority regularly have full legitimacy among a community and its neighbours. Common pastures and forests are considered a community asset that cannot be bought or sold.

The existing land tenure is not a rigid system but is negotiated among and between communities as needs and conditions change (Alden Wily, 2013). Neighbouring communities, for example, may have various access rights including full access, grazing access only with no access to tree or shrub harvest, no access for utilizing any resources, or another arrangement. The relationships between communities are important and stronger relations, through ancestry or marriage, usually means greater shared access to resources.

In the last 40-50 years, customary natural resource management systems for forests, pastures, and water have mainly endured in rural Afghanistan but they have been stressed by armed conflict, insecurity, population displacement and return, population growth, and land degradation (Waldman, 2008; UNEP, 2013). Today, rural land ownership and land and water rights are often highly inequitable and a significant proportion of the rural population is landless. Specific challenges to securing land tenure for FLR include unauthorized development of community land (land grabbing), increased competition for land, timber smuggling, lack of local and government capacity to stop illegal use, and customary land tenure systems usurped by local elites or commanders (USAID, 2018).

Land disputes and customary dispute resolution

Land and natural resource disputes over private and community lands are a primary cause of conflict and local insecurity in Afghanistan, including at times violent conflict (Gaston, Dang, 2015). Most property in Afghanistan has never been surveyed and the lack of clear boundaries is a major factor in land disputes. Demographic and geographic shifts, including population growth and land degradation, have also intensified land scarcity and land competition (USAID, 2018). Other causes of land disputes include disagreements about use rights to community lands, overlapping claims, and wrongful

occupation, use, or land grabbing of farms or community lands (Waldman, 2008). Tree and forest-related disputes range from intra-community conflicts over access to forest resources, to inter-community conflicts over control of forest resources, to broader conflicts over the use and management of larger forests among villages, domestic and multinational businesses, governments, and international development agencies (GoIRA, 2018).

Across Afghanistan and particularly in rural areas, the vast majority of dispute resolution occurs through local and customary dispute resolution mechanisms that are generally based on principles of restorative justice and the imperative to preserve community harmony (Coburn, Dempsey, 2010). Local dispute resolution relies on community elders, religious leaders, local councils, and other respected individuals to resolve disputes including those about natural resources. While most dispute resolution occurs at the local level, cases can be passed back and forth between the local level and state government entities such as the district governor, district courts, and other government offices (Ibid).

Although customary land tenure arrangements and rules are usually well understood, individuals or groups may knowingly break these norms to access grazing or fuel sources. While much dispute resolution is based on restorative justice, people caught “illegally” utilizing land may face consequences such as social shaming, confiscation of livestock, fuel, and/or tools, and fines (UNEP, 2013).

Customary dispute resolution provides crucial services to communities in Afghanistan that often lack access to government services. Customary dispute resolution comes with a range of pros and cons related to ease of access, efficacy, and bias. Table 1 (Coburn, Dempsey, 2010; Nijssenn, 2011; UNEP, 2013; Gaston, Dang, 2015) lists some common pros and cons.

Table 1: Pros and cons of customary dispute resolution.

PROS AND CONS OF CUSTOMARY DISPUTE RESOLUTION	
Pros	Cons
• Familiar to and accepted by local people • Reflect local context and norms • Less costly and more accessible than courts • Decisions are usually much faster than courts • Focus more on equitable outcomes rather than winners and losers • Decisions are more likely to be enforced than those of courts because of local social norms and community enforcement (the State often lacks the ability to enforce)	• Tend to be dominated by elites or majority political factions, usually men • May discriminate against vulnerable groups including women • May favour more powerful actors (vulnerable to favouritism/corruption) • May be unable to hold commanders or other powerful people accountable • May be difficult to address disputes between communities • Outcomes may not be documented/recorded

Relevant GIRoA laws

Legally, rural land tenure in Afghanistan today is not fully settled and the legal framework remains uncertain and incomplete (AREU, 2017). While the state has little practical role in rural land tenure systems, a statutory land tenure system exists on paper and is evolving. In recent years, for example, a new Land Management Law (2017) and National Land Policy (2018) replaced their earlier 2007 and 2008 versions. Discrepancies remain, however, between state law and customary land tenure practices regarding commonly held land. Generally, state law poorly integrates customary land tenure (Alden Wily, 2013). A few government strategies represent a major shift in the government approach to land rights by moving toward encouraging and supporting community management. These include the National Natural Resource Management Strategy (2017-2021), Operation Manual for CBNRM (2018), and Environment Law (2007). Additionally, there is a reconciliation law currently in development that recognizes customary laws for NRM.⁷ In contrast, laws such as the Forest Law (2012) do not fully recognize the practice and reality of customary land tenure in Afghanistan.

⁷ Personal comm. Mohammad Tawab Stanikzai, 15 January 2020

Box 1: Afghanistan's laws and policies relevant for FLR

- Civil Code (1977)
- Environment Law (2007)
- Forest Law (2012)
- National Natural Resource Management Strategy (2017-2021)
- Operating Manual for Community-Based NRM (2018)
- Land Management Law (2017)
- National Land Policy (2018)

While some policies are shifting toward recognition of customary land tenure systems and community-based natural resource management, government entities, particularly at the sub-national level, do not have strong capacity to provide support for recognizing and supporting community-based management (FAO, 2018). Additionally, the government has little capacity to address land-related conflicts.

3.2.2 Survey results and recommendations on land tenure

The multiple choice, FGD, and participatory mapping survey results, as well as the initial survey results workshop and exchange and the NGO proposals, offer insights into each of the objectives of the land tenure component of the FLR survey, which were to:

- assess land tenure arrangements in forest landscapes,
- identify relevant stakeholders and their respective interests and needs,
- learn about existing mechanisms to solve land conflicts, and
- explore how land tenure arrangements might be secured for forest land restoration activities.

Additionally, the survey aimed to capture insights into questions such as:

- What land tenure approaches and interventions support successful reforestation?
- Where, and on what type(s) of land, will reforestation efforts be secure from harvesting?
- What land disputes need to be addressed or anticipated to secure reforestation efforts?

To organize the following land tenure findings, the results are conceptualized into components of the land tenure system including the land, stakeholders, rules, and governing authority (Figure 7).

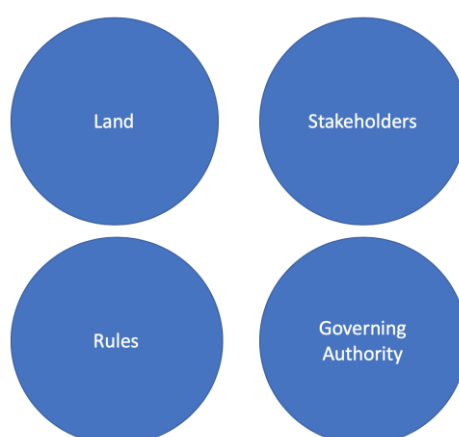


Figure 7: An example of components of a land tenure system.

Land

The existing conditions of common forests vary widely from essentially no forests in Samangan, Takhar, and Yaftal-e Payen (Badakhshan) to existing common forest areas in Paktia and Khost to existing common forests and reforestation sites in the Wakhan (Badakhshan). In all project areas, there are some areas with trees on private land. The survey found that people primarily cut trees and collect non-timber forest products from private land in all project areas (Table 2). After private lands, community lands are the next most important for accessing trees. Lease land and government land are the least used for accessing trees although government land is important in Samangan and somewhat important in Takhar where people rent government land for agriculture and lease land is very important in Takhar. Responses to this question may have some inaccuracies as the concept of non-timber forest products (NTFP) may not have been well-understood by some respondents.

Table 2: Responses to multiple choice question #3, "From what type of land do people cut trees or collect NTFP?"*

PRIMARY TYPE OF LAND FOR CUTTING TREES/COLLECTING NTFP?	OVERALL (%)	SAMANGAN (%)	TAKHAR (%)	BADAKHSHAN (YAFTAL-E PAYEN) (%)	BADAKHSHAN (WAKHAN) (%)	KHOST (%)	PAKTIA (%)
Private	100	100	100	100	100	100	100
Community	58	20	70	90	90	0	80
Government	13	50	30	0	0	0	0
Lease	22	30	100	0	0	0	0

* The numbers in this table indicate the percentage of villages giving a particular response. Respondents could choose more than one response, thus the total of the percentages can be more than 100.

In terms of what type of land is best for FLR, the survey showed that community land was most commonly mentioned followed by private land and government land (Table 3). In some communities, however, there is a lack of common land for reforestation or a lack of interest in planting on common lands, particularly in areas of Samangan and Takhar, but also in Qala-e-Panja (Badakhshan, Wakhan) and areas of Yaftal-e Payen (Badakhshan).

Table 3: Responses to multiple choice question #16, "What type of land, in terms of ownership and use, is best for reforestation projects?"*

BEST TYPE OF LAND FOR REFORESTATION?	OVERALL (%)	SAMANGA N (%)	TAKHAR (%)	BADAKHS HAN (YAFTAL-E PAYEN) (%)	BADAKHS HAN (WAKHAN) (%)	KHOST (%)	PAKTIA (%)
Private	38	30	100	0	60	0	40
Community pastures	15	20	70	0	0	0	0
Other community land	85	40	80	100	100	100	90
Government pastures	3	20	0	0	0	0	0
Other government land	10	60	0	0	0	0	0

* The numbers in this table indicate the percentage of villages giving a particular response. Respondents could choose more than one response, thus the total of the percentages can be more than 100.

Stakeholders

A diversity of stakeholders are relevant for FLR and land tenure in the project areas (Table 4). Within a community, stakeholders range the more powerful elders and local council members to much less powerful members often including women and the landless. Neighbours are critical stakeholders for FLR. Neighbours often have formal or informal use rights to a community's land that need to be considered as new institutions (i.e. FMA/NRMC) or rules are established. On the government side, MAIL's General Directorate of Natural Resource Management (GD-NRM) has a forestry directorate and offices in all provinces. Additionally, DAIL's Integrated Agricultural Service Centres are mandated to provide technical assistance to community Forestry Management Associations and PAIL's Forestry Research Centres can provide technical support. The Deputy Ministry of Land (formerly ARAZI) is not likely to be active in project areas but does hold an extensive mandate over land administration for individual and collective land tenure including land registration and allocation (Bakici & Zaher Sultani 2020). Outside of government, NGOs and civil society play various roles relevant for supporting FLR.

Table 4: Various FLR and land tenure stakeholders.

COMMUNITY	NEIGHBOURS	GOVERNMENT ENTITIES	NON-GOVERNMENT AND NON-COMMUNITY ENTITIES
- CDC, local councils - Elders - FMA/NRMC - Village forest rangers/guards - Landowners - Landless - Political factions - Women and men - Minorities	- Neighbours with rights to shared resources (land owned/used by more than one community) - Neighbours with historic rights to another community's resources - Former residents living in neighbouring communities that retain use rights	- DAIL officials from NRM, Agriculture Extension, Forestry, and Integrated Agricultural Service Centre - PAIL Forestry Resource Centres - MAIL General Directorate- NRM - Deputy Ministry of Land (formerly ARAZI)	- NGOs - Civil Society - Kuchi herders - Livestock traders

Rules

There is a variety of rules for forests and natural resources in the project areas. Some customary rules have been used for generations, such as recognition of village boundaries and who is able to access and use particular pastures, forests, and water. Water access regulated by a *mirab*⁸ is an example of a long-standing system of natural resource management that is entrenched in almost every community. Additionally, village boundaries, while not registered in any government system, are broadly accepted and respected. The rule of excluding non-community members from community land is widely practiced while land use rules for community members themselves are less common and many rules appear to be fairly recent.

Other rules have been developed more recently by CDCs (Community Development Councils)/local councils, or old rules have been adjusted to fit the current context. Through forest protection and reforestation efforts, the Wakhan, Paktia, and Khost have created additional rules for forest access and use. In contrast, respondents in Samangan, Takhar, and Yaftal-e Payen have limited rules for natural resources and some respondents stated they hoped the new FMA/NRMC would support further rules.

Respondents generally perceive the existing rules as fair since they are made locally and address local needs. In a few cases, respondents questioned the practicality of new rules that restricted fuelwood gathering, noting that these might not be implemented as people need fuel sources. Across the project areas, government rules are rarely understood or enforced but in some areas PAIL/DAIL representatives are encouraging forest protection and reforestation.

Governing Authority

Local elders and members of the CDC or *shura*⁹ generally hold the decision making rights for land use and access including the power to exclude others. Rules are made and enforced almost exclusively by local entities, CDCs are the most commonly cited entity in the Wakhan and council of elders and *Arbaki*

⁸ In Afghanistan, a *mirab* is a person that provides irrigation operation and maintenance services in traditional irrigation systems, paid by community members usually with grain or cash.

⁹ In Afghanistan a *shura* is a local gathering of elders for the purpose of local or national conflict resolution.

are more common in Paktia and Khost. Communities mainly manage land in the absence of government influence or implementation of statutory law. There is a bit more of a government presence in Samangan and Takhar due to the presence of commonly identified government land. Additionally, across project areas, district government entities are considered a last resort for unresolved disputes. In some villages, district forestry or NRM officials have visited along with NGOs to discuss NRM and reforestation.

While the community and its leaders are widely accepted as the governing authority for common lands, survey responses often indicated that “no one” controls the use of pastures and forest land. In some areas, the lack of common pasture or forest led respondents to select “no one.” In other areas, it could be that there was confusion about the question or that people do not consider the concept of “control” relevant to common pasture or forest areas. In the Wakhan, Khost, and Paktia, community control of pastures and forests is unequivocal. In contrast, in Samangan, Takhar, and Yaftal-e Payen, either the concept and/or reality of community control was not as apparent (Table 5 and Table 6).

Table 5: Responses to multiple choice question #14, “Who controls the use of pastures?”*

WHO CONTROLS USE OF PASTURES?	OVERALL (%)	SAMANGAN (%)	TAKHAR (%)	BADAKHSHAN (YAFTAL-E PAYEN) (%)	BADAKHSHAN (WAKHAN) (%)	KHOST (%)	PAKTIA (%)
No one	45	80	90	100	0	0	0
Community	53	10	10	0	100	100	100
Government	2	10	0	0	0	0	0
Other ¹⁰	5	10	20	0	0	0	0

* The numbers in this table indicate the percentage of villages giving a particular response. Respondents could choose more than one response, thus the total of the percentages can be more than 100.

Table 6: Responses to multiple choice question #15, “Who controls the use of forestland?”*

WHO CONTROLS USE OF FOREST LAND?	OVERALL (%)	SAMANGAN (%)	TAKHAR (%)	BADAKHSHAN (YAFTAL-E PAYEN) (%)	BADAKHSHAN (WAKHAN) (%)	KHOST (%)	PAKTIA (%)
No one	43	60	100	100	0	0	0
Community	52	10	0	0	100	100	100
Government	3	20	0	0	0	0	0
Other ¹¹	7	30	10	0	0	0	0

* The numbers in this table indicate the percentage of villages giving a particular response. Respondents could choose more than one response, thus the total of the percentages can be more than 100.

Disputes and Dispute Resolution

Land related disputes in project areas are linked to a range of factors. Respondents primarily cited unauthorized outsider (usually neighbour) use of pasture or forest resources, illegal conversion of pastureland to arable or residential use, powerful community members not following the rules, incursions on private land, and unequal land distribution. In areas where there are more rules for common lands (Wakhan, Paktia, Khost), respondents reported that land related disputes are decreasing. In contrast, in areas with fewer rules for common land (Samangan, Takhar, and Yaftal-e Payen) respondents reported disputes were increasing or, in Yaftal-e Payen, had mixed trends. Where disputes were decreasing, respondents reported local leadership, increased local awareness, and increased availability of natural resources as reasons for the trend.

¹⁰ One of the “other” responses (Samangan) was clarified with “there are no pastures.” The other responses were not clarified.

¹¹ Three of the four “other” responses were in Samangan and respondents clarified with “there is no forest.” The other response was not clarified.

Communities commonly rely on local councils (CDCs, *shura/jirga*) and elders for dispute resolution and may refer unresolved cases to a district government entity—a district forestry official or other entity.

Each project area has some similar and some distinct land tenure issues which are further described in the following sections. Certain recommendations are highlighted for each area within the following project area sections and a full set of land tenure recommendations to address the range of issues are discussed at the end of this land tenure section.

3.2.2.1 Badakhshan (Wakhan) – Rupani Foundation

The Wakhan is unique among the project areas in that it has undertaken substantial and largely successful afforestation/reforestation efforts over the last five years. These efforts have been supported by NGOs and implemented on community lands including 300,000 trees planted on 167 ha in Yishmurgah and 400,000 trees on 94 ha in Qala-e Panja. People have also planted trees on private lands having been inspired by their experience as migrants in Chitral, Pakistan where they observed or even worked in tree planting. The Wakhan project areas also have existing natural forests on community lands mainly along the Panj river. In general, respondents state that forest conditions are improving. In Pak, respondents noted that people used “to go all the way to Gozkhun natural forest or to Yishmurgah forest to collect fuelwood. Now that the villagers have planted common and private forests we no longer need to go to other villages.” In some natural forests, however, forest conditions are declining due to increasing harvesting and grazing pressure from a growing population (mainly due to returning refugees and internally displaced).

In response to the multiple choice survey question on where people collect timber and non-timber forest products, Wakhan respondents mentioned private (100 percent of respondents) and community (90 percent) lands. For FLR, people want to plant trees on both community and private lands. Survey respondents noted that common lands are essential for FLR since private land holdings are limited and insufficient for larger reforestation efforts. All villages responded that everyone will benefit from FLR efforts; there was no recognition of potential negative or inequitable impacts. Only one village anticipated potential conflicts around FLR efforts due to potential land for FLR being controlled by powerful families that may not want to engage (Qala-e Panja).

Land tenure rules

In the Wakhan, villagers make their own rules and regulations and implement them through their CDCs. In response to the multiple choice questions about who controls the use of pastureland and forestland, 100 percent of respondents stated that the community controls the resource. (There was no selection of any other entities.) There are various customary rules for natural resource management that have been used for generations and CDCs have also made more recent rules particularly for forest use and access.

Generally, natural resource use within a village’s boundaries is exclusively for village members, however, the project villages are close neighbours and various types of natural resource sharing is common across village boundaries. Some forest or pasture areas are considered owned and available for access by multiple villages. Pak, Sarkand, and Pukui villages, for example, share some pasture and forest resources. Another type of sharing is arrangements for use of one village’s natural resources by neighbours or former residents who have migrated and retain certain use rights. All of these circumstances highlight the need to consider neighbours as a key stakeholder in the project approach.

Other forest use and access rules used by one or more project villages in the Wakhan for existing natural forests include:

- each household is allowed to collect a donkey load of fuelwood (35kgs) every day from common natural forests in winter,
- protect areas of natural forest from harvest on a rotating basis (so that some areas are available for harvest), and
- if there is a marriage or death event families are allowed to collect extra for need of the event.

Additionally, given ongoing pressure on natural forests, there are some proposals to further protect natural forests. In Yishmurgah and Sarkand, for example, each community proposes to prohibit fuelwood harvest and grazing and control erosion on 115 ha of degraded natural forest for the next three years.

Diminishing forest resources in some areas and increasing recognition of forest value may be leading some villages to increasingly resent and restrict neighbours' natural resource access. In a Yishmurgh FGD, for example, respondents stated that "in the past, people from other villages came and collected fuelwood from forests in Yishmurgh but that is prohibited now." While conducting the survey, Rupani staff also observed that project activities themselves (e.g., mapping and FMA formation) have increased a sense of ownership and competition in areas where villages historically shared resources, a trend that will require ongoing attention from the project team.

Other rules commonly agreed upon for existing afforestation sites include:

1. afforestation sites are only available for use by the community that planted them,
2. afforestation sites are banned for fuelwood and animal grazing for 4-6 years (depending on the village) to protect the delicate plants; if livestock enter afforestation sites, the livestock owners are discouraged by CDCs and other households,
3. each household pays seven kilograms of grain annually to the *baghban* (forest guard) hired to look after the planted forests (e.g., Pukui, Sarkand), and
4. afforestation sites have separate irrigation canal that is cared for by the community.

While government rules are not well understood or enforced in the project areas, respondents generally perceived a shift in the government approach in recent years from discouraging common land forestry to encouraging it. Respondents stated that the government no longer discourages tree planting on common lands and now actually encourages forest and wildlife conservation. In two villages, however, respondents noted that government or border security officials confiscate fuelwood from locals for personal use. In one of these villages, it was further noted that border security officials permit influential people to harvest fuelwood but confiscate fuelwood from the poor. Additionally, some villages did not want to participate in the FLR project because they were concerned reforested areas would later be claimed by the government.

Forest related rules in the Wakhan are enforced through CDC meetings and social pressure. If someone breaks a rule, the CDC invites them to a meeting and local people further discourage them from breaking the rules. If a person does not respect the CDC enforcement, they lose respect in the village and ultimately the issue could be taken to the government. Additionally, the Rupani project proposal notes that 10 Forest Rangers will be hired for the project life to irrigate and look after project sites year-round.

People generally perceive these rules as fair saying that since they are made locally, they address local needs. While there is generally good support for forest use rules, FGD respondents noted that the rules could be challenging to enforce at times. The women's FGD respondents in Sarkand, for example, noted that the rules and regulations are okay but might not be practical since "if you ban fuelwood collection, how will they cook their meals or heat up their homes?"

Conflicts and Dispute Resolution

Respondents report that natural resource conflicts in the Wakhan project areas are generally decreasing in recent years due to CDC leadership, increased availability of natural resources, and more awareness. In Qala-e Panja, however, respondents state that conflict is increasing due to lack of common land and resources, unequal access and control of resources, and increasing population.

Where conflicts exist, they occur both within and between communities. Within a village, conflicts are related to individuals attempting to claim common lands for themselves (e.g., Sarkand) and powerful families not following forest use rules and harvesting more than their share of fuelwood (e.g. Qala-e Panja).

Between villages, conflicts relate to forest use and common land ownership. There are complaints in every village (other than Qala-e-Panja which does not have much forest) about forest use by neighboring villages. Further, respondents were concerned about livestock traders with hundreds of livestock that stop at villages for grazing and could damage FLR efforts (e.g., Yishmurgh). Two days before the survey in December, for example, there was a conflict between Yishmurgh and Pukui villages over fuelwood harvesting from a natural forest area in the Yishmurgh valley called "West Jungle." People from Pukui village collected fuelwood which was then confiscated by people from Yishmurgh who said that the forest belongs to Yishmurgh and they have banned fuelwood harvesting there. The issue was taken to the two CDCs but could not be resolved. The parties then took the dispute to the district administration for were waiting for resolution at the time of the survey.

Disputes are mainly resolved by village CDCs. If the CDC is not able to resolve a dispute, they typically invite community elders (e.g., the elder council, “Nazar Khwahi”) to resolve the dispute and, as a last resort, will take a dispute to the district government. This system seems to generally work well. In Qala-e Panja, however, respondents were pessimistic about the ability of local and government dispute resolution mechanisms to prevent powerful local actors from exploiting natural resources.

Table 7: Summary of focus group discussion and participatory mapping results for land tenure, Badakhshan, Wakhan

FGD QUESTIONS	BADAKHSHAN (WAKHAN), FGD AND PARTICIPATORY MAPPING RESPONSES SUMMARY
Forest Condition (Qs 1-2)	Natural forests are present, mainly along the Panj river. Tree planting on private and common lands in recent years is increasing forestry resources. It appears, however, that natural forests continue to be overharvested in some areas. Reasons for increased planting include returning migrants started plantations as they saw in Pakistan and NGOs have supported planting. Also, the government has stopped discouraging planting on common lands and the district government encourages forest conservation. Population increase, mainly due to returning refugees and internally displaced, is increasing demand for natural resources.
Local forest rules (Qs 5-7)	Various rules, some older and some newer developed by CDCs include: ~ Common afforestation sites are banned for fuel wood and animal grazing for 4-6 years; ~ Hhs are allowed a donkey load of fuelwood every day; ~ Each hh pays 7 kgs of grain yearly to the <i>baghban</i> (forest guard). Rules are considered fair but some question if they can be implemented. Natural forests appear to be less protected than reforested areas.
Outside use (Q 10)	People from neighbouring villages (sometimes family members) come to collect firewood from private and common areas, sometimes they ask permission and sometimes not. There are complaints in every village (other than Qala-e-Panja which does not have much forest) about forest use by neighbouring villages. Livestock traders with large herds can also threaten reforestation sites.
Government presence (Qs 11-12)	There is very limited government presence- officials occasionally communicate with CDCs or come to villages with NGOs to emphasize the need for forest protection and encourage reforestation. Compared to the past, the government is “much more human than authoritarian.” In one village, however, border guards confiscate people’s fuelwood.
Conflicts (Qs 13-14)	Some conflict over rights to fuelwood collection in particular areas. Natural resource conflicts are generally decreasing in recent years due to increased availability of natural resources, CDC leadership, and more awareness. In Qala-e-Panja, however, conflict is increasing due to lack of these common resources and common land, unequal access and control of resources, increasing population and everyday needs.
Enforcement and dispute resolution (Qs 8-9, 15)	CDCs are responsible along with support from community members; difficult cases go to elders. If someone breaks a rule, the CDC invites them to meetings and local people discourage them. Social pressure is made for people who don’t follow the rules. They lose respect in the village and social gatherings. If a person does not respect the CDC enforcement, then the issue is taken to the government.
Type of land for reforestation (Q 25)	Generally, people want to plant on community and private lands, however, private land holdings are limited and insufficient for larger reforestation efforts so people want to use common lands for reforestation.

Recommendations

In addition to the full recommendations at the end of this section, in the Wakhan the project might focus on the following:

1. With resources commonly shared among neighbours in the Wakhan (either among entire villages or by former residents now living in neighbouring villages), it is particularly important to consider the impact of reforestation and forest rules on neighbours and communicate project activities and forest rules with neighbours to encourage project support and avoid project interference from neighbours. Further, as Rupani noted in the survey results, they “observed that already the resource mapping and association formation efforts have increased a sense of ownership and competition for areas where villages historically shared resources” and this issue will need focused attention from the government and FLR team. The project team should consider devoting additional attention to neighbours across the eight steps of the MAIL Operation Manual for CBNRM (see full recommendations at the end of the land tenure section).
2. Across villages, but particularly in Qala-e-Panja where there is limited common land for FLR and tensions about land access exist, it is important to select FLR project sites where the land tenure arrangements are clear and there are no existing or anticipated conflicts over land access and use.

In Qala-e-Panja, there appears to be a need to facilitate land tenure negotiations (including with powerful local actors that may perceive themselves to be above the rules) in an attempt to identify an FLR site that is agreed on by all community members.

3. The forest protection rules in the Wakhan are impressive, however, the comment from the women's FGD in Sarkand highlights the need to ensure that rules are practical and able to be implemented. The project team should ensure that forest protection rules are widely agreed upon within a community and designed such that they are enforceable through community mechanisms.

3.2.2.2 Badakhshan (Yaftal-e Payen) – RGEO

Natural forests in Yaftal-e Payen have largely been destroyed over the last 20 years. There have been some small scale tree planting efforts but these provide only very limited amounts of food and fuelwood. On private lands, people have increasingly planted apple, quince, grape, almond, and other nut trees. Survey respondents noted that this tree planting is due to increased awareness about the benefits of trees for income, clean air, and beauty.

Irrigation water shortage is a key challenge for communities. This water shortage has implications for FLR efforts that require water for establishment but should not compete with water needs for food production. RGEO reported that just 13 percent of arable land is irrigated in Yaftal-e Payen and that strengthening and expanding these irrigation systems is key for food production and FLR.

In terms of land for FLR efforts, Yaftal-e Payen respondents selected community land in the multiple choice questions but the FGD demonstrated a strong preference for tree planting on private lands since the people will "manage and protect planted trees properly" on private land. Yaftal-e Payen also has a small area of government land that the district head has designated available for FLR.¹²

Land tenure rules

Rules related to land access and use in Yaftal-e Payen are limited. In response to the multiple choice survey questions, respondents across the Yaftal-e Payen project areas noted that "no one" controlled pasture or forest resources. The FGD responses confirm that there are very limited, if any, rules for community member use and access of common pastures and no rules for forests since there are no common forests. Non-community members, however, are excluded from accessing a village's common lands. Respondents also noted that there are people and systems for resource management including a *mirab* for water use, *qoroghmal*¹³ for watching crops, and shepherds that care for animals. While the rules are limited, respondents considered them fair. Respondents also noted that they hope the Forest Management Association (FMA) or Natural Resource Management Committee (NRMC) would introduce new rules to protect natural resources. The local council is responsible for enforcing rules along with the broader community.

Survey respondents reported that there is no government presence related to natural resource management (NRM) and no awareness of government NRM laws or rules. RGEO, however, has experience working with the District Agriculture, Irrigation, and Livestock department (DAIL) and the National Environmental Protection Agency (NEPA) staff in the district.

Conflicts and Dispute Resolution

Various NRM conflicts are present in Yaftal-e Payen related to the illegal conversion of common pastures to rainfed fields or residential use; historic inequitable land distribution; and disagreements about grazing rights. Additionally, every village reported that there is occasional illegal outsider use of their village pastures. There is mixed reporting on if conflicts are increasing or decreasing but respondents voiced concern that area residents only use natural resources for personal benefit to the detriment of the resource and other community members.

In terms of dispute resolution, the local council and *shura*/elders are responsible for resolving disputes. If someone breaks local rules, they may be required to pay a fine. Disputes that cannot be resolved locally may be referred to a government entity. Respondents noted that they hoped the FMA/NRMC would also take a role in dispute resolution.

¹² Personal comm. Ahmad Seyer Aseel, 15 January 2020.

¹³ In Afghanistan a *qoroghmal* protects crops from livestock and birds, paid by community members usually with grain or cash.

Table 8: Summary of focus group discussion and participatory mapping results for land tenure, Badakhshan, Yaftal-e Payen

FGD QUESTIONS	BADAKHSHAN (YAFTAL-E PAYEN), FGD AND PARTICIPATORY MAPPING RESPONSES SUMMARY
Forest Condition (Qs 1-2)	There is no natural forest, but people are increasingly planting trees on private land. Increased planting is due to increased awareness about the benefits of trees for income, clean air, and beauty.
Forest rules (Qs 5-7)	There are few rules for natural resource use, however, there are <i>mirab</i> for water use, <i>qoroghma</i> for watching crops, and shepherds care for animals. There is hope that the NRM will support rules. The limited rules are considered fair. The rules are mostly local but rules related to the <i>qoroghma</i> and <i>mirab</i> are official.
Outside use (Q 10)	There is illegal pasture use by neighbouring villagers reported in all villages.
Government presence (Qs 11-12)	There has been no government presence related to NRM and there is no awareness of government laws.
Conflicts (Qs 13-14)	Conflicts exist related to the illegal conversion of pasture to rainfed or residential; historic inequitable land distribution; and disagreement about grazing rights. There is mixed reporting on if conflicts are increasing or decreasing but concern that people only use natural resources for personal benefit to the detriment of the resource and other community members.
Enforcement and dispute resolution (Qs 8-9, 15)	Committee members, farmers, and all village residents are responsible to enforce NRM rules, possibly by use of fines. Elders resolve disputes and they hope the NRM will also. Conflicts that cannot be resolved locally may be referred to the government.
Type of land for reforestation (Q 25)	There appears to be a strong preference for planting on private lands since the people will "manage and protect planted trees properly."

Recommendations

In addition to the full recommendations at the end of this section, in Yaftal-e Payen, the project might give particular consideration to the following:

1. With limited rules related to NRM on common lands described in the survey, there is need to carefully consider and evaluate the options for forest protection rules on private and common lands. Rules should be widely agreed upon, enforceable through local mechanisms, and encourage equitable use.
2. The preference for private land FLR efforts highlights the need for the project to consider how project activities and forest protection rules can support landless community members.
3. With intra- and inter-community conflicts about the use of common lands (conversion, grazing access, etc.), the project should carefully identify existing and potential land disputes and ensure these are considered in project activities.

3.2.2.3 Takhar – Mission East

In the Takhar project areas, there is no remaining natural forest and only limited tree planting occurring exclusively on private lands, often fruit trees. One village (Gurgan Sufia) is doing more tree planting due to trainings and exposure visits, marketability of products, and encouragement by residents who have travelled abroad. Survey respondents stated that the limited tree planting is related to a lack of awareness and lack of government or NGO support.

Irrigation water shortage is an issue in the Takhar project areas including in Gurgan Ulya where water conflicts are ongoing. Generally, only spring or well water are available and these sources are used for household, agriculture, and livestock. Securing water sources and water rights will be important for FLR activities.

In terms of which type of land to use for FLR activities, respondents mentioned private and community lands. In the project areas, private rainfed lands are often held by 10-15 families that divide the land for planting. These multi-family plots have potential for FLR activities but may require a solar pump well or other mechanism for water access. Mission East also mentioned that government land is available for FLR.

Land tenure rules

Land tenure rules in Takhar project areas are limited. In response to the multiple choice survey questions, respondents stated that “no one” controlled pasture or forest resources in nine of 10 surveys. One FGD (Gurgan Ulya) stated that the community controlled pasture resources. The FGD responses confirm that there are very limited, if any, rules for community member use and access of the often limited amount of common pastures and no rules for forests since there are no common forests. As is common, however, non-community members are excluded from accessing a village’s common lands.

While respondents did not clearly articulate any NRM rules, they noted that the rules are not implemented fairly and at times powerful people do not follow the rules and take more than their share of common natural resources.

Conflicts and Dispute Resolution

There are a range of NRM conflicts in the Takhar project areas mainly related to the use of pasture lands (especially spring grazing), conversion of pastureland to private rainfed fields or residential use, unauthorized use of private lands, powerful people not following NRM rules, and water access. Conflicts related to water access occur within villages and at times conflicts between upstream and downstream communities. Survey respondents noted an increase in NRM conflicts due to the lack of rules for accessing common resources (mainly pasture and water), a lack of natural resource availability, inequitable distribution of land and pasture access, and a lack of government presence.

CDCs, local councils, elders, and the district agriculture department are responsible for enforcing rules and resolving disputes. There is also a District Development Assembly composed of eight members from the villages that can resolve conflicts. Generally, disputes are first taken to local councils and elders and then to the government if not resolved locally. Some FGD respondents, however, noted that local entities are not able to enforce local laws and they would prefer to have more government involvement in enforcing NRM rules. Additionally, some residents do not trust the CDCs as they do not appear to be neutral entities.¹⁴ In contrast, others noted that people prefer not to go to the government due to cost and corruption.

Table 9: Summary of focus group discussion and participatory mapping results for land tenure, Takhar

FGD QUESTIONS	TAKHAR, FGD AND PARTICIPATORY MAPPING RESPONSES SUMMARY
Forest Condition (Qs 1-2)	No natural forest and only limited tree planting. One village (Gurgan Sufla) is doing more tree planting which has been encouraged by those who have travelled abroad, trainings and exposure visits, and marketability of products. The limited tree planting is related to lack of awareness and no government or NGO support.
Forest rules (Qs 5-7)	No rules for natural resource use on common lands but this is changing with the creation of FMAs. When rules exist, they are local. Mixed responses about if rules are fair and fairly implemented.
Outside use (Q 10)	Some use by outsiders is occurring--mainly harvesting herbs and collecting stones. One village (Khoshaidan) mentions conflicts with other communities due to outsider use of fuel shrubs, pastures, and even private lands.
Government presence (Qs 11-12)	Just one village (Gurgan Sufla) mentions a government presence (DAIL). No awareness of government laws.
Conflicts (Qs 13-14)	Conflicts related to use of water and pastures; conversion of pasture to rainfed; intrusions on private land for grazing and tree cutting; and inequitable land distribution. Conflicts tend to be increasing.
Enforcement and dispute resolution (Q 8-9, 15)	Elders and CDC are referenced as enforcing the rules with some referencing referring cases to the government if not resolved locally. Some participants raised concerns about the ability of the CDC to enforce rules.
Type of land for reforestation (Q 25)	Private and community lands with some preference for private land in some villages.

¹⁴ Personal comm. Mohammad Nader Faez 16 January 2020.

Recommendations

In addition to the full recommendations at the end of this section, in Takhar, the project might give particular consideration to the following:

1. With very limited rules related to NRM on common lands, there is need to carefully consider and evaluate the options for forest protection rules on private and common lands. Rules should be widely agreed upon, enforceable through local mechanisms, and encourage equitable use.
2. With ongoing and often increasing intra- and inter-community conflicts about the ownership and use of common lands (conversion, grazing access, water, intrusions on private lands, etc.), the project should carefully identify existing and potential land disputes and ensure these are considered in project activities.
3. With some level of resistance to following rules for common lands, all of the recommendations in the “governing and dispute resolution” section below are important in Takhar. The project should consider building dispute resolution capacity among local entities and improving coordination between local and district dispute resolution mechanisms in particular.
4. With water shortage and conflicts over water, the project should support communities to develop clear and equitable rules for the water access necessary for tree establishment and ensure forestry water needs don't compete with other water needs for agriculture and domestic use.

3.2.2.4 Samangan – WHH

In the Samangan project areas, villages commonly maintain orchards and some villages access distant natural forests in the mountains. It appears that natural forests closer to villages have been deforested. Almond orchards on private land have a long history in the area and are an important source of income. WHH reports that each village has an average of 44 ha of orchards, mainly almonds. At least two villages (Bamyanchi and Koka Bulaq) access distant natural forests that belong to other villages or the government. There is one six hectare afforestation site in the project area. In response to the multiple choice survey question on where people collect forest products, Samangan respondents mentioned four types of land private (100 percent of respondents), government (50 percent), leased land (30 percent), and community land (20 percent).

Water availability is a key issue for orchards as irrigation water is limited and where it exists, it tends to dry up. Newly established deep wells are increasing water availability in some areas. Sometimes this water is shared between communities and sometimes it is purchased for agricultural use. In Bamyanchi, solar pumps have improved water availability for orchards.

In terms of which types of land to use for FLR activities, in the survey multiple choice question respondents mentioned non-pasture government land (60 percent of respondents), non-pasture community land (40 percent), private (30 percent), and community or government pastures (20 percent). The FGD respondents also highlighted this range of options for reforestation but seemed to prefer private land. People are particularly interested in establishing pistachio on private lands. WHH also reported that while government land boundaries are not always clear, there could be an agreement with the government for FLR on government or religious land.

Land tenure rules

As in Takhar, land tenure rules for common natural resource use in the Samangan project areas are limited. In response to the multiple choice survey questions, respondents stated that “no one” controlled pasture resources in four of the five surveyed villages. In Chinzia, respondents stated that the community and government both control pasture use. For forest resources, two surveys stated that the government controlled forest use (Dowlatabad and Koka Bulaq) and Dowlatabad also stated that communities controlled forest use. Other surveys stated that “no one” or “other” controlled forest use with “other” marked when forest was not available.

The FGD responses confirm that there are very limited rules, if any, for community member use and access of common pastures and forests. WHH, however, reported that community members commonly require permission from CDC or government authorities to collect forest products. While some people may require permission from government authorities, FGD respondents stated that they are not aware of government laws and there is no government support for forest management. Some respondents

also noted that the existence of powerful and irresponsible armed actors have impeded making and enforcing NRM rules.

Conflicts and Dispute Resolution

Various natural resource conflicts are present in the Samangan project areas with WHH and respondents reporting conflicts over water, pasture, and fuelwood and pistachio collection. Conflicts are reportedly increasing due to increasingly limited water related to drought, disagreements over pasture boundaries, and the degradation of natural resources. Additionally, WHH noted that conflicts over boundaries could arise during FLR implementation as there are some existing disagreements about land ownership within and between communities.

For dispute resolution, communities use traditional mechanisms including CDCs, *shura*, and local “famous” elders. Disputes that cannot be resolved locally are referred to the government.

Table 10: Summary of focus group discussion and participatory mapping results for land tenure, Samangan

FGD QUESTIONS	SAMANGAN, FGD AND PARTICIPATORY MAPPING RESPONSES SUMMARY
Forest Condition (Qs 1-2)	No natural forest but increased tree planting on private lands, mainly fruit trees. Some have received external support for tree planting, one village has improved water access (well). Lack of water and drought are affecting trees.
Forest rules (Qs 5-7)	No rules for forests as there are no forests. No rules for trees on private lands. One village rents pasture use to external users. There is a government rule that pastures cannot be converted to crops. When rules exist, they are local and considered fair.
Outside use (Q 10)	In general, no outside use but some pastures are shared and one village (Lopan Kohna) rents out its pasture.
Government presence (Qs 11-12)	No government presence or awareness of government laws.
Conflicts (Qs 13-14)	Just one village reports no conflicts (Koka Bulaq). Others report conflicts over water, pasture, fuelwood collection, and private land. Conflicts are reportedly increasing related to water, pastures, and fuel due to limited water, drought, and lack of awareness.
Enforcement and dispute resolution (Qs 8-9, 15)	CDC and elders are referenced as enforcing the rules with some mention of government when conflict cannot be resolved locally.
Type of land for reforestation (Q 25)	Private, public, government, and communal lands mentioned. Private lands seem to be the most popular option.

Recommendations

In addition to the full recommendations at the end of this section, in Samangan, the project might give particular consideration to the following:

1. With private, community, and government lands all having potential for reforestation, it will be important to identify land use and access and forest protection rules appropriate for each type of land ownership. Rules should be widely agreed upon, enforceable through local mechanisms, and encourage equitable use. In the case of government land, there of course needs to be careful coordination among community and government entities. Additionally, in at least one village, Koka Bulaq, people appear to be accessing natural forests in Khulum district. The project might consider getting a better understanding of the condition and access rules of this forest and how the project might support forest protection in that area.
2. With ongoing and often increasing intra- and inter-community conflicts regarding the ownership and use of common lands (conversion, grazing access, water, intrusions on private lands, etc.), the project should carefully identify existing and potential land disputes and ensure these are considered in project activities. Further, WHH noted concern that the project could lead to land disputes (e.g., disputed boundaries or access rights). The project should anticipate how project activities could lead to conflict and act to avoid and mitigate these disputes.

3. With some local powerful and armed actors resistant to following rules for common lands, all of the recommendations in the “governing and dispute resolution” section below are important in Samangan. The project should consider building dispute resolution capacity among local entities and improving coordination between local and district dispute resolution mechanisms in particular.
4. With water shortage and conflicts over water, the project should support communities to develop clear and equitable rules for the water access necessary for tree establishment and ensure forestry water needs don't compete with other water needs for agriculture and domestic use.

3.2.2.5 Paktia – TLO

The Paktia (and Khost) project areas are unique among the project sites in that existing forest resources are key to local livelihoods including harvesting firewood, pine nut, and walnut for sale and home use. People access forest resources on community and private lands. In response to the multiple choice survey question on where people collect timber and non-timber forest products, Paktia respondents mentioned private (100 percent of respondents) and community (80 percent) lands. Community forests include nut trees (pine and walnut), which are generally well protected, and other types of trees, which have been overharvested to meet the local and distant demand for firewood. Pine nuts have increasingly been exported to China and elsewhere in recent years dramatically increasing their value and the income generating opportunity in maintaining (and expanding) pine nut forests. This has led to local interest in cutting non-pine nut forests and replacing them with pine nut trees. Extensive deforestation of non-nut trees is ongoing and local people, influential elders, and the mafia are involved in the cutting and export of trees. TLO notes that people recognize the importance of forests but there is a lack of alternative livelihoods and fuel options.

There is a history of tribal agreements for avoiding deforestation in some areas of Paktia including a 23 year old agreement in Zazi Aryoub Amir Khil village and a 12 year old agreement in Ali Khil village. TLO is encouraging similar agreements in the project areas and has been working to establish tree nurseries and reforestation efforts in Paktia since 2017.

In terms of which types of land to use for FLR activities, in the survey multiple choice question respondents mentioned non-pasture community land (90 percent), and private land (40 percent). The FGD respondents also highlighted both community and private land. If FLR is implemented on community land, communities will need to decide if the traditional forest distribution system will extend to reforested land or if there will be another type of land management arrangement.

Land tenure rules

In the Paktia project areas, forestland and pastureland are considered owned by the community. In response to the multiple choice questions about who controls the use of pastures and forests, 100 percent of respondents stated that the community controls the resource. (There was no selection of any other entities.) Forest resources have historically been divided among community members according to the traditional *Wanda* distribution system which allocates forest resources based on the number of families and the number of male family members.

Previous to project activities, it does not appear that there were not many rules about how community members used their dedicated share of forest resources. Project activities, however, have supported tribal/community agreements for forest protection. These agreements limit tree cutting including a fine (*nagha*) for any unauthorized tree cutting and prohibit grazing within pine nut forests. In Zahoo village, for example, the fine is AFG 3000, and generally the fines exceed the price a person would get for selling a tree. Any fines collected are intended to be used for forest protection. *Arbaki*, described as local police, local militia, or forest guards, along with community elders and religious leaders are responsible for enforcing these rules which include preventing forest use by non-community members. The rules are generally considered fair and effective.

All villages stated that they are aware of government forestry laws. TLO also noted that during project site selection, people were concerned that the project was a government initiative that would lead to the government taking control of forestland. TLO carefully explained the project and assured people that the government would not take their forestland.

Conflicts and Dispute Resolution

Survey respondents reported no current land related conflicts, however, TLO notes that many villages have internal conflicts related to the forest boundaries, revenue sharing, and the distribution of ownership shares through the *Wanda* distribution system. In Zahoo village, respondents stated that forest-related conflict has happened among Ghalgai communities in the past and that the community agreements should be used to resolve these. TLO also noted that there are conflicts between villages and between villages the government (especially PAIL/MAIL) regarding forestland and pastureland ownership. Conflicts between villages usually occur when people cross boundaries to harvest trees from another community's forestland. Further, there are potential conflicts with Kuchi herders (nomadic pastoralists) as they have historically used pastures in the project areas but now communities are interested in ending their use. Overall, survey respondents report that conflict is decreasing as a result of the community agreements.

The community *shura* is responsible for dispute resolution. If the *shura* is unable to resolve the dispute, the case may be referred to the district government. Three of five villages specifically mentioned that district forest staff or district officials help solve community conflicts related to forestland. TLO also noted that the district governor is sometimes actively involved in bringing tribal elders together to achieve dispute resolution.

Table 11: Summary of focus group discussion and participatory mapping results for land tenure, Paktia

FGD QUESTIONS	PAKTIA, FGD AND PARTICIPATORY MAPPING RESPONSES SUMMARY
Forest Condition (Qs 1-2)	The productive trees (walnut, pine nut, and fruit) produce limited products; non-fruit/nut trees are used as fuel. Some of the trees in private land have been protected by the owners. The trees outside the private lands have been cut "irregularly." Deforestation has occurred because of poverty, drought, and war/fighting. In the past, there was not a community agreement for forest protection.
Forest rules (Qs 5-7)	Communities have agreed to tribal/community agreements to protect forests. The agreement includes a fine (<i>nagha</i>) for any tree cutting. (In one village the fine is AFG 3000.) Fines collected will be used for forest protection. The village has a representative in the committee and one leader selected by the representatives to lead the militia/forest guards (<i>Arbaki</i>). These are local/customary rules that are considered fair and effective.
Outside use (Q 10)	Outside groups are not allowed to use the forest and the local militia/forest guards (<i>Arbaki</i>) are assigned to prevent outside use.
Government presence (Qs 11-12)	Three of five villages mentioned that sometimes district forest staff or district officials solve community conflict related to forests. All villages stated they are aware of government forestry laws.
Conflicts (Qs 13-14)	There are no current conflicts, however, Zahoo participants noted that forest-related conflict has happened among Ghalgai communities in the past and they should use the community agreement to resolve these. Participants report that conflict is decreasing as a result of the community agreements.
Enforcement and dispute resolution (Qs 8-9, 15)	The community <i>shura</i> is responsible for dispute resolution. If the <i>shura</i> is unable to resolve the dispute they refer it to the district government. Community elders, religious leaders, and forest guards (<i>Arbaki</i>) are responsible for enforcing forest rules. If someone breaks the rules, they should pay a fine and discuss how it should not happen again.
Type of land for reforestation (Q 25)	Community and private land.

Recommendations

In addition to the full recommendations at the end of this section, in Paktia, the project might give particular consideration to the following:

1. The project should build on the strong sense of community ownership of forest land and the traditional forest distribution system in Paktia to increase support for equitable land use and access and forest protection rules. Rules should be widely agreed upon, enforceable through local mechanisms, and encourage equitable use. The project should work closely with communities to determine rules for pine nut and non-pine nut forests that support protecting and restoring both types of forest.
2. The community agreements are a great tool for addressing land tenure issues. As the agreements are tested by various circumstances, the project should consider how the agreements might be amended or expanded to respond to local conditions and promote equitable benefits from project activities and forest protection.
3. With some level of conflict ongoing (e.g., Ghalgai communities) and the involvement of district officials in dispute resolution, the project should consider supporting improved coordination between local and district dispute resolution mechanisms for forest-related disputes.

3.2.2.6 Khost – TLO

The forest land tenure situation in Khost, including land tenure rules, conflicts, and dispute resolution, is very similar to Paktia. Natural forests are distributed among communities and then among members within a community according to the traditional *Wanda* distribution system (based on the number of male members in a household). People collect fuel, wood for construction, and nuts from private and community forests for sale and home use. In response to the multiple choice survey question on where people collect timber and non-timber forest products, Khost respondents stated they used private land (100 percent of respondents). The lack of mention of community land could be because respondents consider their areas of community forest land “private” or the question could have been misinterpreted. Respondents note that outside of the pine nut forests, extensive tree harvesting and drought have impacted natural forests which are severely deforested in some areas (e.g., Spirky village). In terms of pine nut tree productivity, in Tory Khail, respondents note that production has declined while in Afzali and Toot, respondents state that protecting the pine nut trees is leading to increased productivity.

Regarding the type of land for FLR activities, in the survey multiple choice question 100 percent of respondents selected non-pasture community land (90 percent) with no other type of land selected. In contrast, in the FGD respondents highlighted both community and private land for FLR efforts. If FLR is implemented on community land, some communities stated that they will share the harvests and income from these sites. More broadly, communities will need to decide if the traditional forest distribution system will extend to reforested land or if there will be another type of land management arrangement.

Land tenure rules

The traditional *Wanda* community forest distribution system has long allocated forest resources to households. Households have exclusive rights to use their designated area of forest. In response to the multiple choice questions about who controls the use of pastureland and forestland, 100 percent of respondents stated that the community controls the resource. (There was no selection of any other entities.)

Through the initial activities of the FLR project, new local rules have been codified in agreements that reinforce the *Wanda* system and mandate that no one can collect pine nuts or fruit prior to a designated harvesting time. The agreements impose a fine (*nagha*) of up to AFG 5000 on those who cut forest trees or graze animals in forest areas. The fine is used for forest protection including support for forest guards (*Arbaki*) which are led by a tribal elder. Forest use by non-community members is prohibited. FGD respondents reported that these customary rules are considered fair.

If someone from within the village breaks the forest rules, local elders, the *Arbaki*, or another local committee decides and applies the penalty rule including collecting the fine. The community as a whole is also responsible for enforcing the community forest agreements as each family is responsible for their area. TLO reports that the community agreement and fines have substantially decreased deforestation as people fear paying the high cost of a fine.

Generally, there is little awareness of government laws for forests and some respondents expressed a desire to better understand these laws. In some villages, government officials have advised on forest management and in one area the government recently supported nursery establishment.

Conflicts and Dispute Resolution

Survey respondents reported no current land related conflicts but noted that forest conflicts tend to happen between Banda Khail, Kochan, and Spirky communities. TLO also noted that there are conflicts between villages and the government (especially PAIL/MAIL) regarding forestland and pastureland ownership. TLO further reported that villages have internal conflicts related to the forest boundaries, revenue sharing, and the distribution of ownership shares through the *Wanda* distribution system. Further, there are potential conflicts with Kuchi herders as they have historically used pastures in the project areas but now communities are interested in ending their use. Overall, survey respondents report that conflict is decreasing as a result of the community agreements.

Respondents reported that traditional dispute resolution through *the jirga/shura* is important for resolving disputes as are the community forest agreements. Four villages also reported that there is some forest related support from district government (district forest workers or other district officials) including support for dispute resolution.

Table 12: Summary of focus group discussion and participatory mapping results for land tenure, Khost

FGD QUESTIONS	KHOST, FGD AND PARTICIPATORY MAPPING RESPONSES SUMMARY
Forest Condition (Q 1-2)	Trees on private lands are protected but non-fruit/nut trees outside private land trees are cut "irregularly." Drought and hail affect the trees as well as the cutting due to local poverty. In Tory Khail, pine nut trees are producing less, however, in Afzali and Toot, protecting the pine nut trees is leading to increased productivity.
Forest rules (Qs 5-7)	Local agreements divide the community forest by household and mandate that no one can collect pine nuts or fruits prior to the harvesting time. The agreement imposes a fine (<i>nagha</i>) of AFG 5000 on those who cut forest trees or graze animals in forest areas. The fine is used for forest protection. Villages have a representative in the forest protection committee and one tribal elder is selected to lead the forest guards (<i>Arbaki</i>). These customary rules are considered fair.
Outside use (Q 10)	Outside groups are not allowed to use the forest. The forest guards (<i>Arbaki</i>) prevent outside use.
Government presence (Qs 11-12)	Four villages report some forest related support from district government including support for dispute resolution. Generally, there is little awareness of government laws for forests and some desire to better understand these laws.
Conflicts (Q 13-14)	Some level of conflict among neighbouring communities about forest access. Conflicts are reportedly decreasing because of the community forest agreements.
Enforcement and dispute resolution (Qs 8-9, 15)	The community <i>jirga/shura</i> has the responsibility to solve any community related issue. If the issue is not solved locally, then it is referred to the district government. The community elders and forest guards (<i>Arbaki</i>) along with the community as a whole are responsible for enforcing the community forest agreements (each family is responsible for their area). There is a fine and discussion about not doing it again.
Type of land for reforestation (Q 25)	Community and private lands

Recommendations

In addition to the full recommendations at the end of this section, in Khost, the project might give particular consideration to the following:

1. In Khost it appears that there are different land rights distribution systems and rules for pine nut versus non-pine nut forests with much more strict resource division and protection for pine nut forests. In light of these distinctions, the project should work with communities to consider what type of land rights and rules will be applied to reforested areas to support their protection and to reduce pressure on existing natural non-pine nut forests that continue to experience over-harvesting. This includes considering whether there will be different types of land rights and rules depending on the species of tree planted.

2. Although land and forest disputes appear to be decreasing, a level of conflict over forest access remains within communities, among neighbouring communities, and with PAIL/MAIL. Additionally, there are concerns about conflicts with Kuchi herders as communities attempt to further protect areas historically used by Kuchi. The project should consider supporting improved capacity and coordination between village governing and dispute resolution bodies as well as with district dispute resolution mechanisms and potentially Kuchi entities in an effort to both avoid and better resolve forest-related disputes.
3. The community agreements are a great tool for addressing land tenure issues. As the agreements are tested by various circumstances, the project should consider how the agreements might be amended or expanded to respond to local conditions and promote equitable benefits from project activities and forest protection.

3.2.3 Concluding recommendations on land tenure

The survey results show that there are a range of land tenure systems and issues in the project areas, including existing and potential land conflicts. Yet, NGO proposals generally contain limited attention to issues of land tenure, potential land tenure conflicts, and dispute resolution systems and options. The TLO proposal is the exception as it describes the traditional forest land distribution system and outlines lessons learned and recommendations related to land conflicts. The proposal describes that many villages in the southeast region have internal conflicts related to forestland boundaries, revenue sharing from forest products, and ownership shares in the community forest distribution system (called *Wanda*). The proposal also notes that there are conflicts between villages and the government (especially PAIL/MAIL) about forest ownership.

Going forward, there is opportunity to further integrate land tenure issues into the NGO proposals and their implementation. The following land tenure recommendations provide guidance on addressing land tenure in project activities. These recommendations are organized by component of land tenure systems (land, stakeholders, rules, and governing authority) and by enhancements to the eight-step MAIL CBNRM process.

Land (site selection and existing land disputes)

1. Select FLR project sites where the land tenure arrangements are clear and there are no existing or anticipated conflicts over land access and use.
2. Identify existing and potential land disputes and ensure these are considered in project activities. Where there are existing conflicts over water, pasture, or forest use within a community, take special care to understand these conflicts and attempt to avoid them in project activities.
3. Consider FLR activities on private, community, and government land.

Stakeholders

1. Neighbours are often key stakeholders in forests due to shared access across communities or historic access rights. Consider the impact of reforestation and forest rules on neighbours and communicate project activities and forest rules with neighbours to encourage project support and avoid project interference from neighbours.
2. Some communities expressed concern that FLR efforts could lead to government attempts to take control of reforested land. Ensure open discussions about these concerns and involve district forestry and other officials to explain the government's short and long-term role in reforestation efforts.
3. Ensure that all stakeholders, particularly the most vulnerable, have access to a grievance process to voice concerns or conflicts related to forest access rules and FLR project implementation.

Rules

1. Ensure that forest protection rules are widely agreed upon within a community and designed such that they are enforceable through community mechanisms. It is not useful to create rules that will not or cannot be followed or enforced.
2. Encourage clear and equitable forest access and use rules so that economic, DRR, and environmental benefits are shared equally among community members including women, landless, and marginalized groups. Restrictions on forest use should avoid disproportionately impacting the

- most vulnerable. Equitable rules will help prevent illegal use and avoid marginalizing vulnerable community members.
3. Support communities to develop clear rules for the water access necessary for tree establishment (some communities have water shortages) and ensure forestry water needs don't compete with other water needs for agriculture and domestic use.
 4. Support communities' ability to implement and follow forest use rules by reducing demand for forest products through fuel efficiency measures or encouraging alternative sources of other forest products (e.g., construction materials).

Governing Authority and Dispute Resolution

1. Consider building dispute resolution capacity among local dispute resolution entities (i.e. CDCs, *jirga*, *shura*, elders, FMA/NRMC) to further understanding of and expertise in conflict prevention strategies, common stakeholder grievances, monitoring disputes and other aspects of forest-related dispute resolution. This could involve peer-to-peer learning, trainings, draft guidance, lessons learned from other reforestation projects, or other support. Similar support may also be appropriate for district entities involved in forest-related dispute resolution.
2. Consider supporting improved coordination between local and district dispute resolution mechanisms for forest-related disputes.
3. Ensure that projects are equitable and not hijacked by local elites or large landowners.
4. Support transparent recording and communication of all project activities and decisions taken.

MAIL's Operational Manual for CBNRM

MAIL's 2018 Operational Manual for CBNRM (OM-CBNRM) aims to facilitate the agency's National NRM Strategy (2017-2021) by providing guidance for supporting community management of local resources. The manual asserts the rights of communities to manage and benefit from local natural resources. Together, Afghanistan's NRM Strategy and the OM-CBNRM provide the strategic and operational framework for the FLR project including describing concepts that underpin CBNRM, providing a template for NRM projects, and supporting harmonisation across NRM projects (Janz, 2019).

The FLR project can reinforce the OM-CBNRM's emphasis on community management and equitable benefits by ensuring that land tenure issues are fully integrated into each step of the manual's eight-step process. Following are recommendations for NGOs to further integrate land tenure into each step such that project activities support equitable benefits and avoid conflict.

Step 1: Introduction, awareness building, and start community mobilization

- ✓ In these initial meetings, include discussion of:
 - the importance of secure land tenure for reforested area and that the area will be accessed and used according to the rules in forest management plan
 - the need for clear dispute resolution mechanisms and processes for any forest-related conflicts

Step 2: Forming and formalizing FMA

- ✓ In the FMA ToR, include responsibilities for:
 - enforcing forest protection and equitable land use rights according to the management plan (Step 5)
 - handling complaints and disputes that arise regarding the reforested area including the option to refer cases to CDC or local council and onto district court

Step 3: Develop a resource inventory, problem identification, setting goals and objectives

- ✓ Ensure that Participatory Rural Appraisal (PRA) tools capture:
 - existing land tenure arrangements (including stakeholders, rules, governing authority)
 - any conflicts within the community or with outside users

Step 4: Community capacity needs assessment

- ✓ Consider community capacity needs for:
 - avoiding NRM conflicts and enhancing dispute resolution techniques
- ✓ Consider the need for peer-to-peer learning, guidance, training, or other awareness raising to strengthen conflict avoidance and dispute resolution capacity

Step 5: Setting CBNRM zones and developing CBNRM plans

Site Selection

- ✓ Support site selection of an area that is mutually agreed upon among all stakeholders and is not likely to provoke conflicts (including for water)
- ✓ Work to anticipate how selecting a particular area could lead to future conflict
- ✓ Carefully consider who stands to gain or lose from selecting a particular area (distance from particular homes, lost grazing land, etc.)
- ✓ Support site selection that will have value to communities through forest products, DRR, and/or ecosystem services

Management Plan: Ensure that the management plan clearly:

- ✓ Identifies community management rights and responsibilities for forest access and use over short, medium, and long-term
- ✓ Includes guidance for land disputes
- ✓ Establishes fair rules for protecting and using reforested areas including about who can use the area for what purposes (e.g., nut/fruit harvest, fuel, construction, home use, sale, when, and how much)
- ✓ Considers water rights including secure water rights for FLR site establishment and ensure forestry water needs don't compete with other water needs
- ✓ Establishes guidance for how to handle cases of people breaking the rules and other land disputes

Step 6: Accessing funding and managing finances

N/A

Step 7: Implementing CBNRM action plans

- ✓ Create an enabling environment for implementing the management plan and annual action plan. Consider:
 - Activities to decrease pressure on forests (e.g., supporting alternative fuels or high efficiency stoves and heating)
 - Strengthening coordination and cooperation among stakeholders– government, NGOs, and community members
 - Supporting dispute resolution mechanisms (e.g., trainings, support for accessing district courts)

Step 8: Participatory M&E and learning

- ✓ Include M&E indicators related to land tenure such as:
 - are forest rules are perceived as fair,
 - are benefits perceived as equitably distributed,
 - are dispute resolution mechanisms functioning
- ✓ OM-CBNRM Adaptive Management Cycle
 - Evaluate and learn from efforts and adjust implementation to address land tenure and dispute resolution issues that may arise

3.3 Climate change adaptation and disaster risk management

Current climate trends and natural hazards (measured and perceived), vulnerabilities and risks caused by land degradation and climate change and their direct and indirect impacts will play an important role to determine suitable activities that in the long-run will improve the local livelihoods and the communities' resilience to climate change, extreme weather events and related hazards. Therefore, it is important in the context of the FLR project to identify climate change effects and recent natural disasters that have occurred during the past five years in the target areas as well as underlying causes to shed light on the losses and challenges linked to the disasters as well as existing and potential adaptation strategies.

3.3.1 Literature review on CCA and DRM in Afghanistan

There is a substantial amount of literature on CCA and DRM in Afghanistan, produced mainly by international development organizations and to some extent published by scientific papers¹⁵.

Much of the literature has a broad national overview perspective and might contribute only limited added value from a project implementation perspective. Moreover, many reports are donor oriented (and appear more to address the internal needs). The most common challenges are however, awareness and information and data scarcity. For proper climate adaptation planning as well as disaster risk management of natural hazards data and information about weather, climate and the environmental dynamics are essential. Due to the weak and fragile public institutions in Afghanistan climate and DRM data are rare, often not officialised and of unclear quality.

In the literature review, we tried to emphasize reports, articles and websites about CCA and DRM that could be useful to support the NGO's with the implementation of the FLR project. Beyond literature, we explored some website (knowledge hubs and information portals) with the expectation to provide actual information and data, presented in Annex 5.

The "Sendai Framework for Disaster Risk Reduction 2015 – 2030" (United Nations, 2015), which includes the "Technical Guidance for Monitoring and Reporting on Progress in Achieving the Global Targets of the Sendai Framework for Disaster Risk Reduction Collection of Technical Notes on Data and Methodology" (UNISDR, 2017) is a mandatory background document on disaster risk reduction in general. This technical guidance provides the definitions and calculation standards for monitoring and analysis.

The framework is a non-binding UN agreement, which recognizes that the state has the main responsibility to reduce disaster risk. It sets the following priorities.

- 1) Understanding disaster risk;
- 2) Strengthening disaster risk governance to manage disaster risk;
- 3) Investing in disaster risk reduction for resilience; and
- 4) Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery and reconstruction.

For understanding disaster risks the framework points out the importance of transparent and public available and accessible information. To achieve this enhanced (real time) data collection and dissemination are promoted. Furthermore, it recommends formulation and periodically updating disaster preparedness and emergency policies and plans. Its approach serves an integrated multi-hazard risk understanding and stands for transparent information and prevention as key element of successful disaster risk management.

The "Climate Fact Sheet" series (Climate Service Center Germany, 2016) provides concise climate change information for several countries including Afghanistan. It is based on an analysis of existing historical data and the modelling results for the last official IPCC assessment report (AR5). It provides information on the relevant climate stresses. This information comes with an explicit indication of "signal strength" and "confidence" which provides a good impression on the uncertainty/reliability of the information. It can be used as an easily accessible starting point for further climate investigation.

The Field Guide Afghanistan – Flora and Vegetation (Breckle, Rafiqpoor, 2010) includes sections describing the physical geography of Afghanistan, including its climate features, from an ecological perspective. The book further briefly characterizes the major vegetation complexes of the country and their relations with environmental conditions and land use.

Climate Change and Governance in Afghanistan (NEPA; UNEP, 2015) is a good overview on Afghan government structures and their (potential) role in climate change. Beyond the institutional overview it explains the actual policies and strategies and in particular inter-institutional cooperation mechanisms. This is an added value for people with little Afghan governance experience.

The "Disaster Risk Profile Afghanistan" (World Bank Group, 2017) is a concise overview on the natural hazard risks by flood, earthquakes, drought, landslides and avalanches. Many results are derived from models indicating the data scarcity. Nevertheless, the systematic approach and spatial differentiation to

¹⁵ Only open access papers are considered.

the sub province level specific assets or facilities provide useful information for strategic planning. The two-dimensional impact indicator comprising of loss of GDP and people affected/fatalities condenses the information on the province level.

The report “Disaster Risk Reduction and Protracted Violent Conflict. The Case of Afghanistan” (Mena, Hilhorst, Peters, 2019) is one of the few publications which combine DRM systematically with conflict. The number of people threatened by natural hazards is three times higher than the number of the people, which required assistance due to the conflict situation.¹⁶ This shows the relevance of the issue. Together with the “Climate-Fragility Risk Brief Afghanistan” (see below) these two reports combine their specific topics “DRR” and “climate”, respectively, with the long ongoing conflict in Afghanistan. The essence of the first-mentioned report points out clearly, that DRR usually has a low priority in conflict for several reasons. Central government institutions as well as the international (assistance) community focus on the prevailing ‘national’ conflict situation while disasters are often very site-specific and therefore local. Often the root causes of disasters cannot be properly addressed in that way. Access to the area is constrained. Furthermore, conflict and state fragility undermine DRR since the state and its institutions are not fully capable to fulfil their responsibility. It is important to switch the perspective and move from hazard focused protective infrastructure towards an approach, which focuses on resilience of people. This holistic, people focused perspective makes it also easier to bring DRR, climate change and conflict together: they all impact people livelihood. DRR projects have to consider the environment they are working in. Furthermore, disaster preparedness and early warnings systems are good measures, but they require a) a long-term thinking and budgeting of measures, beyond the scale of the individual disaster and b) the local competence and knowledge to operate and act adequately. Finally, the DRR documentation must improve and carried into the other fields of development action.

The hypothesis of the “Climate-Fragility Risk Brief Afghanistan” (Brown, 2019) is that after 40 years of conflicts harmed the society’s resilience in such a way, that climate change impacts trigger further violent conditions. This pushes instability. The Fragility Risk Brief emphasis on:

- 1) More frequent droughts could boost the drug economy;
- 2) Scarcer water and arable land could increase community-level and inter-ethnic conflict;
- 3) International tensions over transboundary water resources could undermine attempts to stabilize the country;
- 4) Afghanistan’s rich deposits of minerals used in renewable energy technologies, such as lithium, could become a source of political controversy.

Particular the drought and the water resources hypothesis are relevant for the project perspective. Related to climate change and DRM the report suggests “to invest in better monitoring systems to understand the complex impacts of climate change and provide data” for informed decision making (and design).

Findings from Literature Review

Located in South and Central Asia five major landscape units can be recognized in Afghanistan: 1) the high mountains of Hindukush, 2) the mountainous region of central Afghanistan, 3) the semi-desert and steppe regions of the southwest and north, 4) the arid desert lowlands of southwest Afghanistan and 5) the “summer rain strip” in the east of the country. The climate elements vary significantly between different regions. Major climatic differences in the country are determined by altitude, mountain ranges acting as barrier to aerial circulation and by the influence of different patterns of atmospheric circulation. Large areas have semiarid to arid climate with cold winters and dry summers. At higher altitudes snow is stored until the summer season and provides melt water on which irrigated agriculture in the lowlands depends. In the north of the country a substantial portion of the annual rainfall occurs during the spring months; and rain-fed agriculture is highly dependent on this rainfall pattern and yields are heavily affected by droughts during this season. Only the “summer rain strip” is under influence of the Indian summer monsoon, which brings tropical, warm and humid air masses (Breckle, Rafiqpoor, 2010).

Most of Afghanistan receives little precipitation but annual rainfall varies as can be seen on the map (Figure 8).

¹⁶ The comparison is a vague: The number of people who got assistance due to conflict is very likely smaller than the number of people who threatened by the conflict. – This potential number actually should be compared with the number of people threatened by natural hazard.

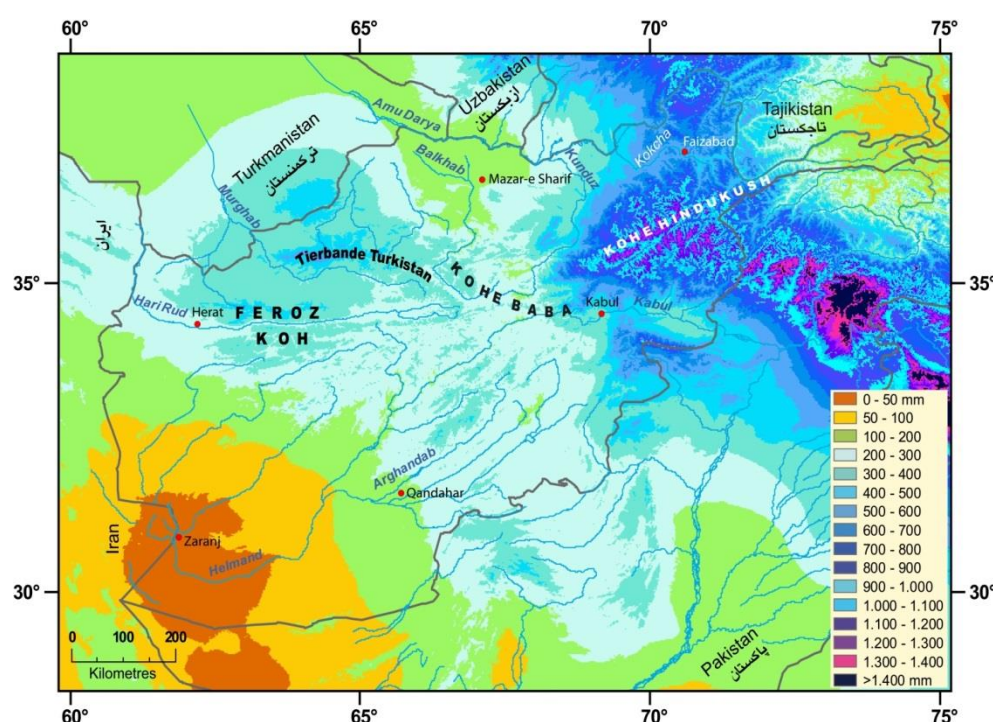


Figure 8: Mean annual rainfall in Afghanistan and adjacent areas

The high mountain regions of Hindu Kush and Safed Koh receive highest rainfall amounts of up to 1,000+ mm per annum. The Central plateau and mountains of Koh-e Baba, Tierband-e Turkestan and Feroz Koh receive low to moderate precipitation of 300-500 mm p.a. The lowlands in the north and in the south-east have rainfall of only 100-200 mm or in the country's southwest even less than 50 mm per annum. Precipitation is of very high variability and may be concentrated to just a few days in the rainy season. Rainstorms can yield the whole rainfall of a month within few hours, often causing flash floods, erosion and landslides. So called “*sel-ab*”, floods with large amounts of mud, gravel and larger stones can be highly destructive and devastate entire valleys. On the other hand, only daily rainfall of more than 5 mm is ecologically relevant, because smaller amounts of rain tend to evaporate immediately (ibid). The spatial patterns of temperatures of Afghanistan are best presented by maps of the mean annual temperature (Figure 9), of the warmest (Figure 10) and of the coldest months (Figure 11). Maps are derived from Breckle, Rafiqpoor, 2010.

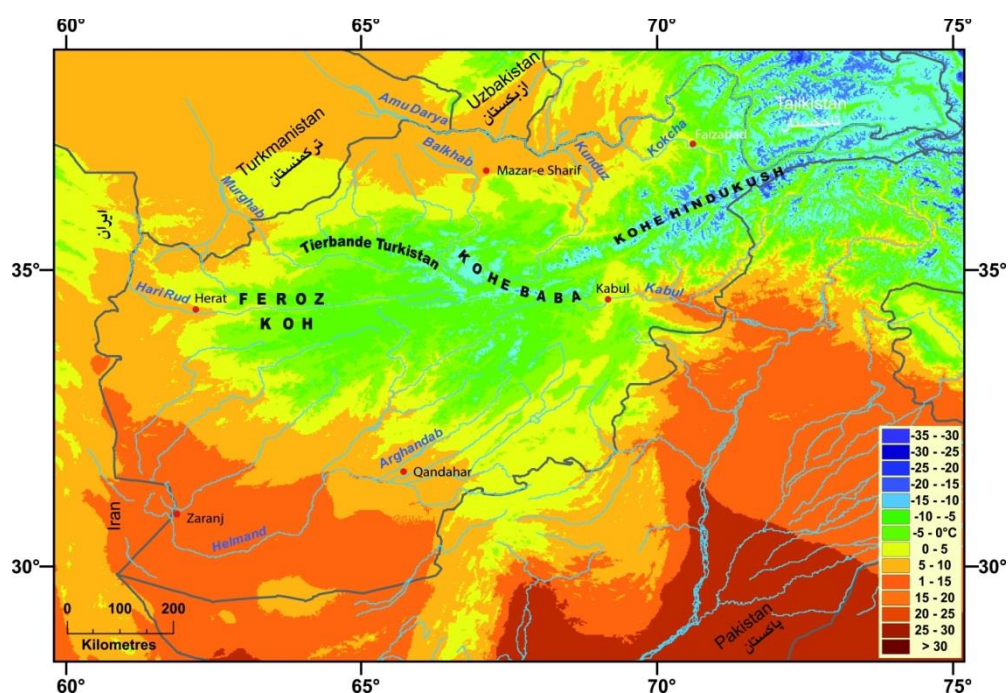


Figure 9: Mean annual temperatures

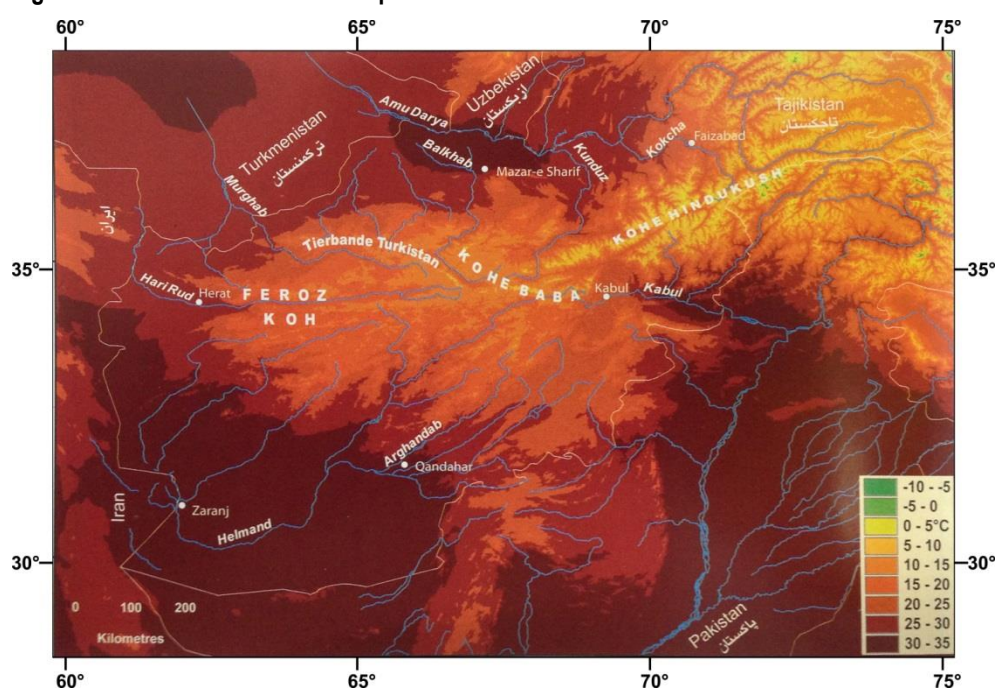


Figure 10: Mean July temperatures

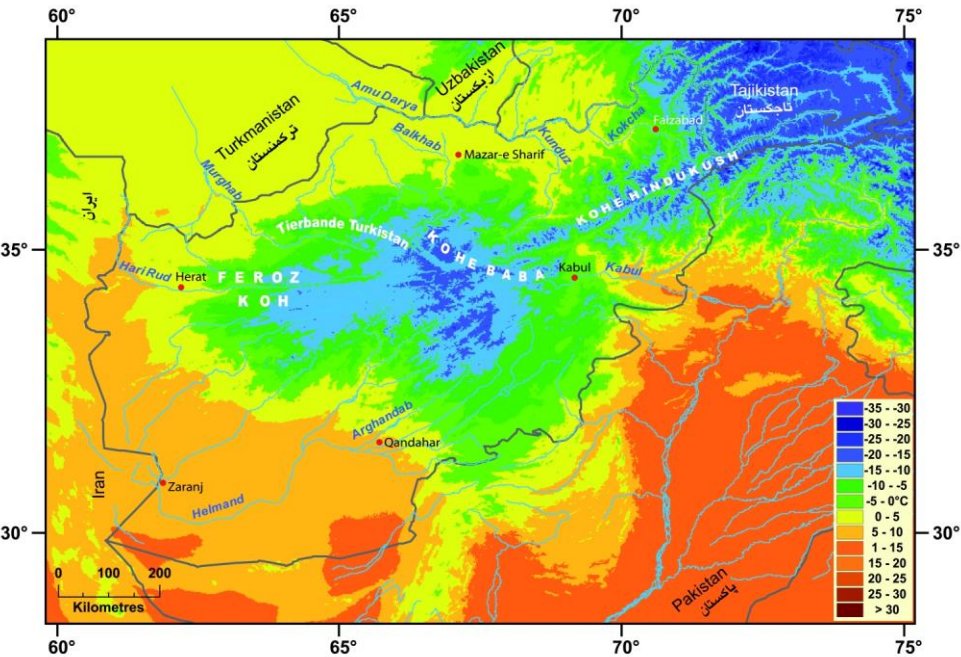


Figure 11: Mean January temperatures

The country is heavily exposed and very sensitive to climate change and numerous natural hazards. Many sources indicate this (GFDRR). The annual mean temperature has increased by 0.5 C/decade over the last 30 years. Climate models project an increase between 2.1 C and 5.6 C until the end of the century¹⁷ (Figure 12 (Climate Service Center Germany, 2016)).

Heat waves will increase in intensity and lengths while cold spells will be shortened. Projections specifically for the Panj-Amu River Basin (Landell Mills, 2016) in the north under the Special Report on Emissions Scenarios (SRES) A2 scenario predict a strong increase in mean annual temperature: by 2030s a warming of 2 degrees, by 2060s 4 degrees and by 2090s 6 degrees. Rainfall does not have a clear trend (Climate Service Center Germany, 2016), but the climatic water balance is expected to decline¹⁸ (Figure 13 (Climate Service Center Germany, 2016)), putting further stress on vegetation and agriculture.

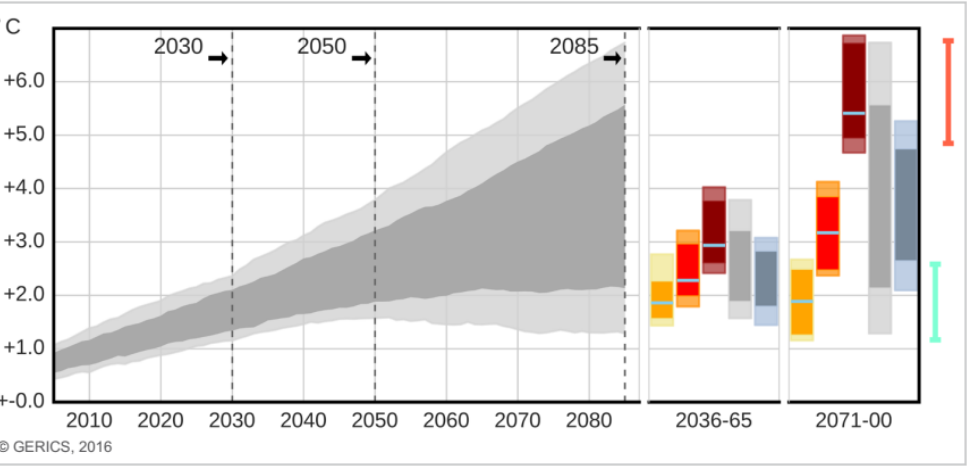


Figure 12: Projected likely (light grey) and very likely (dark grey) mean annual temperatures in Afghanistan under different scenarios (see Figure 10)

¹⁷ Compared to the base period 1971-2000

¹⁸ Although, given the uncertainties of precipitation projections this derived information is of low confidence.

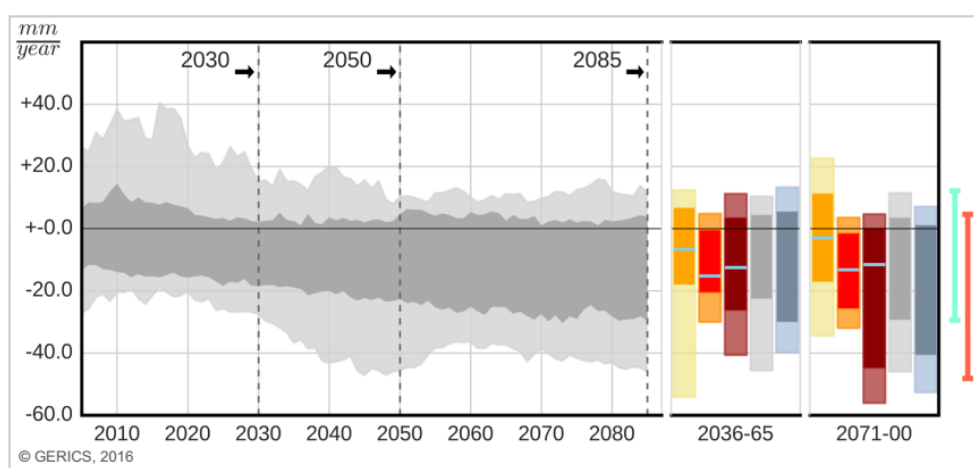


Figure 13: Changes in climatic water balance in Afghanistan under different scenarios (see Figure 10)

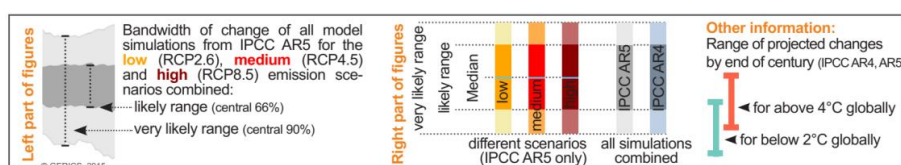


Figure 14: Explanation of the Graphs in Figure 12 and 13

Since 1960 mean annual rainfall in Afghanistan has decreased by 2% per decade, with decreases of 6.6% per decade during spring. For the Panj-Amu River Basin (Landell Mills, 2016) under the SRES A2 scenario¹⁹ predict further decreases of precipitation in, compared to the mean of 1970-1999, of 3% by 2030s, 8% by 2060s and 12% by 2090s. Much of this decrease is expected during the spring months when the main plant growth takes place. The decrease of precipitation combined with temperature increase and the related evapotranspiration will negatively affect the entire hydrological cycle from snow coverage and availability of irrigation water to moisture stored in the soil, resulting in reduced agricultural productivity and in changes of ecosystems.

Climate change is expected to cause shifts of climate zones (Rubel, Kottek, 2010), e.g. in mountain areas of Afghanistan from boreal with warm summers to warm temperate with hot summers.

The number of types of disasters varies between different sources, but essentially the following types are to mention (World Bank Group, 2017): Earthquake, Flood, Drought, Landslide, and Avalanche. Except earthquake, which has a clear geophysical reason, all others have a direct or indirect relation to climate phenomena. Looking more explicitly to climate change, the list can be extended/more detailed by explicit climate phenomena which can turn into threads; e.g. hot spell and heavy rain. Floods (including flash floods and debris flows or “*sel-ab*”), and landslides and in some cases also drought are furthermore aggravated by land use and degradation of vegetation cover. The sensitivity towards these hazards is high and has increased due to the ongoing conflict. The natural hazard becomes a disaster if the human well-being is affected. For example, an avalanche is a natural hazard, which turned into a disaster when a village or road is destroyed and people are injured.

¹⁹ The A2 scenario of the IPCC family describes a very heterogeneous world with self-reliance and preservation of local identities, fertility patterns converging very slowly across regions and resulting in continuously increasing global population, primarily regionally oriented economic development and more fragmented and slower than in other storylines per capita economic growth and technological change. <https://www.ipcc.ch/report/emissions-scenarios/>

3.3.2 Survey results and recommendations on CCA and DRM

In the following subsections we present the area-specific findings with regard to Climate Change, Disaster Risk and the respective adaptation and management measures.

The subsections on project areas are structured as follows: We first provide information on the geographic and ecological features, in particular on the current climate in the project area. We also explain the current land use and issues of unsustainable resource use and land and vegetation degradation. Climate change is explained on the basis of available information and stakeholder perceptions. We then explain the impact of climate change in terms of ongoing changes and their perception by local people and as far as possible under consideration of projections. We explain existing hazards and disaster risks based on local perceptions and other information. The interventions suggested by local people and planned by the NGOs, in some cases with already first steps of implementation, are briefly summarized. Finally we assess the planned measures and provide recommendations based on the analysis and our knowledge and experience from the region and/or from similar situations in other regions. Annex 6 provides tables for all project areas about the damages caused by disasters – most of them climate change related.

3.3.2.1 Badakhshan (Wakhan) – Rupani Foundation

The Wakhan is a high altitude mountain valley, with a number of side valleys in the northern slopes of the Hindukush Range (Figure 15).

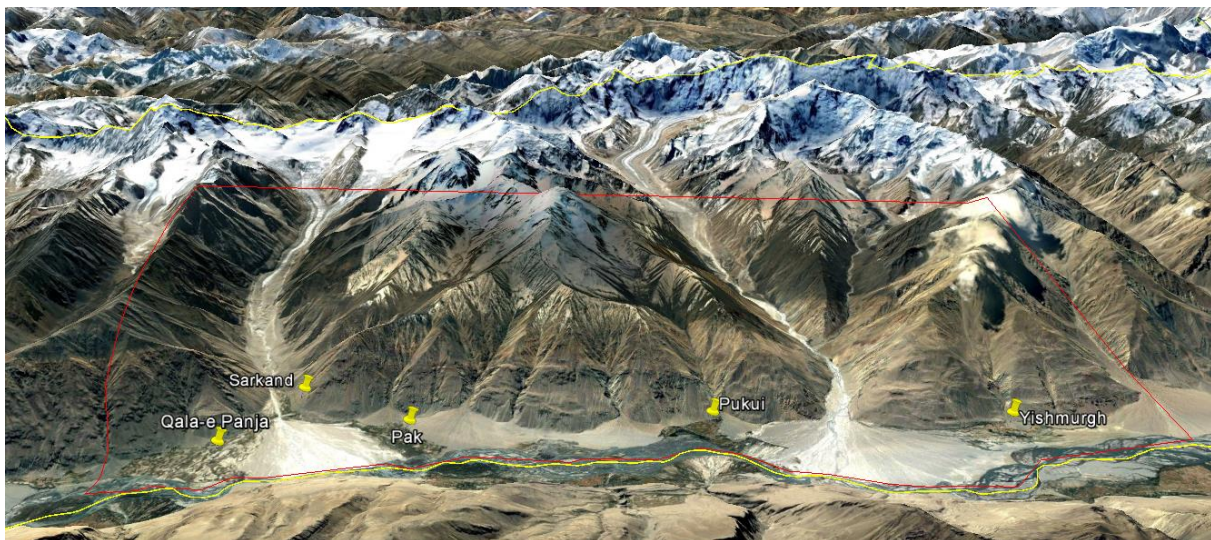


Figure 15: Overview of the project area in Wakhan, perspective from north, Google Earth imagery, 2008

The steep mountainous relief has an altitudinal gradient from 2,760 m up to 6,600 m a.s.l., together with the east west orientation of the main valley, causing a high diversity of local climate conditions. In the Wakhan Valley from west to east average annual rainfall amounts decline (Eshkashem 433 mm, Wakhan (Khandut) 230 mm), which at similar mean annual temperatures (7°C) leads to an increase in aridity towards the east. The climate diagram (Figure 16) shows maxima of precipitation in winter and spring and a minimum during the summer months. The climate type in Köppen-Geiger Climate Classification (Rubel, Kottek, 2010) is arid steppe, cold arid. Months during which the temperature curve (red line) exceeds the amounts of precipitation (blue bars) are considered the dry period.

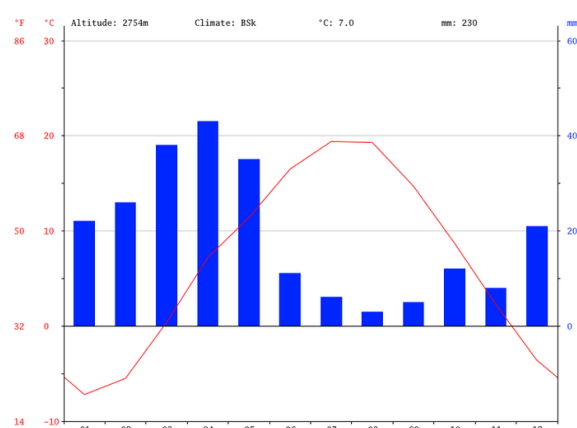


Figure 16: Climate diagram of Wakhan²⁰

Only during the short spring and early summer temperatures and moisture during the same time meet the needs of plant growth. Therefore, outside of areas with water supply from springs, snow fields, glaciers, streams and rivers vegetation is semi-desert like and consists mainly of short living and drought-resistant plants, in particular slow growing subshrubs (e.g., *Artemisia*, *Krascheninnikovia ceratoides*) and thorny cushion plants (e.g., *Acantholimon*, *Acanthophyllum*). Tree and shrub vegetation, consisting mainly of willow *Salix*, poplar *Populus*, birch *Betula*, sea buckthorn *Hippophae rhamnoides* and few other shrubs, is naturally limited to riparian areas and springs, but few remaining old juniper trees *Juniperus* cf. *seravschanica* at slopes indicate that formerly more of these existed in some areas although not forming woodlands or forests. Arable farming and gardening entirely rely on irrigation and are limited by the length of the thermal growth season. Common crops are barley and wheat; fruit trees are mostly limited to apricots and few mulberries. Livestock, mainly sheep and goat, fewer cattle, is grazed on natural pastures with summer pastures located higher up in the mountains. Only small parts of the pastures and some hayfields receive irrigation water. Electricity is available only from micro hydro power of low capacity and reliability. People aside the limited available firewood from forests use subshrubs and manure for heating, cooking and baking. The use of subshrubs as fuel depletes forage for livestock and wildlife and is – together with overgrazing – an important factor of vegetation degradation causing desertification and erosion.

The local population is increasing, with growing livestock numbers, and building of bigger houses has increased the demand for timber and fuel wood. Agriculture landholdings per household have greatly reduced over generations due to land fragmentation in the course of multiplying numbers of heirs over generations. Heating, cooking and baking are based on inefficient stoves and open “*tandur*”, which are of low efficiency and consume high amounts of dung, which is therefore not available as fertilizer, fuel wood and subshrubs. The overall dominance of short term needs over long-term preservation of resources leads to the degradation of rangelands due to overgrazing and overuse of subshrubs as well as forest degradation. The latter is particularly obvious in the Panj Valley, where quick depletion can be observed where changes of the river course allow for access by villagers from the Afghan side as well as regrowth in areas where the river blocks access. Since 2014, the entire district is designated as “Wakhan National Park”, which is managed as IUCN category VI protected area. This protected area category authorizes grazing and other land uses and in practice has limited effect on the regulation of natural resources and their use.

Climate change perceptions as expressed in the survey results and the Project Proposal are largely in line with observations and projections presented in section 3.3.1. People state that summer season tends to be extended, while winters are shorter. All seasons become warmer, although untimely cold spells are also observed. In some years cold spring delays snow melt and is felt by shortage of irrigation water, although it is not clear if there is indeed a trend of this happening more often. People feel that snow amounts declined and perceive that rainfall patterns have changed, although “more rain in the spring time and rain in summer and in autumn decreased” seems to be in line with long year averages.²¹ The trend of warming is confirmed by the extension of the thermal growth season as indicated by

²⁰ <https://en.climate-data.org/asia/afghanistan/badakhshan/wakhan-511542/>

²¹ <https://en.climate-data.org/asia/afghanistan/badakhshan/wakhan-511542/>

observations that collection of harvest starts now one month earlier than previously (20 years ago thrashing finished end-November, but now often mid-October) and that now crops can be cultivated, which did not grow there in the past. Increase in river discharge in the Panj and its tributaries due to melting of snowfields and glaciers, accelerated by warmer summer temperatures, is another impact of climate change reported observed in the Wakhan.

Local people feel climate change through its impact on agriculture and overall living conditions. The warming trend has some positive impact as it allows for higher crop diversity, earlier collection of harvest and possibly some productivity increase. Irrigation water availability for arable lands, forests and small areas of pasture and hayfields is not yet much affected because all project villages get water from the glaciers in the Hindukush still buffering any reductions in precipitation. We could not identify a study predicting if and when these glaciers will disappear under different emission scenarios and what impact this will have on irrigation water availability. Outside of the irrigated areas increasing aridity impacts the productivity of rangelands on mountain slopes, which rely on precipitation. Recently villagers became worried about the appearance of mosquitoes, not observed previously and attributed by them to overall warming.

Hazards and resulting disasters are largely related to the existing geophysical and climatic conditions in this high-altitude landscape. They are exacerbated by past and current degradation of vegetation cover and lands as well as physical modifications of the landscape. Ongoing and projected climate change aggravates many of the already high disaster risks. A clear distinction between these factors is difficult, but so far the combination of pre-existing natural conditions with direct anthropogenic influence seems to be much more relevant than the recent and projected for the near future climate change. Local people and the NGO see the following disasters as relevant (Table 13).

Table 13: Hazards, disasters and their impacts and reasons in Wakhan

HAZARD/DISASTER	IMPACT	REASONS
High water in Panj River	Riverbank erosion causing destruction of forest, gardens, roads and houses	- Accelerated by climate warming melting of snow fields and glaciers; - Modification of river morphodynamics by construction of dykes and enforced embankments at the right bank in Tajikistan; - Degradation and destruction of riparian forests by fuel wood harvest and livestock grazing.
High water in tributaries	Destruction of canal intakes and high sediment load affecting canals and irrigated lands	- Degradation of vegetation in catchment areas caused by overgrazing and overuse of subshrubs; - Accelerated by climate warming melting of snow fields and glaciers.
Erosion in catchment areas	Loss of productivity of rangelands and high sediment load in irrigation canals affecting canals and irrigated lands	- Degradation of vegetation in catchment areas caused by overgrazing and overuse of subshrubs; - Climate change related increase in aridity and frequency of droughts.
Wind erosion	Dust storms affecting health and sedimentation affecting crops and fertility of arable lands	- Degradation and destruction of riparian forests by fuel wood harvest and livestock grazing; - Climate change impact (?)
Rock fall and avalanches	(Potential) destruction of houses and gardens	- Construction at sites with high geomorphological risk; - Degradation of vegetation in catchment areas caused by overgrazing and overuse of subshrubs; - Climate change impact (?)
Livestock disease and depredation by carnivores	Losses of livestock	- Overgrazing of pastures and depleted forage causing weaker conditions of livestock; - Insufficient veterinary care; - Expansion of grazing in remoter areas (?); - Insufficient use of safe barns and livestock guard dogs, unattended grazing.
Crop diseases	Reduced agricultural yield	- Insufficient availability of nutrients due to use of manure as fuel wood instead of fertilizing (?); - Cultivation of poorly adapted non-local crop varieties (?); - Impact of climate change (?)

HAZARD/DISASTER	IMPACT	REASONS
Earthquake	No specific impact specified	- Geological reasons, which cannot be influenced on; - Location of houses in areas prone to secondary impact, e.g. rock falls, landslides.
Break of glacier lakes (not mentioned in surveys)	Potential risk of large debris flows causing the destruction of houses, gardens and losses of lives.	- Climate change causing glacier retreat with accelerated melting and in the result lakes behind moraines, the dams of which can break; - Location in houses prone to the impact of debris flows.

The surveys showed a high interest among the local people to address climate change impact and reduce disaster risk through community level interventions. These include:

- 1) Establishment of 125 ha plantations and windbreaks across all five villages (plus 100 ha in new project villages), consisting of poplar, willow and sea buckthorn with irrigation water supply, fencing against livestock damage as well as guarding to reduce wind erosion and improve availability or fuel wood, timber and livestock forage;
- 2) Constructing 350 m river embankments in two locations (Qala-e Panja and Yishmurgh) to prevent lateral erosion threatening forests pasture and village areas;
- 3) Construction of new canal intake in Yishmurgh (plus one in new project village);
- 4) Construction of new irrigation canals, in total 5 km in Sarkand and three new project villages, supplying 480 ha currently barren lands;
- 5) Construction of sedimentation ponds in four canals supplying Qala-e Panja, Sarkand, Yishmurgh and one new project village and ensuring effective irrigation of 700 ha;
- 6) Delivery of 250 fuel efficient stoves to reduce fuel consumption and improve indoor air quality;
- 7) Establishment of 30 fruit and vegetable gardens.

Additionally considered measures include: i) the training and awareness raising of people to replace manure as fuel by fuel wood from plantation and thus allowing for the use of dung as fertilizer to improve crop yield; ii) introduction of improved seeds, agriculture methods and disease control techniques; iii) introduction of and training of herders in improved grazing practices, e.g. rotational, rest rotational grazing and exclusion areas; introducing of fodder crop cultivation and stall-feeding. Furthermore sea buckthorn plantation at slopes is considered, which besides fuel wood is expected to lower the risk to villages at the valley bottom from rock fall, landslides, flash floods etc.

The planned and proposed measures are generally meaningful and existing experience with some of the approaches suggests that these will be successful and sustainable. The following considerations and recommendations might help in further planning of interventions. The issue of subshrub harvesting at slopes may deserve more attention as it is not likely that improved fuel wood supply from afforestation and reduced demand thanks to fuel-efficient stoves will generally reduce harvest to sustainable quantities. Regulation of access, harvest approaches preventing local overuse and ensuring of sufficient regeneration by regulated harvest and grazing might be worth being studied. Improved grazing practices might only be realistically achievable in combination with effective regulation of livestock numbers, which may require intensive discussion and analysis of involved actors, drivers and institutions. The proposed fodder cultivation and stall-feeding, while on the first glance looking promising, may bear some risks as they can remove factors currently limiting livestock numbers, like seasonal shortage of fodder, and thus can lead to more pressure on pasture and resulting further degradation of rangelands. These risks need to be addressed through regulations and community institutions. Planned river embankment in Qala-e Panja and Yishmurgh require thorough analysis of the river dynamics and assessment of potential adverse impact on the right bank and/or further downstream. Improvement of electricity supply in terms of reliability and capacity can be achieved through collaboration with the electricity company Pamir Energy in Tajikistan, which plans the expansion of its hydro power plant in Namadgut and would be ready to supply the entire Wakhan and Ishkashim districts. Such transboundary electricity supply has already achieved substantial livelihood improvements and reduction in fuel wood consumption for cooking and baking in downstream located districts of Afghanistan.

3.3.2.2 Badakhshan (Yaftal-e Payan) – R G E O

The project area in Yaftal-e Payan district is located in the western part of Badakhshan Province at the spurs of Hindukush Range. The district covers a mountainous area with gentle slopes, plateaus, valleys and gorges at altitudes between 1,270 m and 2,250 m a. s. l. (Figure 17).



Figure 17: Overview of the project area in Yaftal-e Payan, perspective from north, Google Earth imagery, 2004.

The climate is comparably warm with mean annual temperatures in the wider region at similar altitudes between 10.6 and 13.5°C. Annual precipitation is 500-650 mm at locations, for which climate diagrams (Figure 18) are available, depending on relief and likely more in higher altitudes. Highest precipitation is during February till May and the dry season lasts from June till September. The climate type in Köppen-Geiger Climate Classification (Rubel, Kottek, 2010) is warm temperate steppe, cold arid. Months during which the temperature curve (red line) exceeds the amounts of precipitation (blue bars) are considered the dry period.

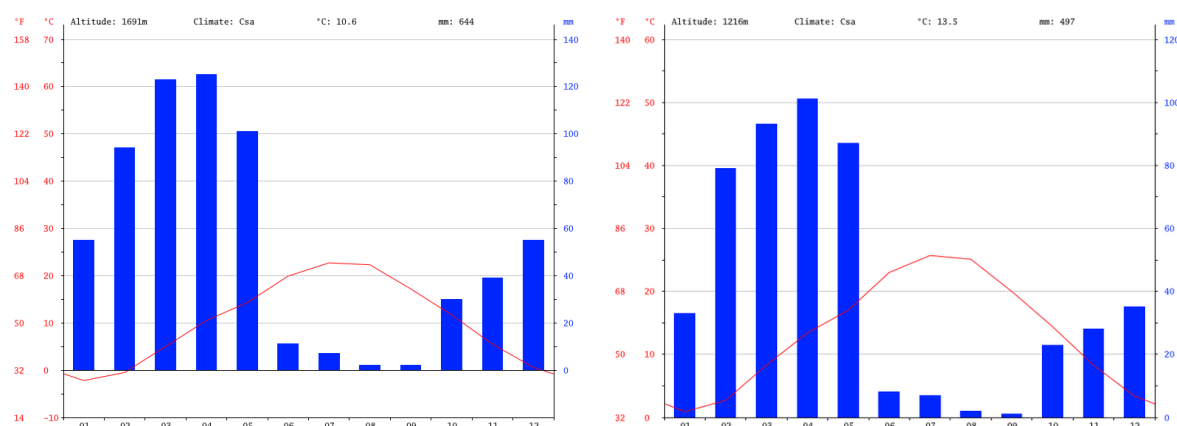


Figure 18: Climate diagram of Shahr-e Buzurg²² (22 km west of the project area) and Fayzabad²³ (25 km southeast of the project area).

²² <https://en.climate-data.org/asia/afghanistan/badakhshan/shahr-i-buzurg-511547>

²³ <https://en.climate-data.org/asia/afghanistan/badakhshan/fayzabad-31379/>

The project area has only small remnants of heavily degraded natural vegetation, which had been *Pistacia vera* woodlands in the lower and *Juniperus seravshanica/semiglobosa* woodlands in the higher parts. As far as known there are no *Juniper* trees left in the project area and pistachio woodlands have been reduced to scattered single trees and shrubs, still visible in satellite imagery. The climate and soil conditions in the area allow for rain-fed arable farming, which makes up most of the land, but heavily depends on the amount of snow and rainfall in spring. Irrigated areas (13% of project area) are in particular gardens, orchards and tree plantations in residential areas as well as some irrigated hay meadows. Poor conditions of irrigation systems and insufficient availability of irrigation water, provided in turns of 15-25 days, affect agricultural yields. Irrigation canals have been built by local labour and some are of limited capacity, leaking heavily and not technically safe. One of these problematic canals is the 8.25 km Nashrin and Naal irrigation canal supplying more than 2,600 people. Pasture for livestock grazing within the project area is very limited (12%) and it is not clear in what extent villagers have access to year-round or seasonal pastures outside of the project area. Livestock is reportedly limited by available forage and livestock losses have been caused by shortages due to drought.

Since 2004, villages and associated irrigated lands with tree plantations of poplar, willow and fruit trees have massively expanded into former farmlands, which likely had largely been rain-fed, in particular in Naland (Figure 19).

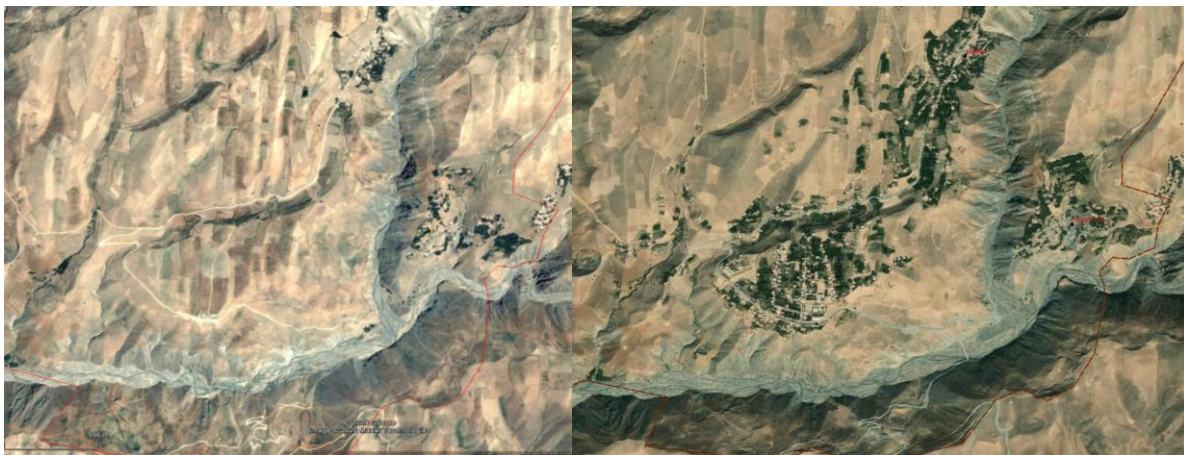


Figure 19: Naland village in Google Earth, 2004 (left) and ESRI World Imagery, no year, but more recent (right)

This expansion of water demanding green residential areas likely contributes to the shortage of irrigation water. On the other hand the growing of fast growing poplars and willows in irrigated plots allows for local fuel wood and timber production and may have contributed to the preservation of the few single trees in the landscape. Reportedly most destruction of woodlands occurred 20 to 50 years ago, but some regrowth is observed.

Observed and projected climate change will affect agriculture in the project area, in particular rain-fed farming, which entirely depends on soil moisture accumulated during winter and spring. Overall warmer temperature and less reliable precipitation will increase the aridity of the climate and in particular the availability of sufficient soil moisture during the growth season. This will impact reliability and quantity of yield of rain-fed arable lands, with increasing risk of crop failure. Climate change perceptions of local people are mainly related to fluctuations in rain and snow amounts affecting rain-fed agriculture, which are not a new phenomenon. In 2016 and 2017 drought affected agricultural yield and caused food shortage as well as lack of grazing for livestock. In contrast 2018 had been a year with sufficient snow cover. These fluctuations so far make the projected trend of increasing aridity not yet fully visible for the local people, but in some villages respondents in the surveys recognized an overall trend of warmer winters with less snow and rain. Furthermore, local people report a trend of earlier blossoming of fruit trees, which is frequently affected by damaging late frost and snow. People also report about earlier collection of harvest compared to the past.

Hazards and resulting disasters are largely related to the natural geophysical and climatic features as well as to degradation of vegetation. The rivers and streams in the project areas have naturally high variations in runoff, partly drying out during the dry season and carrying huge amounts of water after rainfall events or during snow melt. River runoff in catchments with larger high mountain areas is

determined by snow melt and peaks during the summer months. Rivers originating in lower located areas are more dependent on rainfall and have runoff peaks during the wet season. The destruction of woodlands, the degradation of rangeland vegetation and the expansion of rain-fed arable lands in upper catchment areas have reduced the retention capacity of the landscape. In the result surface runoff is accelerated and infiltration and groundwater replenishment are reduced, finally resulting in flash floods, often with high debris content, reduced river flow during the dry months and the drying of springs. Ongoing and projected climate change aggravates the existing hazards. It leads to a reduction of the share of snow in the overall amount of precipitation and to an accelerated snow melt. This causes a shift in the seasonal patterns of river runoff, increases high run-off during short periods and reduces infiltration from snow melt, thus aggravating floods as well as irrigation water shortage. These climate change impacts occur in addition to the already intensive man-made modification of the larger landscape and the risks caused by past and current village development, land use and natural resources exploitation.

The project area does not include entire catchment areas. Therefore, the impact of upstream land degradation on livelihoods and disaster risk within the target villages is difficult to assess and even more difficult to address. Local people and the NGO see the following disasters as relevant (Table 14).

Table 14: Hazards, disasters and their impacts and reasons in Yaftal-e Payan

HAZARD/DISASTER	IMPACT	REASONS
Heavy rainfall	Soil erosion of arable lands and pastures leading to destruction of crops or reduced yield, shortage of livestock forage and livestock losses	- Rangeland degradation; - Crop selection and farming techniques; - Climate change with increase in drought periods and increasing frequency of heavy rain.
Heavy rainfall and resulting floods/flash floods	Gully erosion in arable lands leading to loss of cultivable land	- Degradation of vegetation in catchment areas caused by destruction of woodlands, overgrazing and transformation of rangelands into rain-fed fields
Heavy rainfall and resulting floods/flash floods	Damage of gardens and houses, expanding erosion gullies in residential areas	- Degradation of vegetation in catchment areas caused by destruction of woodlands, overgrazing and transformation of rangelands into rain-fed fields; - Development of residential areas in high risk site; - Climate change impact in form of changing precipitation patterns.
Landslides	Destruction of irrigation systems	- Vegetation degradation; - Inadequate site selection and construction (?).
Landslides	Large event 60 years ago causing evacuation of village	- Geological and geomorphological reasons (?); - Deforestation (?).
Drought	Shortage of drinking water and irrigation water	- Inefficient water management in irrigation systems (inadequate construction and maintenance, leakage causing losses and secondary erosion); - Vegetation degradation in upper catchments; - Climate change causing accelerated runoff and reduced retention and groundwater replenishment
Drought	Crop failure and food shortage	- Crop selection and farming techniques; - Climate change causing insufficient soil moisture during the growth season.
Drought	Shortage of livestock forage, livestock losses	- Vegetation degradation caused by overgrazing; - Overstocking and inadequate management of grazing; - Climate change causing insufficient soil moisture during the growth season.
Harsh winters	Lack of fuel	- Unsustainable use of woodlands; - Inefficient heating, cooking and house insulation.
Earthquake	No specific impact specified	- Geological reasons, which cannot be influenced on; - Location of houses in areas prone to secondary impact, e.g. landslides.

The surveys showed that the local communities are very interested to rehabilitate tree vegetation and to address disaster risk through physical measures. A community nursery (0.24 ha) has already been established in Naland village, producing 13 different tree species, including pistachio, mulberry, almond,

apricot, peach, apple, pear and walnut, but also non-native trees like black locust. Specific plans reflected in the survey results and in the proposal include:

- 1) Improvement of the irrigation systems for higher water use efficiency and provision of more irrigation water, in particular constructive strengthening and prevention of leakage of canals (1 km in Nashrin, including two aqueducts, to irrigate more than 200 ha and benefit directly nearly 1000 families);
- 2) Construction of check dams (in Naland and Semen Jaw) and gabion walls (40 m in Shakar Lab-e Payan, Nashrin and Sarinang) for protection of gardens and residential areas from erosion by flash floods;
- 3) Greening of lands through establishment of orchards (1 ha), reforestation of 20 land, establishment of agroforestry on 40 ha and of silvo-pastoral systems on 20 ha (not specified in what form and with what species), planting of 300 saplings in the course of family and community celebrations as well as cultivation of *Ferula* on 5 ha;
- 4) Establishment of additional nurseries (60 home based nurseries);
- 5) Improvement of agricultural practices through introduction of improved seeds, fertilizer, disease control as well as development of bee-keeping (10 families) and poultry (20 families);
- 6) Introduction of fuel-efficient cooking stoves to reduce fuel wood consumption (only 20 planned for demonstration purposes).

RGEO in discussions with PAIL and DAIL identified five additional communities to be included in Phase 2 of the project.

The knowledge of the consultants about the project area, its site conditions, specific disaster risk and details of ongoing and projected climate change is limited and specific recommendations are therefore difficult to make and should be treated as suggestions only. Also information about the already planned measures is cursory only.

The proposed physical interventions should be planned on the basis of thorough on-site assessments. Local physical interventions for erosion prevention can have unexpected adverse effects at other sites, typically downstream, and their planning needs to take into consideration the larger geomorphological context. For making anti-erosion interventions sustainable and effective the combination of “grey” with “green” measures should be considered, e.g. the planting of willow trees, which by time enhance the protection of embankments of gullies through which flash floods are discharged.

Climate change will likely make the rain-fed arable cultivation of wheat in the project area in the future even more unreliable than, with reduced yields and increasing frequency of crop failure. Soil erosion and fertility decline contribute to these problems. Therefore the intended development of agroforestry and silvo-pastoral systems will be beneficial although their feasibility will depend on a number of details, including the selection of suitable tree, shrub and herbal species but also cultivation practices and regulation of livestock grazing. For instance, *Ferula* could be cultivated in combination with pistachio in agroforestry and silvo-pastoral systems. Any attempts of planting trees and shrubs should take into consideration short-term and permanent needs for irrigation water under consideration of an increasing aridity and unreliability of precipitation and the variability and expected decline in irrigation water availability. The cultivation of non-native trees like pine, black locust, *Thuja* and others needs to be carefully assessed under consideration of expected benefits and potential risks – failure or invasive potential.

The introduction of fuel efficient cooking stoves is planned as pilot in very small scale, which seems rather unlikely to lead to a larger distribution. An approach aiming at a larger scale after initial testing of acceptance, e.g. through the development of local production and distribution, might be more effective than distribution of a small number of devices only.

3.3.2.3 Takhar – Mission East

The project areas in Rustaq District of Takhar Province are located in the gently sloping catchment of Sadat, belonging to the north-western spurs of Hindukush, at altitudes between 1,238 m and 2,430 m a.s.l.. The local climate can be characterized by the climate diagram of Rustaq (1,270 m, 13 km southeast of the centre of the project area): there the mean annual temperature is 12.8°C and average annual precipitation is 517 mm (Figure 20).

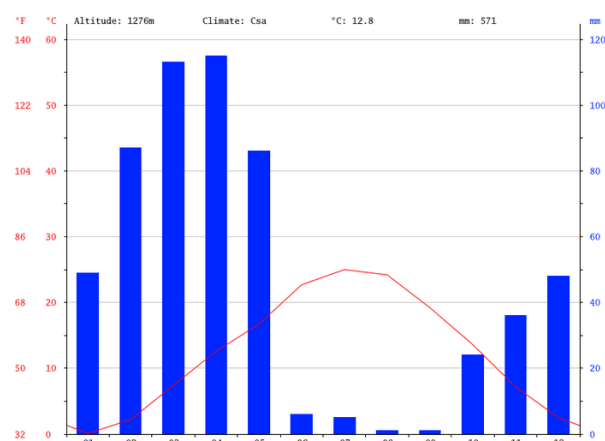


Figure 20: Climate diagram of Rustaq²⁴

The climate type in Köppen-Geiger Climate Classification (Rubel, Kottek, 2010) is warm temperate steppe, cold arid. Months during which the temperature curve (red line) exceeds the amounts of precipitation (blue bars) are considered the dry period.

The highest precipitation is during February till May and the dry season lasts from June till September. The area would naturally be covered by *Pistacia vera* woodlands, but due to deforestation and intensive agricultural use almost no remnants of these woodlands are preserved and in satellite imagery (Google Earth and ESRI World Imagery) no shrubs or trees can be detected outside of irrigated village lands (Figure 21).



Figure 21: Overview of the project village Gurgan Uleya with signs of erosion on arable lands and terracing in the lower part of the image. Satellite imagery: ESRI World Imagery

²⁴ <https://en.climate-data.org/asia/afghanistan/takhar/rustaq-54379/>

Thanks to favourable climate conditions the entire catchment is intensively used for rain-fed farming with the main crops being wheat and barley. Currently 88% of the project areas' 2,738 ha farmland is used for rain-fed farming and 288 ha (10.5%) are not cultivated due to low productivity, while irrigated agriculture and orchards are marginal with only 8 and 18 ha (together 0.9%) respectively. Irrigated lands and orchards are located in the immediate vicinity of the villages. Grape, apple, and apricot are the main fruits produced in the district, but their relative importance in the project area is not known. Areas designated as pasture land cover only 208 ha and are clearly insufficient for grazing of the reported 5,000 heads of livestock, even in the case that cattle make up only a small share and the majority are sheep and goats. The proposal and survey results do not mention any year-round or seasonal pastures outside of the project area. Water supply in the villages depends on two community irrigation canals and eight springs.

The current human population with its needs seems to exceed already by far the productive potential of the available land on the agricultural use of which it is entirely dependent. This population has been rapidly growing which is also indicated by the demographic composition with currently more than twice as many people 0-24 years of age than 25 years and older. The lack of local livelihood opportunities and an intensifying conflict are forcing young boys and men to migrate to Turkey, Iran and other cities within Afghanistan. As reported by the NGO, ploughing of sloping lands, poor agricultural techniques over-grazing and deforestation of the upper watershed caused land degradation and results in increasing risk of disasters (mainly flash floods and landslides), which destroy farmlands and infrastructure and at times even result in loss of life. Satellite imagery shows that gully erosion has already affected substantial sections of arable land and larger scale loss of humus through waterborne sheet erosion and deflation by wind is highly likely.

Rain-fed farming as the main source of livelihood is heavily dependent on the rainfall patterns and amounts of the year. Observed and projected climate change will particularly affect this type of agriculture in the project area as overall warmer temperature and less reliable precipitation will increase the aridity of the climate and in particular the availability of sufficient soil moisture during the growth season. This will impact reliability and quantity of yield of rain-fed arable lands, with increasing risk of crop failure. Local people complain about insufficient precipitation in spring regularly causing crop failure. The small scale irrigated farming and orchards on household plots will likely be at risk of insufficient irrigation water supply as the catchment is comparably small and flow in streams and discharge of springs is likely impacted by short-term variations in precipitation. Local people observe climate change in form of changes in temperatures and precipitation between seasons as well as untimely and offseason rains. They report that snowfall compared to the past years has decreased but rainfall has increased and it was raining even during the summer season. Warmer spring, but late frosts triggered early blossoming of fruit trees, but late frost then caused damage, reduced yield or failing fruit production.

Hazards and resulting disasters are largely related to the natural geophysical and climatic features as well as to the transformation of natural vegetation into rain-fed fields. The rivers and streams in the project areas have naturally high variations in runoff, mostly drying out during the dry season and carrying huge amounts of water after rainfall events or during snow melt. The transformation of woodlands and rangeland in upper catchment areas into rain-fed arable lands affected the retention capacity of the landscape and results in accelerated surface runoff and reduced infiltration and groundwater replenishment. A high incidence of destructive flash floods is likely a result of the land-use and the changing landscape, aggravated by ongoing and projected climate change. Reportedly (and visible in satellite imagery), gully formation is very common across the targeted catchment. After some time, these gullies become major drainage lines causing big erosion of agriculture lands as well as immediate threats to roads, houses, drinking water systems, irrigation canals and other assets. Currently 146 ha of arable land are at immediate risk of erosion due to flash floods. That 288 ha arable land are already not cultivated due to poor productivity may either indicate the ploughing of lands unsuitable for crop cultivation or the loss of fertile soil due to erosion by water and wind. Hazard mapping by the communities showed that nine community roads, 454 community houses and four mosques are at risk of being damaged by (flash) floods. Although not yet explicitly reported, the land-use, landscape transformation and climate change will likely cause reduced river flow during the dry months and the drying of springs. The project area seemingly includes entire catchment areas. Therefore, the villagers can see the impact of upstream land degradation on livelihoods and disaster risk within the target villages. Local people and the NGO see the following disasters as relevant for the catchments Sadat (addressed in the ongoing activities) and Kamangar (additional project area) (Table 15).

Table 15: Hazards, disasters and their impacts and reasons in Sadat and Kamangar catchments of Rustaq

HAZARD/DISASTER	IMPACT	REASONS
Heavy rainfall	Soil erosion of arable lands leading to destruction of crops or reduced yield, and to livestock losses	- Expansion of arable lands, crop selection and farming techniques; - Rangeland degradation; - Climate change with increase in drought periods and increasing frequency of heavy rain.
Heavy rainfall and resulting floods/flash floods	Gully erosion in arable lands leading to loss of cultivable land	- Degradation of vegetation in catchment areas caused by destruction of woodlands, overgrazing and transformation of rangelands into rain-fed fields
Heavy rainfall and resulting floods/flash floods	Damage of houses and infrastructure (incl. drinking water wells), expanding erosion gullies in residential areas	- Degradation of vegetation in catchment areas caused by destruction of woodlands, overgrazing and transformation of rangelands into rain-fed fields; - Development of residential areas in high risk site; - Climate change impact in form of changing precipitation patterns.
Landslides	Destruction of arable lands and irrigation infrastructure	- Vegetation degradation with clear cutting and overgrazing; - Earthquakes; - Inadequate site selection and construction (?).
Drought	Shortage of irrigation water	- Vegetation degradation in upper catchments; - Inefficient water management in irrigation systems (inadequate construction and maintenance, leakage causing losses and secondary erosion); - Climate change causing accelerated runoff and reduced retention and groundwater replenishment
Drought	Crop failure on rain-fed lands	- Crop selection and farming techniques; - Climate change causing increase in inter-annual variation and changed seasonal patterns of precipitation with insufficient soil moisture during the growth season.
Drought	Shortage of livestock forage, livestock losses	- Vegetation degradation caused by overgrazing; - Overstocking and inadequate management of grazing; - Climate change causing insufficient soil moisture during the growth season.
Warmer spring, but late frosts	Early blossoming, frost damage, reduced yield or crop failure of fruit trees	- Climate change causing changing seasonal patterns
Earthquake	No specific impact specified	- Geological reasons, which cannot be influenced on; - Unsafe construction of houses
Water pollution	Waterborne diseases	- Use of untreated surface water as drinking water; - Water pollution
Plant disease	Reduced yield	- Crop selection and agricultural techniques (insufficient crop rotation, fertilizing, disease control); - Climate change impact making crops more vulnerable and or causing favourable conditions for certain diseases (?)

Local communities are very interested to address disaster risk through physical measures and want to rehabilitate tree vegetation on arable and pasture lands. Five nurseries have already been established and planting has started. Satellite imagery shows that some arable lands close to villages have been terraced, but the specific purpose and effect of this measure on agricultural productivity and erosion prevention are not reported. Measures are planned to protect agricultural lands, to prevent or mitigate possible disaster risks to houses, mosques and schools, to enhance the productivity of private and common lands and to increase food security and employment opportunities. Specific plans reflected in the survey results and in the proposal include (area size for the first five villages):

- 1) Development of agroforestry on 53 ha with 250-400 trees/ha (species not specified) and cultivation of *Ferula assa-foetida* (hapaxanthous herbal plant used in the Indian cuisine);
- 2) Development of silvo-pastoral systems for production of fodder, firewood, timber and fruits as well as improving the environment, controlling soil erosion and conserving moisture by planting 200 trees/ha on 170 ha pasture lands, with a variety of species considered: wild almonds, pistachios,

- mulberries, acacia (likely black locust), apples, Russian willows (Russian olive) as well as shrubs, wild vine, sorghum, wild alfalfa, broom grasses and local grass species;
- 3) School children actions on seeding and planting of trees (species not specified) on school compounds and communal lands;
 - 4) Development of orchards with combination of fruit (e.g., almond, apple, wall nuts) and forest trees (not specified) with 300-400 fruit trees/ha in rows, crop cultivation between rows and non-fruit trees (400-500/ha, not specified) at the boundaries of the plots (figures not fully consistent: 300 families, 0.1 ha each, 12,000 fruit and 10,000 non-fruit trees), combined with capacity development on management of existing orchards (e.g., pruning, disease control etc.);
 - 5) Revegetation of slopes at critical sites for disaster risk reduction of houses, schools, irrigation canals, roads etc. at 30 ha with about 500 trees/ha;
 - 6) Development of 50 home-based, women-run nurseries to produce 50,000-60,000 tree saplings (per annum) of various species (pine (?), pistachio, almond, mulberry, and Russian willow);
 - 7) Blocking of gullies and prevention of erosion by construction of 2,640 m protection walls with gabions;
 - 8) Rehabilitation of two irrigation canals supplying 50 ha of land used by 2-3 villages as well as agroforestry and silvo-pastoral areas;
 - 9) Introduction of environmentally friendly technologies and alternative fuel sources through support of 30 needy households:
 - Introduction of drought resistant, climate change resilient crop varieties able to cope with shorter vegetation period;
 - Promotion of production of bio-briquettes as alternative fuel for cooking and heating;
 - Solar energy use (solar pumps and passive solar heating through glass verandas of houses).

Furthermore some “Innovations/Pilot Activities” are mentioned in the proposal:

- Small water places (six à 50 m²) for birds and wildlife;
- Community solar pumps (two for irrigation water supply of orchards from deep valleys);
- Underground check dams (four) for maintaining higher ground water level to be used in wells during summer (no technical details are available).

Mission East identified five additional communities in the neighbouring Kamangar catchment, Kamangar, Kishan, Saranbaz Langar, Langer Sadat, and Dasht-e-Bagh to be included in Phase 2 of the project.

The consultants have only limited knowledge about the project area, its site conditions, specific disaster risk and details of ongoing and projected climate change. Also information about the already planned measures is not available in all detail with in particular the selection of trees for local site conditions and different purposes not yet fully explained in the available information. The following considerations about planned project activities and recommendations are therefore only suggestions.

The planned land-use interventions are meaningful from the perspective of the restoration of landscape functions and disaster risk reduction. They may serve as eco-system based adaptation measures to ongoing and projected climate change, if planned accordingly, in particular if the selection of planted trees, shrubs and other plants takes into consideration current and expected future site conditions and the requirements and potentials of the species. Some currently proposed species are not native and their ability to grow and provide the expected benefits needs to be thoroughly and site-specifically assessed, e.g. pine and acacia (black locust?). For other trees irrigation needs in the short and long term and the availability of sufficient water as well as costs of water supply need to be considered. The planned measures are suitable to address in some extent the issues of rain-fed arable farming in terms of land degradation and climate change, causing reduced yields and increasing frequency of crop failure. But allocating space for trees and other plants will in the first place reduce the already scarce space for the currently cultivated crops while tree crops and *Ferula* will need several years to provide harvest. Furthermore it is doubtful that these alternative crops will be fully sufficient to meet the needs of the current and further growing population. Additionally – with the introduction of new crop varieties already considered – improved agricultural practices will be necessary. Under the given relations between livestock numbers and available pasture areas the establishment of silvo-pastoral systems will be challenging, in particular by the need to prevent damage to planted trees and shrubs.

The planning of the proposed physical interventions for erosion prevention should take into consideration the larger geomorphological context and avoid adverse effects at other sites. The

combination of “grey” with “green” measures should be considered, e.g. the planting of willow trees, might be considered for making anti-erosion interventions effective and sustainable.

The major issue to be addressed will be the demography in the project area and in the whole country for achieving a balance between available resources and number of people and households depending on them. The development of non-agricultural income opportunities may have some potential for moving towards this balance, but their potential is clearly limited by the overall national as well as specific local economic conditions.

3.3.2.4 Samangan – WHH

The project areas in Samangan Province, Hazrat-e Sultan District, are located in the hill lands north of Koh-e Baba Range and northwest of the Hindukush Range. Wide valleys are at altitudes of 750 m and more and the mountain slopes reach maximum altitudes of 1,550 m a.s.l. (Figure 22, Figure 23, Figure 24).

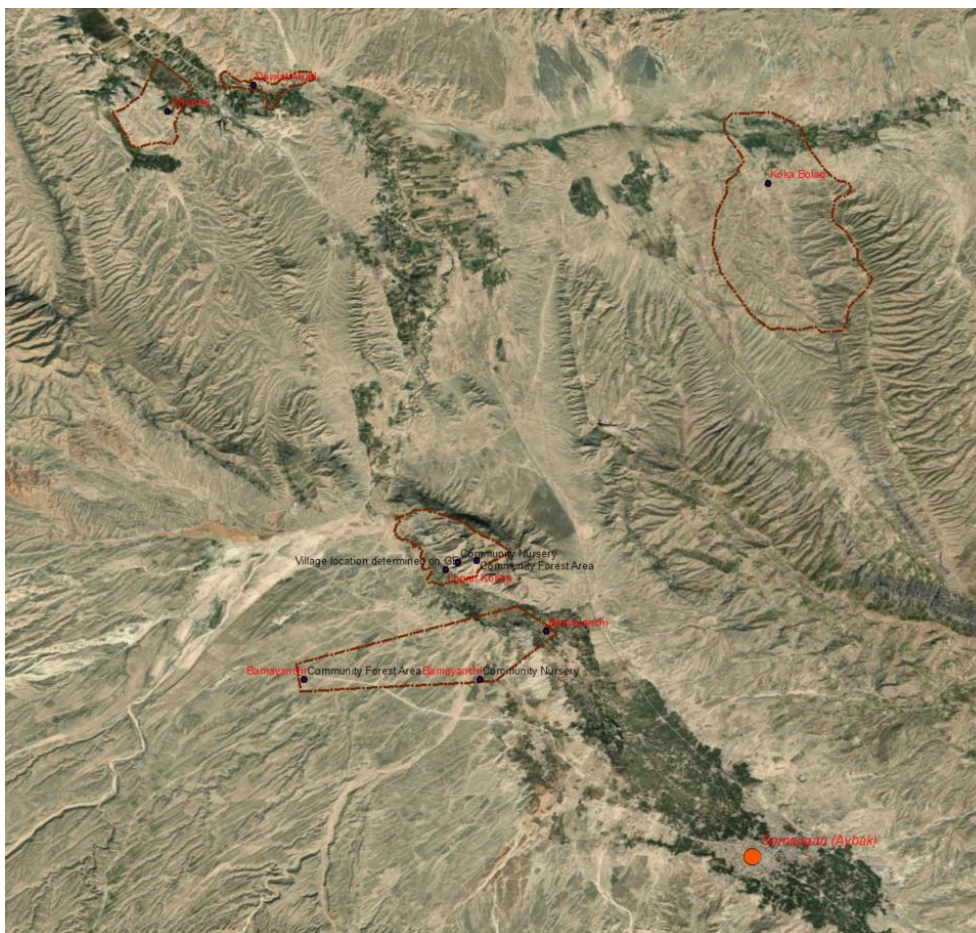


Figure 22: Overview of the project areas in Hazrat-e Sultan. ESRI World Imagery

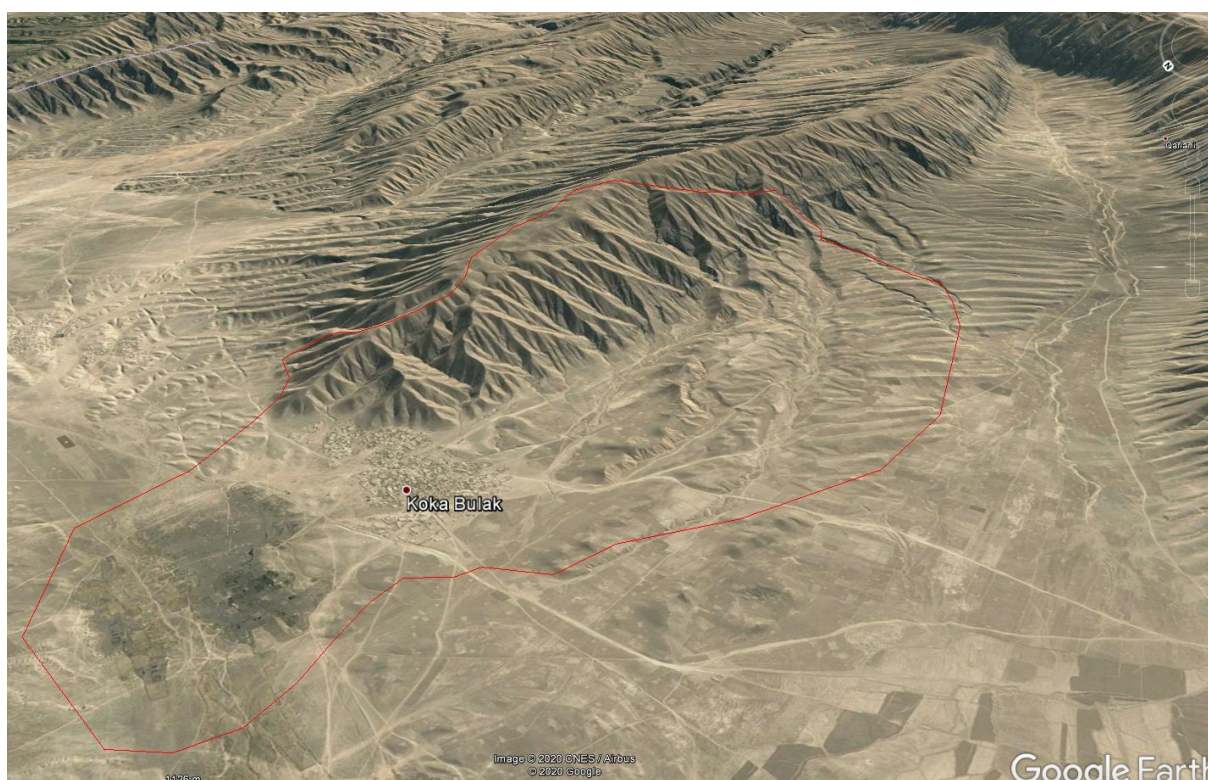


Figure 23: Overview of the project area at the village Koka Bulaq. Google Earth (no year)

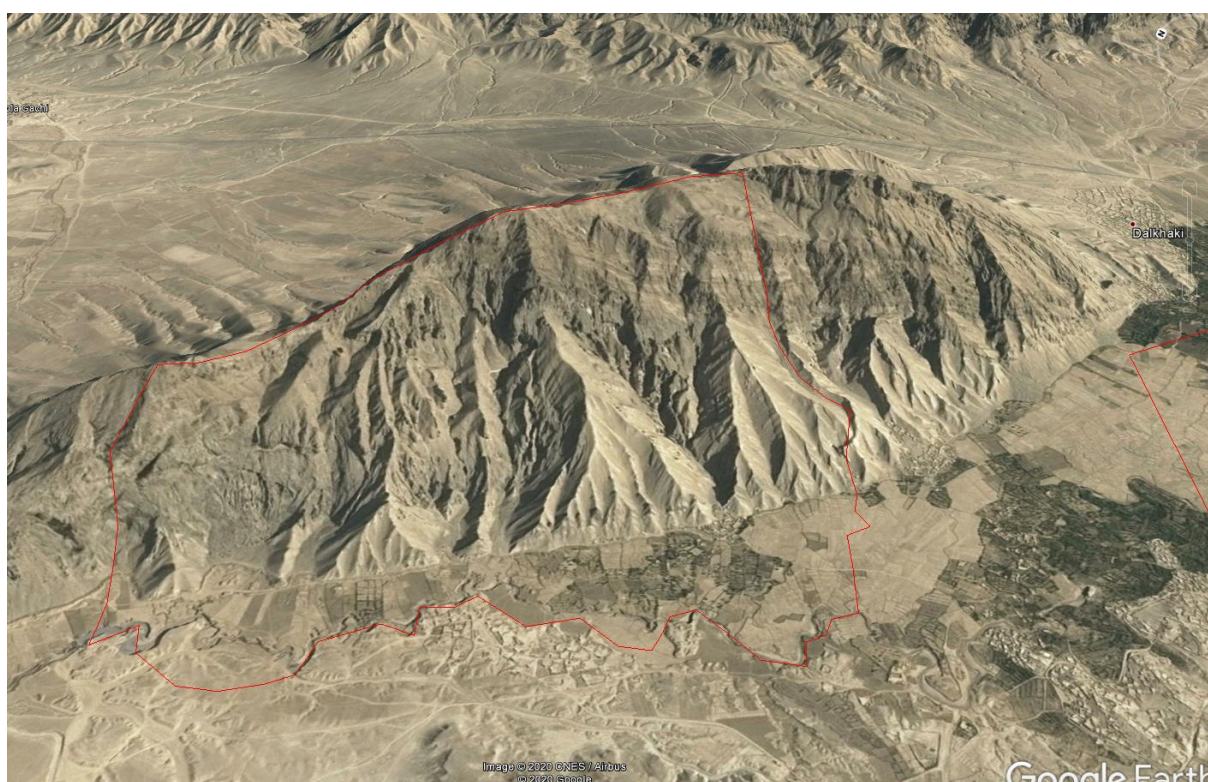


Figure 24: Overview of the project area at the village Lopan Kuhna. Google Earth (no year)

The climate in the project areas can be illustrated by the climate diagrams of Samangan (Aybak) and Kholm. Mean annual temperature is around 14.0°C (Samangan) and 16.7°C (Kholm) with average annual precipitation of 277 mm and 209 mm, respectively. The project areas are largely located at higher altitudes than Kholm and thus the climate of Samangan might be more representative, although most agricultural areas are at lower altitudes than this location and thus might be more arid, while mountain

slopes, in particular of western aspect may receive more precipitation and have lower mean annual temperatures. Precipitation is concentrated during the first four months of the year, rainfall in May is substantially lower and the months June to August are without precipitation. The dry season lasts from May till September (Figure 25).

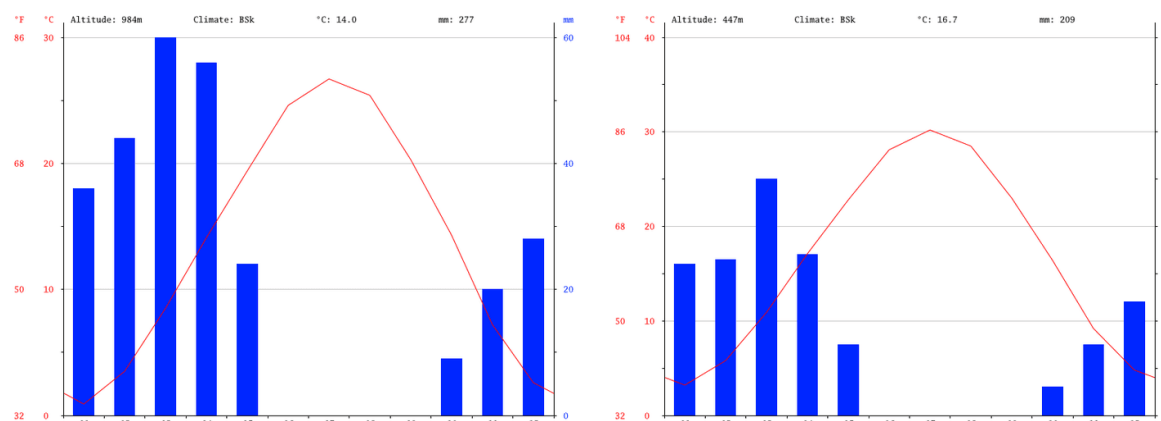


Figure 25: Climate diagram of Samangan²⁵ (Aybak, 5-27 km south of the project area) and Kholm²⁶ (23-25 km northwest of the project area, at lower altitudes and likely more arid)

The climate type in Köppen-Geiger Climate Classification (Rubel, Kottek, 2010) is arid steppe, cold arid. Months during which the temperature curve (red line) exceeds the amounts of precipitation (blue bars) are considered the dry period.

The natural vegetation in the project area would be ephemeral deserts on loess soils in the dry plains and *Pistacia vera* woodlands in hilly areas, possibly with some patches of *Juniperus servashanica* woodlands in higher altitudes at rocky sites (Breckle, Rafiqpoor, 2010). Information on forest remnants in the project areas is scarce with some people stating in the surveys that no natural forests remain, while some people referred to use of woodlands for animal fodder, collection of wood selling and burning, collecting *Ferula* (hing) and pistachios. People stated that they collect forest products at distances of around 13 km, which would be outside of the respective project areas.

Despite the overall arid character of the climate rain-fed arable farming is practiced in some areas with favourable conditions, although only in some of the immediate project areas in larger extent. Across the entire Hazrat-e Sultan District two thirds of arable land is rain-fed and one third is irrigated. The irrigation water sources are mainly rivers, canals and wells. Rivers and canals tend to dry up during the “irrigation season” besides that only 10% of communities have access to irrigation facilities. The digging of deep wells may cause an overdraft of groundwater. The data on land use in the target villages covered in the initial phase of the project as provided by DWHH are partly inconsistent (Table 16).

Table 16: Land use types in the five project areas in Hazrat-e Sultan District covered in the initial phase (data from DWHH, inconsistencies in original source)

LAND USE TYPE	AREA
Total arable land	504 ha
Total irrigated land	180 ha
Irrigated by well	246 ha (probably typo and correctly 26 ha)
Irrigated by canal/stream	154 ha
Total rain fed land	316 ha
Garden/orchard land	89 ha
Natural forest area	3.5 ha
Afforested area	6 ha

²⁵ <https://en.climate-data.org/asia/afghanistan/samangan/samangan-31391/#climate-graph>

²⁶ <https://en.climate-data.org/asia/afghanistan/balkh/kholm-31386/#climate-graph>

LAND USE TYPE	AREA
Barren area	1,816 ha
Grazing/pasture area	4,466 ha
Total land area without residential areas	6795.5 Ha (?)

Correcting the most likely typos, only 504 ha of arable lands with 35% irrigated from different sources, would be available for a population of almost 10,000 people in 1,400 households, i.e. in the average 0.36 ha per household or 500 m² per person. Wheat is the staple crop in the area. Figures on gardens and orchards differ with either 89 ha for all five villages or an average of 44 ha per village, i.e. 220 ha in total, with almonds being the major crop tree but also fruit trees, grapes and vegetables. In any case, arable land and orchards as well as availability of irrigation water during the agriculture production season are inadequate for the present and growing population. Across the district the majority of livestock are sheep (73%) and goats (19%). Pastureland has increasingly been converted into rain-fed arable lands. The currently available pasture area is 3.2 ha per household or approx. 0.5 ha per person; and is under consideration of the low productivity due to climate conditions and vegetation degradation clearly insufficient for substantial livestock based livelihoods of the people. Livestock breeding is accordingly challenged by general insufficiency of available forage, with seasonal aggravation, in particular in spring, but also disease issues.

The current situation of farming, water use and use of pastures and (if at all existing) woodland remnants is unsustainable and much exceeding the natural capacity of the respective resources. Even sharp productivity increases in arable farming would hardly be sufficient to ensure the livelihoods of the current and growing population while the available information rather suggests ongoing land degradation with loss of fertility, water and wind erosion and insufficient availability and quality of irrigation water. Although not explicitly mentioned the exploitation of ground water from deep wells may cause the depletion of groundwater reservoirs with fresh water and cause an influx of saline water into the depleted reservoirs. Rangelands are obviously overgrazed and remnants of woodlands under severe stress from wood harvest and livestock grazing. Degradation of vegetation in upper catchment areas likely contributes water shortage and flash floods.

The overall observed and projected climate change in the northern part of Afghanistan suggests that also in the project areas of Samangan the trend will be towards warming during all seasons without substantial increases in precipitation, causing an increasing aridity of the climate. Furthermore, seasonal patterns of precipitation will likely become more unreliable and rainfall may more often occur outside of the time optimal for vegetation growth. Local people perceive that summers became warmer, but winters colder than in the past and noticed that rainfall and snowfall changed over the years, with more irregular and damaging off-season rain happening than over the past years. People observe changes in the phenology of plants, high summer temperatures causing the drying of crops, but also cold winters affecting the blossoming and harvesting time. The people also report extreme heat during summer.

The climate conditions already in the past have been only marginally suitable for rain-fed farming and irrigation water from within the catchment areas had been a limited resource. With climate change both rain-fed as well as irrigated farming will further be stressed. Rain-fed farming is already affected by increasing frequency and severity of droughts caused by the overall increase in aridity and insufficient rainfall during the critical spring season. On the other hand untimely heavy rain causing flash floods and erosion more often leads to damage of rain-fed crops. Also irrigated agriculture is affected by such floods as well as by the increasing aridity and causing higher irrigation water needs and reduced availability during critical times. Premature blossoming of fruit trees followed by cold periods in early spring severely affects the harvest of trees but also of other plants.

Hazards and resulting disasters are largely related to the natural geophysical and climatic features as well as to the degradation of natural vegetation and the expansion of rain-fed fields into former rangelands. Droughts and flash floods and their impacts on agricultural livelihoods and assets are the major disasters concerning local people. Most rivers and streams in the project areas have naturally high variations in runoff, mostly drying out during the dry season and carrying huge amounts of water after rainfall events or during snow melt. The satellite imagery of the project area Koka Bulaq suggests that there streams have only seasonal runoff. The other project areas include permanently flowing rivers, although with a high amplitude in discharge between dry and wet periods. The current land use and degradation of vegetation in the upper catchment areas affected the retention capacity of the landscape and results in accelerated

surface runoff and reduced infiltration and groundwater replenishment, contributing to destructive flash floods and shortage of irrigation and drinking water. The ongoing and projected climate change aggravates this situation. The project areas only partly include larger parts of sub-catchments, where hazards and risks are related to the immediate local situation. But all project areas in terms of water supply and disasters face impacts of factors outside the project areas' boundaries. Local people and the NGO see the following disasters as relevant for the project areas (Table 17).

Table 17: Hazards, disasters and their impacts and reasons in project areas of Hazrat-e Sultan

HAZARD/DISASTER	IMPACT	REASONS
Heavy and untimely rainfall	Destruction of crops	- Climate change with changing seasonal patterns and increasing frequency of heavy rain.
Heavy rainfall	Soil erosion of arable lands leading to destruction of crops or reduced yield, and to livestock losses	- Expansion of arable lands, crop selection and farming techniques; - Rangeland degradation; - Climate change with increase in drought periods and increasing frequency of heavy rain.
Heavy rainfall and resulting floods/flash floods	Gully erosion in arable lands leading to loss of cultivable land	- Degradation of vegetation in catchment areas caused by destruction of woodlands, overgrazing and transformation of rangelands into rain-fed fields
Heavy rainfall and resulting floods/flash floods	Damage of houses and assets of people	- Degradation of vegetation in catchment areas caused by destruction of woodlands, overgrazing and transformation of rangelands into rain-fed fields; - Development of residential areas in high risk sites; - Climate change impact in form of changing precipitation patterns.
Rockfall	Destruction of houses and agricultural lands (Lopan Kohna)	- Overgrazing and vegetation degradation at steep slopes ; - Development of residential areas in high risk sites; - Climate change with increasing frequency of heavy rain.
Landslides	Not specified	- Specific reasons unknown.
Drought	Shortage of irrigation water	- Vegetation degradation in upper catchments; - Expansion of irrigated areas beyond the water capacity of the catchments; - Inefficient water management in irrigation systems; - Climate change causing accelerated runoff and reduced retention and groundwater replenishment
Drought	Drying of trees and low yields from orchards	- Shortage of irrigation water; - Inefficient irrigation techniques.
Drought	Crop failure on rain-fed lands	- Crop selection and farming techniques; - Climate change causing increase in inter-annual variation and changed seasonal patterns of precipitation with insufficient soil moisture during the growth season.
Drought	Shortage of livestock forage, livestock losses	- Vegetation degradation caused by overgrazing; - Overstocking and inadequate management of grazing; - Climate change causing insufficient soil moisture during the growth season.
Erosion and sedimentation	Damage of pasture (Lopan Kohna)	- Specific local geomorphological conditions; - Overgrazing and vegetation degradation at steep slopes.
Warmer spring, but late frosts	Early blossoming, frost damage, reduced yield or crop failure of fruit trees	- Climate change causing changing seasonal patterns
Earthquake	No specific impact specified	- Geological reasons, which cannot be influenced on; - Unsafe construction of houses
Plant disease	Reduced yield	- Crop selection and agricultural techniques (insufficient crop rotation, fertilizing, disease control); - Climate change impact making crops more vulnerable and or causing favourable conditions for certain diseases (?)
Infestation of grasshoppers	Yield reduction of wheat, cotton and chickpea, causing enormous income losses for people	- Unknown, locust development can be caused by land use changes and climate conditions, possibly outside of the immediate affected areas.

Local people are concerned about the degradation and loss of the rangeland and woodland ecosystems as well as about the impact of climate change on their agricultural livelihoods from arable farming and livestock. They consider the establishment of artificial pistachio plantations, the cultivation of some wild-growing plants as cash crops (cumin and *Ferula*), of some forage crops and of trees. Almost half of the respondents in surveys consider the changing to drought resistant crops and a similar number of respondents would look for alternative and more suitable areas for farming and livestock grazing. Only a minority wants to seek for alternative, i.e. non-agricultural income sources, probably realistically assessing the limited local and national potential of such income opportunities. The surveys contain only rather general suggestions for measures like “the establishment of orchards and planting of trees on private and common lands”, “greening of the villages” etc.. The new proposal of DWHH is more specific, but not very clearly structured. The consultants identified the following specific suggestions from the new proposal:

- 1) “Forest Landscape Restoration” on 239.5 ha in five villages, including 144.5 ha of afforestation, 35 ha agroforestry and orchards and 60 ha restoration of pasture lands, key species seem to be pistachio and almond together with the herb *Ferula*, and additionally apricot, peach and apple;
- 2) Nursery development for the production of pistachio and almond seedlings and the distribution of *Ferula* seeds, but also for the propagation of black locust *Robinia pseudoacacia* as a nitrogen fixing tree, and further species: *Ailanthus*, pine, “morpan”, Russian olive *Eleagnus*, and production of seeds of cumin, *Ferula* and alfalfa;
- 3) Rainwater harvest with small ponds and associated solar pumping and pipe systems for irrigation of nurseries and planted trees in rain-fed areas, locally possibly digging of wells, where rainwater harvest is insufficient;
- 4) Establishment of home-gardens;
- 5) Conversion of sloping rain-fed lands through terracing (in all villages 2,000 m ridge and 2 ha bench terracing to reduce soil erosion and increase soil moisture) and SALT (Simple Agro-Livestock Land Technology, Sustainable Agroforest Land Technology and Small Agro-fruit Livelihood Technology with planting of nitrogen fixing trees in hedges, fruit trees and livestock);
- 6) Development of agroforestry (area already included in 1)?) with “trees or shrubs are grown around or among crops or pastureland” and the seeding of alfalfa on pastureland;
- 7) Introduction of the approach of “Forest Market Gardens (FMG)” as multilayer crop system imitating natural forest ecosystems and aiming at optimal use of space and provision of products during all seasons, to be piloted on two plots of 0.2 ha each in two villages;
- 8) Small-scale physical measures (protection walls and current breakers, in total 1,000 m³, without location and number of sites being mentioned) to mitigate risk of destruction of community forests from flooding.

DWHH identified four additional communities, Nawabad Uzbekia, Serqia Afghanistan, Kalcha, Qaza Yaghlée to be included in Phase 2 of the project.

The consultants have only limited knowledge about the project area, its site conditions, specific disaster risk and details of ongoing and projected climate change. The information about the already planned measures is not entirely logically structured and despite the description techniques site specific details are not available. This concerns in particular the detailed, site-specific information about the proposed physical disaster risk reduction measures, but also the selection of tree and shrub species for certain areas and their local site conditions. The following considerations about planned project activities and recommendations are therefore only suggestions.

The planned interventions in agricultural systems in form of increasing the tree cover and the integration of tree, shrub and native herb species in the arable and pasture lands look suitable and will contribute to the restoration of landscape functions and disaster risk reduction. The introduction of trees and alternative crops in the rain-fed and irrigated arable lands would reduce the risk of climate change impact causing reduced yield and crop failure of the current staple crop wheat. However, similarly as in Yaftal-e Payan and Rustaq the acceptance and economic as well as technical feasibility of the proposed planting on farmland are not yet entirely clear. The space needed for trees and other plants will in the first place reduce the already scarce space for the currently cultivated crops while tree crops and *Ferula* will need several years to provide harvest. Furthermore there is no comparison available of current and predicted yields and achievable income of traditional crop systems and alternatives under consideration of climate change. Thus achieving a good ratio between costs and benefits through careful site selection and spreading of risk over many households might be necessary. Tests and demonstrations as well as comparison with pilots in other areas might further be needed. Additionally, the introduction of drought

resistant varieties and improved agricultural techniques in rain-fed and irrigated agriculture might be necessary to increase the resilience of the current agricultural systems. The currently proposed areas for intervention in pasture lands are rather in the scale of demonstration plots and would not yet be sufficient to achieve the restoration of larger areas of rangelands and woodlands. Under the given relations between livestock numbers and available pasture areas the large-scale establishment of silvo-pastoral systems will be challenging, in particular by the need to prevent damage to planted trees and shrubs. An additional approach to be considered would be to support natural regeneration of woodlands by temporary exclusion from grazing, if any remnants of such vegetation can be identified. Physical measures to mitigate flood impacts require that intervention localities are determined and their technical aspects are further elaborated.

The proposed measures may need clarification in some specific aspects: 1) The planned number of saplings per area seems not fully consistent with planned size of planned afforestation areas. 2) Some techniques, in particular terracing, SALT and FMG, look rather like theoretical blueprints, but their suitability under the specific conditions of the project areas needs to be further considered. Lessons learnt in their application elsewhere in Afghanistan or in similar ecological and social-economic environments should be used to reconsider their overall suitability in the project areas and to identify needs and options for their local adaptation.

Similarly, as in the project areas in the other provinces, the misbalance between demography and available land, water and other resources needs to be recognized and realistically addressed.

3.3.2.5 Paktia and Khost – TLO

The project areas in the southeast of Afghanistan, in Paktia and Khost provinces, are spread over a large area. These project areas have a lot of features and issues in common and also measures proposed by the NGO “The Liaison Office” (TLO) are very similar in the project areas across both provinces. For this reason we here combine in one chapter the analysis and recommendations for the project areas in the two provinces and highlight specifics for certain project areas instead of differentiating between provinces.

The project areas in Paktia and Khost provinces are located in mountainous areas at altitudes between 1,800 m and 2,900 m a.s.l.. All project areas consist of mountain slopes of various steepness and aspects. The climate of these project areas is partly influenced by the monsoon from the Indian subcontinent, causing higher seasonal rainfall during the summer months. The monsoon influence is most prominent in the areas east of the mountain range between Khost and Paktia, as illustrated by the climate diagrams for Khost and Parahinar (Figure 26). Months during which the temperature curve (red line) exceeds the amounts of precipitation (blue bars) are considered the dry period.

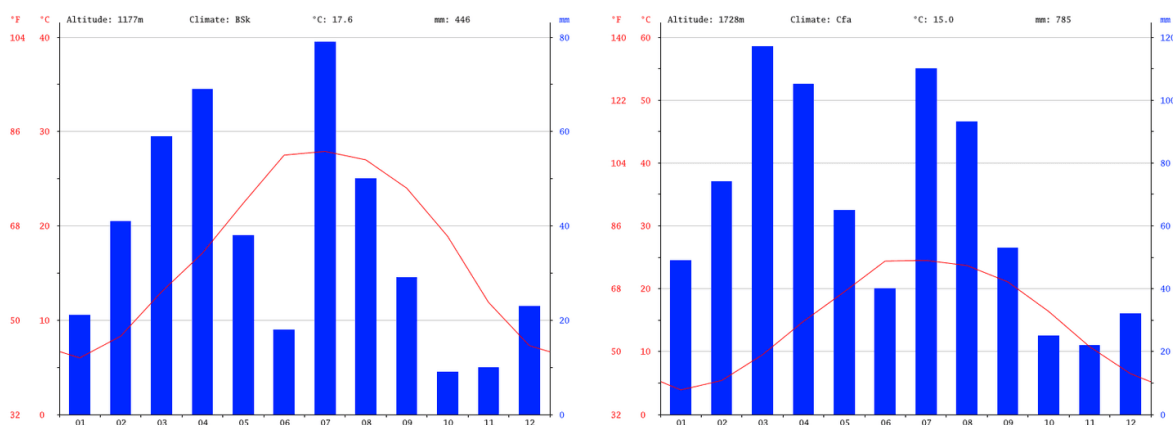


Figure 26: Climate diagram of Khost²⁷ (25-32 km northeast of the project areas in Khost province, at much lower altitudes and more arid) and Parachinar²⁸ (Pakistan, 20 km east of the project area Astia)

²⁷ <https://en.climate-data.org/asia/afghanistan/khost/khost-31380/#climate-graph>

²⁸ <https://en.climate-data.org/asia/pakistan/federally-administered-tribal-areas/parachinar-3495/#climate-graph>

Here in addition to the rainfall maximum in February-May a second precipitation peak occurs during July-September, causing partly humid summer months. West of the mountain range the summer monsoon has only minor influence, as visible in the climate diagrams for Gardez and Khand Khil (Figure 27).

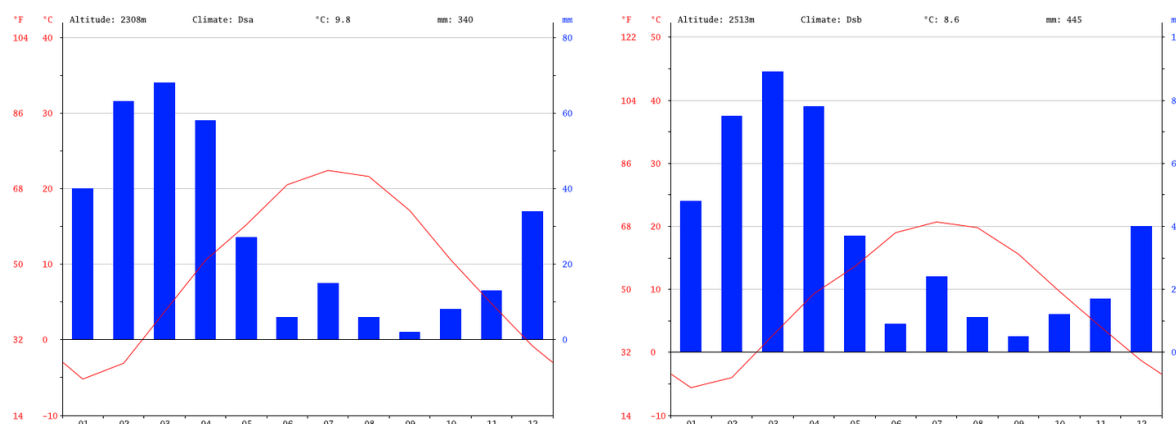


Figure 27: Climate diagram of Gardez²⁹ (12 km south of the project area Nawrakai-Zafrankhail and 17 northwest of project area Zahoo) and Khand Khil³⁰ (20 km east of the project area Nawrakai-Zafrankhail and 25 km southwest of the project areas Shaikoh-Alikhel and Mamakhel)

In these areas precipitation is much lower than in the east and concentrated during the months December-May, but in contrast to the areas further to the west and north without rainfall in summer, some rain occurs throughout the warm season. However, despite this summer rainfall the months June-October are a dry period. Mean annual temperatures and rainfall for the two available stations Khost and Gardez are of limited representativeness for the project areas, as both locations are in larger valleys. Khost (mean annual temperature 17.6°C, annual precipitation 446 mm) is located at much lower altitude and thus experiencing higher temperatures and less precipitation and thus a much more arid climate, than the project areas in the mountains. The climate diagram of Parachinar in Pakistan (Figure 26) at 1,728 m a.s.l. with mean annual temperature of 15°C and 785 mm average precipitation per annum might be representative for the project area in Astia, but also show similar conditions as in the project areas in Khost Province, which are located at mountain slopes of mainly eastern aspect and thus receive higher rainfall during the summer monsoon. Gardez, located at 2,300 m in a wide high altitude valley has a mean annual temperature of 9.8°C and 340 mm annual precipitation, nearby Khand Khil at 2,513 m has values of 8.6°C and 445 mm respectively, while in the more mountainous project areas temperatures might be lower and precipitation slightly higher.

The natural vegetation reflects the climate conditions. The mountain range between Khost and Gardez had coniferous woodlands and forests of eastern Afghanistan with *Pinus gerardiana* and other coniferous trees as natural vegetation and in lower parts sclerophyllous and lauriphyllous oak forests with *Quercus baloot* (project areas southwest of Khost and Astia). In the project areas west of the mountain range, in particular in Nawrakai-Zafrankhail, due to higher aridity these forests of eastern Afghanistan are replaced by *Amygdalus* woodlands and *Pistacia atlantica* woodlands. As far as visible from satellite imagery at Google Earth, forests woodlands of varying density dominated most of the project area still about 15 years ago.³¹ Several project areas in Khost (Kochian, Spirky, Tory Khail and Eda Zawar (Warjala)) with then still substantial tree cover during the last fifteen years experienced a rapid deforestation as visible from comparison between Google Earth imagery (partly dated 2004, partly not dated) and more recent ESRI World Imagery (Figure 28, Figure 29, Figure 30).

²⁹ <https://en.climate-data.org/asia/afghanistan/paktia/gardez-53489/#climate-graph>

³⁰ <https://en.climate-data.org/asia/afghanistan/paktia/%d8%ae%da%bc%d8%ae%db%8c%d9%84-khand-khil-1058614/#climate-graph>

³¹ Not all Google Imagery is clearly dated. Some of the scenes are from August 2004



Figure 28: Project area Eda Zavar (Warjala) in Google Earth, 2004 (top) and in ESRI World Imagery, no year, but more recent (bottom), showing almost total deforestation



Figure 29: Project area Spirky in Google Earth, no year (left) and in ESRI World Imagery, no year, but more recent (right), showing deforestation of substantial areas, but also road development

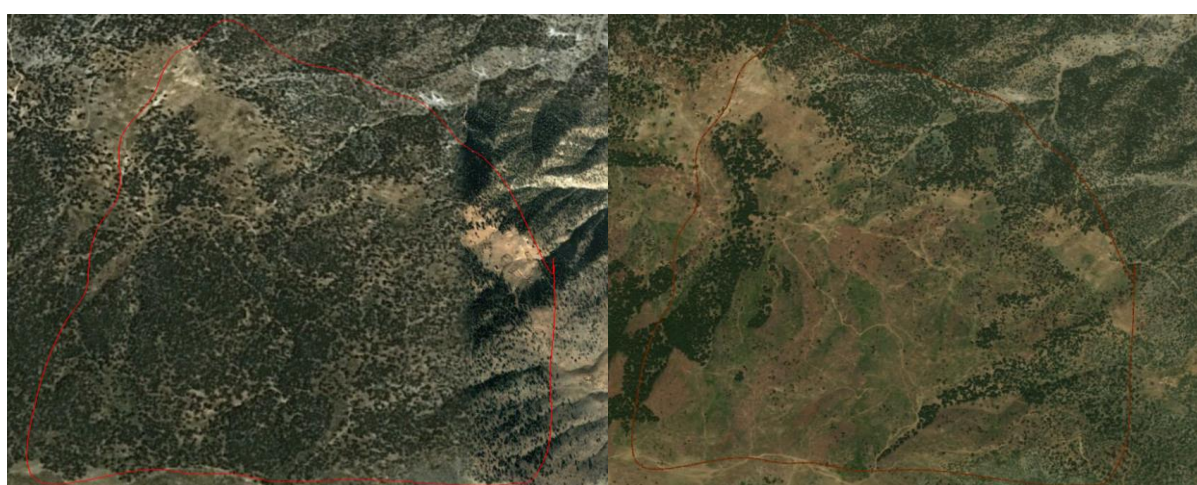


Figure 30: Project area Tory Khail in Google Earth, no year (left) and in ESRI World Imagery, no year, but more recent (right), showing deforestation of substantial areas, but also road development

Areas showing less tree cover already in the older images are less transformed in the newer images. For instance, the project area in Nawrakai-Zafrankhail in the Google Earth as well as ESRI images shows only partly degraded woodlands, in some areas only remnants in form of scattered trees and shrubs, within a landscape of secondary, degraded rangelands. Imagery from TLO shows degraded rangelands with soil erosion with single juniper trees. Also in the areas Zahoo, Mamakhel, Shaiko-Alikhel with dominance of degraded woodlands and rangelands changes are not obvious. In contrast, most affected seem to be areas with recently still comparably intact forests, suggesting commercial logging as major driver of deforestation. For a full understanding of the extent of forest degradation and forest loss a systematic analysis of satellite imagery would be necessary.

The livelihoods of the population of the project areas are mainly based on agriculture and the use of natural resources from forests and woodlands. As far as visible from the available GIS data the project areas not always include the agricultural lands and residential areas of the respective communities. At least some of the project areas (e.g. Zahoo, Tory Khail, Kochian) are located several kilometres away from the respective villages. Important forest products sold by local people include firewood, pine nuts and walnut as well as leaves used as fertilizer in gardens. Pine nuts from *Pinus gerardiana* are exported, e.g. to China, firewood is delivered to provincial centres and to Kabul. While demand for pine nuts has triggered interest in preservation and some reforestation or afforestation of pine tree stands, has the demand for fuel wood caused the clear cutting and uprooting of other tree species, in particular of oak. The interest in pine plantations as alternative may in some areas motivate the uprooting of other trees as fuel wood and the use of the area for establishment of pine plantations. However, the available imagery so far does not show substantial pine plantations in deforested areas. In most cases deforested areas remained barren. The destructive form of forest harvest is a major reason for the lack of natural regeneration of forests. Also livestock grazing effectively prevents the revegetation of deforested areas and is a major driver of the degradation of woodlands. Livestock is a major income source of the local people and together with the growing human population livestock numbers are increasing.

Climate change will - as elsewhere in Afghanistan – increase the overall aridity, in particular in the project areas in Paktia. Available models (Rubel, Kottek, 2010) suggest that under scenario A1FI/RCP 8.5³² the climate in the project areas in Paktia will shift from a boreal climate with year-round rainfall to a temperate climate, which is in some locations summer dry in other areas has year-round rainfall. In the project areas in Khost the climate would remain warm temperate and fully humid with hot summers. Local people notice climate change primarily by a growing unreliability of seasonal weather. Snowfall in 2019 in Khost, which had previously not been observed for many years, was positively attributed by farmers due to its contribution to soil moisture and water availability. On the other hand, there are perceptions about colder winters, warmer periods and overall changes in timing of seasons. These changes impact agriculture with delayed growth periods or earlier harvest. Droughts have caused shortage of forage for livestock.

The deforestation and land degradation in the watersheds causes degradation of vegetation and land, soil erosion and reduced water retention capacity, leading to an increase in frequency and severity of flash floods damaging agricultural lands, irrigation systems, infrastructure and other community assets.

Hazards and resulting disasters are largely related to the deforestation and degradation of natural vegetation. Under the conditions of deforested mountain areas regular rainfall causes destructive flash floods sometimes with debris flows. These floods are the major hazards causing the loss of arable and pasture land and damage houses and infrastructure. A flash flood damaged the irrigation system of Afzal Khel village and destroyed two aqueducts. Local people and the NGO see the following disasters as relevant for the project areas (Table 18).

Table 18: Hazards, disasters and their impacts and reasons in project areas of Paktia and Khost

HAZARD/DISASTER	IMPACT	REASONS
Flash flood	Damage of agricultural crops	- Deforestation and vegetation and land degradation in mountain areas.
Flash flood	Loss of arable lands and pastures from erosion	- Deforestation and vegetation and land degradation in mountain areas.
Flash flood	Damage of houses and infrastructure	- Deforestation and vegetation and land degradation in mountain areas; - Development of residential areas and infrastructure in high risk sites;
Changes in precipitation patterns / hail	Crop failure, reduced yield (fields, orchards, vegetables)	- Climate change impact (?)
Drought	Crop failure, reduced yield	- Deforestation and vegetation degradation in upper catchments; - Climate change causing accelerated runoff and reduced retention and groundwater replenishment (?)
Drought	Shortage of livestock forage, livestock losses	- Deforestation and vegetation degradation in upper catchments; - Climate change causing increase in inter-annual variation and changed seasonal patterns of precipitation with insufficient soil moisture during the growth season.
Drought	Impact on forest	- Degradation of vegetation of forests and woodlands, with opening of crown cover changing the microclimate within the stands through increased solar radiation, wind impact and reduced moisture; - Climate change causing increase in inter-annual variation and changed seasonal patterns of precipitation with insufficient soil moisture during the growth season.
Livestock disease		- Poor conditions of livestock caused by inadequate forage on degraded rangelands; - Insufficient veterinary services.

³² The A1 scenario family describes a future world of very rapid economic growth, global population that peaks in mid-century and declines thereafter, and the rapid introduction of new and more efficient technologies. The A1 scenario family develops into three groups that describe alternative directions of technological change in the energy system: fossil intensive (A1FI), non-fossil energy sources (A1T), or a balance across all sources (A1B). <https://www.ipcc.ch/report/emissions-scenarios/> RCP8.5 is one high pathway for which radiative forcing reaches greater than 8.5 W m⁻² by 2100 and continues to rise for some amount of time (the corresponding ECP assuming constant emissions after 2100 and constant concentrations after 2250).

The available information suggests that local people understand the problems caused by deforestation and degradation of woodlands and rangelands, but that addressing of the major drivers is difficult. People plant and maintain trees on private land, in particular develop orchards for livelihoods and income. Six nurseries established in Zahoo (Paktia) and Tory Khail (Khost) produce saplings of pine nut, walnut and apricots. These are trees of interest due to their potential of household income generation. The TLO team together with interested villagers during its technical surveys identified a number of potential interventions in the larger community areas. Such interventions may include construction of check dams, terracing, excavation of trenches, eyebrow, rainwater harvesting ponds, nurseries establishment, tree plantations (in Gardez – almond, in the other districts pine nut and walnut as well as poplar), forage crops (alfalfa and *Atriplex*), and medicinal plants and spices cultivation (cumin, hing) and construction of reservoirs for irrigation planted saplings and agricultural land irrigation system improvement. Furthermore, the planned interventions in all project areas include the establishment of “protected zones”, i.e. areas managed and used in a regulated manner, covering large sections of the respective catchment areas

However, the forests, woodlands and rangelands are open access areas and difficult to control. Therefore the people are primarily interested in tree plantations and establishment of orchards on their private lands, but are hesitant to invest in measures for preservation and rehabilitation of forest in community lands, where no one can be kept accountable. While the provided maps suggest that interventions in the larger landscape, it is not entirely clear in what extent the communities will be ready to invest in measures, the benefits of which are not as fast and tangible, as e.g. in the case of investments in irrigation system improvement. In particular, the surveys and the proposal do not provide information about the readiness and ability of the communities to prevent further unsustainable cutting and uprooting of trees for commercial fuel wood trade. The new proposal by TLO suggests sets of interventions, which are rather similar across all project areas with few site specific variations and specifics:

- 1) Establishment of regulated use zones, so-called “protection areas”, of in total 853 ha across all project areas, where forest and woodland vegetation is preserved, but used for animal grazing, cutting of bushes, and trees with some cultivation of drought resistant forage crops and medicinal/aromatic plants;
- 2) Reforestation areas of 417 ha across all project areas with different tree species (walnut, almond, poplar) and cultivation of drought resistance forage crops (e.g. alfalfa and *Atriplex*) and of medicinal/aromatic plants such as cumin and *Ferula assa-foetida*;
- 3) Nursery development (about 90 nurseries) for the production of saplings of mainly pine nut trees and walnut as well as other species;
- 4) Physical measures for upper catchment management (mainly in reforestation areas), like trenches, terracing, eyebrow for trees plantation, cuttings plantation, forage crops and medicinal plant cultivation to reduce soil erosion, land degradation, landslides and for increasing of rainwater retention;
- 5) Construction of check dams with gabions to reduce surface runoff and prevent soil erosion;
- 6) Installation of solar pumps (3 project areas), reservoir (1 project area) and pipe networks (2 project areas) for irrigation of planted saplings (in nurseries or in reforestation areas?) in six project areas where precipitation is critically low or too irregular to ensure survival of saplings;
- 7) Improvement of irrigation systems of agricultural lands in two project areas (Tory Khail – 40 ha through repair of irrigation water reservoir and canal, Afzal Khail – 10.3 ha in Toot village through repair of canals and construction of aqueduct protected from floods);
- 8) Introduction of fuel-efficient stoves to reduce fuelwood consumption and provide better cooking facilities which produce less air pollution (10 stoves, one per household, in each of the project areas, in total 100).

With only limited knowledge about the project areas, their diverse site conditions, local specific disaster risks and the details of ongoing and projected climate change the consultants can only share some impressions about the proposed and planned measures. The new proposal provides for each project areas a summary of the planned interventions, supported by maps. The information is, however, not detailed enough to comment on specific planned forest landscape restoration and disaster risk reduction measures. The following considerations about planned project activities and recommendations are therefore only suggestions.

The selection of tree species to be propagated in the nurseries and to be used in reforestation activities seems to be driven by the livelihood interests of the local people. These trees are commercially

interesting nut and fruit species (pine nut, walnut, almond, and apricot) or fast growing and provide timber for simple construction purposes (poplar). This selection is certainly justified by the need to motivate local people to invest labour into the planting activities and to ensure further maintenance and protection from damage by livestock and from illegal harvest. It is difficult to assess in what extent these trees are suitable and sufficient for the restoration of ecosystem functions and services of the forests and woodlands. The consideration of the key tree species of the natural forest and woodland ecosystems – as far as technically feasible – would be desirable for forest landscape restoration in the sense of ecosystems and Ecosystem-based Adaptation. Such species are – depending on the specific site conditions and the corresponding natural vegetation – the oak *Quercus baloot*, possibly other oak species like *Qu. dilatata* or *Qu. semicarpifolia*, *Celtis caucasica*, *Pinus wallichiana*, *Cedrus deodora*, and others. Preferably local seeds should be used for any reforestation and remnants of natural vegetation can serve as initials for natural regeneration of entire biocoenoses.

TLO plans to purchase from the community saplings of pine, walnut and apricot (probably poplar as well) to be planted in the forest landscape areas during the second and third years of the FLR project. These trees are of interest for the people as they can contribute to the household income. So it might be worth considering that local people purchase the trees by their own means, to increase the interest of people in proper planting, maintenance and protection. The trees might be sold at prices, which are subsidized by the project to make high numbers of trees affordable to all people and to secure an adequate income of the producing local nurseries. In the case that, as above suggested, tree species like oak are promoted, which provide only long-term and less direct benefits than fruit, nut and poplar trees, these might be more substantially subsidized or even purchased by TLO.

The proposal seems rather vague, how the obstacle that local people prefer investing in individual private land can be overcome for addressing larger areas, as planned. This also concerns the question in what extent it is likely that outside of private lands trees can be planted (if not entirely funded by the project) and will be protected and maintained beyond the project implementation period.

The proposal includes physical modification of slopes in form of trenches, terraces and eyebrow structures as means for reducing surface runoff and related soil erosion and to increase water infiltration. It seems that these measures have the final purposes of facilitating revegetation and reducing the frequency and intensity of flash floods. The consultants are not in a position to assess the potential benefits and risks of these measures. While the project has certain benefits in mind, the associated risks should be considered. Any disturbance of the natural soil structure has impact on the ecosystem. Typically humus topsoil is lost by wind and water erosion or through humus decomposition. At slopes with already thin topsoil the raw substrate from below becomes exposed. These changes of the soil structure can have negative or positive influence on the establishment of different plant species and thus – depending on the local species composition and the restoration targets – be either hindering or beneficial. Under the conditions of intensive livestock grazing, changing climate conditions and preference of people for income generating plantations vegetation restoration may not be successful. During the years vegetation restoration may need or in cases of unsuccessful plantations the disturbed the topsoil might be more prone to erosion than unchanged although deforested areas. Terraces can serve as starting points for intensive gully erosion and landslides, where areas are prone to this due to relief and substrate conditions. The consultants recommend thorough site assessments and the general minimizing of the costly and potentially risky physical modifications of mountain slopes.

Check dams and gabion walls can be meaningful for stopping or mitigating acute gully erosion in particular where this threatens infrastructure, substantial land areas and other valuable assets. The construction of such structures requires thorough site specific assessment and planning. For increasing the lifetime and effectiveness of such “grey structures” they might be complemented with “green structures”, i.e. protective planting, e. g. of willow *Salix spp.* or *Celtis caucasica*.

The proposal includes the rehabilitation of irrigation infrastructure in two areas. The irrigation area in Toot village (Afzal Khel) seems to be at least partly supplied with water from a catchment not covered as project area. This catchment might not be included in the project areas due to tenure issues. However as there is no other village nearby and according to the proposal water supply is by a *karez* (underground irrigation canal, but not visible in satellite imagery) it is more likely that the respective community in some extent manages this area. Also in Tory Khail the catchment from where irrigation water originates (according to the proposal delivered by a *karez*, not visible in satellite imagery) seems to be covered by the project area only in parts. It might be worth considering a combination of the rehabilitation and disaster proofing of the two irrigation systems with addressing the issues management and use of

forests, woodlands and rangelands of larger parts of the upper catchments delivering the irrigation water of the rehabilitated systems.

The introduction of fuel-efficient stoves cannot address the major driver of deforestation – the commercial trade in fuel wood to urban centres. However, improved fuel efficiency can reduce pressure on scarce forest resources in already deforested and degraded areas and it has positive impact on human health thanks to reduction of indoor air pollution. With only 10 devices per project area the introduction of such stoves is planned in very small scale. It is unlikely that a larger distribution can be achieved without additional measures. An approach aiming at a larger scale after initial testing of acceptance, e.g. through the development of local production and distribution, might be more effective than distribution of a small number of devices only.

Forest Landscape Restoration and specifically the use of ecosystem services for climate change adaptation and disaster risk reduction in the first place require the conservation and sustainable use of existing forests. It seems that deforestation in most project areas in Khost and – maybe in lesser extent – in Paktia is largely driven by external demand for fuelwood. The consultants cannot assess the roles of external actors, being it intermediary buyers of fuel wood or even outsiders with machinery harvesting and uprooting the trees, and in what extent the planned measures can address this driver. Road projects supported by any NGO, ODA or government should always be critically assessed in terms of their potential of further facilitating access of machinery to forests and woodlands potentially being targeted for commercial fuel wood harvest. Support of enforcement measures might be necessary and even physical barriers blocking access to critical areas might be considered.

Similarly as in the project areas in the other provinces, the balance between demography and available land, water and other resources needs to be assessed and recognized misbalances be realistically addressed.

3.3.3 Concluding recommendations on climate change adaptation and DRM

The development of effective CCA and DRM interventions requires site specific information and data on climate, hazards and various site conditions (incl. hydrology, geomorphology, vegetation). Direct on-site assessment and planning are desirable, but under the specific circumstances of Afghanistan this is not always possible. However, remote support can be effective if sufficiently detailed and site-specific information can be made available. In this context high resolution satellite imagery (e.g. Copernicus) provides useful information and should be used for preparedness and monitoring. Furthermore, direct interaction without or with few intermediaries would be needed between the teams working on the site and the experts providing remote support.

Climate change affects the agriculture and natural resources based livelihoods in all project areas and increases natural hazards. However, the main reasons for insecure livelihoods and increasing disaster risks are in the discrepancy between available resources in form of land, irrigation water, rangeland, wood and non-wood resources on the one side, and on the other side the size of human population, its increasing needs and legitimate will to improve living standards combined with a continuous rapid and exponential growth of this population. This discrepancy causes a continuous and worsening degradation of the ecosystems, insufficient resilience and adaptive potential of these ecosystems to climate change and a loss of their ecosystem services (incl. provision of resources and protective functions) towards the human population. The measures considered under the FLR project in the proposals of the NGOs can in parts mitigate this situation, but are likely in most project areas not sufficient to resolve the underlying discrepancy between human population and ecosystem capacity. It is therefore necessary 1) drastically reduce local human population growth, 2) to develop livelihood alternatives to agriculture and natural resource exploitation and 3) to regulate access to natural resources to prevent and reverse the ongoing degradation.

Ecosystem-based adaptation measures and engineering measures can be complementary. In the project areas, however, engineering measures without addressing ecosystems would be insufficient, given the high dependency of local people and their livelihoods on ecosystem services – provision services related to water, agricultural yield, livestock forage, fuel wood and others and protection services from floods, flash floods, debris flows, landslides etc. Climate change adaptation in the project areas in the context of forest landscape restoration should therefore consider the complex relations between past and current site conditions, ongoing and projected climate change and past, current and future land use. Participation of local communities should not end with the initial consultation resulting

in the preparation of survey reports and compilation of intervention ideas, but needs to be a continuous iterative process throughout all phases of the project cycle. Any measures – ecosystem-based or engineering – should be site-specific planned in a participatory way and with technical expertise. Local people's knowledge and experience should also be used to challenge considered approaches and to avoid costly failure. Implementation mechanisms with community contributions and responsibility are needed to prevent that people support and implement measures proposed from outside, primarily motivated by immediate income generation but not for achieving mid- and long-term benefits from these measures. Furthermore, technical expertise is necessary to draft solutions for local problems, which are technically sound and possibly go beyond the current imagination of local people. The perceptions of local people are often influenced by the “shifting baseline syndrome”, i.e. people have limited understanding about, for instance, the conditions of ecosystems one or few generations ago, as the remembered situation dominates the imagination. In the context of forest landscape restoration this may concern the presence of forests and woodlands in certain areas or the condition of rangelands still few decades ago. With every new generation the baseline further shifts. Another technical aspect is the anticipation of projected climate change and its impact during foreseeable time periods in intervention planning. For instance, the rehabilitation of an irrigation canal may need planning under consideration of the retreat of a glacier supplying this canal with water.

In the implementation of ecosystem measures, planting and seeding should take into consideration the potential natural vegetation as determined by the actual site conditions. Sometimes remnants of previous vegetation, like single remaining trees and shrubs, vegetation at sacred sites (*mazar*) and graveyards protected from grazing can give hints on the potential natural vegetation. Measures aiming at the restoration of ecosystems require that the causes of destruction of the natural systems are understood and can be reversed. Ecosystem-based adaptation may also include the establishment of artificial new systems, e.g. in the case of protective plantations in areas without such natural vegetation. In this case the site conditions have to be adequate and institutional means should be in place to ensure the maintenance of the established new systems, e.g. regular watering of planted trees and their protection from damage by livestock or unauthorized harvest.

Support of natural regeneration by temporary or permanent exclusion of destructive uses can be more cost efficient and lead to more sustainable results than planting and seeding. However, heavily degraded or destroyed ecosystems often cannot regenerate without assistance or only in very long time periods. Planting and seeding, sometimes supported by physical modification of site conditions to improve water retention, can be necessary to replace such destroyed ecosystems and restore some of their components and functions. Seeds and planting material should preferably be of local provenience (i.e. adapted to the site conditions). If non-native species and non-local cultivated sorts of plants are used, their suitability should be carefully assessed in terms of their ability to grow under the given conditions and to provide the expected benefits while not bearing the risk of becoming invasive weeds.

In terms of physical engineering site-specific assessment and planning are essential. Such measures require a lot of input and can be costly. Therefore they should be as effective as possible. They further have impact on the existing systems, being it hydrological, geomorphological, soil formation or biological. These potentially adverse impacts should be assessed. Sometimes such impacts can affect the local communities or other communities located in adjacent or even far away areas. For instance, the construction of river embankments to prevent lateral erosion causing losses of lands can cause the acceleration of such processes on the other riverbank or downstream. If regularly flooded riparian areas are protected by dykes against floods, their retention function is lost and downstream flood intensity increases, with potentially more damaging consequences.

Increase of resilience against disasters and violence requires an integrated approach. This should include introducing a resilience-based “preparedness” and “early warning”, which is in line with the locally available capacities. Furthermore, any “systems”/ technical infrastructure should be operated autonomous and in the responsibility of the local communities. Beyond this, data and information exchange with national and international knowledge hubs is required for major aid interventions. It is important to conflate these different “spheres” to achieve collective learning and continuous improvements.

We recommend using the Sendai Framework for Disaster Risk Reduction 2015 – 2030 and the related *Technical Guidance for Monitoring and Reporting* as standard reference for monitoring of disaster risk and impact of DRR measures. Using this standard reference would allow to get consistent information across the different project areas.

Overall, the perspective should turn from hazard focused infrastructure towards an approach of protection to “increase the resilience of the local people”. By this, a holistic perspective towards conflict, disasters and climate change adaptation is much easier to achieve.

4 Conclusions

With 80 percent of people in Afghanistan dependent on agriculture and natural resource-based livelihoods and facing substantial land degradation, FLR has a key role to play in ecosystem integrity and community well-being. Integrating gender, land tenure, and climate change adaptation and disaster risk management considerations in FLR programming promotes equitable and sustainable initiatives more likely to address community needs over the long-term.

The findings presented in this report demonstrate the importance of these topics. Key take-aways for gender include that any gender-sensitive project should start with the collection of gender-disaggregated data and gender analysis of the main challenges and issues for men and women. These results should then feed into the design of appropriate activities for women and men based on the identified challenges and needs. This work is dependent on strengthening female and male staff capacity in facilitation skills and basic gender analysis capacities. Further, FLR work should consider alternative rewards and benefits from project activities such as capacity building in literacy, business skills, basic nutrition and health, and establishing self-help groups or revolving funds.

Key take-aways for land tenure are the need to establish clear and equitable forest access and use rules such that FLR sites are guided by management that promotes equitable benefits and avoids accidental or intentional misuse. Equitable rules that are widely agreed upon will help prevent illegal use, avoid marginalizing vulnerable community members, and minimize conflict. While these rules are critical, disputes may still arise and require sound dispute resolution mechanisms. Existing community dispute resolution entities (i.e. CDCs, *jirga*, *shura*, elders) are often well-equipped to address local disputes. These entities, however, along with the new FMAs, could benefit from capacity building in conflict prevention strategies, common stakeholder grievances, monitoring disputes, and other aspects of forest-related dispute resolution along with better linkages to district entities involved in forest-related dispute resolution.

As climate change trends intensify, addressing climate and disaster risk is key to enhancing ecosystem and community well-being. These activities need to be based on site-specific information and climate data. Further, this work should be joined with efforts to address other drivers of land degradation presented by a growing population that is highly dependent on local natural resources. Climate change adaptation should consider the complex relations between past and current site conditions, ongoing and projected climate change and past, current and future land use. Additionally, a resilience-building approach with a holistic perspective of conflict, disasters and climate change is more effective than a narrow focus on hazards. This approach employs ecosystem-based, natural regeneration, and physical engineering measures in combination with disaster preparedness and early warning systems in line with local capacity.

While gender, land tenure, and climate change adaptation and disaster risk management each receive dedicated attention in this report, these are not stand alone issues. Rather each relies on the others to be most successful. Disaster risk reduction measures, for example, most effectively protect communities when they address women's and men's concerns and are implemented through land tenure systems that ensure their proper management over time. And working for equitable and secure land rights requires understanding gender dimensions of land use and the climate change adaptation and disaster risk management measures that will support land productivity and value. Further, to realize the benefits of gender mainstreaming, women's and men's voices must be incorporated into the design and implementation of activities such as disaster risk reduction and land tenure.

Integrating gender, land tenure, and climate change adaptation and disaster risk management in FLR programming may prove challenging at times as stakeholders focus on the immediate and abundant work necessary to restore forest lands. To strive for the most equitable and sustainable interventions possible, it is critical for the project team to include planning for integration of these issues into the range of project activities.

MAIL's 2018 Operating Manual for CBNRM offers one framework for integrating gender, land tenure, and climate change and disaster risk management in FLR programming. The manual itself does not necessarily sufficiently address each of these issues but nicely presents a series of steps for CBNRM (similar to those across CBNRM processes) that support the consideration and integration of each topic. The series of steps include community mobilization; forming local committees; identifying resources, problems, and local capacity; developing management plans; and more. For Step 5 on developing

CBNRM management plans, for example, the FLR project can build on the MAIL guidance to further highlight activities such as:

- engaging women's groups as stakeholders,
- encouraging the establishment of fair rules for protecting and using reforested areas, and
- considering how the management plan can address climate and disaster risk.

The FLR project in Afghanistan has great potential to enhance livelihoods in the project areas, the integrity of the land and ecosystems people rely on and provide further benefits to downstream communities. Effectively integrating gender, land tenure, and climate change and disaster risk management in FLR programming will support long-term benefits that reach across project communities and beyond.

Terms of reference (ToRs) for the procurement of services below the EU threshold

Consulting services on supporting the preparation of measures (Gender, Land Tenure and Disaster Risk Management) for Forest Landscape Restoration (FLR) in Afghanistan	Project number/ cost centre: 2018.2087.07
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0. List of abbreviations	2
1. Context.....	3
2. Tasks to be performed by the contractor	4
3. Concept.....	6
4. Costing requirements	8
Assignment of personnel	8
Travel	9
5. Inputs of GIZ	9
6. Requirements on the format of the bid	9
7. Annexes	9

0. List of abbreviations

AV	Auftragsverantwortliche(r), Project Director
AVB	General Terms and Conditions of Contract (AVB) for supplying services and work 2018
BMZ	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung
CV	Curriculum Vitae
DAIL	Department of Agriculture, Irrigation & Livestock
DC	Development Cooperation
DRR	Disaster Risk Reduction
FLR	Forest Landscape Restoration
GIZ	Gesellschaft für Internationale Zusammenarbeit
HQ	Headquarters
MAIL	Ministry of Agriculture, Irrigation and Livestock
NGO	Non-Government Organisation
NRM	Natural Resource Management
RMO	Risk Management Office
ToRs	Terms of Reference
UN	United Nations
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs

1. Context

Today, Afghanistan is a country with little or no closed forest stands. Recent satellite images classify only 1% of the country as forest; 56% of the country's land area is so degraded that it is not suitable for any further use or for fulfilling functions related to conservation and productive use to any significant degree. Projections done on behalf of the UN predict that if deforestation continues at the present rate, forest land in Afghanistan will have completely disappeared by 2040. Although 45% of the land area is officially classified as pasture land, the actual percentage is anticipated to be much higher as this land is also degraded and overexploited. As livestock numbers are too high for the small amount of healthy pasture land, many remaining trees and shrubs are cleared, and harvested fields are being used for grazing. Soil overexploitation degrades large areas, which gradually turns into barren land and is then prone to desertification. This process is accelerated by the uneven distribution of water resources and extreme weather events such as heavy spring rainfall and long periods of drought. In the Northern provinces, fertile land resources have the potential of achieving high agricultural yields. However, the uneven distribution of precipitation (with large volumes falling outside of the growing periods) means that irrigation is necessary in most parts of the country. The traditional irrigation system, which was based on the distribution of melted snow and ice from the Hindu Kush and Pamir mountains, has been largely destroyed by decades of conflict and war.

The Afghan Ministry of Agriculture, Irrigation and Livestock (MAIL), in particular its directorates at provincial levels, are not yet capable to address the problem of degraded forest landscapes in a comprehensive way. As a result, people in the communities risk losing their livelihoods and their main sources of income, as their livelihoods are still predominately land-based. They fall into the poverty trap and often see out-migration as the only way of coping with the diminishing living conditions. The degradation of natural resources exacerbates the negative impacts of climate change, which already can be experienced by the people in the local communities. Every year, almost half of the Afghan population is affected by increasingly frequent natural disasters. According to the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA), the dry winter in 2017/2018 resulted in crop failure, which put around 5.5 million people at risk of food and nutrition insecurity in 2018. Activities by MAIL to combat these challenges are not yet being implemented nationwide. This is due to the fact that permanent staff for natural resource management (NRM) endeavours is only assigned in the Departments of Agriculture, Irrigation & Livestock (DAILs) in 41% of the provinces (at the start of 2018, 42% of the ministry's staff worked at central level, 32% at provincial and 26% at district levels). At the provincial and district levels in particular, existing staff are often insufficiently qualified to effectively implement NRM projects. They lack specialised knowledge of cross-cutting themes related to rural development and the sustainable management of natural resources (such as pasture land and forestry management, restoration of habitats, wildlife conservation). Whereas activities are well coordinated at the national level, this is rarely the case in the provinces.

In order to provide solutions for the issues mentioned above, BMZ has commissioned GIZ with an eleven-month module with the aim of preparing a larger module of forest landscape restoration in five provinces (Takhar, Badakhshan, Samangan, Khost and Paktia). The **goal of the eleven-months-module** is as follows: *Measures to restore forest landscapes in Afghanistan have been prepared together with the Ministry of Agriculture, Irrigation & Livestock (MAIL) and its provincial representations.*

The planned Outputs are formulated as follows:

Output 1: *Landscape management plans have been compiled in a participatory manner at the village level.*

Output 2: *Measures that sustainably strengthen the resilience of the rural population to natural disasters and economic crises are described.*

Output 3: *Local, regional and national structures for participatory, conflict-resolving land use plans and the restoration of forest landscapes have been set up.*

Output 4: *The conditions for developing sector-specific education and capacity development measures for the sustainable use of forest resources are in place.*

The activities envisaged in this first eleven months mainly comprise further analyses in the fields of current forest management approaches, the impacts of natural disasters to the landscapes and the local population, the current situation regarding job opportunities, including the situation of men and women (gender); and training needs analyses. They should serve as the basis for developing sound and adapted activities for the follow-up module aiming at implementing FLR-measures in five provinces. It is also planned to assign experienced national, regional and international NGOs that implement the FLR-activities in the local communities. The contractor should closely cooperate with these NGOs.

To ensure in-time deliverability of the finding of the analyses by the FLR-module, it is envisaged to conclude a framework contract on technical consulting services in the fields of gender, land tenure, Climate Change and disaster risk management (DRR).

2. Tasks to be performed by the contractor

The tasks to be carried out by the contractor are mainly related to Outputs 2 and 3 (Results Matrix see Annex) and are structured in four work packages, which indicate the character of the framework consultancy. According to the needs of the project, a short description illustrates the orientation of each of the three packages. The fourth package indicates a flexible stock of days for a quick implementation of further topics related to FLR. This list, though, has more of an indicative character for describing the tasks in the framework contract. The services described in this document represent the framework of possible duties. The final work description for each of the assignments (objectives, timeline, research activities, and field data collection methods) will be elaborated prior to the assignment and will be oriented on the concrete needs of the project; the time frame will be agreed upon mutually. Literature research can be done in the consultants' home country. It is foreseen that each assignment will be carried out by a "tandem" of an international and an Afghan expert. The bidders should therefore offer international and national experts for each work package. The bidders should pay attention to present female experts, wherever possible.

Work Package 1: Gender, Socio-Cultural Conditions and Natural Resource Management (up to 25 international, 30 national days)

Gender-responsive restoration aims at enabling both women and men at all levels to have an equal say in strategic decisions related to FLR, and ensuring this translates into substantive equality in FLR outcomes. This assumes that women and men in local communities are recognized as rights-holders and legitimate stakeholders who can exercise voice and influence in changes in land use derived from FLR, governance of FLR and distribution of resultant benefits and costs. It must be acknowledged that FLR may involve revisiting land use plans in given areas which may in turn lead to populations groups' displacement and

livelihood changes, this needs to be avoided and/or minimized to the extent possible. The project has to develop gender-responsive and do-no-harm mechanisms, compensation, and adequate grievance mechanisms for all those likely to be affected. This is critical to safeguarding the rights of local women and men. Further socio cultural conditions, rules, and customs of different rural communities and their possible interaction with potential project activities have to be analysed within this working package. Methods of the consultancy include literature search and experience collection from local communities through the implementing partners/NGOs and elaborating recommendations for gender-sensitive activities in the communities.

Work Package 2: Land Tenure and Forest Landscape Restoration (up to 25 international, 30 national days)

A suitable FLR enabling environment can be found where tenure and resource rights are clarified and enforced. Secure rights are key to ownership, effective participation and allow for long-term investments in FLR. However, where this is not the case, the integrated character of the FLR approach may also contribute to securing tenure. FLR projects also need to create clear and accessible processes for resolving conflicts related to land. The project in Afghanistan should strengthen governance and tenure issues; however, present land tenure structures are not yet clearly researched in Afghanistan. The consultancy should aim at providing facts of the actual land tenure situation and recommend if and how the project could introduce transparent procedures and mechanisms in land administration. Traditional rules and conditions have to be taken into account: What are existing or known mechanism in the local communities to solve land conflicts? What are the relevant stakeholders and what are their respective interests and needs? Which possibilities exist to balance the different interest of various stakeholders within a FLR approach? Methods include literature searches and collecting experience from local communities through the implementing partners/NGOs.

Work Package 3: Climate Change Adaptation and Disaster Risk Management (up to 25 international, 30 national days)

FLR seeks to enhance the resilience of the landscape and stakeholders vis-à-vis natural disasters, including those emanating from climate change, over the medium and long terms. Restoration approaches should comprise improving local capacities to overcome natural disasters and to include changes in climate and other environmental conditions, knowledge, capacities, stakeholder needs, and social values in an adaptation strategy. Since restoration progresses, information from monitoring activities, research, and stakeholder guidance should be integrated into management plans, it is necessary to assess the present status of impacts of natural disasters, the vulnerability and coping capacities of landscapes and people and possible future (climate) adaptation measures (including ecosystem-based adaptation, EbA) to be implemented in the communities. Methods include literature searches and collecting experience from local communities through the implementing partners/NGOs.site-specific

Work Package 4: Flexible stock of days (up to 25 international/30 national days)

Quick and flexible technical advice on measures especially requested in the frame of FLR topics.

Team leader - report editing and technical advisory – (up to 12 international days, home-based)

Technically profound, effective organisational and timely advisory are the main components of successful management and steering of short-term experts. While the proposed experts are responsible for implementation of the required consultancies on site, the contractor's editing and advisory expert (team leader) is responsible for the continuous support and guidance from the contractor's headquarters (HQ). These services should encompass the entire implementation phase of the consultancies. Consultants should ensure they are available reachable by and the project management of the FLR project at any time. This is an integral part of the steering structure of this assignment mainly comprising technical and conceptual guidance of the contractor's contribution, quality control of deliverables and reports, knowledge and information management, management of adaptation processes in case of changing regulatory frameworks, mediating conflicts, personnel management and overall administration ensuring smooth and timely implementation of the consultancies.

The contractor is responsible for providing the following services:

- Selecting, preparing, training and steering one or more qualified international expert(s) for each work package mentioned above, upon request by the FLR-Project (expert pool),
 - Selecting, preparing, training and steering one or more qualified national expert(s) for each work package mentioned above, upon request by the FLR-Project (expert pool),
 - Arranging visa and international flights for the international experts,
 - Providing technical guidance for the international and national experts, in close cooperation with the AV of the FLR-Project,
- Editing of reports of the experts and ensuring that quality reports are delivered in time.

Each consultancy for the work packages mentioned above should result in a concise report written in English. Each report comprises a detailed analysis of the present situation of the respective sector in Afghanistan and especially the project areas, and recommendations for future concepts and activities to be implemented in the FLR project.

Each assignment in Afghanistan will start with a debriefing together with the project team and finish with a debriefing to selected stakeholders, in which the consultant presents his/her findings in a comprehensive and understandable way.

Due to the security situation in Afghanistan and the subsequent restricted number of international expert to be present in Kabul and in project implementing regions, the actual number of days in Afghanistan/region has to be handled flexibly and will be finally decided during the development of specific Terms of Reference for each assignment. Due to this special situation, a larger proportion of each assignment can be carried out in the home country by remote communication with the stakeholders in Afghanistan.

Period of assignment: From July 1st, 2019 until February 29th, 2020.

3. Concept

In the bid, the bidder is required to show how the tasks defined in Chapter 2 are to be achieved, i.e. The bidder is required to provide personnel that is suitable and qualified to fulfil the tasks described in the work packages.

Technical-methodological concept

Strategy (Assessment grid 1.1.2): The bidder is required to consider the tasks to be performed with reference to the objectives of the services put out to tender (see Chapter 1).

Following this, the bidder presents and justifies the strategy with which it intends to provide the services for which it is responsible (see Chapter 2). In this case, it comprises the following:

- A description of the company's experience in rural development, natural resources management, and forestry in semi-arid areas of Asia and/or Afghanistan (up to 2 pages);
- A description of the company's editing and technical advisory concept for this framework consultancy including the designated personnel. This includes a backstopping strategy to ensure the quality of the experts' assignments (assessment grid 1.6.3). (up to 2 pages);
- A table summarizing the experience of the proposed international and national expert pool for each work package (up to 5 pages);
- An annex with a detailed CV of each expert in the expert pool.

It is not required to present any conceptual descriptions for the consultancies in the offer.

Personnel concept

The bidder is required to provide personnel that is suitable and qualified to fulfil the tasks described in the work packages.

Experts assigned to one work package may also work within another work package, if qualified. Nevertheless, they must be offered under one work package only to insure a comparable evaluation.

The below specified qualifications represent the requirements to reach the maximum number of points.

Team leader (report editing and technical advisory)

Tasks of the team leader

- Overall responsibility for the advisory packages of the contractor (quality and deadlines)
- Coordinating and ensuring communication with GIZ, partners and others involved in the project
- Personnel management, as well as planning and steering assignments and supporting local and international short-term experts
- Regular reporting in accordance with deadlines

Qualifications of the team leader

- Education/training: University qualification (MSc equivalent) in natural resource management, biology, ecology, geography, agronomy, rural development, landscape planning, forestry, rural economics or similar subjects;
- Language: Good business language skills in English; German language knowledge is of an advantage,
- General professional experience: comprehensive professional experience in rural development;
- Specific professional experience: profound experience in at least one of the following areas and related to the work packages: gender in rural areas, land tenure, disaster risk management and reduction, rural development (including participatory

- approaches), FLR, climate change adaptation (including ecosystem-based adaptation).
- Regional experience: profound of experience in projects in semi-arid areas of Asia,;
- Development Cooperation (DC) experience profound experience in DC projects.

International short-term expert pool (1) with minimum 4, maximum 8 members

Qualifications of the international short-term expert pool

- Education/training: University qualification (MSc equivalent) in natural resource management, biology, ecology, geography, agronomy, rural development, landscape planning, forestry, rural economics or similar subjects;
- Language: Good business language skills in English; German language knowledge is of an advantage,
- General professional experience: comprehensive professional experience in rural development;
- Specific professional experience: profound experience in at least one of the following areas and related to the work packages: gender in rural areas, land tenure, disaster risk management and reduction, rural development (including participatory approaches), FLR, climate change adaptation.
- Regional experience: profound experience in projects in semi-arid areas of Asia,;
- Development Cooperation (DC) experience profound experience in DC projects.

National short-term expert pool (2) with minimum 4, maximum 8 members

Qualifications of the national short-term expert pool

- Education/training: University qualification (Bachelor or MSc equivalent) in natural resource management, biology, ecology, geography, agronomy, rural development, landscape planning, forestry, rural economics or similar subjects;
- Language: Good business language skills in English and Dari; Pashtu language knowledge is of an advantage,
- General professional experience: comprehensive professional experience in rural development, forestry, nature conservation and/or ecological restoration;
- Specific professional experience: profound experience in at least one of the following areas and related to the work packages: gender in rural areas, land tenure, disaster risk management, rural development, climate change adaptation, ature conservation;
- Development Cooperation (DC) experience profound experience in DC projects

4. Costing requirements

Assignment of personnel

The whole assignment comprises up to 232 expert days, which are divided into

- 1) Team leader: Home-based for 12 expert days,

2) Expert Pools:

Expert	Total expert days	Total expert days home country	Total expert days Afghanistan and region	International roundtrips
Pool of international experts	100	72 (estimated)	28 (estimated)	4
Pool of national experts	120		120	-

Travel

The bidder is required to calculate the travel by the specified experts and the experts it has proposed based on the places of performance stipulated in Chapter 2 and list the expenses separately by daily allowance, flight costs and other travel expenses (visa costs).

Accommodation and transport within Afghanistan will be provided by GIZ directly and are therefore not part of the financial offers made by the bidders.

5. Inputs of GIZ

GIZ is expected to make the following available:

- Required number of workstations in the GIZ country office,
- Transportation in Kabul with own project vehicles (Dispatch),
- Coverage of Risk Management Office (RMO),
- Flights and accommodation outside Kabul, if required.

6. Requirements on the format of the bid

The structure of the bid must correspond to the structure described in Chapter 3 and is to be organised in accordance with the positively weighted criteria in the assessment grid (not with those of zero). It must be legible (font size 11 or larger) and clearly formulated. The bid is to be written in English language.

7. Annexes

Results Matrix of the FLR Project.

Annex 2

Afghanistan

Forest Landscape Restoration Expert Pool Survey Plan

24.10.2019



Presented to
The Forest Landscape Restoration Project
of the German Cooperation in Afghanistan

October, 2019

Your contact person
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Afghanistan

Forest Landscape Restoration Expert Pool Survey Plan

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TABLE OF CONTENTS

1 Objectives and Rationale.....	2
2 Timeline of the Survey	3
3 Data Collection.....	4
3.1 Mapping Exercise	5
3.2 Multiple-choice questions	6
3.3 Focus Group Discussion (FGD)	10
4 Further remarks to data gathering	12
5 Respondents for the Survey	13
6 Documentation of results	14
7 Analysis of results.....	14
ANNEX	16

Survey Plan

1 Objectives and Rationale

This survey plan shall complement existing work of NGOs affiliated with the GIZ Forest Landscape Restoration (FLR) project. It shall direct the NGOs' data gathering exercises in Samangan, Badakshan, Paktia, Khost, and Takhar to enable recommendations on potential project activities. The survey content evolves around the issues Gender & FLR, Land Tenure, Climate Change Adaptation and Disaster Risk Management.

- Women in the target communities likely will not have an equal say in strategic decisions around FLR issues. Important decisions relevant to FLR include restoration objectives, target areas, choice of stakeholder involvement, approaches, selection of species and how to monitor progress. Approaches and priorities will be different for women and men and can also differ within these groups based on socio-economic status, ethnicity, age, displacement status and other characteristics. These priorities are driven by gendered sets of knowledge, rights, roles and responsibilities. For instance, gender norms and roles determine perceptions about land degradation and priority areas for restoration. For this reason, it is critical to understand women's role within decision-making processes, their needs with regard to FLR and additional socio cultural conditions and rules that may influence potential project activities.
- Land tenure and governance systems are key to successful FLR initiatives that support long-term investment in and protection of restoration activities. Land tenure can be defined as "the social relations and institutions governing access to and use of land and resources."¹ Land tenure arrangements involve determining who holds various decision-making, control, and land use rights and responsibilities among the range of stakeholders.² The absence of clear or secure land tenure arrangements for forest resources has proved to be a disincentive for communities and individuals to participate in reforestation activities.³ In contrast, clear and secure rights to reforestation related benefits (e.g., forest resources, related ecosystem services) can incentivize participation in restoration activities, boost transparency in governance, and support sustainable forest use over time. This survey plan aims to collect facts on existing land tenure arrangements and to gather data on land conflicts and established solution mechanisms thereof.
- Current climate trends and natural hazards (measured and perceived), vulnerabilities and risks caused by land degradation and climate change and their direct and indirect impacts will play an important role to determine suitable activities that in the long-run will improve the local livelihoods and the communities' resilience to climate change and extreme weather events. Therefore, the questions posed in this Survey Plan will try to identify recent natural disasters that have occurred during the past five years in the target areas as well as underlying causes and aims to shed light on the losses and challenges linked to the disasters as well as existing and potential adaptation strategies. However, to allow a deepened analysis of disaster risks and potential prevention needs, it is recommended to initiate an analysis covering a longer period (approx. 25 years).

¹ Larson, A.M., Springer, J., 2016. Rights. Recognition and respect for tenure rights. NRGF conceptual paper. IUCN, CEESP and CIFOR: Gland, Switzerland.

² Sikor, T., He, J., Lestrelín, G., 2017. Property Rights regimes and natural resources: A conceptual analysis revisited. World Development 93, 337–349.

³ McLain, R., Guariguata, M.R., Lawry, S., Implementing Forest Landscape Restoration Initiatives Tenure, Governance, and Equity Considerations GIZ, CIFOR, and CGIAR.

The collected data shall enable the international and national consultants – and ideally the NGOs – to further reflect on the current situation in the target communities and to draw conclusions on current living situations, vulnerabilities, and needs. This will inform the development of recommendations for future project activities in the communities.

2 Timeline of the Survey

Time	Activity	By whom	Location	Output
September 30 - October 4, 2019	Revision of Survey Plan	GFA and ISTE		Revised and shortened Survey Plan only involving 2 FGDs per village (including mapping)
October 6-8, 2019	Feedback from GIZ on Survey Plan including further revisions if needed	GIZ, (GFA)		
October 14, 2019	Interview Briefing for NSTEs	Laurie Ashley and NSTEs		
October 13-17, 2019	NSTE interview NGO partners	Ghulamullah Afghan-yar	Skype/tele-phone	TLO is interviewed
		Sharafuddin Jamal	Skype/tele-phone	Mission East and WHH are interviewed
		Masehullah Moham-madi	RGEO in person and Rupani via Skype/tele-phone	RGEO and Rupani are interviewed
October 20, 2019	Interview results are delivered to Julia Bayer	NSTEs		Interview results are submitted in the form of Word templates
October 21/22, 2019	Survey Plan is further adapted/shortened in line with interview outcomes	ISTEs (and GFA)		Survey Plan is finalised
October 24, 2019	Revised survey guidelines submitted to GIZ/NGOs/surveyors	ISTEs/GFA	Project provinces	Revised survey guideline including form of results presentation
October 24 – November 8, 2019	Preparing KoBo	NGOs/GIZ		Multiple-choice questions are put into the KoBo toolbox
10 November 2019 – 5 January 2020 (tbd)	Field Surveys	NGOs	Takhar, Badakshan, Samangan, Paktia, Khost	Data collected and provided to GFA (via GIZ)
January 5 - 10 2020	Preliminary Analysis of data	ISTEs	Home based	Preliminary results including plausibility checks (triangulation) with

				secondary data (literature etc.) are prepared in form of a Power Point presentation
Mid-January	Workshop (approx.. 2 days)	ISTE/GFA/GIZ/NGOs	Dubai	Presentation of preliminary results and discussions with NGOs
Mid-January to Mid-February	Report writing	ISTE/GFA	Home based	Report with recommendations (see ToR) is developed and sent to GIZ

3 Data Collection

A mixed-method approach should be used. The (participatory) methods proposed here serve to examine NRM practices, vulnerabilities, access and control of natural resources and priorities and approaches for restoration among others. In line with suggestions by GIZ to maintain the feasibility of the data collection, there will be **two Survey Sessions** per village/community – one to be carried out with female participants and one with male. Each Survey Session will contain **three components, i.e. 1) a participatory mapping exercise, 2) multiple choice questions, and 3) a Focus Group Discussion**. The three components complement each other and will allow a minimum of data triangulation.

Overview of Survey Session

COMPONENT	DURATION (3.5 HOURS)	TOOL FOR NOTE TAKING	PARTICIPANTS IN SURVEY SESSION	NO. OF INTERVENTIONS
1. Mapping Exercise	~60 Minutes	Photos, notes of discussion in text form in word (template for notes will be provided)	Approx. 5-12 participants, including members of the following groups: • CDCs • Elders (could be included with CDC or targeted separately) • Community organizations/NGOs, if existing • Forest users or community members (separate groups for men and women and, if applicable, separate groups for different types of forest users or different socio-economic groups) • Interested and selected members from across the community level target groups	2 per village/community (1 session with women and 1 with men)
2. Multiple-choice questions	~60 Minutes	KoBo Toolbox via Android		
3. Focus Group Discussion	~90 Minutes	Notes in text form (template will be provided)		

Each session shall begin with the mapping exercise, continue with the closed ended questions and end with the focus group discussion. The mapping exercise will serve as door opener and familiarize the participants with the survey topics as it deals with a surrounding very familiar to participants. The closed ended questions will then further contribute to the participants' understanding of the Survey and allow community members to get used to the thinking and idea behind the survey. At the end, the community members can more freely express their own thoughts during the Focus Group Discussion.

The duration of each Survey Session (and the single components therein) will strongly depend on the number of participants and the number of facilitators/interviewers. If the number of participants is bigger than six individuals, and if there is sufficient NGO staff present, it may make sense to divide groups and have two Survey Sessions in parallel.

Facilitators/interviewers shall ensure that there are adequate breaks and that participants do not feel over burdened by the sessions.

3.1 Mapping Exercise

Expected outputs:

- Labelled photos of each map created (labelled by: community name, MAP, type of participants; e.g. "Sarkand_map_women")
- Translations of writing on maps, if required
- Data in text form (Word template will be provided) of the main discussion points and outcomes during the mapping exercises

The mapping exercise shall be used at the beginning of each survey session in the communities. Preferably, two staff members should be involved in the mapping exercise: one facilitator and one note-taker.

The maps should be drawn on a **large sheet of paper** by the group members. **Different colors** can be used to represent different places, areas, hazards or other points of interest in the community. The objective is to identify the locations where e.g. natural hazards strike or community members pursue their livelihoods. The mapping exercise serves both as mean to gather data through the map and through the discussion evolving between community members while working on the map. In addition, the mapping will serve to triangulate data gathered during the other components of the Survey Session.

The participants shall be asked to draw and discuss the following:

General features

- Geographic references like mountains and valleys
- Main points of interest in the community (e.g. mosque, health center, house of village leader, schools, burial sites, markets/trading areas, etc.)
- Main roads/paths
- Meeting places for women and men groups
- Depict surface water sources (rivers, ponds, lakes, springs, snowfields, glaciers etc.)
- Show natural resources used by members of the community (forests, woodlands, grazing land, agricultural lands (including crop types) etc.)
 - Where do different people farm/collect firewood and non-timber forest products/graze livestock/etc.?
- Where do people collect:
 - Water?
 - Fuel?
 - Construction materials?
 - Non-timber forest products (ask about the specific products collected in this area)?

Features related to Land Tenure

- Community boundaries (both formal and informal)
- Boundaries for various types of land ownership (private, community, government)

- Areas of conflicts over land ownership or use (with a focus on community and government land)

Features related to Climate Change Adaptation and Disaster Risk Management

- What locations have been affected by extreme weather events or natural disasters?
 - Type (drought/flood etc.) of natural hazard or extreme weather event and location where it could be observed
- Areas where deforestation has occurred (additional: when has it occurred?)
- Areas where remnants of forests, woodlands, single trees still exist
- Where are degraded lands (erosion/desertification/no grazing possible)?
- Priority areas for forest restoration/ hazard risk reduction: Where should measures against natural disasters be taken and which measures are those?

3.2 Multiple-choice questions

Expected outputs:

- KoBo data in Excel format (raw data)
- Coordinates of Survey location obtained from KoBo
- Basic analysis (“summary reports”) of the data as available within the KoBo toolbox software

The 20 questions below shall be put into the KoBo Toolbox software. The questions will be asked to the participants of each Survey Session as a group, which requires the group to agree on a joint answer. Compared to individual answers, joint answers entail the risk of harmonization where a wide variety of answers may allow for a more detailed analysis of the results. However, group answers will enable the NGOs to draw on collective knowledge and gather relevant information in a relatively short time. The group answers shall be recorded by using the KoBo Toolbox via a mobile phone/tablet. The collected information can be recorded offline without internet connection and can be synced when the devices are back online.

The questions explicitly allow **multiple answers**.

General questions on livelihoods and natural resource usage

1. Which activities are the most important to sustain livelihoods of people in this village/ Please rank them in order from most important to least important (Note: rankings are a possible question type within KoBo)
 - a. Livestock keeping
 - b. Farming
 - c. Non-timber forest products
 - d. Seasonal/casual labour
 - e. Fixed (government) job
 - f. Other employment
 - g. Other
2. Please name and rank the resources people in the community depend upon the most
 - a. Forest/woodlands
 - b. Farm land
 - c. Rangelands/pastures
 - d. Rivers
 - e. Springs/ponds
 - f. Other (please specify)

3. From what type of land do people cut trees OR collect non-timber forest products? Please rank them in order from most important to least important.
 - a. Private land
 - b. Community land
 - c. Government land
 - d. Lease land
 - e. Other (please specify)

4. Please tell us what the resources are used for
 - a. Forest/woodlands
 - i. To collect wood for home use (e.g. construction or firewood)
 - ii. To collect firewood for sale
 - iii. To collect non-timber forest products (e.g. medicinal plants, nuts)
 - Note to the facilitator: if iii is chosen, please ask which non-timber forest are collected
 - iv. As grazing land for livestock
 - v. For agriculture (e.g. cutting trees to make farm lands or using forest resources for agriculture)
 - vi. Other (please specify)
 - b. Farm lands
If yes, please name crops
 - c. Rangelands/pasture
 - i. Sheep
 - ii. Goats
 - iii. Cattle
 - iv. Poultry (e.g. chicken or turkeys)
 - v. Collecting shrubs (for fuel)
 - vi. Other (please specify)
 - d. Rivers
 - i. Water for agriculture
 - ii. Water for cooking/household use
 - iii. Water for livestock
 - iv. Other (please specify)
 - e. Springs/well water/ponds
 - i. Water for agriculture
 - ii. Water for cooking/household use
 - iii. Water for livestock
 - iv. Other (please specify)

5. Please estimate how many households in the community keep
 - a. Sheep
 - b. Goats
 - c. Cattle
 - d. Poultry (e.g. chicken/turkeys)
 - e. Other (please specify)

6. How is livestock fed in winter?
 - a. Purchase hay/dry fodder
 - b. Purchased concentrate feed
 - c. Own stored hay/dry fodder
 - d. Collect grass/feed/tree leaves
 - e. Migrate to winter pastures
 - f. Other (please specify)

7. How do you feed your livestock in summer?

- a. Go to summer pastures
 - b. Take animals for grazing on daily basis
 - c. Growing fodder crops
 - d. Collecting grass and tree leaves
 - e. Buy hay/dry fodder
 - f. Buy concentrate feed
 - g. Other (please specify)
8. How is your livestock herded?
 - a. By the family that owns it
 - b. By employed herders
 - c. By community herders
 - d. By several families together
 - e. By households in turn
 - f. Other (please specify)
9. Are the pastures changed between seasons/ is there a seasonal pasture rotation?
 - a. Yes (if yes, please explain)
 - b. No

Gender

10. What cash earning activities are male/female members of the household engaged in?
 - a. Male members cash earning activities:
 - i. Seasonal agricultural labour (other people's land)
 - ii. Seasonal construction work
 - iii. Other casual work
 - iv. Fixed employment
 - v. Trade/business/shop
 - vi. Selling crops (from own land)
 - vii. Selling livestock and livestock products (from own livestock)
 - viii. Selling forest products
 - ix. Other (please specify)
 - b. Female members employment activities:
 - i. Selling crops from own garden/agricultural land
 - ii. Selling forest products
 - iii. Selling livestock and livestock products (from own livestock)
 - iv. Seasonal agricultural labour (other people's land)
 - v. Producing and selling handicrafts
 - vi. Other (please specify)
11. Who controls cash derived from specific income-generating activities?
 - a. Men
 - b. Women
 - c. Decision are made jointly within the family
 - d. Other (please specify)
12. Who makes decisions about the household budget?
 - a. Men
 - b. Women
 - c. Jointly
13. Within your household who is responsible for the following (Answer categories for all these questions are : a) adult women, b) adult men, c) boys, d) girls, e) hired labor, f) other):
 - a. Farming:

- land preparation
- nursery maintenance
- sowing/planting
- weeding
- fertilizing
- harvesting
- b. Food/plant collection & sale:
 - collection of edible & medicinal plants, Non-Timber Forest Products (nuts, mushrooms, honey etc.)
 - sale of edible & medicinal plants and other Non-Timber Forest Products
- c. Livestock:
 - taking care of young stock and sick animals
 - providing water to animals
 - collecting fodder
 - feeding livestock
 - grazing/moving animals on pasture
 - treatment of diseases
 - marketing of products (eggs, live animals, milk, dairy products, wool, cashmere)
- d. Household needs:
 - fetching water
 - fetching fuel wood/shrubs

Land Tenure

14. Who controls the use of pastures?
 - a. No one
 - b. The community or community members (please specify)
 - c. Representatives of the government/the province/the district (please specify)
 - d. Other
15. Who controls the use of forestland?
 - a. No one
 - b. The community or community members (please specify)
 - c. Representatives of the government/the province/the district (please specify)
 - d. Other
16. What type of land, in terms of ownership and use, is best for reforestation projects?
 - a. Private land
 - b. Community pastures
 - c. Other community land
 - d. Government pastures
 - e. Other government land
 - f. Lease land
 - g. Other

Climate Change Adaptation and Disaster Risk Management

17. What types of natural disasters or extreme weather events have occurred in the past?
(Note to Facilitator: Please try to get an idea of the time when an event occurred, for example “every year”, “5 years ago”, “every year during the past 10 years”)
- a. Droughts
- b. Heavy rain fall
- c. Floods
- d. Flash Floods
- e. Land slides

- f. Avalanche
 - g. Other (please specify)
18. What was or is the impact of hazardous events/disasters for
- a. Drought
 - i. Crop failure
 - ii. Loss of livestock
 - iii. Desertification
 - iv. Other (please specify)
 - b. Heavy rain fall
 - i. Crop failure
 - ii. destruction of houses
 - iii. Loss of livestock
 - iv. Erosion
 - v. Other (please specify)
 - c. Land slide/debris or flow/flash flood
 - i. Crop failure
 - ii. Destruction of houses
 - iii. Loss of livestock
 - iv. Loss of farming or pasture lands
 - v. Other (please specify)
19. How did you react in the aftermaths of natural disasters in order to overcome the losses?
- a. Selling assets such as livestock
 - b. Borrowing money from relatives/community members/friends
 - c. Buying additional food to make up for losses
 - d. Receive help from humanitarian organizations
 - e. (Short-term) migration
 - f. Other
20. What do you do in order to mitigate the risk for future problems with natural disasters and extreme weather events?
- a. Changing to more resistant crops
 - b. Using different areas for farming/livestock grazing
 - c. Building resilience (e.g. disaster risk reduction activities like trainings)
 - d. Looking for alternative income sources, such as...(please note details given by interviewee)
 - e. Other (please specify)
21. Has there been any external assistance to compensate losses or to prevent losses from natural disasters, e.g. by the government or other organizations?
- a. Yes (if yes, please specify)
 - b. No

3.3 Focus Group Discussion (FGD)

Expected outputs:

- Word Template with written text (template will be provided). The notes shall comprise the key points discussed for each question (no transcription)

Opening questions

1. How have the conditions and area of forest and woodlands in your community changed in the past 5 years?
 - a. Probe: What about trees on private land? Trees outside of private land? Non-timber forest products? Please describe.
2. What are the causes for these changes? Please describe.
3. Is this area experiencing changes in other natural resources? For example, erosion, shortage of forage for livestock, longer distances for fuel wood/fuel shrub collection, lack of nutrients in fields and gardens, chopping of fruit trees for fuel, changes in water availability?

Gender

4. Ownership, use and control over natural resources in the community, is this different for different social/ethnic groups or men and women?

Land Tenure

Rules and land governance

5. Can you describe the types of rules for using forestland and trees in the village and surrounding community and government land?
 - a. Probe: Rules for cutting down trees, gathering particular types of non-timber forest products, collecting wood for fuel, any other rules for various activities.
6. Are these rules local/customary laws, government rules and laws, or both? Please explain.
7. Are these rules fair? How are they fair or not fair?
8. Who is responsible for enforcing these rules?
9. What happens if someone from within the village breaks the rules?
10. Are outside groups harvesting or using resources from forests and woodlands or rangelands in this area? Are they following the rules?
11. Does anyone from government help manage forests, woodlands and rangelands here? If yes, who and how?
12. Are people aware of the government laws and rules?

Conflicts about forest resources

13. Are there conflicts about who can use forests/woodland/rangeland, for what purposes (e.g., cutting trees, shrubs or harvesting particular types of non-wood forest products, grazing livestock)? What are these disagreements?
 - a. What causes these conflicts?
14. Are conflicts over forests or other natural resources increasing, decreasing, or staying the same?
 - a. If increasing or decreasing, why?
15. Are there dispute resolution mechanisms for conflicts over forest, woodland and rangeland use or resource harvesting?

- a. Do people use formal government dispute resolution mechanisms, local/customary mechanisms, or both? Please describe the dispute resolution mechanism.

Climate Change Adaptation and Disaster Risk Management

16. What changes in temperatures during and between seasons do you perceive over the years? Are winters/summers getting warmer or colder? Any other observations?
17. Is there a trend that the timing of seasons changes? E.g. do certain trees, crops or other plants have changed phenology (blossoming/harvesting time)?
18. Has precipitation (rainfall and snowfall) changed over the years? (Note to the facilitator: options are increase, decrease, more fluctuations, less fluctuations, more or less heavy rainfall events, overall amount, snowfall and duration of snow cover)
 - a. If yes, what observation do you base this feeling on?
19. What trends in natural disasters (floods, droughts etc.) do you perceive? Increasing in number or decreasing?
20. How do you expect the forest, woodland and rangelands in this village change in the next 5 years? What do you think will be the causes of these expected changes?
21. What do you think should be done to stop and reverse deforestation/degradation of forests and woodlands?
 - a. What factors could influence the feasibility of this?
22. How is water shared between users/farmers?
23. What is a challenge for livestock keeping nowadays? Are there seasonal challenges?

Potential Project Activities

24. Do people protect forests in this area? Why or why not?
25. Do people want to plant trees on private, community, leased land or government land? Why or why not (for each type of land)?
26. If a reforestation project was implemented here, who would benefit? How would they benefit?
27. If a reforestation project is implemented, do you anticipate any land disputes or conflicts arising from reforestation activities?

4 Further remarks to data gathering

Additional data

Complementary to the data gathered through Survey Sessions in the target communities, the following information would be helpful for triangulation and to develop recommendations on climate change adaptation and disaster risk management:

- Clear indication of the location of the project area;

- Coordinates (WGS 84, decimal degree format) for central point or main village of the project area; If several villages are covered, provide coordinates of each of the villages;
- Planned boundaries of the project area(s). Ideally consider both formal and informal boundaries.
- Long-year daily climate data for each project area (e.g. temperature, rainfall, radiation/sunshine duration etc.) and/or timelines of climate data to assess observable climate change trends⁴

If already available to them or easily obtainable, the implementing NGOs are asked to provide this information in addition to the data collected during the Surveys.

Practicalities

Some questions cover **similar topics**. If the respondents/participants have already addressed the topic in response to a previous question, there is no need to ask the question again.

Questions about **land tenure and conflicts** can be contentious. The survey team members should use their judgement about whether asking a particular question in a particular session is appropriate or not. If the team decides not to ask a question, they should mention that in the documentation.

Regarding land conflicts, it is possible that much existing land conflict occurs on private land. It will be important to document private land conflicts but also **ensure that the survey teams encourage respondents/participants to discuss land conflicts/disputes outside of private land**, i.e. on land that is considered community, public, or government land.

Finally, if the NGO teams consider any of the wording, concepts, or terminology in the guidelines as unclear or confusing to survey participants, the international short-term experts are available to support any amendments and revisions.

5 Respondents for the Survey

The resilience of communities, e.g. to natural hazards, is based on the individual resilience of all community members combined. Therefore, the Survey targets **representative members of the local communities in all project sites**.

The Survey Plan further aims at a gender-sensitive data gathering. It cannot be assumed that women will voice their concerns and needs in mixed groups even when women are overrepresented in such groups. Therefore, **gender-based purposive sampling** should be conducted so women and men are equally represented within the sample. For this reasons, one of the Survey Sessions in each village/community shall be conducted solely with women, the other with men⁵. Women groups should be facilitated by female staff members and male groups should be facilitated by male staff members.

If feasible, it is also important to include (other) **marginalized groups** such as IDP's, ethnic minority groups, disabled persons, widows and elderly people. The survey team shall address marginalized people in specific ways, which allow for an adequate representation of their views and perceptions. Depending on the specific situation this might be achieved by particularly encouraging these people in participating in the Survey Sessions.

Generally, the following groups shall be included in the Survey Sessions:

- Representatives of CDCs and village elders as well as religious leaders;

⁴ Information on available weather stations can be found here: <https://cpdb.wmo.int/afghanistan>

⁵ Ideally, Survey Sessions with women are facilitated by experienced female NGO staff members (this is particularly important in Takhar and Khost province). If female staff members are not available, it may be worth to engage external female facilitators for the data collection.

- Representation of average, above average and poor households;
- Representation of young and old people among the interviewed;
- Representation of different land users, if present: people using different resources, cultivating different crops or focusing more on livestock or more on arable farming, peasants with different access to resources (land and natural resources);
- Representation of temporary present non-residents, if any;
- People with specific functions and interests, e.g. in water management (like Mirab or active members/representatives of Water User Associations or Irrigation Associations), public health and other social spheres or with specific relations to natural resources like, e.g. owners of a water mill, people engaged in commercial use of timber, fuel wood and NWFP, informal hunters.

The **selection of individuals** shall be based on the potential participant's willingness to discuss the topic and share information with the NGO staff, their relative dependence on natural resources for their livelihoods, and their vulnerability to natural hazards.

Lastly, **ethics** should be considered, particularly when collecting sensitive information. This means that confidentiality should be guaranteed, informed consent should be obtained before the interview starts and people need to be informed of their right to withdraw from the interview at any time.

6 Documentation of results

For each Survey Session the following results are expected:

- Mapping exercise and FGD component
 - **Filled Word template** containing key points of discussions during the mapping exercise and the FGD component (template will be provided)
 - **Labelled photos of each map created.** Where there is writing on the map, it will need to be translated by the implementing NGO. If necessary for the understanding of drawings, a legend of icons used for a particular map shall be added to allow the team of consultants to decipher the maps.
- Multiple-choice component:
 - **Excel file** exported from KoBo
 - Automatically generated "**summary reports**" as basic analysis (KoBo)
 - **GPS location** of community obtained with the mapping function (KoBo)

Spelling of location names and other terms should be as consistent as possible.

7 Analysis of results

The experts will analyze the collected data using quantitative and qualitative methods.

A basic analysis ("summary reports") available within the KoBo Toolbox will serve to draw first conclusions from the multiple choice data. Additional descriptive statistics will be used during a second stage of analyzing the raw data, which can be generated as an Excel file from the KoBo Toolbox.

This will be complemented with qualitative content analysis from the narrative data that is obtained from the mapping and FGD components. To analyze the participatory mapping and FGD data, ISTE's will use a content analysis approach and examine additional research beyond the data

collected to further explore aspects of context.⁶ Content analysis is a systematic, replicable technique for categorizing data into topic areas (coding) in order to discover and describe the participant perspectives captured in the data collection.

A mix of the following tools and methods will be used:

- Excel, SPSS and R
- Descriptive statistics based on KoBo toolbox data analysis (multiple choice data and dichotomous data)
- Qualitative content analysis based on narrative reports of FGD and mapping exercises
- Inductive coding for quantitative or qualitative analysis
- Spatial “consistency checks” Preparation of GIS maps containing information on land cover, existing land use, key infrastructure, sites of previous disaster events, proposed intervention sites and other key information of importance for the planning of interventions;

⁶ Stemler, S. (2001). An overview of content analysis. Practical assessment, research & evaluation, 7(17), 137-146.

ANNEX

Terminology and explanations

- **Non-wood forest products** in the project areas can include fodder, fruits, nuts (e.g. pistachios, walnuts, and pine nuts), berries, mushrooms, and medicinal plants. The survey teams should use the general terminology for non-wood forest products as well as mentioning any specific non-timber forest products they know of in that area. NWFP do not include fuel wood and timber. The rules for use may differ for different products.
- **Land use and land ownership:**
 - Determining how communities perceive control of land use among community and government entities may be difficult. In some cases, the government and communities may both assume that they control use on the same area of land. For each respondent or group of participants, attempt to understand how they perceive land ownership and who controls land use for various types of land. The survey sometimes uses the terminology “outside of private land.” This is meant to refer to non-private land without calling it community or government land such that the respondents can use the terminology they prefer.
 - In terms of the community level rules and dispute resolution processes for forest and natural resource use (which may be different than government laws and processes), the survey uses the terms “local” or “customary.” The survey team should use accepted local terminology for community level rules and processes.
- **Climate versus Weather:** climate refers to long time periods of many years or decades, while weather refers to a short period of time
- **Climate change adaptation measures** might be, e.g. change of crops or construction of irrigation systems
- **Disaster risk reduction measures** might include, e.g. resettlement of households/communities from high risk site, “grey” measures like construction of physical structures (gabions, dams, dykes etc) or “green” measures like protective plantations.

Recommendations for conducting survey methods

1. Introduce yourself and the project

For each Survey Session, give the respondents or participants a brief introduction to yourself and the project. For example:

“Hello, my name is _____. I am a researcher working with _____ to learn about your living situation and the environment in this area. Our research will be used to inform the design of a forest landscape restoration project. I would like to ask you some questions to better understand these issues in your community.”

2. Obtain informed consent

Survey Session participants should understand that their participation is voluntary and that you will maintain their confidentiality. For example:

“If you agree to be part of this survey activity, we will ask you a series of questions about forest and natural resources conditions and use. The activity will last about ____ hours. You can decide to stop participating at any time. If you choose to stop, we will not ask you any more questions. If you have questions about this survey activity, you may contact _____. He/she can be reached by _____ contact.”

3. Acknowledge the value of the participant's knowledge

Ensure that survey respondents and participants realize that their knowledge and perspectives are critically important for understanding the area and informing the project approach. For example:

"Your knowledge and opinions are important to us for understanding land use and forestry in this area. The objective of this conversation is to gather your thoughts and perspectives on these topics. We are here to learn from you. When answering questions, we encourage you to say whatever you think is appropriate."

4. Introduce the survey activity and guidelines

Mapping exercise

Explain the format of the mapping session and the goal of identifying the land and resources of the village and how they are used and managed. Explain that you will ask participants to draw a village map that includes important landmarks and resources, such as the village's schools, fields, forests and trees, and water supplies. And that once the map is complete, you will ask the group to share and explain it. Explain that it is okay if they have never drawn a map before or are not familiar with the process. The activity is fairly simple exercise and can actually be fun. Explain that the map is a great way for participants to tell you about your village.

Multiple-choice questions

Propose some guidelines for the activity such as:

1. We want you to do the talking: As the facilitator, my role here is to ask questions and listen. I will not be participating in the conversation, but I want you to feel free to talk with one another. We would like everyone here today to participate in our discussion.
2. Your knowledge and opinions are important: We are here to learn from you.
3. There is no such thing as a wrong answer: There are no right or wrong answers to our questions – just your ideas, experiences and opinions, which are all valuable.
4. Respect confidentiality: We want you all to feel comfortable sharing your knowledge and opinions. We will only use your responses anonymously and for the purposes of this assessment. To protect your privacy, we ask that all comments made during our discussion be kept confidential.

Focus group discussion

Explain the format of the focus group discussion and that you will start by introducing a topic and then ask a number of questions related to that topic.

5. Specific instructions for participatory mapping

Participatory mapping

1. Distribute mapping materials (e.g., paper, markers, etc).
2. Use the survey checklist to guide participants through the mapping exercise. The goal is to collect and record as much information as possible on the maps with a focus on forest and natural resource locations, boundaries, and use. Use the checklist to help you keep track of the information you need. Be sure to record/note the conversations between participants as they draw.
3. After about 30-40 minutes, ask the participants to share and explain their map. Ask them to describe what they drew on the map and why they chose to include it. Also, ask them why and how they identified certain resources and spaces on the map as important. Ask about the items on the checklist that were NOT included on the map. Pay particular attention to forestland resources and any concerns and issues that are expressed within the group.
4. Listen to and record the conversations throughout the exercise.

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Annex 4 Glossary of technical terms

GENDER

Gender does not mean focusing only on women, but rather on the inequalities between men and women. However, in practice often women are disadvantaged in social, political, economic, legal, educational and physical issues. This is why there is a tendency for gender discussions and interventions to target women.

Gender equality is the state or condition where women and men have equal human rights, and equal access to socially valued goods, opportunities, and resources.¹

Gender roles can be defined as the behaviors, values, and attitudes that a society considers appropriate for both men and women. Collectively, gender roles often determine the traditional responsibilities and tasks assigned to women, men, girls and boys. At the same time, gender roles and norms are not standardized or static; they are socially constructed, changeable, and varied within and across cultures, societies and throughout history².

Gender relations are the ways in which a society defines rights, responsibilities and the identities of men and women in relation to one another. Gender relations are based on power and negotiations, and gender roles are closely linked, influencing their definition and development³.

Gender mainstreaming is an approach to policy-making that takes into account both women's and men's interests and concerns. The concept of gender mainstreaming was first introduced at the 1985 Nairobi World Conference on Women. It was established as a strategy in international gender equality policy through the Beijing Platform for Action, adopted at the 1995 Fourth United Nations World Conference on Women in Beijing, and subsequently adopted as a tool to promote gender equality at all levels⁴.

What is gender analysis? Gender analysis seeks to understand the 'differing priorities, needs, activities and responsibilities of men and women, boys and girls at multiple levels, across different life stages in the various roles they play'⁵.

Practical gender needs. To address a practical gender need is to improve a person's situation by widening her or his access to resources. For example, a woman's situation will be made easier if she doesn't have to walk long distances to fetch water or take her children to the health center. Similarly, a man's situation will be made easier if building poles or thatching materials are closer to hand - or if he acquires transport to fetch them. However, such improvements will not directly affect their roles and relationships, or their control. They are purely 'practical' matters. In general, practical gender needs are likely to be related to survival - through the provision of food, shelter, clothing, or health care⁶.

Strategic gender needs. Those changes that really empower people are called 'strategic' ones. If a woman learns more about her rights with regard to divorce or inheritance, for example, this is addressing her strategic needs. Her relationships - and her position - will thus be improved. *"If you give someone a fish," the saying goes, "they will be hungry again tomorrow. But if you teach*

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- 1 USAID (n.d.) Handout: Gender-related terms and Definitions. Online source: https://www.measureevaluation.org/resources/training/capacity-building-resources/m-e-of-hiv-aids-programs-in-india-english/session-6-gender-and-surveys-surveillance/gender/Handout_Gender-related%20Terms%20and%20Definitions.pdf
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them how to fish, they will never be hungry again." To give a woman a fish is to address her practical gender needs; to give her fishing skills is to meet her strategic gender needs⁷.

Sex-disaggregated/gender-disaggregated data, are data that are collected and analyzed separately according to biological sex. Sex-disaggregated data can make it easier to understand where gender inequalities exist. For instance, when collecting sex-disaggregated data at the household level, a survey would involve asking relevant 'who' questions: who provides labor, who makes the decisions and who owns and controls the land and other resources. It may also involve asking men and women about their individual roles and responsibilities⁸.

Applying a gender lens to Forest Landscape Restoration means that women and men at all levels should have equal voice and influence in strategic decisions related to FLR. This includes decisions about target areas for restoration, choice of stakeholders for FLR governance and how to include them, restoration approaches, priority species and distribution and type of benefits. *"Increasing women's participation in community forestry institutions may improve forest governance and the sustainability of resources. However, it is not enough to just include women; their participation must be active and meaningful."*⁹

LAND TENURE

Customary land tenure, as found in much of rural Afghanistan, is the rules and norms governing rights to land and natural resources that are upheld by an authority other than the state.¹⁰ This usually means community-based regulation of local land and resources. Customary land tenure systems are unique to each community although there are often similarities among systems. Systems may be well-defined and well-enforced or poorly defined and enforced. Additionally, customary land tenure systems are ever-evolving in response to an array of influences including cultural interactions, socio-economic change, political processes, and land availability and condition. The principles of customary land tenure systems may clash with national (state) law particularly related to the ownership and use of off-farm resources including forests and pastures.¹¹

Land management and governance, a process of setting and achieving goals for land use, condition, and characteristics, is a significant component of land tenure.¹² Local land use planning that is perceived as legitimate through appropriate stakeholder engagement is essential for clarifying clear and equitable land tenure rights and responsibilities, including rules for accessing and using resources that promote equitable distribution of benefits.¹³

Land tenure is the system that determines who is allowed to use which resources, in what way, for how long and under what conditions.¹⁴⁻¹⁵ Land tenure is underpinned by the social relations and institutions (i.e. local, national, etc.) governing access to and use of land and resources.¹⁶ Land tenure includes a range of rights such as various types of use and access; the ability to sell, exchange, or mortgage the land; and, critical to land management, the decision making authority regarding these rights, including the power of exclusion.¹⁷ Given these multiple rights to the same

⁷ Ibid.

⁸ FAO (2019) How to mainstream gender in forestry: A practical field guide. Online source: <http://www.fao.org/3/a-i6610e.pdf>

⁹ CMI (2019) Promoting a gender-sensitive approach to addressing corruption in the forestry sector. U4 Issue 2019:14

¹⁰ Alden Wily, L. (2013). Land, People, and the State in Afghanistan: 2002 – 2012. AREU Case Study. Afghanistan Research and Evaluation Unit, Kabul.

¹¹ Ibid.

¹² GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit) 1998. Land tenure in Development Cooperation: Guiding Principles. Wiesbaden, Universum Verlagsanstalt.

¹³ Stanturf, J., S. Mansourian, and M. Kleine (Eds.). (2017) Implementing Forest Landscape Restoration, a practitioner's Guide, International Union of Forest Research Organizations, Vienna, Austria.

¹⁴ Larson, A. M. (2012). Democratic decentralization in the forestry sector: lessons learned from Africa, Asia and Latin America. In *The politics of decentralization* (pp. 46-76). Routledge.

¹⁵ FAO. (2002). Land Tenure and Rural Development. FAO Land Tenure Studies #3. FAO, Rome.

¹⁶ von Benda-Beckmann, F., von Benda-Beckmann, K., & Wiber, M. (Eds.). (2006). *Changing properties of property*. Berghahn Books.

¹⁷ Bruce, J. 1998. Review of Tenure Terminology. Tenure Brief, No. 1. Land Tenure Center, University of Wisconsin—Madison.

area of land, land tenure is often considered to be a bundle of rights.¹⁸ Different stakeholders may hold one or more of these various rights along with the associated responsibilities for the same area of land.

A **change in the distribution of land rights** is when new rules for accessing and using an area are introduced. It is important that people view this change as legitimate. The legitimacy of a land right is achieved when it is perceived as appropriately assigned and is respected by local institutions and the affected people and stakeholders.¹⁹ A legitimate change in land rights is respected, upheld, and reinforced through the practices and norms of the broader community. A locally illegitimate reordering of land rights is likely to result in a lack of cooperation from stakeholders and potential disruption of the FLR project areas.

Non-timber forest products (NTFP) are useful substances, materials obtained from forests which do not require harvesting (logging) trees. They include nuts, seeds, berries, mushrooms, medicinal plants, peat, and forage.

CLIMATE CHANGE ADAPTATION AND DISASTER RISK MANAGEMENT

Climate is the long-term average of weather, typically averaged over a period of 30 years. The relevant quantities are most often surface variables such as temperature, precipitation and wind. Climate in a wider sense also includes not just the mean conditions, but also the associated statistics (frequency, magnitude, persistence, trends, etc.), often combining parameters to describe phenomena such as droughts.²⁰

Climate Change refers to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer.²¹ By definition climate change “is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.”²²

Climate Change Adaptation is the process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects.²³

Climate Change Mitigation is a human intervention to reduce the sources or enhance the sinks of greenhouse gases.²⁴

Disaster: A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.

...

A **slow onset disaster** is defined as one that emerges gradually over time. Slow-onset disasters

¹⁸ Schlager, E., & Ostrom, E. (1992). Property-rights regimes and natural resources: a conceptual analysis. *Land economics*, 249-262.

¹⁹ Unruh, J. D. (2003). Land tenure and legal pluralism in the peace process. *Peace & Change*, 28(3), 352-377.

²⁰ IPCC, 2013: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 1535 pp.

²¹ IPCC, 2013: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 1535 pp.

²² IPCC (2014). "Glossary" (PDF). Annex II of the Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-AnnexII_FINAL.pdf

²³ IPCC (2014). "Glossary" (PDF). Annex II of the Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-AnnexII_FINAL.pdf

²⁴ IPCC (2014). "Glossary" (PDF). Annex II of the Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-AnnexII_FINAL.pdf

could be associated with, e.g., drought, desertification, sea level rise, epidemic disease. A **sudden onset disaster** is one triggered by a hazardous event that emerges quickly or unexpectedly. Sudden onset disasters could be associated with, e.g., earthquake, volcanic eruption, flash flood, chemical explosion, critical infrastructure failure, transport accident²⁵.

Disaster risk management is the application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses²⁵.

Disaster Risk Reduction is aimed at preventing new and reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development²⁵.

Drought: A period of abnormally dry weather long enough to cause a serious hydrological imbalance. Drought is a relative term; therefore any discussion in terms of precipitation deficit must refer to the particular precipitation-related activity that is under discussion. For example, shortage of precipitation during the growing season impinges on crop production or ecosystem function in general (due to soil moisture drought, also termed agricultural drought), and during the runoff and percolation season primarily affects water supplies (hydrological drought). Storage changes in soil moisture and groundwater are also affected by increases in actual evapotranspiration in addition to reductions in precipitation. A period with an abnormal precipitation deficit is defined as a meteorological drought.²⁶

Early Warning System: An integrated system of hazard monitoring, forecasting and prediction, disaster risk assessment, communication and preparedness activities systems and processes that enables individuals, communities, governments, businesses and others to take timely action to reduce disaster risks in advance of hazardous events²⁵.

Ecosystem-based adaptation (EBA) encompasses a broad set of approaches to adapt to climate change. They all involve the management of ecosystems and their services to reduce the vulnerability of human communities to the impacts of climate change. The Convention on Biological Diversity defines EbA as “the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change”^{27 28}.

Ecosystem services: Ecological processes or functions having monetary or non-monetary value to individuals or society at large. These are frequently classified as (1) supporting services such as productivity or biodiversity maintenance, (2) provisioning services such as food, fiber, or fish, (3) regulating services such as climate regulation or carbon sequestration, and (4) cultural services such as tourism or spiritual and aesthetic appreciation.²⁹

Flood: The overflowing of the normal confines of a stream or other body of water, or the accumulation of water over areas not normally submerged. Floods include river (fluvial) floods, flash floods, urban floods, pluvial floods, sewer floods, coastal floods, and glacial lake outburst floods.³⁰

Forest: Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use. (Explanatory notes 1. Forest is

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- ²⁵ UN intergovernmental expert working group on indicators and terminology. “Report of the Open-Ended Intergovernmental Expert Working Group on Indicators and Terminology Relating to Disaster Risk Reduction.” Vol. S/71/644. New York: United Nations, 2016.
- ²⁶ IPCC (2014). “Glossary” (PDF). Annex II of the Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-AnnexII_FINAL.pdf
- ²⁷ CBD (2009). Connecting Biodiversity and Climate Change Mitigation and Adaptation: Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change. Montreal, Technical Series No. 41, 126 pages.
- ²⁸ Wikipedia, accessed 14. April 2020 https://en.wikipedia.org/wiki/Ecosystem-based_adaptation
- ²⁹ IPCC (2014). “Glossary” (PDF). Annex II of the Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-AnnexII_FINAL.pdf
- ³⁰ IPCC (2014). “Glossary” (PDF). Annex II of the Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-AnnexII_FINAL.pdf

determined both by the presence of trees and the absence of other predominant land uses. The trees should be able to reach a minimum height of 5 meters. 2. It includes areas with young trees that have not yet reached but which are expected to reach a canopy cover of at least 10 percent and tree height of 5 meters or more. It also includes areas that are temporarily unstocked due to clear-cutting as part of a forest management practice or natural disasters, and which are expected to be regenerated within 5 years. Local conditions may, in exceptional cases, justify that a longer time frame is used. 3. It includes forest roads, firebreaks and other small open areas; forest in national parks, nature reserves and other protected areas such as those of specific environmental, scientific, historical, cultural or spiritual interest. 4. It includes windbreaks, shelterbelts and corridors of trees with an area of more than 0.5 hectares and width of more than 20 meters. 5.-8. (not relevant for Afghanistan) 9. It excludes tree stands in agricultural production systems, such as fruit tree plantations, oil palm plantations, olive orchards and agroforestry systems when crops are grown under tree cover. Note: Some agroforestry systems where crops are grown only during the first years of the forest rotation should be classified as forest.)³¹

Hazard: A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation²⁵.

Preparedness: The knowledge and capacities developed by governments, response and recovery organizations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent or current disasters²⁵.

Projection: A projection is a potential future evolution of a quantity or set of quantities, often computed with the aid of a model. Unlike predictions, projections are conditional on assumptions concerning, for example, future socioeconomic and technological developments that may or may not be realized. See also Climate prediction and Climate projection.³²

Rain-fed arable land: Land used for production of annually harvested non-permanent crops without irrigation, exclusively relying on the moisture provided by precipitation on the respective land parcel. In Afghanistan the term “*lalm*” is applied.

Rangeland: Many definitions exist³³ but generally rangelands are lands, on which the native vegetation is predominantly grasses, grass-like plants, forbs, or shrubs, and its best agricultural use is for grazing livestock.

Runoff: That part of precipitation that does not evaporate and is not transpired, but flows through the ground or over the ground surface and returns to bodies of water.³⁴

Resilience: The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management²⁵.

Shifting baseline syndrome (SBS) describes a gradual change in the accepted norms for the condition of the natural environment due to a lack of human experience, memory and/or knowledge of its past condition. Consequences of SBS include an increased tolerance for progressive environmental degradation, changes in people's expectations as to what is a desirable (worth protecting) state of the natural environment, and the establishment and use of inappropriate

³¹ FAO (2015). FRA 2015 – Terms and Definitions. Forest Resources Assessment Working Paper 180

³² IPCC (2014). "Glossary" (PDF). Annex II of the Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-AnnexII_FINAL.pdf

³³ <http://www.fao.org/3/Y4171E/Y4171E37.htm>

³⁴ IPCC (2014). "Glossary" (PDF). Annex II of the Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-AnnexII_FINAL.pdf

ate baselines for nature conservation, restoration and management. Researchers and policy makers need to focus more attention and efforts on understanding and planning how best to limit and reduce SBS³⁵.

System of Interest: The system of interest to an observer³⁶.

Vulnerability: The conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards²⁵.

Woodland: An area with sparse cover of trees and/or shrubs without closed crown cover. (The corresponding category of FAO³⁷ is “Other wooded land” meaning lands “with trees higher than 5 meters and a canopy cover of 5-10 percent, or trees able to reach these thresholds; or with a combined cover of shrubs, bushes and trees above 10 percent.”)

³⁵ Masashi, and Kevin J. Gaston. “Shifting Baseline Syndrome: Causes, Consequences, and Implications.” *Frontiers in Ecology and the Environment* 16, no. 4 (2018): 222–30. <https://doi.org/10.1002/fee.1794>.

³⁶ von Bertalanffy, L. 1968. *General system theory: Foundations, development, applications*, revised ed. New York, NY: Braziller.

³⁷ FAO (2015). *FRA 2015 – Terms and Definitions*. Forest Resources Assessment Working Paper 180

Annex 5 Selected Information and Data Portals on CCA and DRM

A number of information portals are available and some we mention only for integrity. The most promising is the EU-Copernicus Portal including its sub- and derived portals. Initially initiated in 2014 to distribute the remote sensing products of the EU-space program “Global Monitoring for Environment and Security” it developed a large number of services around six topics: Atmosphere, Marine, Land, Climate change, Security and Emergency. Not all have global coverage. There are several channels of the portal, which lead to relevant information in particular the Copernicus Emergency Management Service:

- [European Centre for Medium-Range Weather Forecasts \(ECMWF\)](#)
They compute an ensemble from 51 global Weather forecasts for specific meteorological indicators, the main use is the input for the global hydrological model below
- [The Global Flood Awareness System – GloFAS](#)
the GloFAS is a hydrological forecast and monitoring system providing the exceedance probability of the flood runoff of 5 and 20 years. The information is available daily and forecasts up to 30 days. The spatial resolution is roughly 10 km. This is still large for the most project implementation scales but it is a beginning and uses an available infrastructure.
- [GDO global drought observatory](#)
The GDO provides aggregated drought impacts¹ on a 100km resolution complemented with precipitation fore- and hindcasts, standard precipitation index (SPI) and further hydrologic, soil and vegetation (fAPAR²) parameters. It appears to the authors as the most comprehensive and ready to use mapping service.
- [ThinkHazard!](#) is a joint portal by the GFDRR and the World Bank. It has a global coverage and informs about a large number of hazards³. It is very easy to use. It addresses the relevant hazards, provides recommendations for action and contacts and further resources. A good source for starting and comparing as well as starting point for further research.
- [climate-data.org](#) provides climate diagrams for many locations all over the world, created by their own model with more than 220 million data points and a resolution of 30 arc seconds, using weather data collected between 1982 and 2012 from thousands of weather stations from all over the world. Although site-specific data sources cannot be traced back, the climate diagrams provide good impression of the mean values of temperature and precipitation and their seasonal dynamics. These graphs combine average monthly values of temperature (left y-axis) with precipitation (right y-axis). Temperature is plotted against precipitation with a scale unit of 1°C against a scale unit of 2 mm precipitation. Months during which the rainfall bars are below the temperature scale are considered as relative arid (drought) period.
- [World Maps of Köppen-Geiger climate classification](#) present an update of these climate classification maps as a series of digital world maps for the extended period 1901-2100 to depict global trends in observed climate and projected climate change scenarios based on ensemble projections of global climate models considering different IPCC scenarios.

¹ Risk of drought impact for agriculture (RDri-Agri) for 10-days periods (decades)

² fAPAR: Fraction of Absorbed Photosynthetically Active Radiation see: <https://en.wikipedia.org/wiki/FAPAR>

³ River flood, urban flood, coastal flood, earthquake landslide, tsunamis, volcano, cyclone, water scarcity, extreme heat and wildfire

Annex 6 Local analyses of damage caused by previous natural disasters

In summary, the local analyses of damage caused by previous natural disasters in 25 villages (five villages in each of the provinces of Badakhshan, Khost, Paktia, Samangan and Takhar) showed, that the village population experienced damages caused by drought in form of losses in agricultural yield and forage shortage for livestock, by untimely and heavy precipitation, mainly in form of losses in yield from arable lands, gardens and orchards as well as localized floods, flash floods, debris flows, landslides and avalanches causing damage to agricultural lands, gardens, forests and in small extent to houses and infrastructure.

No quantification of experienced damage, neither in terms of size of affected areas nor in terms of material damage was provided in the documentation available in expert interviews, focus groups and participatory mapping or funding proposals to GIZ.

The following table lists the hazards, type and extent of damage for the project regions at district and village level.

Province/district	Village	Hazard	Type of damage	Extent of past damage	Extent of potential future damage
Badakhshan / Yaftal-e Payan	(District overview from interviews)	Drought	Crop failure	No (in villages seen much more critical – food insecurity!), Not quantified	
			Pasture productivity decline	Locally	
		Heavy rainfall	Shortage of drinking and irrigation water	30% (of area?)	
			Crop failure	Very few	
			Destruction of houses	2-3% per year	
		Floods (seasonally)		Increasing, but no damage (in villages seen much more critical)	
		Flash floods (seasonally)		Occurring, but no damage (in villages seen much more critical)	
		Landslide		Large 60 years ago, village evacuated to district centre Small regularly, no impact	
	Naland	Inter-annual variation in precipitation (rain, snow)	Reduced yield on rainfed land, food shortage, trend of decline	395 ha	
		Drought	Crop failure rainfed land	Some years, 395 ha	395 ha
			Yield reduction pasture	Some years, 51 ha	51 ha
		Heavy rainfall	Damage to farmland	Some years	
			Destruction of houses	Some years	
	Shakarlab Payan	Heavy rainfall causing flood	Destruction of houses, creation of spillway/gully	Extent unclear, but preventive measures (physical and watershed) suggested	
			Destruction of arable lands	Extent unclear, but preventive measures (physical and watershed) suggested	
			Soil erosion on rangeland with loss of productivity	Extent unclear, but preventive measures (physical and watershed) suggested	
		Drought (also related to lack of snow)	Reduced yield on rainfed land, food shortage, trend of decline	70 ha	70 ha + 37 ha (potentially irrigated?)
			Yield reduction pasture, livestock losses	100 ha	100 ha
	Sarinang	Heavy rainfall causing flood	Destruction of houses, irrigation canals, creation of spillways/gullies	Several houses(?), generator	

Province/district	Village	Hazard	Type of damage	Extent of past damage	Extent of potential future damage
			Destruction of arable lands, soil erosion	Extent unclear, part of the arable land	
		Drought (also related to lack of snow)	Crop failure rainfed land, food shortage	128 ha (?)	128 ha + 20 ha (potentially irrigated?)
			Yield reduction pasture, no grazing for livestock, losses	105 ha	105 ha
		Earthquakes	?	?	
	Semen Jaw	Heavy rainfall causing flood	Destruction of valley, irrigation canals, spillways the centre of the village		
		Flood / Debris flow	Destruction of houses and gardens	Decreased, but preventive measures (physical and watershed) needed	20 ha (risk only at the margins of the area, max. 0.2 ha)
		Drought	Crop failure rainfed land/decline in agricultural production food shortage	77 ha	77 ha
			Yield reduction pasture		4.4 ha
		Desertification (reasons not explained)	Infertile arable lands and pastures	Extent unclear	
	Nashrin	Drought	Reduced yield on rainfed land, food shortage, trend of decline	325 ha	325 ha
			Crop failure rainfed land	325 ha	325 ha
			shortage of drinking and irrigation water		
		Flood / Debris flow/Landslide	Destruction of houses and gardens as well as farmlands (?)	"Some place in the village", several houses, power station	22 ha (risk only at the margins of the area, max. 0.2 ha)
		Earthquake	?	?	
Badakhshan / Wakhan	(District overview from interviews)	Floods (main river)	Riverbank erosion	increasing	
			Destruction of roads	Some (?)	
			Destruction of gardens	Some (?)	
			Destruction of forest	Yes	
			Destruction of houses	No	
		Stream Floods		Increasing	
		Risk from glacier (debris flow)	Destruction of houses and gardens		Qala-e Panja, Pak, Sarkand
		Changes in precipitation patterns / Drought	Crop failure		
		Wind erosion	Reduced crop yield		
		Deposition, sedimentation	Reduced crop yield		
		Rock fall			
		Earthquake			
		Other	Crop Diseases	Increasing	
			Livestock diseases	Increasing	
			Depredation of livestock by carnivores	Increasing	
	Qala-e Panja	River erosion of Panj	Shrubs/forest and especially the pastures along River Panj is increasingly damaged	Increasing	

Province/district	Village	Hazard	Type of damage	Extent of past damage	Extent of potential future damage
		Flash Flood from Sarkand and Pikut streams	Damages irrigation canals		295 ha (village, gardens, fields)
		Summer floods	Washes away the canals intakes and brings along sand sedimentations canals and affecting the agriculture fields		295 ha (village, gardens, fields)
		Wind erosion	blows sand from flood plains/barren lands into the village damaging agriculture fields and village pasture		
		Heavy rain	Causes rock fall, which occasionally hits the village and damages irrigation canals and agriculture fields		
		Avalanches	hits in winter in locations where flash floods hit in summer		
		Changes in precipitation patterns / Drought	Reduced pasture productivity		XX ha (?)
		Changes in water availability for irrigation	Crop failure, reduced yield on irrigated lands		295 ha (village, gardens, fields)
		Other	Livestock disease	increased	
			Livestock predation by carnivores	increased	
			Disease in forest and agriculture plants	increased	
	Sarkand	Summer floods	Washes away the canals intakes and brings along sand sedimentations canals and affecting the agriculture fields	Affects 20 ha village, gardens, fields decreased	
		Heavy rain	Causes rock fall, which occasionally hits the village and damages irrigation canals and agriculture fields		
		Flash flood	Damage to intakes of irrigation canals and to agricultural lands	Affects 20 ha village, gardens, fields	
		Avalanches	hits in winter in locations where flash floods hit in summer	Decreasing	
		Changes in precipitation patterns / Drought	Reduced pasture productivity	increasing	XX ha (?)
		Changes in water availability for irrigation	Crop failure, reduced yield on irrigated lands		20 ha (village, gardens, fields)
		River erosion (combined	Destruction of forests (combined with overharvest and livestock grazing)	Increasing	

Province/district	Village	Hazard	Type of damage	Extent of past damage	Extent of potential future damage
		with overharvest and livestock grazing			
		Wind erosion	Blow sand from flood plains/barren lands into the village damaging agriculture fields		
	Pak	River erosion	damages roads, bridges, village land	40 years old bridge destroyed in 2019	
		River erosion (combined with overharvest and livestock grazing)	Destruction of forests (combined with overharvest and livestock grazing)	Increasing	
		Flash flood	Damage to intakes of irrigation canals	Affects 60 ha village, gardens, fields + 30 ha woodlands	
		Flood in river and streams		increased	
		Sedimentation	Damage of irrigation canals	Affects 60 ha village, gardens, fields + 30 ha woodlands	
			Damage of agriculture lands and local plantations	June to August	
		Changes in precipitation patterns / Drought	Reduced pasture productivity		XX ha (?)
		Changes in water availability for irrigation	Crop failure, reduced yield on irrigated lands		60 ha (village, gardens, fields)
		Wind erosion	Blow sand from flood plains/barren lands into the village damaging agriculture fields		
		Other	Livestock disease	increased	
			Livestock predation by carnivores	increased	
			Disease in forest and agriculture plants	increased	
			Woodland		30 ha
	Pukui	River erosion of Panj	shrubs/forest and especially the pastures along River Panj is increasingly damaged	increasing	
		Heavy rain	Causes rock fall risk to houses	2018 large boulder stopped few meters from houses	
		Flash flood	Damage to intakes of irrigation canals and to agricultural lands	Affects 58 ha village, gardens, fields + 28 ha woodlands	
		Flood in river and streams	Damage to intakes of irrigation canals and sedimentation of canals and agriculture land	Decreasing (?); affects 58 ha village, gardens, fields + 28 ha woodlands	
		Avalanches		decreasing	
		Changes in precipitation patterns / Drought	Reduced pasture productivity	Drought increasing	XX ha (?)

Province/district	Village	Hazard	Type of damage	Extent of past damage	Extent of potential future damage
		Changes in water availability for irrigation	Crop failure, reduced yield on irrigated lands		58 ha (village, gardens, fields)
		Changes in water availability for irrigation	Woodland		28 ha
		Wind erosion	Blow sand from flood plains/barren lands into the village damaging agriculture fields		
		Other	Livestock disease	increased	
			Disease in forest and agriculture plants	increased	
	Yishmurgh	River erosion of Panj	shrubs/forest and especially the pastures along River Panj is increasingly damaged	increasing	
		Heavy rain	Causes rock fall risk to houses	2018 large boulder stopped few meters from houses	
		Flash flood	Damage to intakes of irrigation canals and to agricultural lands	Affects 36 ha village, gardens, fields	
		Summer floods	washes away the canals intakes and brings along sand sedimentations canals and affecting the agriculture fields	Affects 36 ha village, gardens, fields decreased	
		Avalanches		decreased	
		Changes in precipitation patterns / Drought	Reduced pasture productivity		XX ha (?)
		Changes in water availability for irrigation	Crop failure, reduced yield on irrigated lands		36 ha (village, gardens, fields)
		Wind erosion	Blow sand from flood plains/barren lands into the village damaging agriculture fields		
		Other	Livestock disease	Increased, people very concerned	
			Disease in forest and agriculture plants	increased	
Khost and Paktia	(District overview from interviews)	Flood	Soil erosion	Increased due to deforestation even without heavy rainfall	
			Crop failure	yes	
			Loss of farmland and pasture	Most significant impact, area size not mentioned	
		Changes in precipitation patterns: less rain and snow, heavy rain	Causing floods		
		Changes in precipitation patterns / hail	Crop failure, reduced yield (fields, orchards, vegetables)	Every year, spring and summer	

Province/district	Village	Hazard	Type of damage	Extent of past damage	Extent of potential future damage
		Drought	Crop failure, reduced yield	Increasing, most (?) areas are affected (xx ha t.b.d.) during last 5 – 10 years Communities suggest otherwise – not mentioned!	
			Impact on forest	Increasing	
			Reduced pasture productivity, loss of livestock	Increasing, most areas are affected (xx ha t.b.d.), in particular those with previous erosion and insufficient care by community	
		Others	Livestock diseases	Increasing	
Khost / Spera	Afzali and Toot	Disasters generally seen as related to deforestation			
		Heavy rain	Causes floods (due to deforestation) – see below!		
		Flood	Damage of canal intakes		
			Damage of village road		
			Soil erosion of arable land		
			Loss of arable land at riversides	Local damage	
		Drought due to reduced rain and snow	Shortage of irrigation water for arable lands		
			Pasture	Past effect	
			Forest	Past effect	
Khost / Tani	Eida Zawara (Warjala)	Disasters generally seen as related to deforestation			
		Flood	Damage of canal intakes		
		Flood (in winter)	Damage of village road		
			Loss of arable land at riversides	Local damage	
		Drought (in summer)	Pasture affected by soil erosion		
	Kochan	Disasters generally seen as related to deforestation			
		Flood caused by heavy rain	Loss of arable land at riversides	Local damage, but massive	
			Soil erosion (related to past deforestation)		
		Flood (more frequent, more intense)	Reduced yield due to soil erosion		
			Human casualties (children, one women)		
		Drought and or heavy rain (?)	Pastures affected by soil erosion	Damage not specified, mentioned as area available for reforestation	
		Drought in summer, less snow in winter	Reduced yield		
	Spirky	Flood caused by heavy rain	Damage of canal intakes		
			Damage of village road		

Province/district	Village	Hazard	Type of damage	Extent of past damage	Extent of potential future damage
			Destruction of houses		
			Loss of arable land at riversides	Local damage, but massive	
		Drought and or heavy rain (?)	Pasture affected by soil erosion	Damage not specified, mentioned as area available for reforestation	
		Drought due to less rain in summer and less snow			
	Tory Khail	Flood caused by heavy rain	Loss of arable land at riversides	Local damage, but massive, particularly important as the village has little arable land, all at riversides	
		Flood caused by heavy rain	Damage of canal intakes		
			Damage of village road		
		Drought	Pasture affected by soil erosion		
			Reduced yield of arable land (?)		
		Other	Pine trees/nuts affected by insects		
Paktia / Ahmad Khel	Mama Khel	Flood caused by heavy rain	Loss of arable land at riversides		
		Drought	Pasture affected by soil erosion		
		Drought due to less rain in summer and less snow			
		Warmer spring, but late frosts	Early blossoming, frost damage, reduced yield or crop failure of fruit trees		
	Shikho and Ali Khel	Flood caused by heavy rain	Loss of arable land at riversides		
		Drought	Pasture affected by soil erosion		
		Drought due to less rain in summer and less snow			
Paktia / Danda Patan	Estia	Deforestation (65-80% around the village) seen as reason (?)			
		Flood caused by heavy rain	Loss of arable land at riversides	Increasing frequency – 3-4 times per year	
		Flood caused by heavy rain	Some homes affected	Increasing frequency – 3-4 times per year	
		Drought	Pasture affected by soil erosion		
		Drought due to less rain in summer and less snow			
Paktia/Gardez	Nawrakai	Flood caused by heavy rain	Loss of arable land at riversides	Pictures suggest increasing and destructive dynamic in riparian areas/floodplains	
		Drought	Pasture already affected by soil erosion and insufficient care		
		Drought due to less rain in			

Province/district	Village	Hazard	Type of damage	Extent of past damage	Extent of potential future damage
		summer and less snow			
	Zahoo	Flood caused by heavy rain	Loss of arable land at riversides	Increasing	
		Drought	Pasture already affected by soil erosion and insufficient care		
			Lack of irrigation water causing reduced yield		
			Reduced water table		
		Drought due to less rain in summer, hotter summers and less snow			
		Warmer spring, but late frosts	Early blossoming, frost damage, reduced yield or crop failure of fruit trees		
Samangan / Hazrat-e Sultan	(District overview from interviews)	Drought	Crop failure arable land	yes	
		Changes in precipitation patterns / heavy rain	Crop failure arable land	yes	
			Livestock losses		
			Destruction of houses	Yes, increased, more damage 12 (?) in 2017 and 2018	
	Lopan Kohna	Rockfall caused by heavy rain	Destruction of houses and agricultural lands	12 houses in 2017 and 2018	
		Erosion and sedimentation of gravel	Pastures affected	Large areas (?)	
		Heavy rain	Damage by untimely and heavy rain – to what?		
		Floods	Destruction of arable lands		
			Livestock losses		
		Drought due to less rain	Drying of trees		
			Low yields from orchards		
		Other	Plant disease		
	Bamayanchi	Heavy rain causing flash floods	Damage to arable lands and cultivated plants by untimely and heavy rain		
		Flood	Destruction of arable lands		
			Destruction of pasture		
					Threatens the village
		Drought	Reduced yield from arable lands		
			Destruction of pasture, even no animal fodder		
		Drought due to less rain, warmer summer and less snow			
		Other	Plant diseases		
	Chenzai	Flood	Destruction of agricultural land	Every year, increase	

Province/district	Village	Hazard	Type of damage	Extent of past damage	Extent of potential future damage
			Reduced yield	Every year, increase	
			Losses of livestock	Every year, increase	
			Destruction of houses	Every year, increase	
			?	Affected people especially in 2014 and 2015	
		Drought	Reduced yield	Affected people in 2016 and 2017, generally more frequent	
			Reduced pasture productivity	Affected people in 2016 and 2017, generally more frequent	
		Drought due to less rain, warmer summer and less snow			
		Warmer spring, but late frosts and drought	Early blossoming, frost damage and/or drought, reduced yield or crop failure of fruit trees		
	Dawlat Abad	Flood	Assets of people destroyed	Affected people especially in 2013 and 2014, generally more frequent	
		Drought	Reduced yield	Affected people in 2015 and 2016, generally more frequent	
		Drought due to less rain and less snow	Rain-fed lands not cultivated, crop failure would be likely		
			Reduced pasture productivity		
		Warmer spring, but late frosts	Early blossoming, frost damage, reduced yield or crop failure of fruit trees		
		"Natural disaster"	Destruction of pastures	25% of pastures	
	Koka Bolaq	Heavy rain	Soil erosion	Increasing the last three years	
		Heavy rain and untimely rain	Destruction of arable lands (rain-fed and "none rain-fed")	Increasing the last three years	
		Flood	Destruction of arable lands (rain-fed and "none rain-fed")	Every year, increasing the last three years	
		Flash flood	Destruction of houses	Every year	
			Damage to roads and bridges		
			Affect people, need for protection walls	Increasing the last three years	
		Drought due to less rain, hot summer and less snow		Increasing the last three years	
		"Natural disaster"	Most agricultural lands and homes affected	Most agricultural lands and homes affected "No trends in natural disasters"	
Takhar / Rustaq	(District overview from interviews)	Heavy rainfall	Crop failure		
			Loss of livestock		
			Destruction of houses		
			Erosion		
		Flash floods	Destruction of houses		

Province/district	Village	Hazard	Type of damage	Extent of past damage	Extent of potential future damage
		Drought	Loss of livestock		
			Loss of farming or pasture lands		
			Crop failure		
			Livestock losses		
	Said Abad	Flood			Risk for public area and community land as well as most houses due to location on floodplain (contradicted by satellite imagery)
			Erosion of agricultural lands		
			Destruction of houses "4 years ago"		
			Destruction of drinking water well "4 years ago"		
		Landslide	Destruction of arable land		
		Drought due to less rain, warmer summer and less snow	Crop failure arable land	602 ha	602 ha
			Crop failure garden/orchard	4 ha	4 ha
			Reduced pasture productivity, shortage of forage, farmers forced to sell livestock	2018, 2013, 2006, 2001 100 ha	100 ha
	Khoshaidan	Floods	Damage of arable lands	Severe once every 3-5 years 2015, 2012, 2009, and 2004	High risk for 32 ha community rain-fed land
			Destruction of houses		High risk for 3 km local community access road
			Destruction of arable lands	2015, 2012, 2009, and 2004, destruction of "most forests and arable lands"	
		Floods caused by heavy untimely rain	Destruction of houses	2015, 2012, 2009, and 2004 „Most of the houses“	High risk for 171 houses, 3 mosques
		Landslide		2011, 2015, 201	
		Drought	Crop failure arable land, food shortage	Severe once every 2-5 years (2018, 2013, 2006, 2001), 487 ha	487 ha
			Crop failure garden/orchard	Unclear if an issue already	5 ha
			Reduced pasture productivity, shortage of forage	Severe once every 2-5 years, 80 ha	80 ha
		Water pollution	Water related diseases, causing increasing child mortality		
		Earthquakes		2017, 2012, 2002	
	Gurgan Uleya	Floods	Damage of arable lands	2015, 2012, 2009, and 2004	
			Destruction of forests (reforested area?)		
			Destruction of houses	"most of the homes"	High risk for 67 houses
			Destruction of orchards		High risk for 10 household plots

Province/district	Village	Hazard	Type of damage	Extent of past damage	Extent of potential future damage
		Drought	Livestock losses		
			Crop failure rain-fed arable land	Increasing trend, major "four years ago", 800 ha	800 ha
			Crop failure garden/orchard	Unclear if an issue already	4 ha
			Reduced pasture productivity	10 ha	10 ha
		Drought due to less rain and less snow			
		Warmer spring, but late frosts	Early blossoming, frost damage, reduced yield or crop failure of fruit trees		
		Earthquake			
		Other	Plant disease		
	Gurgan Sufla	Floods	Destruction of houses	2015, 2012, 2009, and 2004	High risk for 47 houses
			Destruction of orchards	2015, 2012, 2009, and 2004	High risk for 34 ha
		Heavy rain combined with overgrazing	Erosion leading to reduced pasture productivity	2015, 2012, 2009, and 2004	
		Landslides		2011, 2015, 2019	
		Drought due to less rain, warmer summer and less snow	Crop failure or reduced yield arable land	2018, 2013, 2006, 2001 2,150 ha (?) Different values in text and maps!	800 ha (2 nd value 1,250 ha?) Different values in text and maps!
			Reduced pasture productivity, shortage of forage, farmers forced to sell livestock	2018, 2013, 2006, 2001, 10 ha	10 ha
		Drought	Crop failure garden/orchard	2018, 2013, 2006, 2001 Unclear if an issue already	4 ha
		High inter-annual variation of precipitation	Risk of crop failure on arable land	800-2,150 ha Different values in text and maps!	800-2,150 ha Different values in text and maps!
		Earthquakes		2017, 2012, 2002	
	Chakak	Flood	Destruction of homes	Severe once every four years, "many/most homes four years ago"	Risk for community houses, public area and community land as well as most houses due to location on floodplain (contradicted by satellite imagery)
			Destruction of drinking water well		
			Livestock losses		
			Soil erosion		
		Flood (debris flow?)	Road destruction		
		Drought	Crop failure arable land, food shortage	Severe once every five years, 132 ha	132 ha
			Reduced pasture productivity, shortage of forage, farmers forced to sell livestock	Severe once every five years, 8 ha	8 ha
		Warmer spring, but late frosts	Early blossoming, frost damage, reduced yield or crop failure of fruit trees		