MicroPlan

Bio-DiversitySubCommitteeRANGRIKVILLAGE

Project for Improvement of Himachal PradeshForestEcosystemsManagementandLivelihoods

GramPanchayat

.....Kaza

B MC.....Kaza

BMCSubCommittee ---------- Rangrik

ForestBeat

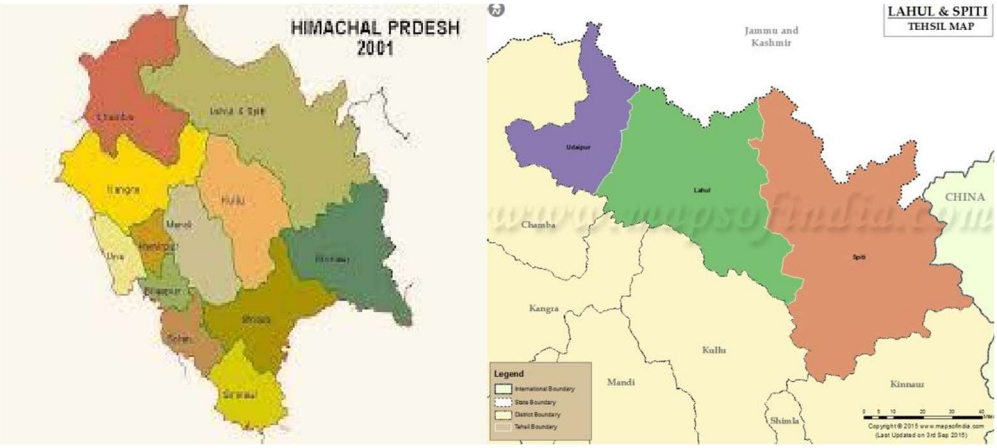
.....Kibber

ForestBlock.....Kibber

ForestRange---------- Wild LifeRange,Kaza

HIMACHALPRADESHFORESTDEPARTMENT

LocationOFProjectAreaSelected



LocationmapofSub-ComFmitteeRangrikPanchayatKaza

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Abbreviations&Acronyms	
ADMU	AssistantDivisionalManagementUnit
ANR	AssistedNaturalRegeneration
BO	BlockOfficer
CBMP	CommunityBasedBiodiversityManagementPlan
EC	ExecutiveCommittee
CD&LIP	CommunityDevelopment&LivelihoodImprovementPlan
CIG	CommonInterestGroup
DMU	DivisionalManagementUnit
SMS	SubjectMatterSpecialist
FCCU	ForestCircleCoordinationunit
Fgd	ForestGuard
FTU	FieldTechnicalUnit
GIS	GeographicInformationSystem
FD	ForestDepartment
GOHP	GovernmentofHimachalPradesh
GP	GramPanchayat
Ha.	Hectare
HHs	Households
HP	HimachalPradesh
HPFD	HimachalPradeshForestDepartment
IFMS	IntegratedForestManagementSystem
IGA	IncomeGenerationActivities
INR	IndianRupees
JICA	JapanInternationalCooperationAgency
MIS	ManagementInformationSystem
MM	MahilaMandal
NR	NaturalRegeneration
NTFP	Non-TimberForestProduce
O&M	OperationandMaintenance
PFM	ParticipatoryForestManagement

PIHPFEM&L	ProjectforImprovementofHimachalPradeshForestEcosystems Management&Livelihoods
PMC	ProjectManagementConsultant
PMU	ProjectManagementUnit
PRA	ParticipatoryRuralAppraisal
RRA	RapidRuralAppraisal
RO	RangeOfficer
SHG	SelfHelpGroup
SWC	SoilWaterConservation
TOT	TrainingofTrainers
BMC	BiodiversityManagementCommittee
YM	YuvakMandal
WHS	WaterHarvestingStructure

1. Introduction

1.1 ProjectObjectives

The objective of the "Himachal Pradesh Forest Ecosystems Management and LivelihoodsImprovementProject"(HPFESMLIP)istomanageandenhanceforestareaecosystemi ntheproject area, by sustainable forest ecosystem management, biodiversity conservation,livelihoodsimprovementsupportandstrengtheninginstitutionalcapacity,thereb ycontributingtoenvironmentconservationandsustainable,socio-economicdevelopmentintheprojectarea inthe stateofHimachal Pradesh.

1.2 ProjectApproachandStrategies

The project aims to sustainably manage and enhance the ecosystems of the forests in theproject area by project interventions under four components in correspondence with theprojectoutputsasbelow.Eachcomponenthasthepreparatoryphase,implementationandph aseout phases.

Output 1: Sustainable Forest Ecosystem Management,Output2:BiodiversityConservation and Output 3: Livelihoods Improvement Support are supported byOutput4:InstitutionalCapacityStrengthening

The basic approaches to be followed under the project to achieve the project objectivesinclude; Empowering forest-fringe communities, particularly women, through sustainablelivelihoods and ensuring positive involvement of rural people in managing their ownenvironment. Strengthening community institutions such as Village Forest DevelopmentSociety(VFDS)andBiodiversityManagementCommittees(BMCs)/subcommittees .

Alleviatingpovertyoftheruralpoorthroughincomegeneratinginterventions.

Planning and implementing site specific technical and scientific forestry interventions,includingsoilandmoistureconservation,restockingofdegradationareasthrough appropriate Silvi-cultural operations utilization of the inherent potential of available rootstock,underplantingwithsuitablespecies,blockplantationsinblankpatches.

Promotinginter-sectoralconvergence(ISC).

InterventionstobeplannedandimplementedbyVFDS/JFMCsandBiodiversityManagementCom mittee/subcommittees(Micro planning).

CapacityDevelopmentofHimachalPradeshForestDepartmentandVFDS/JFMCs.

Promoting forest-based and non-forest-based enterprises (such as the value addition andmarketing of medicinal & aromatic plants, etc.) to generate sustainable employment,developindustries andenhancethe valueofforests.

Caring for the socially disadvantaged groups in the society, such as scheduled castes,Scheduled Tribes, forest dwellers, women and other vulnerable people through propersafeguard measures as per the JICA guidelines and applicable Indian laws and regulations.InstitutioncapacitystrengtheningofForestdepartmentanditspersonnel.

1.3 ModeofOperation

TheidentifiedareasshallbedividedintoParticipatoryForestManagement(PFM)ModeandDepartmentalMode.Incaseidentifiedpotentialinterventionsareasareawayfromcommunities but interventions are required for the purpose of the Project and the PFMinstitutes (VFDS/BMC sub-committee) showing their unwillingness to work in these areas,such interventions are to be conducted in the departmental mode. However, PFM modeshallbeselectedwhereapplicablefromtheviewpointofsustainability.Themajoractivities tobeimplementedunderdifferentmodesincludeasbelow.

PFMMode

Drainage Line Treatment including ex-situ Soil & Water Conservation (SWC)
workDensificationofmoderatelydenseforestsbyPlantationofmulti-purposetreesindegradedforestssoastoconvertopenforestsintomoderatelydenseforestsandmoderatelydenseforeststodenseforests;gapplantationsshouldbepreferredtobemoreeffectiveonlargerareas.

Afforestation/ Improvement of Open/ Scrub
ForestRehabilitationofForestAreasInfestedwithInvasiveSpecies

Improvement of Pastures/ Grasslands (including in-situ SWC
works)ForestFire Protection
ForestryInterventionatOutsideofForestArea

DepartmentalMode

ImprovementofForestBoundaryManagementatProjectInterventionAreasImprovement of Nurseries
SeedlingProduction
Non-PFM Drainage Line Treatment (ex-situ SWC work: including
treatableSurfaceerosion Control)
SecondarySilvi-culturalOperationsforImprovementofExistingForests

Improvement/ Densification of Moderately Dense ForestAfforestation/ImprovementofOpen/ScrubForest
Improvement of Pastures/ Grasslands (including in-situ SWC work)ForestFire Management

Inaddition,theCommunityDevelopment&LivelihoodImprovementPlan(CD&LIP)willbeexecuted by PFM institutions including Common Interest Groups (CIG), User Groups, Self-helpGroups(SHGs)and Executive Committeeof the VFDS.

1.4 NeedforSub-CommitteeLevelMicroPlan

All the Project activities at the BMC sub-committee level shall be undertaken afterpreparationofalong-term(5-7Years)development/perspectivemicroplan.

Microplanningshallbeconsideredasanempoweringprocessthathelps BMCsub-committeeto learn more about themselves, their resources, issues and challenges, strengths andweaknesses, and further to plan for their own development and sustainable resourcemanagement.

The implementation of PIHPFEM&L activities at the BMC sub-committee level shall beguided by an approved Micro Plan prepared by the respective VFDS/BMC sub-committee.Microplanpreparationshallbethefirststepofimplementationofthefieldactivities.

Micro Plan shall be a comprehensive development plan with a special focus on forest andlivelihood development. The micro plan shall cover both forest and non-forest areasmanaged by the BMC sub-committee. Micro plan shall integrate the needs of BMC sub-committeeintocomprehensiveplanthroughanalysisofcurrentconditions,socialassessment and interaction with the members, and with reference to the prescriptions oftheWorkingPlan of theForest Division.

MicroPlanwillnotonlyfocusonforestryactivitiesanditshouldbecomprehensivesoastoincludeall developmentactivitiesthatmaybetakenupbyotherGovernmentDepartmentsand Agencies through convergence. During the preparation of micro plan the BMC sub-committeeshallinteractwithofficialsofotherdepartmentsandafterpreparationofMicroPlan,it shouldbesharedwithotherGovernmentDepartmentsandAgenciesfordovetailingtheiractivities inBMCsub-committee.

A Micro Plan shall consist of two types of sub plans; i) Forest Ecosystem Management Plan(FEMP) and, ii) Community Development and Livelihood Improvement Plan (CD&LIP) andshallbe aggregated byFTUfor each range.

Under the Micro Plan composed by FEMP and CD&LIP, broad action plan is to be preparedfor 5 years based on the 10 year's vision. During the exercise, the achievements of theprevious year shall be assessed and identify issues and corrective measures to furtherincreasetheefficienciesandeffectivenessoftheprojectimplementation.

In the annual planning undertaken during 4th year, a broad action plan shall be preparedforthefourthcoming5years.Theprocessofthe2-5yearactionplanshallfollowthesamestepasdiscussedin theabove section.

A copy of Micro Plan, when prepared, shall be shared with the Gram Panchayat, BlockDevelopment Office (BDO) and other Line Departments for dovetailing their activities inBMCsub-committee.

Although Micro Plan shall be prepared for a period of 5-7 years it would be revisited onannualbasis.

2. BasicInformation

2.1 BasicInformationsheetonMicroplan

	Nameofthe BMCSub-Committee	**Rangrik**
	Nameofthe Ward	**Rangrik**
	RegistrationNo.	HPCD-6091
	Nameof GramPanchayat/BMC	**Khurik**
	Nameofthe FTU/Range	**Kaza**
	NameoftheDMU/ForestDivision	**Spiti**
	Nameofthe District	**Lahaul&Spiti**
	Periodof MicroPlan	2022-23to-2027-28
	Date of approval of MicroPlanby Executive CommitteeofBMCSub-Committee	(BMC Sub-Committee resolution for approval of Micro Plan attached)
	Date of approval of MicroPlan by Head ofDMU	21/11/22
	Key team members engaged in Preparation of MicroPlan	Dr Pawan Kumar AttriMr.AmanKumar Ms.DikshaKumari
	Date of General house conducted & resolution passed	
	Numberofparticipants	**Male:10 Female: 6 Total: 16**
	Voting Pattern followed for formation of BMCSub-Committee EC	Nominated: Elected:
	Numberof membersinEC	Male:10 Female: 6 Total: 16

2.2

GeneralProfileofBMCSubCommitteeselected.

S.No	Description	CurrentStatus
1	Date&RegistrationNo.of BMCSub-Committee	03/06/22 (HPCD–6091)
2.	No.ofRevenueVillages/Ward/ForestVillagesco vered	01
3.	Total number of households(HHs) in Ward	**152**
4.	Total No of household representing BMC Sub-Committee GeneralHouse	**152**
5.	TotalPopulationinrangrik Ward	**949**
6.	TotalGeneral CategoriesHHsin Ward	**0**
6	TotalHHsinWardRangrik	**152**
7	TotalIRDP/BPLHHs	**47**
8	Total Livestock in Rangrik Ward	**150**
9	Bank account details	**SavingAccount**
10	Name of the Bank	SBI BANK
11	Date Of account opened	30/11/22
12	Accountnumber/IFSC	40966996504/SBIN000337

2.3 DetailsofECMembersofBMCSub-Committee

S.No	Name	M/Fe	Designation	Category	Village	Contact nos
1	Tanzin Chhoda	M	President	ST	**Rangrik**	8580650552
2	Tanzin Chhozom	F	Vice-President	ST	**Rangrik**	9015135915
3	Tanzin Tashi	M	Secretary	ST	**Rangrik**	7483586087
4	Lobazang Zangpo	M	Member	ST	**Rangrik**	
5	Dorje Chhering	F	Joint Secretary	ST	**Rangrik**	7876308803
6	Lobzang Lamo	M	Member	ST	**Rangrik**	
7	Sagdan Dolkar	F	Member	ST	**Rangrik**	
8	Kalzang Butith	M	Member	ST	**Rangrik**	
9	KalzangDolma	F	Member	ST	**Rangrik**	
10	SureshKumar	M	Cashier	ST	**Rangrik**	
11	Chhering Dolkar	M	Member	ST	**Rangrik**	
12	SonamDolma	F	Member	ST	**Rangrik**	
13	PardeepChauhan	M	Member	ST	**Rangrik**	
14	KalzangLadon	M	Member	ST	**Rangrik**	
15	LobzangLancho	M	Member	ST	**Rangrik**	
16	DolmaButith	F	Member	ST	**Rangrik**	

3. MicroPlanningProcess

Before starting the micro-planning process FTU-Team Conducted the Gram PanchayatAwareness Meeting .In this Meeting, All Panchayat representative, members of Mahilamandals and yuva mandals and other villagers of Panchayat area participated in thismeeting. FTU team discussed about Jica Project and its objective with Participants indetail. After this meeting, FTU Team conducted the ward level awareness meeting inRangrik ward with the help of Ward members and other sources .Then resident of Rangrikwardagreedfor jicaproject implementation.

Sub-committeelevelMicroPlanconsistsofCommunityBasedManagementPlan(CBMP)andCommunity Development & Livelihood Improvement Plan (CD&LIP). For activities to beimplementedthroughlinedepartment/agenciesdetailofConvergenceactivitiesalsoaddedto the Micro Plan. The detailed process followed in preparation of micro plan focuses oninformationcollectionprimary,secondarysources,wardlevelmeetingsandothermeetingsheldwithprimaryandsecondarystakeholders.Theinformationalsocollectedfromdifferent sections of the community using Participatory Rural Appraisal (PRA) and RRAtechniques.DuringPRAfocusgroupdiscussions(FGD)withthespecificgroupsi.e.vulnerablefamiliesOBC/Womenwasheld.Theinformationcollectedwastriangulatedwithdifferentgroups andfinalized in aplenary session.

TheinformationcollectedwasanalysedjointlywiththeactivemembersofSub-Committeeandothercommunityparticipants.Ameetingwasconductedtosharetheprimaryinformationcollected.Thechangeswereincorporatedbasedontheparticipants'consensus.

The participants were divided into different sub-groups such as farmers, women, youth,poor, labour, etc. to identify their problems, perceived needs and priorities. The sub-groupssuggestedthepossiblesolutionstodealwiththeirneeds&prioritieswhichemergedduring the group exercises. A detailed set of perceived problems and solutions wasdevelopedjointlybymicroplanningteamoftheprojectandtheSub-committeemembers.During PRA exercise women and men were given maximum opportunities to bring forwardforestrelatedandlivelihoodrelated issues.

Theperceivedproblems,solutionsandinformationcollectedthroughprimaryandsecondary sources were discussed with General house of Sub-Committee. A refined set ofproblems and solutions emerged to take it forward for inputs from the technical staff andtheexpertstofinalizetheMicroPlanespeciallytheCBMP.ExecutiveCommitteeofJanahalwas also formed in the General house according to the HP Forestry Project guidelines. ForForestryinterventions User Groupwerealsoformed.

Technical staff of HPFD and Community focused on quantification and decided a tentativetarget for different interventions and prepared cost estimates based on the Project normsandlocallyprevailingrates.ThemicroplanisfinalizedinconsultationwithFieldTechnicalUnit(FTU),DivisionalManagementUnit(DMU)andExecutiveCommitteeofSub-Committeeand inputs fromotherexperts.

Thedetailspresentedinthefollowingtableindicatethecriticalstepsfollowedinmicroplanningproce ss.

S. N	Sequential Steps Followed Addition can be made as Per locally followed process	date
	Community awareness building meetings/workshops Organised at GP& ward Level	31/03/2021
	GP Consent to work with project and	31/03/2021
	BMC Sub-Committee formed Executive committee Constituted.	14/10/2020
	BMC sub-committee Registred	03/06/22
	MOU signed between DMU and BMC sub committee.	21/11/22
	BMC sub-committee account opened	30/11/22
	Percent of HHs represented in micro planning process	50-60%
	BMC sub-committee involved in information analysis and finalizing key emerging activities	yes
	Problems/challenges experienced	1 the village was near kaza so not that problems happened.

4. Socio-EconomicStatusofRangrik

4.1 GeneralDescriptionoftheBMCSub-Committee

4.1.1 History of Area selected: - The Spiti Valley is a mountain valley with cold desertecosystem located in the Trans Himalayan chain in the North-Eastern part of HimachalPradeshinIndia.ThewordSpitimeans"MiddleLand"thelandbetweenTibetandIndia.It occupiesanareaof728,023haandliesbetween31°42'and32°58'N,and77°37'and78°35'
E. The planning site Rangrik village which comes under the Kaza BMC is located in SpitiTehsil of Lahul & Spiti district in Himachal Pradesh, India. It is at an elevation of 3699meters (12139ft) and about 7-8 kilometers from the town of Kaza. Khurrick is the grampanchayat of Rangrik village. The total geographical area of village is 901 hectares. Thesitehasatotalpopulationof949people.There are152housesinRangrikvillage.

4.1.2 LocationofBMCSub-CommitteeArea:- RangrikSub-CommitteefallunderKazaBMC/GramPanchayat inLahaulandSpitiDistrict.TheselectedBMCSub-CommitteeareafallsunderWL Kaza Range in WL Spiti Forest Division Management Unit (DMU). Location Map is attached on**Page No.3**

Boundary:-TheboundaryofselectedBMCSub-Committeeareaisasunder:-

East =SpitiRiver
West=DharLamanduba
North = Dhar Lama Chung
ChungSouth =DharKeuling

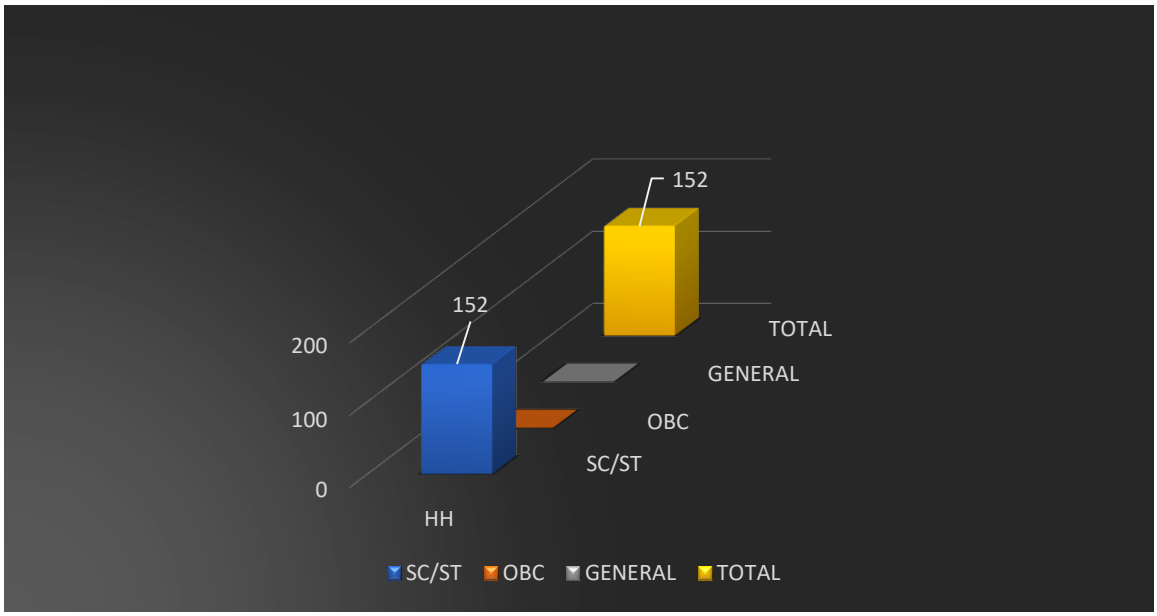
DistancefromForestandotheroffices: -

RangrikBMCSub-Committeeareaislocatedatadistanceof16kmfromWLRangeoffice;Revenueblockoffice,DMUofficeand200km from thedistrictheadquarter.

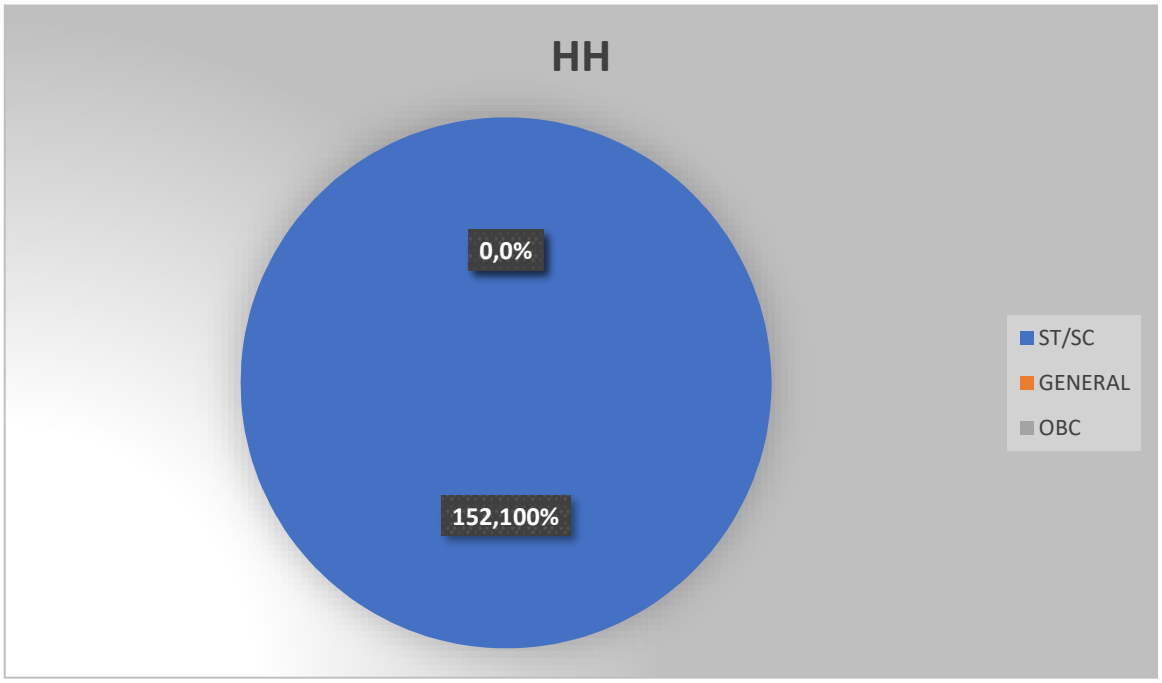
4.2. Socialcomposition

Households(HHs)	ST/SC	OBC	General	Total
Noof HHs	**152**	-	**0**	**152**
%of HHs	**100%**	-	**0**	**100%**

- **InRangrikSub-Committee0HHsbelongtoOBCcategory,while0HHsbelongtoGen.Category.**



- **152HHsareST/SCand100%belongto STcategory.**



4.3 Population

Socialcategory	Population(Number)					
	Male Adults	Female Adults	Total Adults	Male Children	Female Children	Total Children
GENERAL	0	0	0	-	-	-
SC	58	67	125	-	-	-
ST	405	419	824	-	-	-
Total	**463**	**486**	**949**	**94**	**100**	**194**

TotalpopulationofRangrikSub-Committeeis949.Outofthese463aremaleand486arefemale.Male childrenare94 and femalechildrenare100.
OutoftotalpopulationnoonebelongstoGeneralcategory.

4.4 EducationalStatus

4.4.1 EducationalStatus(Adults)

Level	Number		
	Male	Female	Total
Illiterates	133	192	325
Percentage(Illiterates)	28.7%	39.5%	34.2%
Primaryeducation	22	17	39
Middleeducation(10^{th})	142	132	274
HigherSecondary(12^{th})	106	92	198
Graduatesandabove	42	39	81
Professionalcourses	18	14	32
Totalliterates	330	294	624
Percentage(literates)	71.3%	60.5%	65.8%

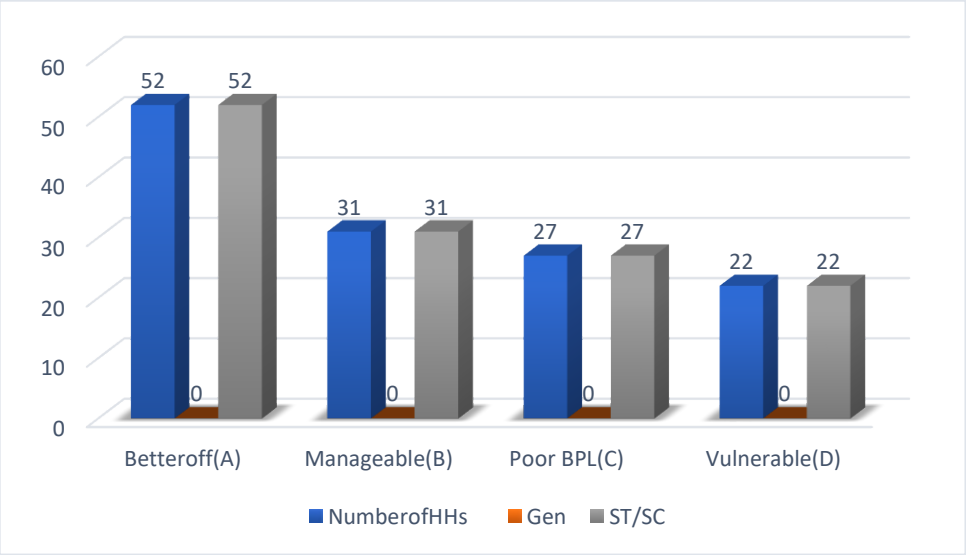
65.8% people are literate. Out of these 71.3% males are educated while 60.5% females areeducated.Whereas34.2%populationis iiliterate.

4.5 EconomicCategories

4.5.1 WealthrankingasperPRAexercise

Category	Criteria/Indicator	NoofHHs	Category code**	CategoryWise	
				Gen	ST/SC
Better off	GovtJob,Agriculture	52	**A**	**-**	**52**
Manageable	Agriculture	31	**B**	**-**	**31**
Poor	SmallFarmers,Labour	47	**C**	**-**	**47**
Vulnerable(needimmediateattention)	Labour	22	**D**	**-**	**22**
Total		**152**		**-**	**152**

Vulnerable HHs are those which do labour work, and are supported by relatives financially.Poor categoryisof smallfarmerswhohavelesslandandalsodolabourwork. Manageablecategoryincludespeopleinvolvedinagriculturehavinglessland,domilksellingandvegetable growing&selling work
BetteroffdoGovt.jobs,and arehavingagriculturemoreland.



HHsAboveandBelowPovertyLine*(AsperGovernmentCriteria)*

Households	Total	APL	BPL
NoofHHs	**152**	**105**	**47**
% ofHHs	**100%**	**69%**	**31%**

DuringlivelihoodanalysisBcategoryHHsshowed50%dependenceonAgriculture,50%ongovtjob workfor theirlivelihoods.

Where as category B (Manageaable) HHs showed 60% dependence on Agriculture andAnimalhusbandryandLabour40%deficiencyinmeetingtheirlivelihoodrequirement.Thereis no categoryAclass found inthis area

AccesstoBasicFacilities/Services

Facilities/Services	Availability (% HHs)	Distance (Km)	Currentstatus
Toilets	98%	-	Personal local dry toilets are available.
Toilets with flushwater	-	-	**Only few hhs got toilet with flush water -**
LPG	94%	7-8KM	Use ofLPG isnot regularasperaverageonly4 LPGCylinderareusedper year/Per HH.
Improvedstove/Tandoor	100%	-	100%HHhaveTandoorforHeatingandcooking also.
Electricity	100%		100%HHhaveelectricityconnection.Inwinter, snowfalltimeelectricityfails.
Drinking water	100%	0.5-1Km	100% HHhaveDrinkingwaterconnections
Healthservices	100%	1-8KM &40KMHQ	HealthserviceisgoodatKaza&RangrikButmaximumvillagersgotoManaliforbetter treatment.
Veterinary services	80%	01KM.	VeterinaryServicesareavailable
Banks	100%	7-8KM.	Villagersgoesto Kazafor availBankServices
Markets	100%	7-8KM.	VillagersgotoKazaforPurchasing.Shopsnot availableinvillageforDailyNeedsProduct
Anganwadi	100%	100to 1000Mtr.	Aganwariavailableinvillagewithgoodservice
Primary schools	100%	100 to 1000Mtr.	PrimarySchoolavailablewithin thevillage withgoodService
Secondary schools	100%	1Km	Sr.SecondarySchoolavailableinRangrik.
PDS	100%	0.5-02 KM.	PDSavailable with in RangrikVillage with betterService

Transport	100%	01KM.	Govt.Bus service and Pvt service (Taxi) available.
Telecommunication	100%	-	AllHHhaveMobilePhones

5. ResourceAnalysis

5.1 LandResources

5.1.1 LandUsePattern

Landuse	Total land	Landunder cultivation	Forest land	Orchard	Waste land	Water body area	Panchayat/ Other-specify
Area(ha)	**901**	**48.41**	**18.56**	**-**	**-**	**-**	**-**
%Area(ha)	**100%**	**5.37%**	**2.05%**	**-**	**-**	**-**	**-**

5.1.2.LandOwnershipPattern

LandOwnership	Private land	Community land	Panchayat land	Forest land	Waste Land	Total
Area(ha)	**48.41**	**-**	**-**	**18.56**	**-**	
%Area(ha)	**5.37%**	**-**	**-**	**2.05%**		

LivestockPopulationRangrikVillage

No.	Cow	Sheep/goat	Yak	Donkey	Total
	70	**30**	**25**	**25**	**150**

5.2 ForestResources

5.2.1 ForestArea

5.2.1.1 SiteSelectionandLocation

This site has been short listed by the DMU and his field staff. Bio-diversity Management CommitteeRangrikhadformedbyHimachalPradeshStateBiodiversityBoardunderBiodiversityact2002. Asperguidelines ofJICA,threesub-committeeshadtobe formedundereachBMC.
The Sub-Committee Rangrik area falls under Kaza BMC.The site is approximate 7 Kms from KazaRange officeSpiti.Location***MapisattachedPageNo.04***

5.2.1.2 DatafromWildlifeForestDivisionforCommunityBasedBio-DiversityManagementPlan(CBMP)

Despitebeingahigh-altitudecolddesert,spitiboastsofmorethen450speciesofmedicinalandaromaticplants.TheseincludeSeabuckthorn,Hatagirea,Aconitum,Ratanjot,Ephedra,Artemisiaandothercondiments.Thealpinepastureonthehighplateausishometo a varity of small bushes and gresses includes Rosa sericea, Hipopheae and Loniceraamong others.Threatenedplantsspecies are*Arnebiaeuchroma,Berginiastracheyi,Physochlaenapraealta,Rhodiola heterodonta.*

5.2.1.3 Descriptionofthe forests

The entire region is classified under the 'Trans-Himalayan Cold Desert' biogeographiczone.Theareacomprisesofvegetationwhichisclassedas'Alpinescrub'or'dry alpinesteppe' vegetation. Such areas are characterised by scattered and open bush-landmainly with herbaceous and shrub species such as *Artemisia spp., Lonicera spp.* and*Caragana* spp. The graminoids such as *Festuca* spp., *Poa* spp. and *Stipa* spp. are foundinthearea,butbyandlargetheirbiomassseemstobedepleted(Mishra2001).Today,the two important vegetation formations in the region include open or desert steppedominated by grasses and sedges (e.g. *Stipa* spp., *Leymus* spp., *Festuca* spp., *Carex*spp.) at altitudes up to 4,600 m, and dwarf shrub steppes between 4,000 and 5,000 mdominated by shrubs such as *Caragana* spp., *Artemisia* spp., *Lonicera* spp. and *Eurotia*spp. Mesic sites such as river valleys and areas along springs and glaciers are oftencovered by sedge meadows (*Carex* spp., *Kobresia* spp.). Vegetation occurs up to 5,200m, but becomes sparse above 4,800 m, and is limited to forbs such as *Saussurea* spp.and *cushionoid* plants such as *Thylacospermum* spp.. The important plant familiesinclude*Graminae,Cyperaceae,Brassicaceae,Fabaceae,Ranunculaceae,andLeguminoceae*.TheVillagersfromRangrikandKomicandLangchaSub-Committeehavetheir rights in this Forest area. The Villagers of these areasdepend on this Forest areafor Fodder, Fuel wood and Timber. The requirement Of Fodder and Fuel wood ofVillagersdoesnotfulfillfromthisForestareasotheyalsogotoSanctuaryareaforfulfilltheirrequirements.

Geology,RockandSoil:

Teareaischaracterisedbysharpchangesinacombinationofquartzite,shales,limestonesand conglomerates. Most of the area is rich in fossils, mainly brachipods, trilobites,ammonites, bivalves and also certain corals and algae, indicating its Tethyan past. Thehigh-altitudedesertsoilsarepredominantlysandyandshallow,derivedmainlyby

disintegration due to marked diurnal and seasonal fuctuations of temperature.The soilsare mostly silty loam to silty-clay loam in texture with a slightly alkaline pH, poor organicmatter and water holding capacity.The soils are low in available nitrogen, phosphorous,potassiumandcarbon,howeverare better supplied incalcium.

Terrain:

AllofSpitioccursaboveanelevationof3,000m.Thelowestpointiswheretheriverflowsinto the Kinnaur district near Hurling. The river cuts a deep gorge in the lower areas andopensupfurtherupstreamnearTabowheretherivermeandersoveravastvalley,attimesclose to a kilometre wide. The slopes on the right bank of Spiti are more rugged and havelonger streams, while the left bank is less rugged. In fact there is a 40 km plateau fromKibber to Demul on the left bank, which also extends into much of the mid Lingti valley,coveringover500km^2.Ofthec.7,600km^{2}coveredbySpiti.ThereareShilla(6,132m)whicha re popular climbing destinations. Apart from the access along the main Spiti River, theimportant passes are Pir Panjal range, the Parang la (5578m) and Takling la (5575m) withthe Pare Chu Valley, on the Zanskar range, and the Kunzam la (4590m) with the ChandraValley.

Climate:

Spiti occurs on the leeward side of the Pir Panjal branch of the Himalaya that cut of theMonsoonaleffectfromtheplainsrenderingtheareadryandcold.Westerlydisturbancesinthe winterbringsomeprecipitationintheformofsnow.Thetemperaturescanrangefrom

-

40inpeakwinter,to30degreesCelsiusinpeaksummer,withtheminimumtemperatureremaining sub zero from September to April in most places. Severe winds occur almostevery day and are further reason for the desiccated atmosphere and lack of trees. Teoverall climate is thus dry and cold with a long winter extending from mid-November toMarch.

Precipitation,Temperature,WindSpeedandHumidity:

Recent local reports and metrological data suggest a marked change in whether patternsin Spiti such as an increase in summer precipitation and a decline in winter snows. Wintersnows are important for both providing irrigation water through snowmelt streams insummer as well as soil moisture for rangelands during the crucial spring and early summerperiod.Latesummerrainsin(July-August)areseenasthreatstostandingcrop.

Watersources:

This area is well drained; and falls under water shed of Lingti River in the north andwatershed of Spiti River in the south upto the top of Kibbri nalla.There are numerousseasonal nala are Lungher nalla, Maung nalla, Kibbri nalla, Kibbri nalla and Shiji Bhangnalla, Shila nalla. These streams and nalas are uniformaly distributed over the sanctuarywhole area are well drained and it falls in catchment of of talking river, Tanmu river andKibji river inthe southand Lungherriver andMalungriverinthe North.

Rangeofwildlife,statusdistributionandhabitat:

The primary large mammals reported from the landscape are the snow leopard, Asiaticibex,bharalorbluesheep,Tibetanwolfandredfox.Allofwhicharenationallythreatened,and many are also internationally threatened. based on existingliterature, prominentlyrepresented in the avifaunal composition are Considering the good representation of highaltitude habitats and their potential to hold good populations of representative avifauna,KibberWLSSnowPartridge(*Lerwalerwa*),Hume'sShort-toedLark(*Calandrellaacutirostris*), Rosy Pipit (*Anthus roseatus*),Robin Accentor (*Prunella rubeculoides*),BrownAccentor(*Prunellafulvescens*)White-wingedRedstart(*Phoenicuruserythrogaster*),HimalayanGrifon(*Gypshimalayensis*),HimalayanSnowcock(*Tetraogallushimalayensis*),SnowPigeon (*Columba leuconota*)etc.

The Biogeographic classifaication the entire Spiti region is classified under the 'Trans-HimalayanColdDesert'(Zone1)biogeographiczonewiththeprovince'Ladakhmountains'(1B) covering most of the southern bank and the 'Tibetan plateau' (1A) covering thenorthernbankaspertheWildlifeInstituteofIndia'sbiogeographicclassification.

Theforesttypes, coverandfood

ThefollowingForestismetwithinthearea

C3-15AlpinePastures:

The vegetation in Spiti is classed as 'Alpine scrub' or 'dry alpine steppe' vegetation. Suchareasarecharacterisedbyscatteredandopenbush-landmainlywithherbaceousandshrubspecies such as Artemisia spp., Lonicera spp. and Caragana spp. The graminoids such asFestucaspp.,Poaspp.andStipaspp.arefoundinthearea,butbyandlargetheirbiomassseems to be depleted. Today, the two important vegetation formations in the regioninclude open or desert steppe dominated by grasses and sedges (e.g. Stipa spp., Leymusspp., Festuca spp., Carex spp.) at altitudes up to 4,600 m, and dwarf shrub steppesbetween 4,000 and 5,000 m dominated by shrubs such as Caragana spp., Artemisia spp.,Loniceraspp.andEurotiaspp..Mesicsitessuchasrivervalleysandareasalongspringsand

glaciers are often covered by sedge meadows (Carex spp., Kobresia spp.). Vegetationoccurs up to 5,200 m, but becomes sparse above 4,800 m, and is limited to forbs such asSaussurea spp. and cushionoid plants such as Thylacospermum spp.. The important plantfamilies include Graminae, Cyperaceae, Brassicaceae, Fabaceae, Ranunculaceae, andLeguminoceae.

These pastures are found above the tree line up to limits of PA. A variety of medicinalherbsare found in these pastures.

Food, water and shelter are the primary requirements of any living being. Sufficientquantity of food and water both for animals and birds is available in the sanctuary. Someparts of the sanctuary are disturbed due to grazing of domestic and stray cattle. For wildlife this factor is very important as hiding places, shelter, nesting, resting, play, foodavailability all get disturbed and wild life avoid these areas. The food source in shape ofgrass and other biomass is present difficient quantity.Different herbivores prefer diversefoodunderdifferentcircumstancessonothingcanbesaidaboutqualityoffoodavailability. Even sufficient food present may not be available for the wildlife species due to variousfactorsthatattractorrepelwildlife.Disturbancebecomesalimitingfactor.

Availableboastsofmorethen450speciesofmedicinalandaromaticplants.TheseincludeSeabuckthorn, Hatagirea, Aconitum, Ratanjot, Ephedra, Artemisia and other condiments.The alpine pasture on the high plateaus is home to a variety of small bushes and gressesincludes Rosa sericea, Hipopheae and Lonicera among others. Threatened plants speciesare*Arnebiaeuchroma,Berginiastracheyi,Physochlaenapraealta,Rhodiolaheterodonta.*

Vertebrates, their status, distribution and habitats. Habitat quality, quantity and keyareas

The mammalian diversity of Spiti is not exceptionally large, but range-restricted speciesoccurhere.Theprimarylargemammalsreportedfromthelandscapearethesnowleopard ,Asiatic ibex, bharal or blue sheep, Tibetan wolf and red fox, all of which are nationallythreatened, and many are also internationally threatened Among the herbivores, ibexoccupies much of the right bank and bharal, the left bank of Spiti River. Ibex also occurson the left bank from the Lossar till near Kioto for potential distribution. Bharal extendinto the Pare Chu valley also. During the field survey over 200 blue sheep were sightedalongwithroadextendedtodumelvillageover300bluesheepintheLingtivalleyand

about 25 in the Pare-Chu catchments. Ibex is mainly distributed in the narrow valleys ofthe tributaries of the Spiti River along its right bank. Although snow leopard occursthroughout the upper Spiti valley their signs were more frequent in the Lingti rivercatchments and the gorges formed by the Ula, Ratang and Guindi nala.Other animals areAsiaticibex,BharalorBluesheep,Tibetanwolf,Redfox,Himalayanweaseletc

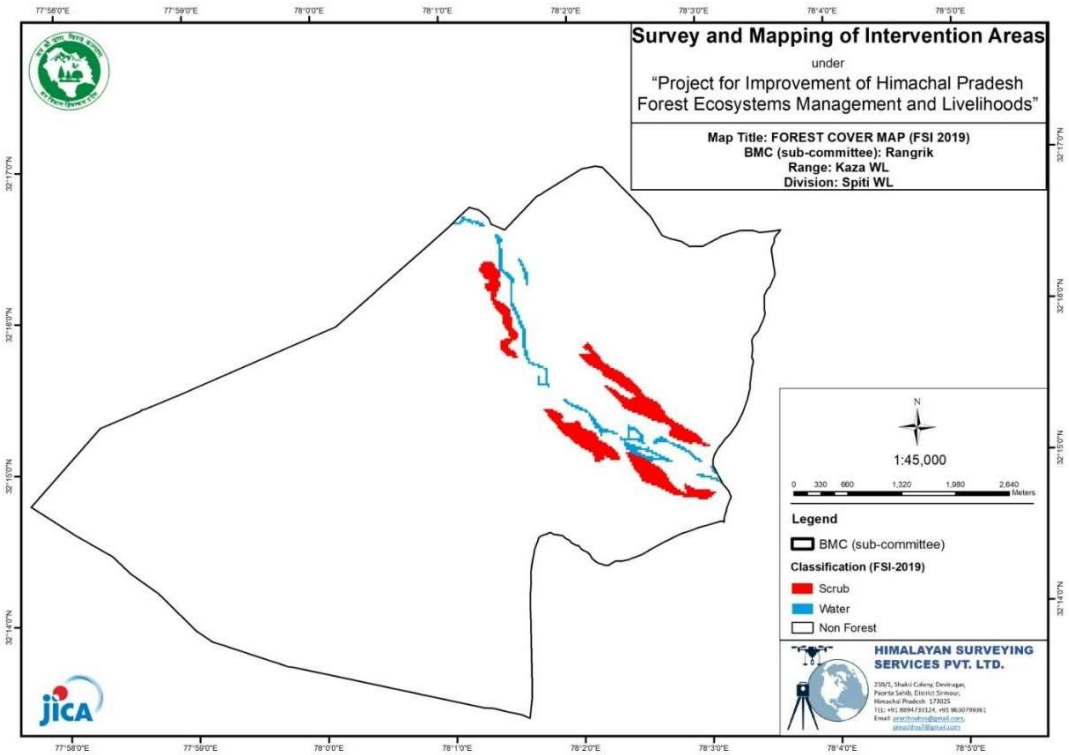
Itisimportanttoanalyzetheresourcesavailableinthesanctuaryintermsofhabitat,whichultimately control and regulate the wildlife. Habitat can be analyzed in terms of space,food,cover,presenceofotheranimalsandclimaticfactors.Spacemultidimensionalfactor is a primary prerequisite for wildlife. The length and width give the quantity of areaavailable, thickness indicative of number of layers available for different species. Thequality and quantity of each of these dimensions gives the idea of nourishment of wildanimals,whichis in abundanceinthis PA.

5.2.1.4 SelectionofInterventionareas,planningandtreatment: -

TheBmcsubcommitteehasbeenselectedassitebyDMUKazaandhisfieldstafffollowingprojectguidelineswhichincludedforestbeinginastateofdegradationtovariousdegrees,deficient to meet with the demand and supply chain to the local right holders around theforest.
The Potential intervention areas /treatment plots have been identified during Microplanningexercisesbytechnicalstaff(Fgd,BlockOfficerandRangeofficer/ACFKaza.)Theactivities to be carried out stands discussed with villagers in detail during PRA exercises.The selected plots, community land /patches are either open areas or are blank, whichwouldbeplantedwithmultipurposespeciesvaryingfrom200perhectare.

5.2.1.5 MapofpotentialSitesSelected(FOREST)

Social Map, Resource Map, Potential/intervention area Map, proposed intervention Mapsare attached as *Annexure-III, V, VI, theGoogle earth pro map of Sub-Committee area isannexedasAnnex-**III.TechnicalmapswouldbepreparedbytechnicalteamtobehiredbyJICA Forestry Project. (Land use map, Forest cover map/ Forest Density map, GPandWardboundary maps,Treatmentareamap)***



5.2.1.6 Dataandmapsongrazing,otherrisksLivestockgrazing

Livestock	HH	Average	Total
Cows	152	1	70
yak	152	1	25
Goats/Sheep	152	1	30
Donkey/Mule	152	1	25

As many as 70 Desi cows 30 sheep/goats , 25 yak and 25 donkey/mule are reported in thisvillage. The local right holders had been allowed to graze their cattle, sheep and goats inthe past as per their rights recorded in the Settlement Report. Grazing cause problems towildlifesuch as:

Competition for food.Disturbance.

Transmission of diseasesSoilErosion.

Increaseinthequantityofunpalatablegrassesandweeds.

Illegal grazing is occasionally a problem in the area as stray cattle from in and around theprotected area graze inside the sanctuary mixed with the cattle of right holders, thus,disturbingthewildlife.ThisproblemisbeingeradicatedwiththeenforcementofguidelinesreceivedfromtheMoEF& CCregardingsuspensionof rights.

NograzingpermitsareissuedforgrazingofcattleinthearealGenerally,thepeopleofthevillages situated outside the sanctuary send their redundant cattle to the forests at nightespecially during rainy season. The villagers also take their livestock to high altitudepastures for grazing during summer season. They remain unattended and forest staff isforced to remove them out of the sanctuary and some cattle also become prey to the wildanimals.

Wildfires

Areafallsin-alpinezone.longwinterareacoveredwithsnowandglacier.So,noincidanceoffireinthis area

5.2.1.7 HumanWildlifeConflict

Human –Wildlife conflicts often hamper the well –being of people and information on theissue was facilitated during the PRA exercise. There is only stay dog conflict with peopleandcattle in winter.

Prescriptions:

Awarenessprogramme/workshopsshouldbeorganizedforlocalpeopletomakethem awareaboutdosanddon'tsincaseofencounterwithwildanimals.

The local people should be made aware about various departmental welfare programmes,especiallyaboutthe procedureto filecompensationclaim.

Arapidresponseteamconsistingoftrainedofficialsalongwithequipment'sshouldbe stationedeitheratRangeorDivisionHQstodealwithanyexigencies.

Foddertreeplantationsshallbedevelopedontheperipheryofthevillagesandstallfeedingmaybepromoted.

5.2.1.8 DataandmaponinterventionAreas/Treatmentplots

Cost norms applied for calculation are as per Forest Department approved norms. Plants,pit sizes are accordingly to models prescribed and approved by Forest Department andProject guidelines. The forests have been visited by team again and again and as per thesite conditions treatment plots have been prescribed. The soil sconservation, soil erosionmaintaince and sol regeneration works are applicable in this Sub Committee area. Localghazisarequitewellmaintainedoneplotwithpatchsowinghasalsobeenprescribed.

Fencing part has been critically analysed keeping in view local conditions as well as bioticpressure and accordingly prescriFbed. Total 6 Hac community land have been identified.Table2:Plot wise detailsof Sub-Committee

S. No	Plotname	Plot No	Area	Latitude longitude	PFM mode	FDmode
1	GCLRangrik Numa	1	6	32°15’37”N 78°02’17”E	Yes	---

F

5.2.2 TrendinCommunityDependencyonForests(asperPRAexercises)

Criteria	**Availability&Accessinthe Past**	**CurrentAvailability&Access**
Major speciesavailable	*Trigonella emodi, Cicerarietinum, Festuca rubra,Geranium, Cousinia thomsonii*	*Aconogonum,Trigonellaemodi,Cicerarietinum,Festucarubra,*
Major NTFPs available	*Aconitum, Arnebiaeuchroma, Codonopsisclematidea, Gentiana,Pedicularis,Dactylorhiza hatagirea*	*Arnebia euchroma, Hippophaetibetana, Dactylorhizahatagirea*
Fodderavailability	*Trigonella emodi, Cicerarietinum,Festucarubra, Geranium*	*Trigonella emodi, Cicerarietinum, Festuca rubra, Geranium*
Fuel wood availability	*Astragalus candolleanus, KrascheninnikoviaCeratoides , Ephedragerardiana, Caraganabrevifolia,Loniceraspinosa, Salix,Hippophaetibetana*	*Loniceraspinosa,Salix,Hippophaetibetana,Caraganabrevifolia,*
Timberavailability	*Caragana brevifolia,Loniceraspinosa,Salix, Hippophaetibetana*	*Caragana brevifolia, Loniceraspinosa, Salix, Hippophaetibetana*
Accesstoopen grazing	Easyaccess	Onlysheep&Goat
Accesstofuel wood	Easyaccessforestsland beingnearer	Havetomovefaroff

Access to fodder	Easyaccessforestslandb eingnearer,	Havetomovefaroff,some fodderspecieshavebeengrownon agriculturefieldbunds/slops

Access to timber	Easyaccessforestlandbeingnearer	Thereisnotreeforest,resultedtheydependsuponshrubwoody species
AccesstoNTFP	Easyaccess	Forestlandbeingnearer,butonlysomepeopleoramchicollectfor their personaluses.nocommerisialzationof NTFP

5.2.2HouseholdsDependingonForest(asperPRAexercises)

Category	%HHsdependingonforest				
	NTFP	Fuelwood	Fodder	Grass	Other
Primaryforestusers	80%	100%	70%	50%	-
Secondaryforestusers	80%	15%	15%	10%	-

Primary forest users for fuelwood are 100%, for fodder 70% and for grass collection 50%. Secondaryforestusersare80%andforfuelwoodits15%.Peoplefromadjoiningvillagesalsovisittheseforests.

5.2.4 Forestresourcesoftheselectedarea(asperPRAexercises)

S. No	Species	Mainuses	RelativeAvailability(%)	Perceivedvalue ofplant (scaleof1-10,1 beinglowest)	
				Men	Women
1	*Trigonella emodi*	Fodder	8	6	8
2	*Cicer arietinum*	Fodder	6	6	6
3	*Festuca rubra*	Fodder	3	5	7
5	*Arnebia euchroma*	Medicinal	50	10	10
6	*Gentiana*	Medicinal	9	9	9
7	*Caragana brevifolia*	Fuel, Construction	27	10	10
8	*Lonicera spinosa*	Fuel, Construction	37	10	10
9	*Salix*	Fuel, Construction	18	10	10

10	*Hippophae tibetana*	Fuel,Construction Medicinal	11	8	8

Relative abundance of *Arnebia euchroma* is high, it is one of the most favoured species.Whereas *relative abundance of Lonoicera sp. Caragana sp.*and *Salix sp.* are 37%,27% and18%respectively.

5.2.5 Biodiversity

MajorHabitat	InitiativeTaken
SnowLeopard	Developingsnowleopard&preyspeciesmonitoringprotocols • Understandingandmanagingpeople-wildlifeconflicts • Developingmodelsformaintainingsociallyfencedareas forconservation • Awarenessprogrammesdirectedatschoolchildren, teachersandyouth • Helpinginconservationplanningandimplemenation
Bharal	PastureDevelopment,BanonHunting,Improvementof wildlifehabitatbyconstructingwaterpond,waterharvestingstructure,repairofpathbunkers,saltlicksetc
Ibex	PastureDevelopment,BanonHunting,Improvementofwildlifehabitatbyconstructingwaterpond,waterharvesting structure,repairofpathbunkers,saltlicksetc.
Bluesheep	PastureDevelopment,BanonHunting

HabitatManagement:

Habitatmanagementisoneofthemostimportantactivitiesofwildlifemanagement.Moreideal the habitat is, better it is in terms of availability of food, cover and water to wildanimals.Itisimperativetoanalysetheresourcesthatareavailableinthehabitatasthis

isthemainfactorwhichultimatelycontrolsthewildlife.Typeofhabitatsavailableinthesanctuary needs to be thoroughly studied. As this will ensure the future management andallmanagementpracticesshallbeguidedbythetypeofhabitatandavailableresources.

Objectives:-

Tostudythehabitatwithrespecttoavailabilityofresourcesandconstraints.Toassess thesuitabilityofhabitatforvariouskindofwildlife.

Tocarryoutvariousactivitiesforhabitatenrichmentwithminimumdisturbance.

Topropagatethelocalspeciesoffruitbearingplanttoensureofavailabilityoffoodtothewildlifeof the area.

ManagementPrescriptions:-

Forbettermanagementofthehabitatfollowingactivitiesneedstobecarriedout.

- ImprovementofPastures.
- Maintenanceofwatersources.
- AugmentationofSaltLicks.
- ProtectionandmaintenanceofPhysicalFeatures.
- Understandingandmanagingpeople-wildlifeconflicts
- Helpinginconservationplanningandimplementation

ImprovementofPastures:

Under pasture improvement not only the quality of bushes is to be improved but in vastextensive thaches/ pastures, planting of bushes like cragana, Goylson, salix sebuckthorn,Ribessp,Rosababiyna,Junipiscarpusandotherspeciesneedstobecarriedout.This alongwithincreasingvarietyofforageshallalsoprovidesheltertowildlife.Thelocalnutritiousgra ssesneedstobeencouraged.Everyyear10hectareofareashouldbetackledunderthisscheme.

Maintenanceofwatersources:

The ward is deficient in water. To improve the water availability in the sanctuary, it isnecessarytoconstructsomewaterharvestingstructures.Thesestructuresshouldbespreadover the entire area. Every year five-six earthen water ponds will be constructed in thesanctuary.Thesiteofproposedwaterpondsshouldbeidentifiedcarefullyafter

visiting/inspectingtheareabyDFO/ACFwithclearobjectives.Thedesignwillbeaccordingtothesiteavailableonthespot.Thecostofeachstructurewillbeaspertheestimateandshallvary from site tosite.

AugmentationofSaltLicks:

The wild animals mostly ungulates living in the forest area are always devoid of mineralsalts.Tofulfilthisdeficiencytheysearchtheplacewherenaturalsaltsoozesoutfromtherocks.These mineralsalts are lickedbythem.

Provision of artificial salt lick affect the behaviour and movement of wild animal andsometimes it also help poachers to locate the presence of the animals. Therefore, it isnecessarytoprovideduecareandprotectionwhereartificialsaltlickshavebeenprovided.Itissuggestedthatalltheexistingartificialsaltlicklocationsshouldbemappedandbasedon the information decision to provide new salt licks should be taken carefully. These saltlick sites should be identified carefully after visiting/inspecting the area by DFO/ACF.During the group patrolling exercises such sites have to be identified and which needs tobeaugmentedandsupplementedbyprovidingblocksofrocksaltsintheseplaces.Monolithsaltblocksmayalsobeusedforthispurposewhichcontainsmixtureofmanymineralsalts.**Protectionandmaintenance ofPhysical Features:**

All the physical features like caves, dens, cliffs; dead and dry bushes would be protectedandkeptassuch,asthesefeaturesareusedbywildanimals.Theyare usedbymanybirds,insectsandsmallmammalsasresting,nesting,roostingandperchingpurpose.

Understandingandmanagingpeople-wildlifeconflicts

Itwillfocusontheeffectiveconservationmodels,especiallyusinglocalsupportaswellasspreadingawarenessaboutwildlifeandenvironmentalconservation.

HelpinginconservationplanningandimplementationBycreatingawarenessprogrammesdirectedatschool,childrenandyouthandalsolocalcapacity,planningandimplementationofconservation works.

5.2.6 NTFPCollection *(asperPRAexercises)*

S. No	Name ofNTFP (Local)	Collection time(Months)	No. ofHHsengaged - approx.	Averagecollection/Season/HH/year	Quantum collected in aseason/ year	Quantum sold in aseason/ year (Rs)	Sale valueinRs./kg	From Sub-CommitteeArea-yes/no	Majorproblems
1	Arnebia or ratanjot (50%),								Species becoming Extinct, wild animalattacks
2	Codonopsis sp.(18%),								Wild animals attack
3	Gentiana sp.(9%)								Availability reducing
4	Dactylorhiza sp. or salaam panja(5%)								Abundance Reducing
5	Pedicularis (4%)								Abundance Reducing
6	Leontopodium(6%)								

- NoCollectionofNTFPbyprimaryusers.

- RattanJotJangliPyazusedforself-consumptiononly.

5.2.7 FuelsCollection/Consumption(asperPRAexercises)

S. No	Type of fueluse d	No of HHsinvol ved	Unit	Average HHConsumpt ion /Year	AnnualConsu mption /year	Sources	Cost involved, ifany	MajorProblems
1	LPG	86	No.	4	344	Govt.	240800.00	Carriage of Kaza toRangrik(04Km.)
2	Fuelwood	91	Kg.	6/Day	196560	Forest&Pvt. Land	-	

S. No	Type offuelus ed	No ofHHsin volved	Unit	Average HHConsumpt ion /Year	AnnualCo nsumption /year	Sources	Costinvolv ed, ifany	MajorProblems
1	LPG	152	No.	6	168	Govt.	940.00/per cylinder	Carriageofkazato Rangrik
2	Fuelwood	152	Cubic Kg.	6months	625kg /HH/M	Forest &Pvt.Land	680/-per 1000kg	Carriageofkazato Rangrik

5.2.8 Fuels/FuelwoodDeficiency(asperPRAexercises)

Fuelsdeficiency	%HHswithfuelsdeficiency	Duration(Months)	Copingstrategies
Low	--	---	--
Medium	---	--	---
High	152	Nov-March	DependuponForestcorporationforfuel wood.Planting of Fodderplantsinforest&OwnLand,if possible.

- LPGispartiallyusedforcookingonlyin 28HHs.FurtherForestDepartmentprovidesfuelwoodatsubsidizedrates(Rs.680/-per quintal) to all households upto maximum 1000kg per household. Apart from it villager collect woody plants fuel woodof different plant species i.e. Cargana sp, Lonicera sp.Salix sp. Constitute over half of the collections from the pasturesforfuelwood.Apartfromwood,peoplealsocollectconsiderablequantitiesofcattle,yakandequiddungforfuel.
- During summer, rainy and autumn season fuelwood consumption is less compared to winter. Before winter fuelwood isstoredbyeach household foruseduringwinter.
- AveragefuelwoodconsumptionIs625KgperHHpermonthperfamilyinwinterseasonfromOcttoMarch.

5.2.9 FodderCollection/Consumption*(asperPRAexercises)*

S. No	Type of fodderused	No of HHsinvolved	Unit	Average HH Consumption /Year	AnnualConsumption /year	Sources	Costinvolved, if any	MajorProblems
1	GreenFodder,Green Grass,Dry Grass from pastureland	152	Kg.	8quital /800kg 10quital /1000kg	18 quintals	Forest,Pvt.Land	No	Fodder brought from far offforests Quality fodder not availableReducing land holdings duetofamilydivision Lessveterinaryfacilities ITKofrearinganimalsnotsuitableforhybridanimals.
						Forest,Pvt.Land	No	
						Forest,Pvt.Land	No	
2	Agriculture residues		Kg.			Pvt.Land	No	

5.2.10 FodderDeficiency*(asperPRAexercises)*

Fodder deficiency	%HHs withfodder deficiency	Duration (Months)	Copingstrategies
Low			
Medium	152	Oct-March	Fodder(tuddi)purchedfrommarkattherateRs.600 per50kgfromKazamarket.PlantingofFodderplantsinforest & Own Land,
High	-	-	-

Major Problems with the fodder collection/Consumption is that fodder is brought from residues of their crops such as peas .AfterSeptembersheepandYaksaresenttoopenpasturesforfreegrazingtillthesnowoccurs.Inwinterstheytaketheirdomesticcattlesbackto thehouses.Averageanimalholdingis1animal(1cowsor1donkeyor1yakor1goat/sheep).Fodderspeciesusedare mainlyagriculturalresidues such asbarley,peasaregivenasfodder.

- PeoplepreferHighvaluecashcropsandarenotgrowingtraditionalcropswhichareresultinginlessfodderavailability.
- GreenanddriedgrassareobtainedfromPasturesinSummer.Pasturesareclosedbythepossessorfrom15JunetotheendofOctober,in Octobergrasscuttingis doneandthereafterareaisopenedforallvillagersforgrazingin winter.

While extraction of species for fodder depending upon the range, land feature and livestock composition. on an average twentythree species were listed as important for fodder excluding the cultivated ones, and among these *Trigonella sp. Cicer sp. ,Aconogonum sp, Festuca sp. , Geranium, Cousinia thomsonii, Lindelofia stylosa, Leymus secalinus, Rumex*,ect. Constitutes thebulkcollected frompastures.

5.2.11 TimberCollection/Consumption*(asperPRAexercises)*

S. No	TypeofTimberuse	No ofHHsdemand /year	Unit	Average HHconsumption /Year	AnnualConsumption /year	Currentsourceofcollection/purchase	Costinvolved,ifany	MajorProblems
1	Agricultural equipment, House construction/repair, Furniture	60-65	KG/quietal	700kg /7 quietal	700kg	Timber distribution, purchasefrom importedwood depots,sale depots		Thereisnoforestthey havetopaycarriage for fuel wood they purchasefromdepot.

5.2.12 TimberDeficiency*(asperPRAexercises)*

Timberdeficiency	% HHs withTimber deficiency	Duration (Months)	Copingstrategies
Low			
Medium	100%	Throughout the year	Illegalpurchase,illegalfelling,purchasefromHPSFCLTD.
High			

Many woody species of plants are used for construction of traditional mud brick houses. The larger boles for the roof are usuallyobtained from outside or local poplar and willow plantations. The multi-layered roof is lined with bushes and other plants,especially along the edges. Many of these serve as protection against erosion and seepage due to water flow and snow melt, butalso serve as emergency fodder and fuel on occasions. *Potentilla, Hippophae tibetana* etc. In some areas such as *Astragaluscandolleanus, Caragana brevifolia, Lonicera spinosa, Salix, Potentilla sp. and Hyppophae sp.* are also extracted in significantquantitiesforconstruction of houses.

5.2.13 ForestManagementPractice*(AsPerPRAExercise)*

Keyactivities	**Traditionalpractices**	**Currentpractices**
Nurserydevelopment	Naturalregenerationwasassistedbyprotectingtrees.	Nonurseryraisingpracticeofforestryspp.
PlantationManagement	Naturally growing spp are protectedSingling if saplings growing naturallyShrubremoval PlantsgrowninDevtaVan	Naturally growing spp. are protected.Singlingifseedlings Shrubremoval PlantsgrowninDevtaVan
Forestprotection	SomeforestsprotectedasDevtaVan,plantbestseedlingsin these Forests. Peopleweredirectlylinkedwithforestsforfuelwood, fodder,timber.	SomeforestsprotectedasDevtaVan,plantbestseedlingsin theseForests. Introductionofchil,monoculturespp.
Development activities	GramSudharSabha Jawarsystemwasprevalent Mandircommitteeactivelyparticipate	GramSudharSabha Jawarsystemnotprevalent Mandircommitteeactivelyparticipate.
Livelihoodactivities	NA	NA

IllegalActivities	Encroachment	Reduced due to FD actions.Actionistakenagainstdefaulters

Sub-CommitteewillbeinvolvedinForestryplantations,soilconservationworks,maintenance,andfireprotectionworks.Trainingfor maintainingaccountsand records wouldbegiven byproject.

5.2.14 ForestProtectionPractices*(AsPerPRAPractice)*

Forest disturbances	**Traditionalpractices**	**Currentpractices**
Forestfire	Noforestfire	
Landslide	Nolandslide	
Flood	Noflood	
Hunting	Hunting/poachingwasprevalentpriortoWLPA1972	Completelybanned/controlled
Illegal activities	Hunting	Nosuchactivitynoticed
Bio-diversityconservation	ExttoafewamchiorlocalTibetanmedicinepractitionerfamiliesin each village. This practice is decline in this area with theadventof modern medicine.	Howevertheextractionfromsomeareacontinuestheseday,muchofwhichappearstobecommericial for serving outside markets. Arnbiaorrattanjotisthemostimpotantcollection(50%)followedby*codonopissp*.(18%)*Gentianasp*.(9%) *andDactylorhizasp*.Orsalaampanja(5%).

		OutersiderPeopleextractmedicinalplantsatearlystage,resultingintoextinctionofmanyspp. duetolackofKnowledge.

- Sub-Committeewillparticipateindrystonecheckdamconstruction,brushwoodcheckdamsandbioengineeringworks.
- TakepartinNTFPconservationworks.

5.3 WaterResourcesDetail

Waterresources	No.	Availabilityofwater (Months)	Differentuses	Current status	Maintainedbywhom	Problems	Opportunities
Spitiriver	01	6	DrinkingWater	WaterAvailable	ByVillagers	OpenSource	After new construction availabilityof Drinking Water will be IncreasedandApproximately18HHwillbeBenefited.
Glacierpeak	01	6	WildAnimal	SoilErosion	By Forest Department	SoilErosion	Cons.OfBrushwood,Dry&CreatewireCheckDamandsidewalls
Glacierwater	01	6	Livestock, Wild Animal	SoilErosion	Villagers&IPHDeptt.	Roof of water tank needs	CheckDams

WateravailabilityfromspitiriverispresentoinSummersonly.ThenaturalSourcesaremaximumOpensources.AfternewconstructionandMaint.ofthesesources,thesewillbemaintainedforVillagers,LivestockandWildlifealso.

5.4 AgricultureResources

5.4.1 CultivableLandUsePattern

	Cultivableland	Irrigatedland	Rainfedland	Cultivable wasteland	Total
Area(ha)	**83.13**	**0**	**83.13**	**39.14**	**901**
%Area(ha)	**9.22%**	**0**	**9.22%**	**4.34%**	**100%**

Asperthesecondaryrecordsanareaof83.13hac.isundercultivation.Thereisnoirrigatedlandintheward.Therefore,wholecultivablelandis under rainfed &cultivablewasteland.

5.4.2 LandHoldingPattern

Category	Number ofHHs	%HHs
LandlessHHs	-	-
Absenteefarmer	-	-
Small&Marginalfarmers(1-5bigha)	**47**	**31%**
Medium/largeFarmer(6-15Bigha)	**105**	**69%**

Nolandless

31 % of the farmers belong to small & marginal category 69 % of farmers are medium farmers.Therearеno Landlessandabsentee farmers.

5.4.3 CroppingPattern

MajorCrops	No.ofFarmersengaged	Irrigated/Rainfed	Unit ofYield	Average CropYield	District/State average Yield	% Deficit Yield	Reasons, if lowYield	PerceivedSolutions to improve crop yield
Barley	152	Rainfed	Qtl/hac	14.45	16.72qtl/ha	2.75	Lack of irrigationNo use of HYYLess use of FYMPoor cropmanagement	Provision ofirrigationProvide goodqualityseeds Soil TestingNutrientaddition accordingly
GreenPeas	152	Rainfed	Qtl/hac	65	76.6qtl/ha	11.6	UnbalanceduseofffertilisersShortage oflabourLow use of FYMPowdery mildew disease Highseedrate	Sameasabove

							Lowgermination	
Potato	152	Rainfed	Qtl/hac	75	86.88qtl/ha	11.88	UnbalanceduseoffertilizersUntimely application of inputs Lack of plantprotectionmeasuresDifferences infertility of soilLowuseof FYM Localseed	High yieldingvarities

- 152HHsintheSub-CommitteeareinvolvedinCashcropscultivation(Barley,pea,potato,).
- Allcropsgrownunderrainfedconditions.
- Averageyieldofcropsisasperprimarystakeholder'sinformation.
- Stateaverageyieldofcropsisaspersecondarysource(CSKKVPalampur)website.
- Theaverageyieldofcropsgrownislesscomparedtothedistrictaveragebecausethecultivationpracticesaretotallydependentonrains.
- Villagelevelaverageproductionisaspervillagerviewpoint.

5.4.4 ChallengesofCultivableLand

Majorchallenges	Currentstrategiestodealwithchallenges	Usefulnessofthecurrentstrategies
Poorsoilfertility	ApplicationofFYM Application chemical of fertilizers	Moderatelyuseful
Soilerosion(low	C/oRRstonemasonrystructures	Moderatelyuseful
Soilerosion(medium)	C/oRRstonemasonrystructures	Moderatelyuseful
Soilerosion(severe)	Noseveresoilerosionnoticed	
Lowlandproductivity	Application of FYMApplicationofF chemical ertilizers UseofHybridseeds	Moderatelyuseful
Lowreten moisture tion	Grassmulching,FYMapplication,Dripirrigationpractices	

Lackofirrigation	Irrigation through PVC pipesfromwatertanks	Lessuseful
Other-specify		

5.5 Livestock

Resource5.5.1LivestockHoldingPattern

Type	Numberof HHs involved	Average HH holding	No.ofanimals	Problems	Opportunities
Cows		**1**	**70**	The lack ofcultivatedfodder, use oflow efficiencytools and harshcold winter	Potential area available forfodder plantationAwareness
yak		**1**	**25**		
Goats/Sheep		**1**	**30**		
Donkey/Mule		**1**	**25**		

				makethetaskseve n moredifficult.	camps byvet. DepartmentExposur evisitsto successfulareas.

				Less milkproduction Lack of scientificknowledge of animalrearing	
Total	**152**	**1**	**150**	-	-

5.5.2ProductionofMainLivestock

Type	**Product**	**Unit ofproduction**	**Average yield/production**	**Districtaverage**	**% Deficityield**	**Reasons for lowyield/ production**	
Cows	Milk	Kg	4.0kg	**3.9**	0.1	Lack of AwarenessDeficiency of Nutrition StallFeeding	Livestockdevelopmentthroughbreedimprovement,training,management and veterinaryservices
Crossbreed	Milk	0	3.4	**2.4**	1.0		

Goats/Sheep			3.0	1.5	1.5	QualityofFodder& Grasses	

6. LivelihoodStrategies

6.1 ExistingLivelihoodStrategies

Sourceoflivelihood	NumberofHHdependentas		Majorconstraints/challenges
	Primary source	Secondary source	
Agriculture	**152**	**0**	Problem of erosion due to serious Topographical and climatic factors andalla biotic Pressure Maximum area is rain fed; therefore, the adoption rate of improvedtechnologies and inputs by the farmers is less as compared to irrigatedland. SmallandscatteredLandHoldingoffarmers Occurrence of natural calamities like drought, Cloud bursts, hailstorm,heavy snowfall, storms, unusual rise in temperature are quite frequentcausinglosses to crops. SqueezingofagricultureLandsbecauseofancestralpropertydivision.Low risk bearing capacity and poor purchasing power of the farmers.Lowproductivityof crops. IncreasingPopulationofstrayanimalsandwildanimals.
Forestry	**152**		Noforest

			Opengrazing Bigpressureonpastureland,newseedlingforfodderandFuelwoodEncroachment
Livestock/Animal Husbandry	**152**	**0**	Shortage of feeds and Fodder during dry season.Traditionalmethodoffeeding. Scatteredandlowlandholding. Pooranimalproductivityi.e.lowmilkProduction,largenumberofnon-descripttypeanimal,lackofbreedingbull,Poorextensionservice. Wildlifeattacks. Lackofinterestofnewgeneration
Wagelabour	**152**		Workisnoteasilyavailable
Service/Job		**42**	ShortageofJobs,lackofqualityeducationorskilled
Carpenters	**28**	**-**	Itswageworkdependsuponpeoplerequirement.

6.2 Livelihoods-ActivityCalendar

SeasonalActivities&Climaticevents	Months											
	J	F	M	A	M	J	J	A	S	O	N	D
WageLabour												
Agri/Horticulture												
Grass/Fodder												
Rains												
Snow/winter												
Frost												
Irrigation												
Fuelwood												
Legends												
	FullyOccupied(fullmonth)											
	PartiallyOccupied											

LivelihoodActivityCalendarshowsthatvillagersarebusythroughouttheyear.However,theworkpressureduringSnowfall /winterislesscomparedtootherseasons.So,thevillagersareavailableduringNovembertoFebruarymonthsforMicroplanning /meeting.

6.3 FoodDeficiency*(relatestonutrition)*

Foodde ficiency	% HHs withfoo d deficiency	Duration (Months)	Copingstrategies
Low	NA		
Medium	**NA**	**-**	**-**
High	**NA**	**-**	**-**

Assuchthereisnofooddeficiency.

6.4 IncomeDeficiency

Incomedeficiency	% HHs withincome deficiency	Duration (Months)	Copingstrategies
Low	NA		
Medium	NA		
High	NA		

Overalltherearenoincomedeficiencies.Drudgeryloadishigh;manandwomenarebusyinworkinginAgriculture,Animalhusbandry in summer seson where as in winter season they are involved in handloom, handicraft practices for sustenancelivelihood.

6.5 PotentialLivelihoodStrategies

Sourceoflivelihood	Majorconstraints/challenges	Keystrategies
Green house-vegetablecultivation/nurseryraising	Purchase saplings from open market,Nonavailabilityofirrigationwaterinsummer	Vegetable nursery raising by interest group.Dripirrigation,glacierwaterharvesting
Handloom	Oldlooms,Marketing	SwitchfromTraditionaloldloomstoMordenhandloom
Weaving	Marketingproblem	Trainingwithtools&exposure
Cutting&tailoring	Noexposureandtrainingtowomen	Trainingwithtools&exposure
CollectionofNTFP	LackofknowledgeofmoreNTFPandtheirprotection	IfProjectgivesTrainingaboutitthenitwillbefruitfulforwomen.Theycanincrease theirincome.

7. InstitutionalAnalysis

7.1 ExistingCommunityBasedOrganisation

CBOs	Age ofCBO (Year)	Formal/ Informal	Registered(Yes/No)	Objectives	Membership	Keyactivities	Credibility ofCBO	External linkages	Useful for theproject
Sub-Committee BMC	12/10/ 2021	Formal	Yes	Project/Forest Objective		ParticipationinJICA Project	Newly Formed	Yet to beestablished	Yes

MahilaMandal/SHG	NA							Yettobe established	

Kisaan Mnadal	NA								
YuvakMandal	NA								

Allabovementioned committees/groupswouldbeofimmensehelptoProjectandtheirinvolvementwouldbehelpfulinimplementation of project activities. Representatives of these committees will be included in BMC Sub-Committees asnominatedmember

7.2 Preferences for External Linkages (Government institution working under sub-committeearea)

Name ofExternal Intuition(EI)	ImportanceoftheEIs	RelationshipwithEIs	Preference toassociatewith EIs
GramPanchayat	Governmentschemesforfamilies Road's connectivity throughPMGSYGeneral housemeeting	Very helpful inintroducing newschemes Villagedevelopment	**2**
ForestDepartment	Creatingawarenessforprotecting forests/ naturalresources.	Cordial relations.Forest guard, Bokeepsonvisiting villages	**1**
Veterinary	Healthbenefitsforanimals	Notverygood relationship	**4**
Health	Basichealthfacilities Healthcampaigns	Health/Ashaworkers areveryinteractive	**5**
Education	Basic knowledge on Climate change andimportanceofforests	Veryhelpful	**5**
Agriculture	Provisionofnewvarieties, Awarenesscampaigns	Formal relationship withthedepartment	**4**
Horticulture	AwarenessCampsProvisionofnewveritiesofFruitPlants Awarenesscampaigns	Formal relationship withthedepartment	**4**

JalShakti	Veryimportantforwatersupplyandirrigation	Relationwithfitteronly, needsimprovement	**3**

8. ProblemAnalysisandSolutions

8.1 AnalysedProblemsandScientificSolutions

S. No	Problems identified	Justification of problemsidentified	Rootcauseanalysis	Recommended solutions
1	Highcommunitypressure on nearbyforestland	100%oftheHHsdepends upon forestland forfuelwood and 75% forfodder.Timberisabasicneedofall households.	Depleting supply offodder andfuelwood from theforestland.	Plantingfodder&grassspecies Plantingfuelwoodtrees
2	Increasingsoilerosion&moistureloss	Soilerosionisalongcontourline SoilErosionisof medium grade	Mediumlevelsoilerosionduetoglaciers	Contour trenchingDry Stone check damMasonrycheckdams Checkwalls
3	Lack of irrigation coverage	100% percent cultivablelandbutscarcityof water	Water resources includeglacialwater usedfordrinking, domestic andwildlifeuse	Constructionofwaterharvestingstructures
4	Low crop yield	AverageyieldofPeaandvegetablesisless	Poor soil fertilityLackofinformationoncropproductiontechnology	Organizing farmers' campsIPM,INMatBMCSub-committee levelLinkagesforincreasedinformation,knowledge &technology

6	Lowincome	Around31%(47HH)offall in poor BPL category	AllHHsaresmall&marginalfarmers	Promotingentrepreneurship Skilldevelopment

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			Low income fromagriculture&livestock Lackofemploymentopportunities Lackoffeasible&viablebusinessopportunities Lowlevelofentrepreneurship	Promoting incomegeneration activities through SHGs/CIGsFacilitating clusterbasedmicro enterprisesdevelopment andmarketing Upgradinghandloomand cashcropcultivation
CommunityDevelopmentNeed& Priorities				
7	Wastage ofoverflow ofdrinkingwater near resources	Waterflowatthecontour line of glacierwater	Inabsenceofpropermaintenancebythecommunityinstitutionsandline department	Construction/repair ofwater harvestingstructure/Tanks

8.2 PerceivedProblemsandSolutions

SNo	**KeyStakeholders**	**Key problemsidentified bystakeholders**	**No ofHHsand/orareaaffecte d**	**Criticalcauses ofthepro blems**	**Perceived solutions**	**Prioritization ofproblems**

1	**Women**	MahilaMandal, fuelandfodderavailabilityatfar	152	Lack of Awareness	Formation of MM Capacity	Formation of MM and itsregistration,

		offplaces,lackof Income Generationactivities(IGA).			buildingprogrammes,plantingfuel,fodderspecies if possible.	IGA activities, Handloom, cashcropspromotionPlanting fuel,fodder,timberspp., If possible.
2	**Wage-labour**	Lackofwagethroughouttheyear	152	Less landholdingsLack oftraining	May begivenwagework inprojectactivitiestrainingforIGA with tools	Wage in plantationwork, Training in rope weavingetc.carpentry,with toolsprovision.
3	**Farmer**	1. Rain fedagriculture 2. Lack of awareness of agriculturalschemes	152	1 Lack ofirrigationfacilityandless landholdings2Agriculturestaffllessvisit	Glacierwaterharvesting,awarenesscamps by Agriculture deptt.	1. Excess usingwaterharvesting byconstructingwaterharvestingstructure 2. Awareness camps onIntegratednutrientmanagement, Integratedpest

						managementand Agriculturedept. Scheme etc.
4	**Landless**	**NA**				

8.3 ImplementationActivities/Interventions

Importantissues	PriorityRank	Specificactivitiesaspertheagreed solutions	Benefitting HHs
Participatoryforestmanagement			
Fuelwoodandfoddercollection from far offareas.	1	*Rosa macrophylla (wild rose), speciesofHippophae,Myricaria,Salixflabellaris, S. hastate, S. lindeleyana,Juniperus recurva, Ribes orientale, R.alpestre, Lonicera spinosa (Thapp), L.obovata, L. rupicola, Capparis spinosa,Caraganabrevifolia(Trama).Rhododendronlepidotum,Coluteanepalensis,Ephedragerardiana,Clematisvernayii,Cotoneastermicrophylla etc. The scrub and spinycushions are formed by the species ofCaragana,Astragalus,Artemisia,Cousinia,Saussurea,LoniceraandArnebia.Herbaceouselementisdominatedbythespeciesof Astragalus,Chesneya, Oxtropis, Cicer, Lindelophia,Allium,Rumex,Nepeta,Heracleum,Chenopodium,Artemisia,Lactuca,Gentiana,Gentianella,Hyssopus,Pedicularis, Rheum, Aquilaria, Caltha,Taraxacum,Plantagos,Aconitum, Thymus, Delphinium, Lepidium, Crepis,Mentha,Geranium,Bergenia,Senecio andMertensia*	Wholecommunity

Lessfodder,fueltrees in village near byprivatearea.	**1**	*Willows,Poplars,Chharma,Bhojpatra, Trama,Thapp,Sia(Wildrose)Umboo(Myricaria),Junipers,Ribesetc.*	Wholecommunity
Soil&waterconservation			
Soilerosionand landslide near Contourline	**5**	Checkwalls,Checkdams Gabion wire structuresBioengineeringworks.	Wholecommunity
Water pondconstruction, Bouri repair	**2**	Renovation of existing water bodies,Constructionofpond,WHSetc.	Wholecommunity
CommunityDevelopment			
MahilaMandalBhawan	**6**	ConstructionofMahilaMandalBhawan	Whole community
Livelihoodimprovement			
LackofIGA(Incomegenerationactivities)for women and otheryounggeneration at sub-committeelevel	**3**	**Asindividualactivities**CuttingandTailoringtrainingneeded. **As Group activity** Handloom/ Ropeweaving,andherbstrainingneeded.	28 beneficiaries
Miscellaneousactivitiesforconvergence			
Footpathconstruction tohamlets	**7**	Betteraccessibilitytocommunities.	Whole community
Fuelwood, FodderPlants and Medicinal plants	**1**	Willsupplementinday-to-daylocalrequirements.	Wholecommunity
FarmingCamp	**4**	Willeducatevillagersinlatestscientific knowledgeandexchangeideas.	Whole community
Footpathconstruction tohamlets	**7**	Betteraccessibilitytocommunities.	Whole community

8.4 SWOTAnalysisSub-committee

Strength	**Weakness**
Young&energeticgroups Clear vision to environment &climatechange EqualpartitionofallgroupsGenderequality Positiveresponse Water available for IrrigationCashCrop FertiliseLand	NoSHGisformed Limitedknowledgeoftheproject LackofAwareness(Agriculture,Horticulture&Livestock) Cold Desert areaDeficiencyofFodder Lackofcoordinatewithlinedepartment LackofAwarenessregardingHygieneShortspan for work
Opportunity	**Threats**
Willingness to learn and executeHighly qualified team connectedwith advanced communicationtechnology Widernetworkingwithdifferentagencies & governmentdepartments.Cash Crop OrganizeFarmingCamps Well connected to roadHighlyscopeforecotourism	CommunityinferenceindecisionmakingprocessTimeconstraints duringsummer Short time span due to cold desert regionGrazing

8.5 SettingtheobjectivesforDevelopmentfortheprojectduration

ObjectivesforForestryDevelopment

- ProtectionandconservationofforestLand
- Propagationforestshrubspecies
- Enhancedvegetativegrowth
- Enhancedforestcover
- Overallwatersheddevelopmentbyintroductionofmoistureretentionworks,soilprotection works

Objectivesforvillage/communityDevelopment

- Sustainablelivelihood
- Reductionofpressureonforestresources
- Assetgeneration
- ConvergenceofvariousdepartmentsforoveralldevelopmentofthearEa
- Womenempowerment
- Introductiontoecotourism

9. CommunityBasedBiodiversityManagementPlan

9.1 WhatisBiodiversity?

Biodiversity is the foundation of ecosystem to which human well-being is intimately linked. Nofeature of Earth is more complex, dynamic, and varied than the layer of living organismsthatoccupyitssurfacesanditsseas,andnofeatureisexperiencingmoredramaticchang eat the hands of humans than this extraordinary, singularly unique feature of Earth. Thislayer of living organisms—the biosphere—through the collective metabolic activities of itsinnumerableplants,animals,andmicrobesphysicallyandchemicallyunitestheatmosphere, geosphere, and hydrosphere into one environmental system within whichmillions of species, including humans, have thrived. Breathable air, potable water, fertilesoils,productivelands,bountifulseas,theequitableclimateofEarth'srecenthistory,ando ther ecosystem services are manifestations of the workings of life. It follows those large-scale human influences over this biota have tremendous impacts on human well-being. Italso follows that the nature of these impacts, good or bad, is within the power of humanstoinfluence.

Forestbiologicaldiversityisabroadtermthatreferstoalllifeformsfoundwithinforestedareasand theecologicalrolestheyperform.Inbiologicallydiverseforests,thiscomplexityallowsorganisms toadapttocontinuallychangingenvironmentalconditionsandtomaintainecosystemfunctions.

Forestsarecriticalhabitatsforbiodiversityandtheyarealsoessentialfortheprovisionofa wide range of ecosystem services that are important to human well-being. There isincreasing evidence that biodiversity contributes to forest ecosystem functioning and theprovisionofecosystemservices.

WhatisCommunityBasedBiodiversityManagement(CBM)?

Community-based biodiversity management (CBM) is a participatory approach to empowerlocal stakeholders as well as the local institutions for managing biodiversity for social,economic,andenvironmentalbenefitstocommunitiesaswellastothegeneralpublic.This approach, usually developed by the in-situ conservation approaches and it is focused oncommunity level issues, enhancing the capacity of communities to analyze livelihoodassets,problems,andtoseekandimplementsolutionswithrespecttouseandconservation of genetic resources of local biodiversity. It recognizes and supports local institutions andcommunitiesaslegitimateandcrucialactorsinthenationalplantgeneticresourcesystem,and its role in the wider context of biodiversity and development. Communities areempowered to exercise their rights and secure access and control over their geneticresources.Theapproachiscommunity-centered,strengthenslocaldecision-makingprocessandemphasizeslocalgovernanceintheconservationandutilizationofcommunity biodiversityresources.

Documenting spatial patterns in biodiversity is difficult because taxonomic, functional, trophic,genetic,andotherdimensionsofbiodiversityhavebeenrelativelypoorlyquantified. Evenknowledgeoftaxonomic diversity,thebest-knowndimensionofbiodiversity,isincompleteandstronglybiasedtowardthe species level,mega-fauna,temperatesystems,andcomponents used by people. This results in significant gaps in knowledge, especiallyregarding the status of tropical/temperate systems, marine and freshwater biota, plants,invertebrates,microorganisms,andsubterraneanbiota.Forthesereasons,estimatesofthetotal number of species on Earth range from 5 million to 30 million. Irrespective of actualglobal species richness, however, it is clear that the 1.7–2 million species that have beenformallyidentifiedrepresentonlyasmallportionoftotalspeciesrichness.More-completebioticinventoriesarebadlyneededtocorrect forthisdeficiency.

9.2 CommunitybasedBiodiversityManagementPlan(CBMP)

CommunitybasedBiodiversityManagementPlanisadecentralisedprocesswherethelocalcommunity is in the centre stage that monitors the resources around it, its use and plansforits sustainabilityforlongtermbenefitsforallsucceedinggenerations.

Thuscommunitybasedbiodiversitymanagementplanhastwofacetsasmentionedbelow:

- Communitybasedbiodiversitymonitoring
- Communitybasedbiodiversitymanagementplanning

9.2.1 CommunitybasedBiodiversityMonitoring

Qualitativebiodiversitymonitoring:

Community based biodiversity monitoring can be undertaken through both qualitative andquantitativeapproaches.Qualitativemonitoringsimplydepictsthecommunityperceptions on the availability of resources and its use over a said time period. It is cost-effective andshouldbeusedforsubstantiatingmoreaffirmativeapproachesofbiodiversitymonitoring.

So far, under the PIHPFEM&L project intervening geographies, Himachal Pradesh StateBiodiversityBoardhasundertakentheapplicationofPeoplesBiodiversityRegisterExercisesi n selected 120 Gram Panchayats[1]. The People's Biodiversity Register (PBR) is a designedtool for the formal maintenance of the local knowledge with proper validation. PBR is arecord of knowledge, perception and attitude of people about natural resources, plantsand animals, their utilization and conservation in a village or a Panchayat. PBR is alsoproposed as a mechanism to create awareness among the people about the condition ofplants and animals and their conservation and sustainable utilization. This mechanism canbring the people to participate in development planning which would be ecologicallysustainableand sociallyjustifiable.

People’s Biodiversity Register is a tool for collecting and documenting biodiversity data.Local communities need to be encouraged and trained to be the principal participants
inthisprocess.Whencommunitiesmaintaintheirregisters,itwillfostergreaterconservation

[1] *Preparatory Survey on Himachal Pradesh Forest Ecosystems Management and Livelihood Project in India, Draft Final Report, February,2018.*

of this natural resource base. Despite the provisions within the Biological Diversity Act,2002,whichgrantsduerightstocommunities,ithasnotbeenfullytranslatedintopractice.

FurtheranalysisofPBRspreparedinHimachalPradeshhasfollowingdeficiencies:

- MostofthePBRsarenotcompletedfortheprojectareasofPIHPFEM&L
- Whatsoeverpreparedarestillindraftstage anditwouldtakeatleastmorethan6monthsto get completed.
- InmostofthePBRs,thespeciesrecordedarefoundwith“Nothreats”togreater extents
- Someformatsareunfilledeitherfullyorpartially
- Someformatsarevaguelyorbroadlyfilledupanddoesnotsatisfythespecificneedofthe formats it is meant for
- ThoughmanyspeciesareoccurringinthetargetedGramPanchayats,manymorespeciesar eleftandnotincludedin the PBRs
- NoparticipatoryprocessesareadoptedduringpreparationofPBRsanditisfoundtobethere sponserecordof someindividuals,notcommunity*per se*
- Somespeciesarerecordedas“rare”or“declining”.Butfieldleveldialoguesonthe biodiversityrevealsotherwise.

Thus,itisequallypertinenttoquantifythelocalforestbiodiversitythroughasimple,scientificandparticip atory manner to substantiate the qualitative indicators on local forest biodiversity. This isdonethroughtheParticipatoryVegetationMonitoringwherethevillagerscollectsimplequantifiablefigu resforbetter decisionmakinginforestbiodiversitymanagement.

Quantitativebiodiversitymonitoring:ParticipatoryForestMonitoring

Participatoryforestmonitoring (PFM)isanongoingprocesswherelocalforestuserssystematically record information about their forest, reflect on it and take managementactioninresponsetowhattheylearn.ParticipatoryForestMonitoring(PFM)forcom munity-basedForestManagementsupportstheVillageForestDevelopmentCommittees(VFDCs)in

HimachalPradeshforplanningandmanagingtheirforests.ThePFMwasplannedtodevelopparticipatory monitoring of forest resources at local community level which envisagesinvolving local institutions (VFDCs) and other stakeholder groups such as HPFD[2]staffs,Project staffs[3], NGO[4]s if any, youth clubs, Eco Clubs etc in identification of resources,planning for utilization and regeneration of resources, and adaptive management offorests. The basic objectives of PFM is to develop people centric monitoring system, inwhich local people should have better understanding of resources around, followed byassessingthe statusand planningforsustainable useof them.

ProcessofParticipatoryForestMonitoring:

PreparationofResourceMap:

Since Biodiversity monitoring is a segment of Microplan prepared through participatoryrural appraisal which also integrated the social and resource mapping. The resourcemapping also included the forest mapping with nomenclatures of different zones withincommunity forests. These forest patches act as different strata for sampling. Sampling offorestvegetationwasdonethroughsampleplotsofdifferenttypesofplantforms.

Samplingofforestvegetation:

EcologicaldatacollectionofPFMisbasicallytounderstandthechangeinvegetationstatusduetoprotectionandmanagementoftheforestsbythecommunity.Thevariousparametersthatcanbeaddressedarestandingbiomass,biomassgrowthrates,harvestabletimber volume, species diversity, species density, regeneration status of herb, shrub andtree species, and level of disturbance by way of illegal felling, pest and diseases andsurvivalrates.

[2] *HimachalPradeshForestDepartment*

[3]*ProjectforImprovementofHimachalPradeshForestEcosystemsManagement&Livelihoods(JICAsupported)*

[4]*NonGovernmentOrganisations*

Shrubs: Shrub plots include perennial shrub species but with height above 1.5 m. Shrubplotsarenormallysmallerinsizethantreeplots,butthenumbercouldbeatleastdoublethat oftreeplotstoaccountforthelikelyheterogeneityofshrubsandyoungertrees.Shrubplotsareloca tedinsidethetreeplots,attherateoftwopertreeplot.Shrubplotnumbercanbe twoper treequadrat andthe sizecan be 5mX5m.

Herbsandgrass: Annualherbsespeciallyofmedicinalpropertyandgrassbiomassproduction can be estimated by laying quadrats. Normally, herb layer plots will be of size1 X 1 m and the number is at least double that of shrub plots. Parameters to be recordedinclude; species name, number of plants and number of herbs / grasses destroyed ordisturbeddue tonatural andanthropogenic reasons.

9.2.2 DataonqualitativeandquantitativedataonCommunitybasedBiodiversityMonitoring within Rangrik BMC Sub-Committeezone

Qualitativedata

Based on the PBR information following status on flora and fauna could be traced. Thesestatusesofflora andfaunaarementionedinfollowingtable–XXXbelow:

Table-IssuesidentifiedbasedonPeoplesBiodiversityRegister[5]

SlNo	Majoritem	Sub-items	Name of the item withscientificnames	Issues
	Agro-biodiversity	**Agriculture (Cropdiversity)**	Barley	Present
			Pea	Present
			Potato	Present
	Wildbiodiversity	**Trees,shrubs,herbs,climbers,tubers,grassesetc**		
			Abeliatriflora	Present
			Loniceraangustifolia	Present
			Andrachnecordifolia	Present
			Loniceraasperifolia	Present
			Astragaluscandollianus	Present

[5]SUB-STATESITEBIODIVERSITYSTRATEGYANDACTIONPLAN(LAHAUL&SPITIANDKINNAUR)TRIBALDEVELOPMENTDEPARTMENT, H.P. SECRETARIAT, SHIMLA-2 & STATE COUNCIL FOR SCIENCE TECHNOLOGY AND ENVIRONMENT, 34SDACOMPLEX, KASUMPTI, SHIMLA–9

			Lonicerabracteata	Present
			Astragalusrhizanthus	Present
			Loniceradiscolor *Berberisaristata*	Present
			Loniceragovaniana	Present
			Berberisceratophylla	Present
			Loniceraheterophylla	Present
			Berberischitria	Present
			Lonicerahispida	Present
			Berberisconcinna	Present
			Lonicerahypoleuca	Present
			Berberisjaeschkeana	Present
			Loniceramyrtillus	Present
			Berberiskunawurensis	Present
			Loniceraobovata	Present
			Berberislycium	Present
			Liniceraparvifolia	Present
			Berberispachyacantha	Present
			Lonicieraquinquelocularis	Present
			Berberispetiolaris	Present

			Lonicieraspinosa	Present
			Berberisumbellata	Present
			Lonicierawebbiana	Present
			Bosiaamherstiana	Present
			Myricariaelegana	Present
			Buddleiapaniculata	Present
			Myricariagermanica	Present
			Capparishimalyensis	Present
			Myrsineafricana	Present
			Capparisspinosa	Present
			Osbeckiastellata	Present
			Caraganabrevispina	Present
			Periplocacalophylla	Present
			Caraganagerardiana	Present
			Plectranthusrugosus	Present
			Caraganaversicolor	Present
			Potentillafruticosa	Present
			Coluteamultiflora	Present
			Prinsepiautilis	Present
			Coluteanepalensis	Present

			Prunusjacquemontii	Present
			Cotneasteracuminata	Present
			Rhamnuaprostrata	Present
			Cotneasterrosea	Present
			Rhamnuspurpurens	Present
			Cotneasterthamsoni	Present
			Rhamnustriqueter	Present
			Cotoneasterbacillaris	Present
			Rhamnusvirgatus	Present
			Cotoneasterduthieanus	Present
			Rhododendronanthopogon	Present
			Cotoneasterfalconeri	Present
			Rhododendron campanulatum	Present
			Cotoneastergilgitensis	Present
			Rhododendronlepidotum	Present
			Cotoneastermicrophylla	Present
			Rhuscotinus	Present
			Cotoneasternummularia	Present
			Rhuspunjabensis	Present
			Cotoneasterobovatus	Present

			Ribesglaciale	Present
			otoneasterobtusus	Present
			Ribesgrassularia	Present
			Cotoneasterpruinosus	Present
			Ribesnigrum	Present
			Crataegussonarica	Present
			Ribesorientale	Present
			Daphnemucronata	Present
			Ribesribrum	Present
			Desmodiumconcinum	Present
			Rosabrunonii	Present
			Desmodiumfloribundum	Present
			Rosaeglanteria	Present
			Desmodiumnatans	Present
			Rosamacrophlla	Present
			Desmodiumoxphyllum	Present
			Rosaminor	Present
			Desmodiumpodocarpum	Present
			Rosawebbiana	Present
			Desmodiumpseudo-triquestrum	Present

			Rubusbiflorus	Present
			Desmodiumtilaefolium	Present
			Rubusbiflorus	Present
			Deutziacorymbosa	Present
			Rubusellipticus	Present
			Deutziastaminea	Present
			Rubuslasiocarpus	Present
			Elaeagnusparfiflora	Present
			Rubuspurpureus	Present
			Elaeagnusumbellata	Present
			Sabiacampanula	Present
			Elsholziapolystachya	Present
			Salixhastata	Present
			Ephedragerardiana	Present
			Salixlindleyana	Present
			Euonymusechinatus	Present
			Salixoxycarpa	Present
			Euonymusfimbriatus	Present
			Salixpycnostachya	Present
			Euonymusmonbeigii	Present

			Skimmialaureola	Present
			Euonymustingens	Present
			Sorbariatementosa	Present
			Ficusfoveolata	Present
			Sorbusaccupania	Present
			Gaultheriatrichophylla	Present
			Sorbuslanata	Present
			Hamiltoniasuaveolens	Present
			Sorbusursina	Present
			Hippophaerhamnoides	Present
			Spireacanescens	Present
			Hippopaesalicifolia	Present
			Spireasorbiflolia	Present
			Hippopaetibetana	Present
			Staphyleaemodi	Present
			Hydroangeaanomala	Present
			Strobilanthesalatus	Present
			Hypericumcernuum	Present
			Strobilanthes atropurpurens	Present
			Hypericumpatulum	Present

			Strobilanthesdalhousianus	Present
			Incarvilleaarguta	Present
			Strobilanthesglutinosus	Present
			Indigoferagerardiana	Present
			Strobilantheswallichii	Present
			Indigoferaheterantha	Present
			Symplocoscrataegoides	Present
			Inulacappa	Present
			Syringaemodi	Present
			Inulacuspidata	Present
			Tamaricariaelegans	Present
			Jasminumhumile	Present
			Verbascumtraipses	Present
			Jasminumofficinale	Present
			Viburnumcotinifolium	Present
			Juniperuspseudo -sabina	Present
			Viburnumnervosum	Present
			Juniperusrecurva	Present
			Viburnumstellulatum	Present
			.Leptodermislanceolata	Present

			Viscumalbum(Epiphyteo ntrees)	Present
			Lespedezaeriocarpa	Present
			Wickstromiacanescens	Present
			Loniceraalpigen	Present
	Medicinal	**Medicinal Plants**		
			Allium carolinianum	Present
			A.jaquemontii	Present
			Arnebia euchroma	Present
			Achillea millefolium	Present
			Artemisia brevifolia	Present
			Bergenia stracheyi	Present
			Betula jaquemontii	Present
			Carumcarvi	Present
			Corydalis govaniana	Present
			Dactylorrhiza hatagirea	Present
			Ephedra gerardiana	Present

			Gentiana Kurroo	Present
			Gentanella moorcroftiana	Present
			Colchicumluteum	Present
			Hyoscyamusniger	Present
			Heracleum condicans	Present
			Hyssopus officinalis	Present
			Juniperus communis	Present
			Juniperus macropoda	Present
			Malva rotundifolia	Present
			Onoma hipidum	Present
			Taraxacumofficinale	Present
	Wildanimals	**Mammals,birds,reptiles,amphibian,insects,others)**		
			Ibex(Capraibex siberica)	Present
			Snow Leopard (Pantheraunica)	Present

			HimalayanBlue Sheep(Pseudois nahyaur)	Present
			Tibetian Wolf (Cannislapus)	Present
			RedFox(Vulpus valpus)	Present
			WoolyHare	Present
			HimalayanChough(Phyrhocorax gracumus)	Present
	Birds		*Snow Pigeon (Columbia rupestris)*	Present
			Snow cock (Tetragallus himalyensis)	Present
			Vulture(Nephron persnopterus)	Present
			Ducks (Avthva ferina)	Present
			Murgabi (Anas crecca)	Present
			Himalayancrow (Corvustibeteana)	Present
			Picca(Ochotona rovlei)	Present
			Raven (Corvus	Present

			corax)	
			Golden Eagle (Aquila chrysaetos)	Present
			Griffan (Gyps himalayansis)	Present
			Red Start (Phoenicurus orchruros)	Present
			HoopeChakor(Alpalectoris chakor)	Present
			DoveHimalayanFinches(Cardue lis cardduelis)	Present

Qualitativedata

AnalysisofthePBRandcorrespondingabovetablerevealsthatthereare3majorAgriculture crop types namely Pea, Barley, and Potatoof plants needs conservationattention. Other then it, 149 wild plants biodiversity include the Shrubs, herbs, climber,tuber,andgrassesarerecordedsimilarly,thereare7speciesofwildanimaland13species ofbirdsarepresentwithinBMC Sub-Committeeareas.

These management scopes on these plants and animals discussed with the villagersincludingBMCsub-committeemembers,womenmembers(whoaretheprimeforestusers)and public in general for their perception and options on their improvement of thepopulations.Theidentifiedscopesofpopulationincreasehavebeendescribedintable-9.2.2 below.

Quantitativedata

- Thepatchesareverylessinspeciesdiversity.
- Treesareabsent
- Thedensityofshrubsisdominant,butfoundinscatteredway.
- Anthropogenic pressures on shrubs are quite much. This could be a fact as a resultofdependencyofthecommunityontheforestsandbettervigilofHimachalPradeshForestDepartment.
- Theshrubandherbspeciesarerepresentedwellduetoopencanopy.
- Thecanopyofthevegetationrepresentspredominantlyopencategory.
- Naturallyspeciesaredeficientofsuccessfulestablishmentsandhenceneedexternalsupport.

9.2.4 Planning on Community based Biodiversity Management within Rangrik BMC Sub-Committeezone

GapPlantationwithreferencetoParticipatoryVegetationMonitoring:

Plantationofdegradedpatcheswithappropriatesmultipletreespecies:

- Plantationofmultiplespeciesisneeded.
- Afforestation/Enrichmentplantationunderdifferentschemesneedstobeexecutedon priority basis. It would advisable to plant at least 200saplings / ha model withreferenceto differentland relatedcasualties.
- Plantation and maintenance of the planted species is absolutely essential sincenaturalregenerationis inadequate.
- Shrub species within the fodder species spacing may be planted with economicallyimportantshrubspecies.

OnePotentialarea/treatmentplotandsoilconservationworkshavebeenidentifiedduringMicroplanningexercisesbytechnicalstaff(FGDandfeedbackfromBlockOfficerandRangeofficer).Theactivitiestobecarriedoutstandsdiscussedwithvillagersindetailduring PRAexercises.Theselectedplantationplots/patchesareeitheropenareasorareblank,whichwouldbeplantedwithmultipurposetreesvaryingfrom200treesperhectare.Beingonthesouthernandsoutherneasternaspectspeciesselectionofplantablespecies,stockhealth,

andpitsizeneedstobekeptinmind.Forsoilconservationworksestimatewillbepreparedby FTU and fieldstaffbefore implementation.

DataandmaponinterventionAreas/Treatmentplots

Cost norms applied for calculation are as per Forest Department approved norms. Plants,pit sizes are accordingly to models prescribed and approved by Forest Department andProject guidelines. The forests have been visited by team again and again and as per thesiteconditionstreatmentplotshavebeenprescribed.Thenallatreatment,soilconservation works are applicable in this Sub Committee area. Local ghazis are quite wellmaintained one plot with patch sowing has also been prescribed. Fencing part has beencriticallyanalysedkeepinginviewlocalconditionsaswellasbioticpressureandaccordinglyp rescribed.Total6Haccommunitylandhavebeen identified.

Table-PlotwisedetailsofSub-Committee

S. No	Plotname	Plot No	Area	Latitude longitude	PFM mode	FDmode
1	**Rangrikward**	**1**	6	32°15'37"N 78°02'17"E	**Yes**	**---**

BiodiversityManagementwithreferencetoPeoples'BiodiversityRegister(PBR):

The vulnerable species as identified under the PBR Exercises were discussed with the BMCSub-Committee members and possible management strategies were explored. (Reference:***SUB- STATE SITE BIODIVERSITY STRATEGY AND ACTION PLAN (LAHAUL & SPITI ANDKINNAUR)TRIBALDEVELOPMENTDEPARTMENT,H.P.SECRETARIAT,SHIMLA-2&STATECOUNCILFORSCIENCETECHNOLOGYANDENVIRONMENT,34SDACOMPLEX,KASUMPTI,SHIMLA-9)***

S.No.	Categories	Nameoftheitemwithscientificnames	Status asperPBR	Managementprescribed bythe BMC Sub-Committeemembers

	Agriculture (Cropdiversity)	Pea(*Pisumsativum*)	Present	Provisioning ofseeds fromgovernmentsources
		Barley (*Hordeumvulgare*)	Present	Provisioning ofseeds fromgovernmentsources
		Potato (*Solanumtuberosum)*	Present	Provisioning ofseeds fromgovernmentsources
	Horticulture	NA	NA	
	Medicinal Plants			
		Alliumcarolinianum/Laot, Jangli,Lahasum/Konche,Pharna	Past – MoreNow-Less	Protection offorest patchesthroughcommunityparticipation Protection offorests fromforestfires Prohibition offorestsfrom

				grazingpr essures
		A. jaquemontii/Kh amet, Ratanjot	Past – MoreNow– Less	Protection offorest patchesthroug hcommunityp articipation Protection offorests fromforestfir es Prohibition offorests fromgrazingp ressures
		Arnebiaeu chroma/Kh amet,Rata njot	Past – MoreNow– Less	Protection offorest patchesthroug hcommunityp articipation Protection offorests fromforestfir es Prohibition offorests fromgrazingp ressures
		Achillea millefolium/	Past–More	Protectionof forestpatches

		Gandana, Millfoil/	Now-Less	throughcommunitypartic ipation
		Artemisiabrevifolia/Nurcha, Seinki	Past – MoreNow- Less	Protection offorests fromforestfires
		Bergeniastracheyi/ Gatikpa,Pashandbhed	Past – MoreNow- Less	Prohibition offorests fromgrazingpressures
		Juniperuscommunis/Hauber,Dhuppi	Past – MoreNow- Less	Protection offorest patchesthroughcommunitypartic ipation Protection offorests fromforestfires Prohibition offorests fromgrazingpressures
		Taraxacum /KhurmangDandelion	Past-More Now-normal	No declining isseen in thisforestarea

	Trees,shrubs,herbs,climbers,tubers,grasses etc			
		Rosa macrophylla (wildrose),	Past–More Now–normal	Provisioning ofnurseries *In-situ* cultivation Provisioning ofwater sourcesfor itspropagation
		Hippophae	Past–More Now–normal	Provisioning ofnurseries
		Myricaria	Past–More Now–Less	*In-situ* cultivation
		Salixflabellaris	Past–More Now–Less	Provisioning ofnurseries
		Juniperusrecurva	Past – MoreNow– Less	Provisioning ofwater sourcesfor itspropagation

		Ribesorientale	Past – MoreNow- Less	Provisioning ofwater sourcesfor itspropagation
		Coluteanepalensis	Past – MoreNow- Less	Provisioning ofnurseries *In-situ* cultivation
		Ephedragerardiana	Past – MoreNow- Less	Provisioning ofnurseries *In-situ* cultivation
		Cotoneaster microphylla	Past – MoreNow- Less	Provisioning ofnurseries *In-situ* cultivation Provisioning ofwater sourcesfor itspropagation
		Caraganabrevifolia (Trama).	Past – MoreNow- Less	Provisioning ofnurseries *In-situ* cultivation Provisioning ofwatersource s

				for itspropagation
		Caragana	Past – MoreNow- Less	Provisioning ofnurseries *In-situ* cultivation Provisioning ofwater sourcesfor itspropagation
		Astragalus,	Past – MoreNow- Less	Provisioning ofnurseries *In-situ* cultivation
		Artemisia	Past – MoreNow- Less	Provisioning ofnurseries *In-situ* cultivation Provisioning ofwater sourcesfor itspropagation
		Cousinia	Past – MoreNow- Less	Provisioning ofnurseries *In-situ* cultivation

		Hyoscyamusniger	Past – MoreNow- Less	Provisioning ofnurseries *In-situ* cultivation Provisioning ofwater sourcesfor itspropagation
	Mammals,birds,reptiles,amphibian,insects,others)			
		Ibex (Capra ibexsiberica)	Past – PlentyNow- Rare	Preventionof hunting Strongcommunityparticipationinprotection
		Snow Leopard (Pantheraunica)	Past-Plenty Now-Plenty	Prevention ofhunting
		HimalayanBlueSheep(Pseudoisnahyaur)	Past – PlentyNow- Plenty	Strongprotectionrequired inthe wild

		Tibetian Wolf (Cannislapus)	Past – PlentyNow- Rare	Strongcommunityparticipationinprotection
		Red Fox (Vulpusvalpus)	*Past-Plenty Now- Rare*	Prevention ofhunting
		WoolyHare	*Past – PlentyNow- Rare*	Strongprotectionrequiredinthe wild
		HimalayanChough(Phyrhocoraxgracumus)	*Past – PlentyNow- Rare*	Strongcommunityparticipationinprotection
	Birds	*Snow Pigeon (Columbiarupestris)*	*Past – PlentyNow- Plenty*	Protection inthe wild isrequired
		Snow cock (Tetragallushimalayensis)	*Past – PlentyNow- Plenty*	Protection inthe wild isrequired
		Vulture(Nephronpersnopterus)	*Past-Plenty*	Protection inthe wild isrequired

		Ducks (Avthva ferina)	*Now- Rare*	Protection inthe wild isrequired
		Murgabi (Anas crecca)	*Past-Plenty*	Protection inthe wild isrequired
		Himalayan crow(Corvustib eteana)	*Past - PlentyNow- Plenty*	Protection inthe wild isrequired
		Picca (Ochotonarovlei)	*Past - PlentyNow- Plenty*	Protection inthe wild isrequired
		Raven (Corvus corax)	Past - PlentyNow- Plenty	Protection inthe wild isrequired
		Golden Eagle (Aquilachrysaet os)	Past-Plenty	Protection inthe wild isrequired
		Griffan (Gyps himalayansis)	Now- Rare	Protection inthe wild isrequired
		Red Start (Phoenicurusorc hruros)	Past-Plenty	Protection inthe wild isrequired

		Chakor(Alpa lectorischakor)	Past–Plenty	Protection inthe wild isrequired
		Himalayan Finches(C arduelis cardduelis)	Past–Plenty	Protection inthe wild isrequired

Managementstrategiesmatrix:

Gap plantation throughAR/ANR (data collectedthrough participatoryforestmonitoring)	**Floramanagementwithreferenceto PBR**	**Faunal managementwithreferencetoPBR**
Plantationofdegradedlandsthrough AR/ANR *Minimum:* 3ha@200saplings/hain	*Agriculture:* Supply of agriculture seedsby Government of HimachalPradeshon: • Barley (Hordeumvulgare) – total of125kg per/Ha Pea(Pisum Sativum) totalof100.58kg/ha • Potato (Tolanumtuberorum20kg/Ha	*Wildlifeprotection:* Though species wisemanagement practicescould not be gained fromthe community members,broad and holisticprotection modalitieswere prescribed asbelow: • Preventionofhunting • Strong protectionrequiredinthewild • Strong communitypartici

		pation inprotection

		Thiscanbeachievedthroug h community mobilisationandtheirparti cipation insafeguar dingthewildlife.
Desirable:	Provisioningof: • Cultivation of RattanJotandJugliPy az	

9.3ApprovalofCBMPandotheractivitiesbyGeneralHouse:-

Sanction/ApprovalofCBMPbytheBio-diversitySub-Committee:

General house meeting of Sub-Committee Rangrik were organized in Rangrik on 12thOctober, 2021. The meeting was attended by Sub-Committee members. (List attached inproceedingregister).Followingissuesworediscussedanddecisiontaken:

MicroplanningteamRFOWLRangeKaza,Dorjen(FTUCoordinatorWLRangeKaza),BOandForestG uarddiscussedindetailthevariousinterventionsasincorporatedinthedraftCBMPof Sub-Committee Rangrik Forests. Members from hamlets (Rangrik, Khurrick, Sumling)expressed that area near habitations as well as areas which fall within the grazing zone ofmigratory graziers needs fencing. The members were assured that the vulnerable pointswill be taken care of and barbed wire fencing will be recommended so that there will beleast grazing incidences in the plantation areas. The members assured that they will notleavetheirdomesticcattleforgrazinginopenwithoutattendantwhichmaycausedamagetoth eseedlingsin theclosedareas.Plots identifiedwere discussedin detailandassigned

totwousergroups.Inaddition,theparticipantssuggesteditemisedconservationmeasurestobetaken for eachspecies.

Work to be executed in PFM mode and in FD mode was discussed and finalized. AllPlantations planted by Sub-Committee will be protected by Sub-Committee. Technicalworks, Masonry/Gabion check dams, water harvesting structures, will be built by FD.Bioengineeringstructures,DrystoneCheckDamsonsmallstreams,Masonrypondsetc.willbedone byVillagers.

Pic-6:MeetingoftheGeneralHouseontheconsensusbuilding

9. 4MemorandumofUnderstanding(MoU):

Memorandum of understanding (English version) translated in Hindi / local language wasread and explained to all present. The issue of community contribution was discussed indetailandthecommunitymemberssuggestedtheircontributioninfollowingforms:

Pic-:MeetingoftheGeneralHouseontheconsensusbuilding

- All the user group members agreed that they will contribute their Sub-CommitteemembershipbeneficiaryshareintotheSub-Committeeaccount.

- All members agreed for their contribution in project activities, and decided tocontribute membership fee of Rs. 200. This has to be paid only once. The amountwill be kept in Sub-Committee account and can be used as community share fordoing any other development work with other departments or with project, if Sub-Committee members desire so, otherwise they can use it after project completion.This is important because villagers should feel sense of ownership in works andfurther,theyhavetomaintainandprotectforestarea/assetsforseveralyearsevenaftercompletion of project.

- TheMicroPlanwasfinallyapprovedbytheGeneralHouseofBMCSub-Committeeondated 12th.October, 2021.

- The MoU was also signed by the president of Sub Committee and DFO WL Kaza ondated12.11.2021(SignedMoUannexed asAnnexure-X)

9. 5ProjectSupporttothebeneficiary(SubCommittee)forImplementationofMicroplan

Thevillagelevelorganizationwillbebeneficiaryof PIHPFEM&Lprojectfor:

- **Financialsupport**

- **Implementationoftheapprovedmicro-plan**

- **Labour wages** for Fencing, pit digging, carriages, planting, weeding, mulching ofplantsexcludingthecommunitycontribution.

- **Other works** as per approved micro plan (*ALL WAGES ARE TO BE PAID BY THE Sub-CommitteebyCHEQUEORBYBANKTRANSFER.NOCASHTRANSACTIONSPERMITTED)*.
- **CDAs:** The Community Development Activities as identified by the Sub-Committeeand in conformity with the Project guidelines will be decided and implemented bytheSub-Committeethroughaconsultativeprocess.

- **Maintenance:**
  Beatingupoperations,weedingmulchinginMPplantationsforyears.Maintenanceoffencefor 5years.

- **Stockandmaterial:**

  Stock:qualitynurseryraisedplants

  Materiale.g.,B.wire,U.nails,fenceposts,Tar/blackJapanetc.

- **StationaryofSubCommittee**

  Stationary to Sub-Committee, including stamps, stamp pad, two registers, receiptbook, carbon papers, paper pin, resolution pads, pen, pencil, Darrie, chairs, table,Almirahetc.to run theofficeeffectively.

9.6 PlantationActivitiesIdentified:

Sr.NO	Activity	Benefiting HHs	Areatobecovered(Ha)						
				2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
1	**Afforestation (Fuel and Fodder Plantation @200 Normal Plants Normally** Introductionof*Populus cilaita*suitablegrassesandlegumesin CommandAreasforimprovingsoil fertility *Geranium, Aconogonum CaraganaLoniceraSalixHippophae, GentianaArnebia,PedicularisArnebia euchroma,Gentiana Caragana brevifolia,Lonicera spinosa,Salix,Hippophaetibetana* in projectcommandareasandprivate lands.	**152**		**6(Ha)**					
	TOTAL			**6(Ha)**					

9.6.1 RequirementofPlantingMaterials

Year	NumberofSamplingRequired(NewPlantation)										
	Trigonella sp.	Cicer Sp.	Aconogonum sp.	Caragana sp.	Lonicera Sp.	SalixSp.	Hippophae Sp.	Gentiana Sp.	ArnebiaSp.	Dactylorhiza sp.	Source of Planting Material
2022-23	2600	1300	900	880	1400	1180	760	780	780	780	nursery
Total	2600	1300	900	880	1400	1180	760	780	780	780	
Year	NumberofSamplingRequired(Maintenance)										
											Source of Planting Material
2023-24	0	0	0	0	0	0	0	0	0	0	nursery
2024-25	780	280	270	264	420	354	228	234	234	234	
2025-26	520	260	180	176	280	236	152	156	152	152	
2026-27	280	195	135	132	210	177	114	117	114	114	
2027-28	260	130	90	88	140	118	76	78	76	76	
Total	2210	1105	765	748	1190	1003	646	663	576	576	

9.6.2 ForestProtection/Silviculture/MaintenanceoperationforthePlantation

Years	ActivitiestobetakenupSite/ModelWise		Responsibility	
	Rangrik		Project	Sub-Committee
2022-23	Enrichment Planting @800Plants/Ha.	AfforestationPlantingFuel,Fodder and Wild FruitPlantation@1100Normal Plants	Yes	Yes
2024-25	Maint.	Maint.	Yes	Yes
2025-26	Maint.	Maint.	Yes	Yes
2026-27	Maint.	Maint.	Yes	Yes
2027-28	Maint.	Maint.	Yes	Yes

9.6.3 PlantationActivityunderPFMMode

Years	ActivitiestobetakenupSite/ModelWise		Responsibility	
	Rangrik		Project	Sub-Committee
2022-23	Enrichment Planting @200Plants/Ha.	Afforestation PlantFuel,Fodder and medicinal plantsPlantation@1100Normal Plants	Yes	Yes
2023-24	Maint.	Maint.	Yes	Yes
2024-25	Maint.	Maint.	Yes	Yes
2025-26	Maint.	Maint.	Yes	Yes
2026-27	Maint.	Maint.	Yes	Yes
2027-28	Maint.	Maint.	Yes	Yes

9.7 SoilandWaterConservation

9.7.1 SoilandWaterConservationWorks(Proposed)

S No	Land	TypeofSWC work	Nameof thesite	Unit of work	Quantum ofwork	HHs beneficiaries	Responsibility		
							Project	Sub-Committee	Convergence
1	Rangrikwardcommunity Land /forestland	Dry StoneC/ dams	River sidedams	No.	8	152	Yes	Yes	
			Glacial peak contour	No.	9	152	Yes	Yes	
			Rangrik village contour	No.	8	**152**	Yes	Yes	

9.7.2 (B)SoilandWaterConservationworks(YearwisePhysicalTarget)

S No.	Land	Type ofSWC work	Name ofthe site	Unit ofwork	Quantum ofwork	HHsbeneficiaries	PhysicaltargetforSWCactivities						
							2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
1	**Rangrikwardcommunityland/forest land**	DryStoneC/dams	River dam	No	8	122	0	4	4	0	0	0	0
			Glacial peak contour	No	9	25	0	5	4	0	0	0	0
			Rangrik village contour	No	8	---	0	4	4	0	0	0	0

9.8PhysicalandFinancialPlan(CBMP)

9.8.1 ProposedPhysicalandFinancialPlan

S. No	Proposedactivities	Unit	Total		2022-23		2023-24		2024-25		2025-26		2026-27		2027-28	
			Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1																
a)	Afforestation @ 1100normalplants	Ha	3	289800	3	289800	0	0	0	0	0	0	0	0	0	0
b)	Enrichment200plants /Ha)	Ha	3	163200	3	163200	0	0	0	0	0	0	0	0	0	0
A	**Total(NewPlantation)**		**6**	**453000**	**6**	**453000**	**0**	**0**	**0**	**0**		**0**		**0**		**0**
2																
a)	Afforestation@1100normalplants															
i)	1st. Year Maint.(6250/Ha .)	Ha	6	37500	0	0	6	37500	0	0	0	0	0	0	0	0
ii)	2nd. Year Maint.(4250/Ha.)	Ha	6	25500	0	0	0	0	6	25500	0	0	0	0	0	0
iii)	3rd. Year Maint.(3200/Ha.)	Ha	6	19200	0	0	0	0	0	0	6	19200	0	0	0	0
iv)	4th. Year Maint.(2200/Ha.)	Ha	6	13200	0	0	0	0	0	0	0	0	6	13200	0	0

v)	5th.YearMaint. (2200/Ha.)	Ha	6	13200	0	0	0	0	0	0	0	0	0	0	6	13200
	SubTotal			108600	0	0	0	37500	0	25500	0	19200	0	13200	0	13200
S. No	Proposedactivities	Unit	Total		2022-23		2023-24		2024-25		2025-26		2026-27		2027-28	
			Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
c)	Enrichmentwith200plants/Ha)															
i)	1st. Year Maint.(4600/Ha .)	Ha	4	18400	0	0	4	18400	0	0	0	0	0	0	0	0
ii)	2nd. Year Maint.(3100/Ha.)	Ha	4	12400	0	0	0	0	4	12400	0	0	0	0	0	0
iii)	3rd. Year Maint.(2400/Ha.)	Ha	4	9600	0	0	0	0	0	0	4	9600	0	0	0	0
iv)	4th. Year Maint.(1650/Ha.)	Ha	4	6600	0	0	0	0	0	0	0	0	4	6600	0	0
v)	5th.YearMaint. (1650/Ha.)	Ha	4	6600	0	0	0	0	0	0	0	0	0	0	4	6600
	SubTotal			53600	0	0	0	18400	0	12400	0	9600	0	6600	0	6600
B	Total(Maintenance)			162200		0		55900		37900		28800		19800		19800
S. No	Proposedactivities	Unit	Total		2022-23		2023-24		2024-25		2025-26		2026-27		2027-28	
			Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
4	SMCTrenching															

a)	SMC works(Preparationofstaggered GradonialTrenches1mx0.3mx0.3m)500trenches/Ha@ 12375/Ha	Ha	6	74250	6	74250	0	0	0	0	0	0	0	0	0	0
D	TotalSMC			74250		74250		0		0		0		0		0
	Total(A+B+C+D)			744650		541050		69700		51700		42600		19800		19800
S. No	Proposedactivities	Unit	Total		2022-23		2023-24		2024-25		2025-26		2026-27		2027-28	
			Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
5																
a)	Drystonecheckdams	No.	5	100000	0	0	5	100000	0	0	0	0	0	0	0	0
E	Total(S&WC)			100000		0		100000		0		0		0		0
6	WildLife Habitat Improvement															
a)	Cons.OfWaterPond	No.	6	180000	2	60000	2	60000	2	60000	0	0	0	0	0	0
b)	Maint.OfWaterPond	No.	4	40000	0	0	2	20000	2	20000	0	0	0	0	0	0
F	Total(Wildlife Habitat Improvement			220000		60000		80000		80000		0		0		0
	GrandTotal(A+B+C+D +E+F)			1064650		601050		249700		131700		42600		19800		19800

9.8.2 AnnualWorkPlanCBMPFor The2020-21yearwise

ProposedActivity	BenefittingHH	Unitof Work	Quantum OfWork	Unit cost(Rs)	Proposed Budget	FinancialSource		
						Project	Convergence	Comm.Contribution
AfforestationPlanting @1100normalPlants	152	Ha	3	48300	144900	Project		Management
EncrichmentPlanting @200Plants	152	Ha	3	40800	122400	Project		Management
Sub-Total					267300			
Soil & WaterConservation								
DryStoneCheckwall	45	No	1	15000	15000			
Sub-Total					15000			
HabitatImprovement								
Construction Of WaterPonds		No	2	30000	60000			
Sub-Total					60000			

Total					**342300**			

10CommunityDevelopmentandLivelihoodImprovementPlan(CD&LIP)

10.1 Table-CommunityDevelopmentActivities

S. No	Activity	Purposeoftheactivity	HHstobebenefitted	Communitycontribution (%)
1	River water harvesting structure	Onlyrelayonthiswatersource	Wholecommunity	10%
2	GlacialPondfor agriculture	Duetoclimatechange,scarcitylikesituationinsummerseason	Wholecommunity	10%
3	Solar installation	Lack of proper supply of electricity	Whole community	10%
4	Solid fencingalong withsolarfencing	Animallikeyak,cowusetoentherecropfieldandresultsindestructionofcrop,whilesolarfencingisneededto preventinfluxofanimalsuchas	WholeCommunity	10%

		bluesheep,hare,goatand sheep.		
5	Groundwater hand pump	Must be installed, mostly theyget glacial water in particularseason,watercrisiscanbeovercomebyhandpumpin summerseason	WholeCommunity	10%

Table-LivelihoodImprovement Activities&Plan

S. No	**Activity**	**Purposeoftheactivity**	**HHstobe benefitted**	**Community contribution (%)**
1	Three months earlyvarietyseede.g.,Pea	Often,theyfaceclimatefluctuation;mostofthecropgetssparedleadsto hugeeconomicloss.	152	10%
2	Carpet Making, Tailoring(Tradition	Inwinteroutdooractivities areaboutnull,theywant	152	10%

	dress) Knitting, Carpenting,Dragon Design)	sustainedwinterseasonin makingsuchitemshelpingin boostinglivelihood		
3	Conservation of Medicinalplants	Toenhancescientificuse	152	10%
4	Modifiedpolyhouse	Foroffseasonvegetable, oldstructurepolyhousesare not durable	152	10%

UnderCommunityDevelopmentworks

Activities

1. **Glacialwaterharvestingstructure:**Asthewholepopulationofthisparticularplanningsite/wardhaveonlyonesourceof water i.e glacial water, which they use for domestic purposes, drinking, irrigation, cattle uses etc. And mostimportantlythissourcedonotstayforeveryseason.Oftentheyfacewatercrisisandtheylackothersourcesaswellin Rangrikv illage.Soglacialwaterharvestingstructurewoulddefinitelyhelpineradicationofthisprimaryissue.

Table-Showingestimatedamountforwatertank

S.no.	Particularsof work	Length	Breadth	Depth	Volume	Rate Rs.	Amount Rs.
	Tank	10	10	10	1000ft^3 28000/lit	8Rs /Lit	224000/-
	Number of tank 3						224000x3= 672,000/-
	20%hikeintotalamountforcarriageofrawmaterialincolddesertarea						
	ThisconstructionworkcanbedoneundertheMGNREGA						

2. **GlacialPondforAgriculture:**Theclimatechangehasdefinitelymadethefastmeltingofglaciers,insummerstheygetsufficientwaterfortheiragriculturalactivitiesalongwiththeirdomesticactivitiesbutlaterinotherseasonitgetsworsttohave water.So theparticular pondfor agriculture useinthis wardisneeded.

Table-Summaryofestimatetoconstructpond.

S.no.	Particulars ofwork	No.	Length	Breadth	Depth	Volume	Rate Rs.	Amount Rs.
	Pond	1	20m	20m	1m	$400m^3$ 4laclit	8Rs/lit	32Lac
	20%hikeintotalamountforcarriageofrawmaterialincolddesertarea							
	TheconstructionofpondcanalsobedoneundertheMGNEGAandwithhelpofAgricultureDepartmentunderirrigationschemewithsubsidy							

Solar Installation: As we know the present ward is situated on the height of 4400m The ward do not have proper supply ofelectricity,whichmakesthebarrierfortheworkinghabitsofpeopleincludingtheiroutdooractivities,childreneducation,people working in fields etc. Solar installation can be the immediate solution of the irregular power supply. People optingforgridconnectedrooftopsolarpanels/powerplantarebeinggiven70percentsubsidy,andsurpluspowerwouldbefurthersold toHPSEBLattherateofrupeesfiveperunit,whichwouldalsoaddtotheincomeoftheindividual,besidesusingfreesolarpower.

Solid fencing along with solar fencing: The farmers of this village claimed that mostly the yak and cows use to enter thefieldsandresultsindestructionofcropswhilesolarfencingisneededtopreventinfluxofanimalsuchasbluesheep,hare,goatand sheep.

Table-Showingestimateforinstallingfencing

S.No.	**Particulars ofwork/**Models	Protected Area/acre	Perimeterforfencing/meter	UnitCost/Rs	CostperRunningmeter/Rs
	Model1	1	300	161907/-	540
	Model2	2.5	500	210793/-	422
	Model3	5	700	259679/-	371
	Model4	10	1000	407716/-	408
	Model5	20	1400	505489/-	361

The average cost per running meter of 7 rows fence comes to be Rs.286/Meter. This practice will be implemented by theDeputyDirectorthroughProjectImplementingAgency(PIA)inthedevelopmentblocki.eSubjectMatterSpecialist.InTribal

district, the District Agriculture Officer, Keylong & Assistant Project Officer,Kaza of Lahaul & Spiti Districtwill act asProject Sanctioning Authority as well as Project Implementation Agencies (PIA's).The PIAs shall be responsible foridentificationandselection ofthe potentialbeneficiaries.

As Project assistance @80% is available for individual farmers and 85% for a group of three or more farmers for installation& Commissioning of Solar Electric Powered Fencing Systems in the Farmer's Fields on the actual work done by theFirm/Company .Project assistance shall be released to the beneficiaries directly or through bank ,in case the farmer availloan .The assistance for the installation of Solar Electric Powered Fencing can be released to the company after obtainingsatisfactoryreportfromcoreteamandfarmers/agroupoffarmers.Thepaymentsshallbeworkedoutonactualworkdonea nditsmeasurementbasisinviewofprevailingsiteneedandrequirementdulyverifiedbytheCoreTeamconcerned.

Ground water hand pump: As it has already mentioned that the present village mostly face the water crisis and glacialwaterseepageisforsurepresentthere.So,installationofgroundwaterhandpumpscanovercomethewaterscarcityeveninwi nters as wellasinotherseasonstoo.

Hand pumps to individual beneficiaries shall be installed on 75% costs. The 75% cost shall be paid by the beneficiary andbalance 25% percent shall be paid the department. The 75 % costs shall be paid by the beneficiary in advance in theprescribedmodeofthe concern ExecutiveEngineer (IPH) division.

The estimate for installation of hand pump shall be got prepared through the department ,75% of the total estimated costforinstallationofhandpumpshallbebornebythebeneficiaryandbalance25%shallbebornebythedepartment.Priorityshould be given to the places where there is no potable water source/ tail end of schemes and there is scarcity of waterdueto topographical constraintsand erraticwater supply.

LivelihoodImprovementActivities&Plan

- **Threemonthsearlyvarietyseede.gPea:**Astheyhavemonocultureforagriculturepproductivityfollowedbyfewmonthsi.efromAprilto heSeptembermonth.Thefarmerstoldiftheygetearlysnowfallwhichmakestransportationblockedtheircropsget spared and they get huge loss .So if they have early varieties of seeds such as of Peas they can make it harvest as soon asto get snowfall .And somehow monoculture can be avoided. The required seeds they can get from Agriculture department ofHimachalPradesh.Whereitcan be subsidized forfarmers.

- **CarpetMaking,Tailering,Nesting,DragonDesignCorpenting:**Thecommunitytraditionallymakesthecarpetof Yakwoolandalso the ropes. If the people make it on large scale and get it to be commercialized Its surely going to make the peoplebenefitted.Astheydonotrequireanyrawmaterialforthisactivity,itwouldfitbetterwithlivelihoodupliftcomponentwithoutmu chmoney.
- As the most of households rears the Yak so the availability of raw material i.e yak wool is there for practices of carpet andyakwool rope making.

Introduce Koda (*Fagopyrum esculentum*): The village grows only the Barley, Peas, Potato. As per the geographical andclimatic conditions Introduction of Koda (*Fagopyrum esculentum*) can be experimented as this is served as staple food andbeingrich inaminoacids.Thiscanbe also commercializedasotherfood crops.

Therequirementofthekodacropseedscanbefulfilledbytheagriculturedepartmentastheseedscanbeprovideatsuitablesubsidyorprices for the farmers.

- **Conservation of Ratan Jot, Jangli Pyaz:** At Rangrik village the local people said that outsiders use to do illegal trading ofRatan jot and jangali pyaz which is also unfair to the BMC. The BMC and local people must be aware of this.The concerneddepartments for such activity which includes the conservation of medicinal plants can be the Forest Department as well asBio-DiversityManagement Committee.

Modified Poly house: For off season vegetable growth the modified poly houses can be durable and effective. As few farmershavetriedgrowingsquashes,carrots,tomatoes,cucumber,cabbageandcorianderetc.Theonlyissuewiththeoldpolyhousesinfrastructure is that these domes shaped don't go with heavy snowfall for long duration. While the roof topped like polyhousesaremorecompatiblethandomeshapedone.TherooftoppedonemustbewiththeCoveringofPolyethylenesheetforlongduration.

Himachal Govt 80-85% subsidy. State Government gets approximately 50% subsidy from Central Govt. in return. Guidelines forimplementing the Mukhya Mantri Greenhouse Renovation Scheme (MMGRS) through Deptt. of Horticulture, H.P. 1. Under thisscheme,70%assistanceforthereplacementofpolysheetsubjectmaximumtoRs.44.80/-persq.mtr.asback-endedsubsidywould be available to the individual beneficiaries (i.e. Farmers) who are engaged in greenhouse cultivation of high valueflowersand vegetablecrops.cost Rs 900-1200/- persquaremeter.

SummaryofHumanCapacityBuilding

Apart from the ecosystem services, the site also boosts of strong women groups who try to microfinance their agriculture needsfor example seeds for sowing with the help of Self-Help Groups (SHGs). However more capacity building is needed within theproject as well as additional support from BDO , Rural development , Tourism Department ,NABARD agencies etc. SHG meetingsalsoprovideagenderspecificplatformtodiscussotherissuesrelatedtoresourcesasmostlywomenareprimeusrsoffodderandwat erfortheir households.

Table-SHGLivelihoodImprovement:TrainingBudget(twoworkshopsayear)

S. No.	Particulars	No. Of Group	No of Person	Rate Rs.	Amt. Rs.
1	Refreshment/lunch	30	15	160	72000
	Stationary	30	15	30	13500
	Resource person(Honorarium&Travel)	2	4	2500	20000
	Banner&Photography	2	2	250	1000
	Totalforoneworkshop				106500/-
	Grand Total for 4Workshops				**4,26,000/-**

MonitoringandEvaluation(M&E)Framework

A participatory framework is established to monitor the efforts made by the stakeholders, the flow of Ecosystem services andrelatedforestmanagementgoal.Theparticipatoryframeworkwillbe segregatedintwosectionsasgivenbelow:

- Monitoring and Evaluation by the Forest Department (in-house/outsourced infrastructure support): This system will timelyevaluatevegetationandotherrelatedecosystemserviceflowthroughGIS–basedmapofJFMareas,withvillageboundaries.
- ParticipatoryUnit:Thiswillbeinstrumentalinprovidinggroundtruthingofvegetationgrowthandrelatedimprovementofthe ecosystem service flow appropriate protection measures in a frequency of every two years. This will also assess thecommensurateimprovementinlivelihoodthroughsocio-economicsurvey.Theparticipatoryunitwilldothemonitoringandevaluationbasedonclearlyagreedprotocolonrightsandresponsibilitiesofallstakeholdersparties.

MonitoringandEvaluationPlanwithIndicatorsareprovidedinTable1.35

Table-MonitoringandEvaluationPlan

S.No.	FES	Measurest o be Monitored	Baseline value	Target Value	Indicator	Means of Verification	responsibility
	Water increases ofwater supply	Availability of water flow and sesonality especially	ND	Sufficient water availability during summer	Crops don't dry duetolack irrigation water	Record keeping by Monitoring team	Monitoring Team of Village Committee

		during Summer			during Summer		
	Fuel & Fodder supply	All the blanksare fully stocked aiwth plantation	No plantation	Atlist10% increasein fodder & fuel	Conitned availability offuel& fodder	Record keeping of thenumber of headloads of fuel & fodder	

10.2 Physical&FinancialdetailsofCommunityDevelopmentWorks

Table-AnnualWorkPlanCBMPForThe 2022-23yearwise

ProposedActivity	Benefitting HH	Unit of Work	Unit cost (Rs)	Proposed Budget	FinancialSource ProjectConvergence Comm.Contribution
Riverwaterharvestingtank	152	3	224000+ 20% carriage44800	2,68800/-	UnderMGNREGA
GlacialPondforAgriculture	152	1	32 lac+ 6,40000/-	38,40000/-	UnderMGNREGA
Solarinstallation	152	1		98000/-	FromHimUrja70%Subsidy
Solidfencing&Solarfencing	152	1	286/meter	1400x286 554400/-	80%subsidyonsolarfencing
Groundwaterhandpump	152	1			25%subsidy

Total					

10.3 Physical&financialIncomeGenerationActivities(IGA)

Sr.No.	Proposed Activities	Total	FinanceContribution	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
1.	**SHG Livelihood Improvement:Tailoring(Tradition dress),knitting,Carpenting,DragonDesign)**	426000/-	JICAwithhelpofRDDept&Tourism	213000/-	213000/-	0	0	0	0
2.	Three months early varietyseed e.g. Pea IntroduceKoda	1500/-max. x 152	Agriculture Deptt.60%subsidy	228000/-	228000/-	0	0	0	0

3.	Conservation of Medicinalplant		ForestDeptt. & HPS Biodiversity Board	0 \	0	0	0	0	0
4.	Modifiedpolyhouse,Minimum25square meter	900-1200/-persquareme ter25HH	FromAgriculture Deptt.70% subsidy10%beneficiaries, 20%JICA	300000/-20%JICA(60000/)-	300000/	300000/	0	0	0

10.4 AnnualWorkPlanfor2020-21:CD&LIP

Table-AnnualWorkPlanCBMPForThe 2021-22yearwise

ProposedActivity	Benefitting HH	Unit of Work	Unit cost (Rs)	Proposed Budget	FinancialSource ProjectConvergence Comm.Contribution
Riverwaterharvestingtank	152	3	224000+ 20% carriage44800	2,68800/-	UnderMGNREGA
GlacialPondforAgriculture	152	1	32 lac+ 6,40000/-	38,40000/-	UnderMGNREGA
Solarinstallation	152	1		98000/-	FromHimUrja70%Subsidy
Solidfencing&Solarfencing	152	1	286/meter	1400x286 554400/-	80%subsidyonsolarfencing

Groundwaterhandpump	152	1			25%subsidy
SHG Livelihood Improvement: Training Budget	152		426000/-	426000/-	JICAwithhelpofRDDept&Tourism
Threemonthsearlyvarietyseed e.g.PeaIntroduceKoda	152		1500/-max.x152	228000/-	AgricultureDeptt.60%subsidy
Conservation of MedicinalPlan t	152				Forest Deptt.& HPS BiodiversityBoard,JICA
Modifiedpolyhouse,Minimum25square meter	152		900-1200 /- persquaremeter 152HH	30,0000	FromAgricultureDeptt.70%subsidy10%beneficiaries,20%JICA
Total					

11. ConvergenceswithExternalAgencies

ActivitiestobecarriedoutwiththeSupportofOtherDepartments/Projects/SchemesCommunityInfrastructuredevelopment,basichuman needs,agricultureand horticulture (throughConvergence)

11.1 ActivitiesidentifiedforConvergence

S.No	Activities	HHs to bebenefitted	Department/Agencyforconvergence
1	**RepairofMahilaMandal**	**152**	**Panchayat/Block**
2	**FootPath**	**152**	**Panchayat/Block**
3	**Drain**	**152**	**Panchayat/Block**
4	**Training/FarmingCamp**	**152**	**Agri/Horti/AnimalHusbandry**
5	**Silage(Demonstration'sbasis)**	**152**	**A/HexposureVisit**
6	**Medicinalplants**	**152**	**Forest/HorticultureDepartment**
7	**TrainingonEco-TourismActivities**	**152**	**Forest/TourismDepartments**

11.2 PhysicalandFinancialPlanforConvergenceActivities

	Activitiesidentifiedforconvergence															
S. No	Proposedactivities	Unit	Total		2022-23		2023-24		2024-25		2025-26		2026-27		2027-28	
			Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	DryStoneCheckDam	No.	8	160000	0	0	5	100000	0	0	3	60000	0	0	0	0
2	DryStoneC/Wall	No.	1	15000	0	0	1	15000	0	0	0	0	0	0	0	0
	Total Convergence Activity			**175000**	**0**	**0**		**115000**		**0**		**60000**		**0**		**0**

12. ImplementationStrategies

12.1 implementationguidelinesoncomponentsandsub-components

Participatoryforestmanagement

Soil&waterconservation/landslidecontrolmeasures

Communitydevelopmentandlivelihoodimprovementwithgendermainstreaming

12.2 Trainingandcapacitybuildingofcommunityinstitutions*(Sub-Committee,CIG,SHG)*

Institution	Areasoftraining/capacitybuilding	Resource person/group	Locationsforexposurevisits
Sub-Committee		Consultant	
ExecutiveCommittee	Proceeding writingAccount maintainsAssetscreated Role&responsibilityofEC	JICAStaff/ Forest Department staff/Consultant	Dehradun,Shimla,Kulu,Kangra

CIG	Proceeding Account maintainingValueaddit iontraining	Consultants	Local /Program manager ruralfinancing
SHG	Groupformation,Accountmaintaining,Proc eedingwriting,Banklinkagesetc.	NABARD/Master trainer	

12.3 Yearwisedetailoftrainingandcapacitybuildingplan

S. No	Year& Month	Community institution	Subjectoftraining	No of Participants	Duration	Resourceperson/group
1	2022-2023	EC trainingExpos ure visitCIG SHG	Proceeding writingAccount maintainingRole&respon sibilityofEC Gender	7-15 EC Representative	2days 5days	1.Master trainer, FDaccountants 2. Successfulprojectsinsidea ndoutside state.

2	2022-2023	1.EC Training2.CI G 3.SHG	M&E/Socialaudit	3-5	2days	FTU-coordinators
3	2023-2024	1.EC Training2.CI G 3.SHG	Assetscreated	3-5	1day	FTUcoordinators

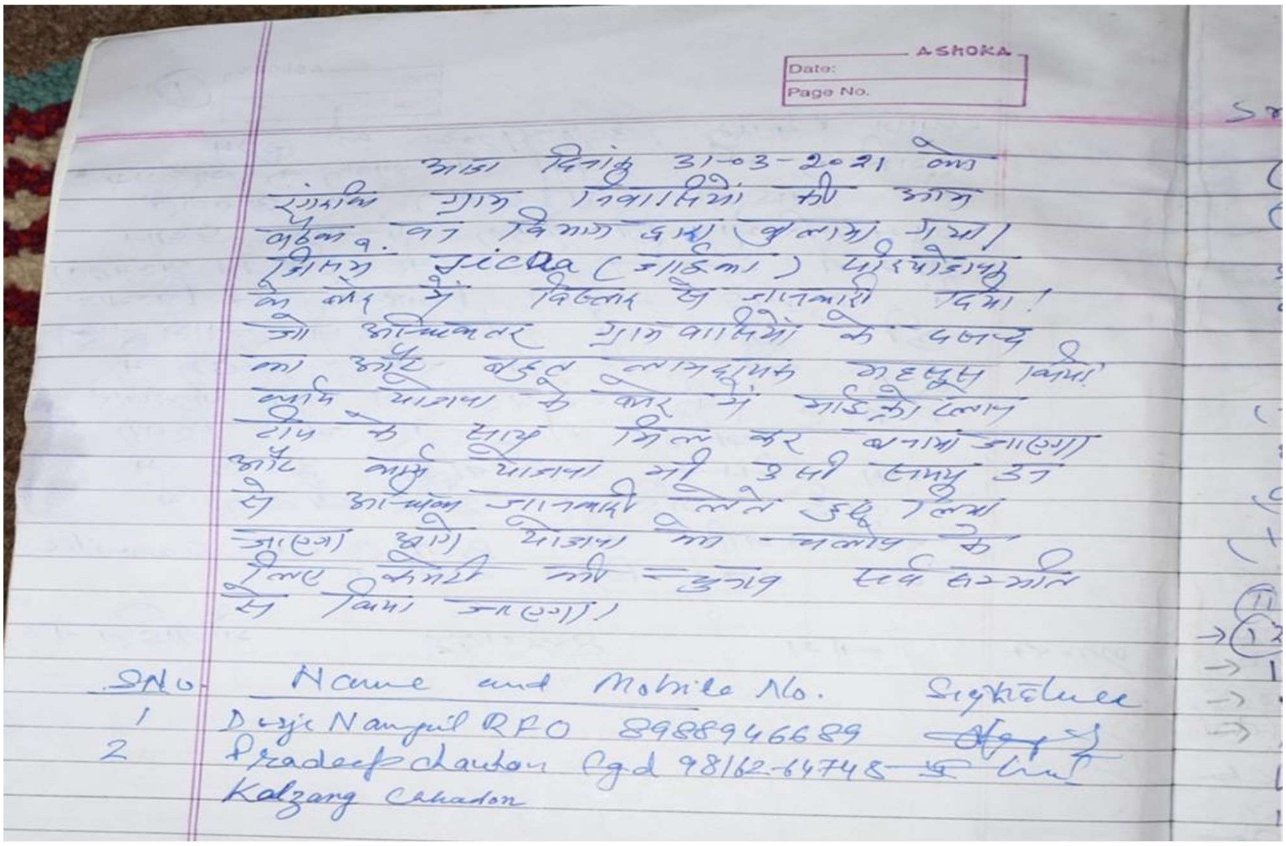
12.4 ProposedYearWiseTraining

Sr. No	ProposedActivities	Unit	Total		2022-23		2023-24		2024-25		2025-26		2026-27	
			Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
TrainingandCapacityBuildingofCommunityInstitutions														
I	Sub-Committee(EC)Training													
a)	Proceeding account Maintain	No	2	0	1	0	0	0	1	0	0	0	0	0
b)	RoleResponsibility,Gender,Assetscrated	No	3	0	1	0	1	0	1	0	0	0	0	0
c)	M&EandSocialAudit	No	4	0	0	0	1	0	1	0	1	0	1	0
	Sub-Total		9	0	2	0	2	0	3	0	1	0	1	0
II	CIGTraining													
a)	ProceedingWriting, AccountMaintaing	No	2	0	1	0	1	0	0	0	0	0	0	0
b)	Valueaddition	No	4	0	1	0	1	0	1	0	1	0	0	0
	Sub-Total		6	0	2	0	2	0	1	0	1	0	0	0
III	SHG													
a)	Group Formation, Proceeding Writing	No	2	0	1	0	1	0	0	0	0	0	0	0
b)	Account Maintaing, BankLinkagesetc.	No	2	0	1	0	1	0	0	0	0	0	0	0
	Sub-Total	No	4		2	0	2	0	0	0	0	0	0	0

12.5 Recordstobemaintainedbythecommunityinstitutions

S. No	Nameoftherecord/register to be maintained	Tobemaintainedbywhom	To be verified bywhom
1	Membership register,byelaws,&OTHERRECORDS	President / MemberSecretaryVFDS	FTU Officer/FTU Co-ordinator
2	Proceedingregister	Member Secretary VFDS/JointSecretary	FTUCo-ordinator
3	Cash account register&relatedbooks	sTreasurer,Secretary,jointSecretary,	FTUOfficer FTUCo-ordinator
4.	Asset created register	President,Secretary	FTU/Projectrepresentatives.

ANNEXUREs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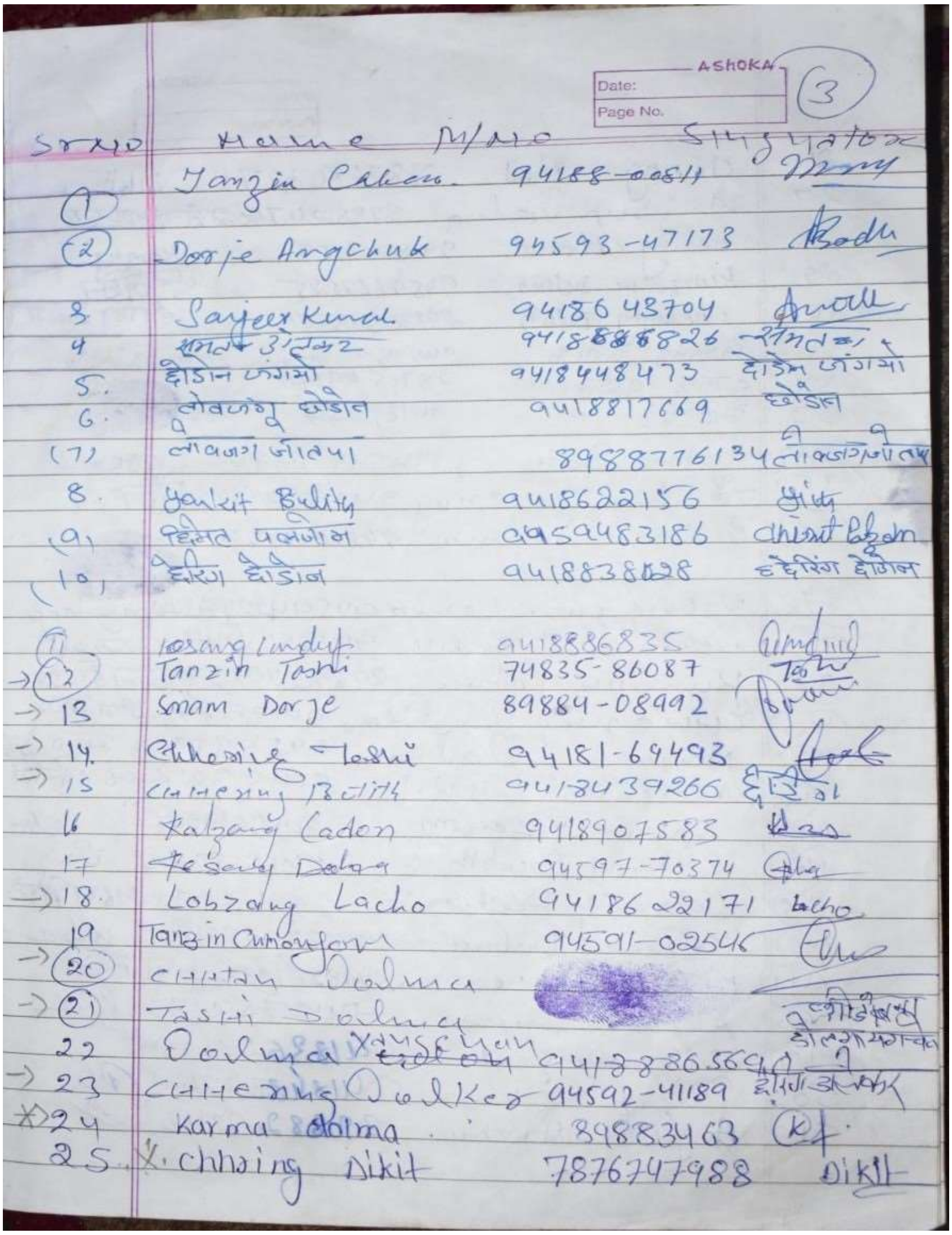
Date:
Page No.

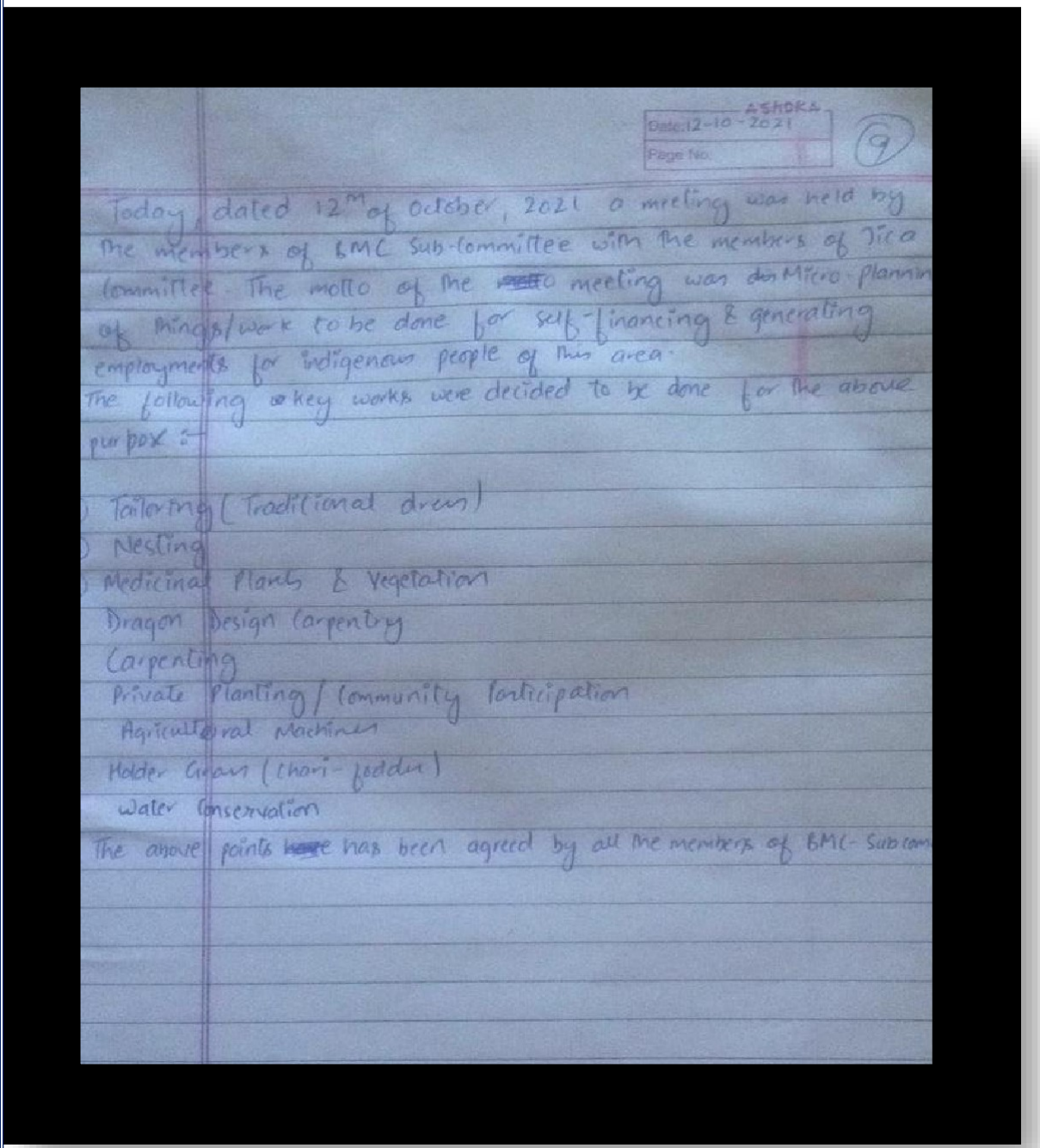
आज दिनांक 31-03-2021 को
रंगरिक ग्राम निवासियों की आम
बैठक वन विभाग द्वारा बुलाया गया।
श्रीमान Jicka (जाइका) परियोजना
के बारे में विस्तार से जानकारी दिया।
जो अधिकतर ग्राम वासियों ने पसन्द
का और बहुत लाभदायक महसूस किया।
आगे योजना के बारे में माइक्रो प्लान
टीम के साथ मिल कर बनाया जाएगा
और कार्य योजना भी इसी समय उन
से आवश्यक जानकारी लेते हुए लिया
जाएगा और योजना का चलाने के
लिए कमेटी का चुनाव सर्व सम्मति
से किया जाएगा।

S.No.	Name and Mobile No.	Signature
1	Dorjie Namgail RFO 8988946689	[signature]
2	Pradeep Chauhan Fgd 98162-64748	[signature]
	Kalzang Chhodon	



ASHOKA Date: Page No. (3)

Sr. No	Name	M/No	Signature
1	Tanzin Chhen	94188-00811	[illegible]
2	Dorje Angchuk	94593-47173	Bodh
3	Sanjeev Kumar	9418643704	[illegible]
4	समत [illegible]	9418888826	रोमत[illegible]
5.	दोर्जे छंगमो	9418448473	दोर्जे छंगमो
6.	लोबजंग छोडेन	9418817669	छोडेन
(7)	लोबजंग जीतपा	8988776134	लोबजंग जीतपा
8.	Yankit Bulity	9418622156	[illegible]
(9)	रिग्जिन पलजोम	9459483186	[illegible]
(10)	छेरिंग दोर्जेन	9418838828	छेरिंग दोर्जेन
11	Losang Lundup	9418886835	[illegible]
→12	Tanzin Tashi	74835-86087	Tashi
→ 13	Smam Dorje	89884-08992	[illegible]
→ 14.	Chhering Tashi	94181-64493	[illegible]
→ 15	Chhering Butith	9418439266	[illegible]
16	Kalzang Ladon	9418907583	[illegible]
17	Tesang Dolma	94597-70374	[illegible]
→ 18.	Lobzang Lacho	9418622171	Lacho
19	Tanzin Chhonjor	94591-02546	[illegible]
→ 20	Chhitan Dolma		[thumb impression]
→ 21	Tashi Dolma		छेरिंग [illegible]
22	Dolma Yangchen	9412886569	डोलमा यांगचेन
→ 23	Chhering Dolker	94592-41189	छेरिंग डोलकर
24	Karma Dolma	8988346 3	(K)
25	X. chhoing Dikit	7876747988	Dikit



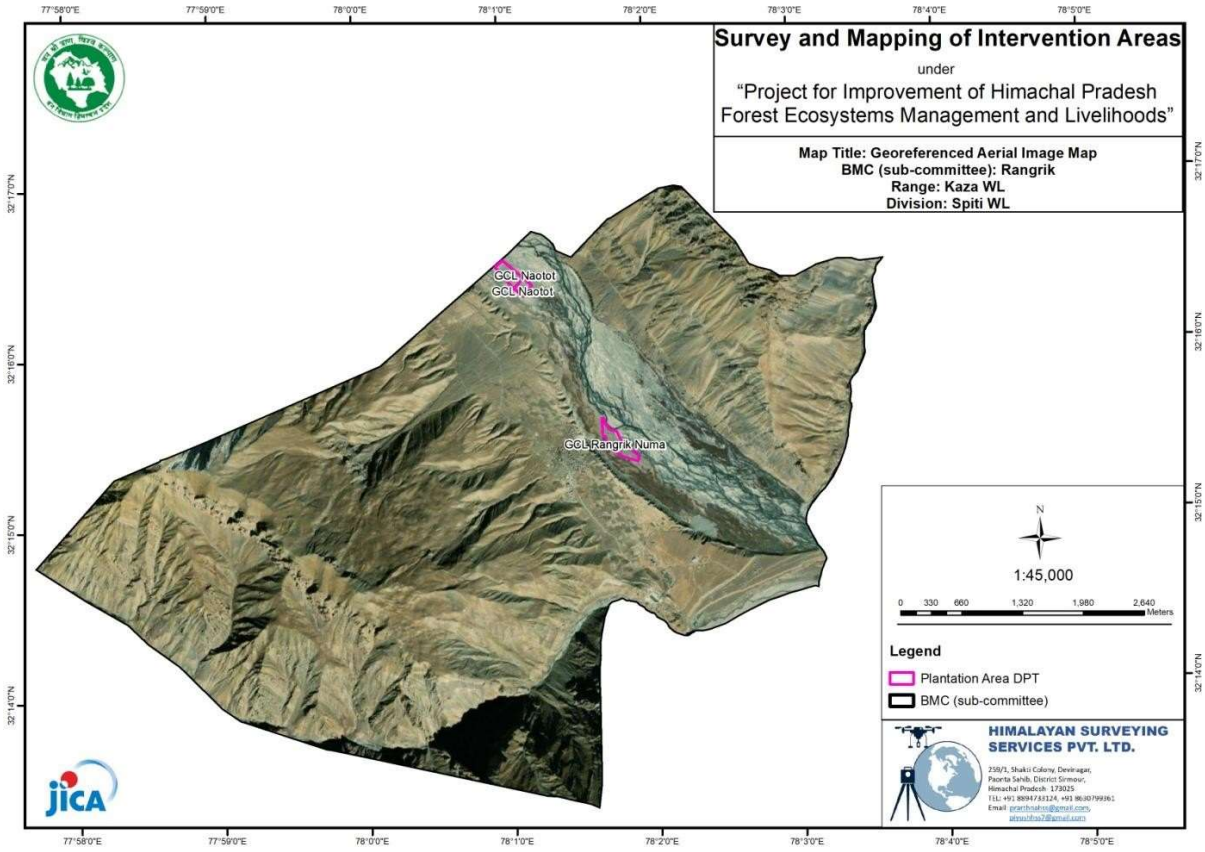
ASHOKA
Date: 12-10-2021
Page No.
9

Today, dated 12th of October, 2021 a meeting was held by the members of BMC Sub-committee with the members of JFM committee. The motto of the meeting was to Micro-Planning of things/work to be done for self-financing & generating employments for indigenous people of this area.

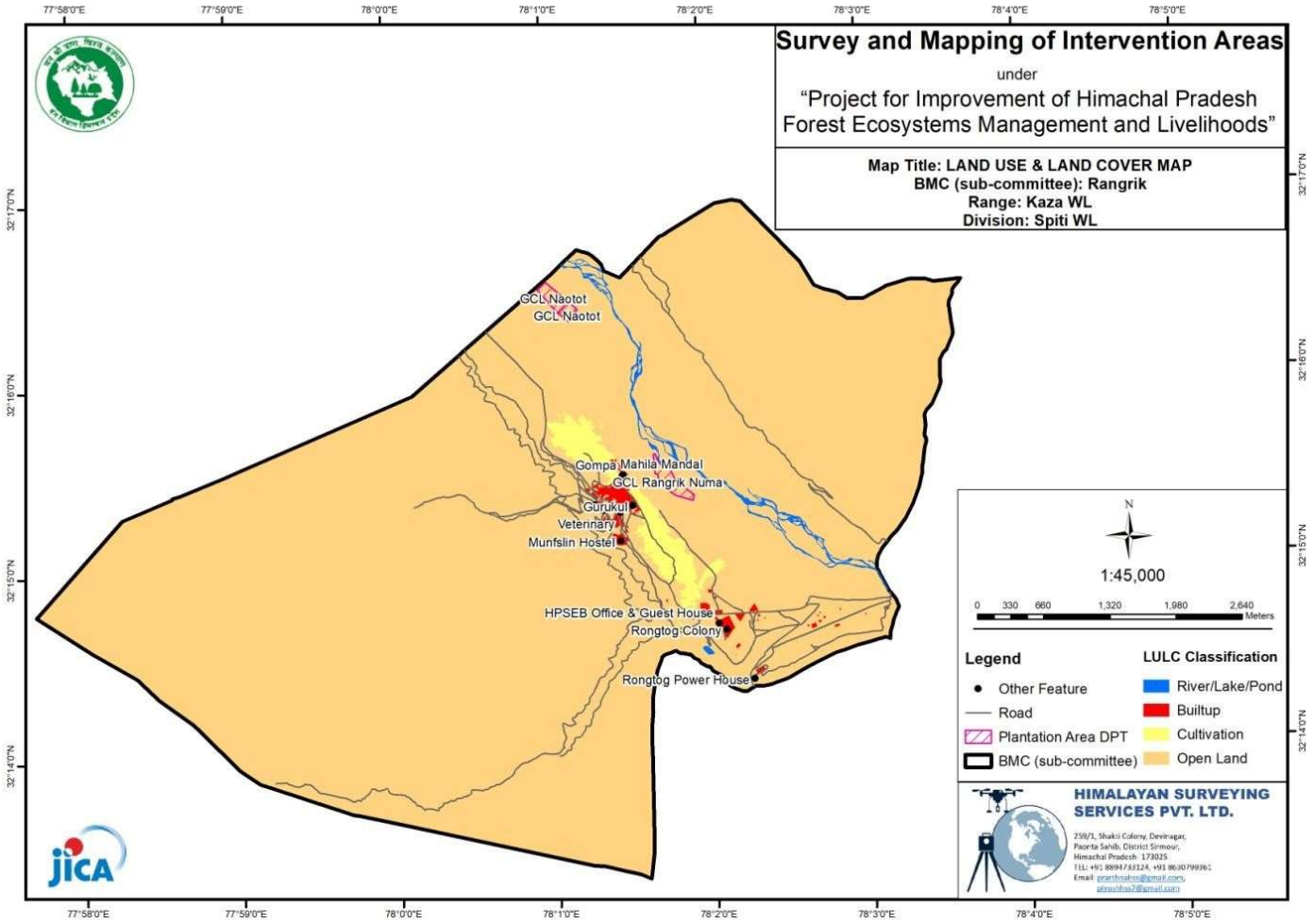
The following key works were decided to be done for the above purpox :-

1) Tailoring (Traditional dress)
2) Nesting
3) Medicinal Plants & Vegetation
4) Dragon Design Carpentry
5) Carpenting
6) Private Planting / Community Participation
7) Agricultural Machines
8) Holder Grass (chari-fodder)
9) Water Conservation

The above points have been agreed by all the members of BMC-Sub com


Survey and Mapping of Intervention Areas
under
"Project for Improvement of Himachal Pradesh Forest Ecosystems Management and Livelihoods"
Map Title: Georeferenced Aerial Image Map
BMC (sub-committee): Rangrik
Range: Kaza WL
Division: Spiti WL
GCL Naotot
GCL Naotot
GCL Rangrik Numa
1:45,000
0 330 660 1,320 1,980 2,640 Meters
Legend
Plantation Area DPT
BMC (sub-committee)
HIMALAYAN SURVEYING SERVICES PVT. LTD.
JICA

Annexure


Survey and Mapping of Intervention Areas
under
"Project for Improvement of Himachal Pradesh Forest Ecosystems Management and Livelihoods"
Map Title: LAND USE & LAND COVER MAP
BMC (sub-committee): Rangrik
Range: Kaza WL
Division: Spiti WL
GCL Naotot
GCL Naotot
Gompa Mahila Mandal
GCL Rangrik Numa
Gurukul
Veterinary
Munfslin Hostel
HPSEB Office & Guest House
Rongtog Colony
Rongtog Power House
N
1:45,000
0 330 660 1,320 1,980 2,640
Meters
Legend
Other Feature
Road
Plantation Area DPT
BMC (sub-committee)
LULC Classification
River/Lake/Pond
Builtup
Cultivation
Open Land
HIMALAYAN SURVEYING SERVICES PVT. LTD.
JICA

Annexure-IV

MemorandumofUnderstanding

Annexure-IX

TheByelaws
OfRangrikBiodiversitysubcommittee

THE BYE-LAWS

OF

The Rangrik Village Forest Development Society

Project for Improvement of HP Forest Ecosystems Management & Livelihoods

NAME, ADDRESS AND AREA OF OPERATION

1 The society shall be called the BMC Sub Committee Rangrik Village Forest Development Society.

It shall be referred to here-in-after as the society.

2 The registered address of the society shall be C/O Tanzin Chhoda S/O Chhewang Tanpa Village Rangrik Post Office Rangrik Tehsil Spiti District Lahaul & Spiti

3 The area of operation of the society shall cover the following village/villages

Definitions

4 In these by-laws, unless there is anything repugnant in the subject or context

i "**Act**" means Indian Forest Act, 1927, (Act No.16 of 1927) as amended in its application to Himachal Pradesh;

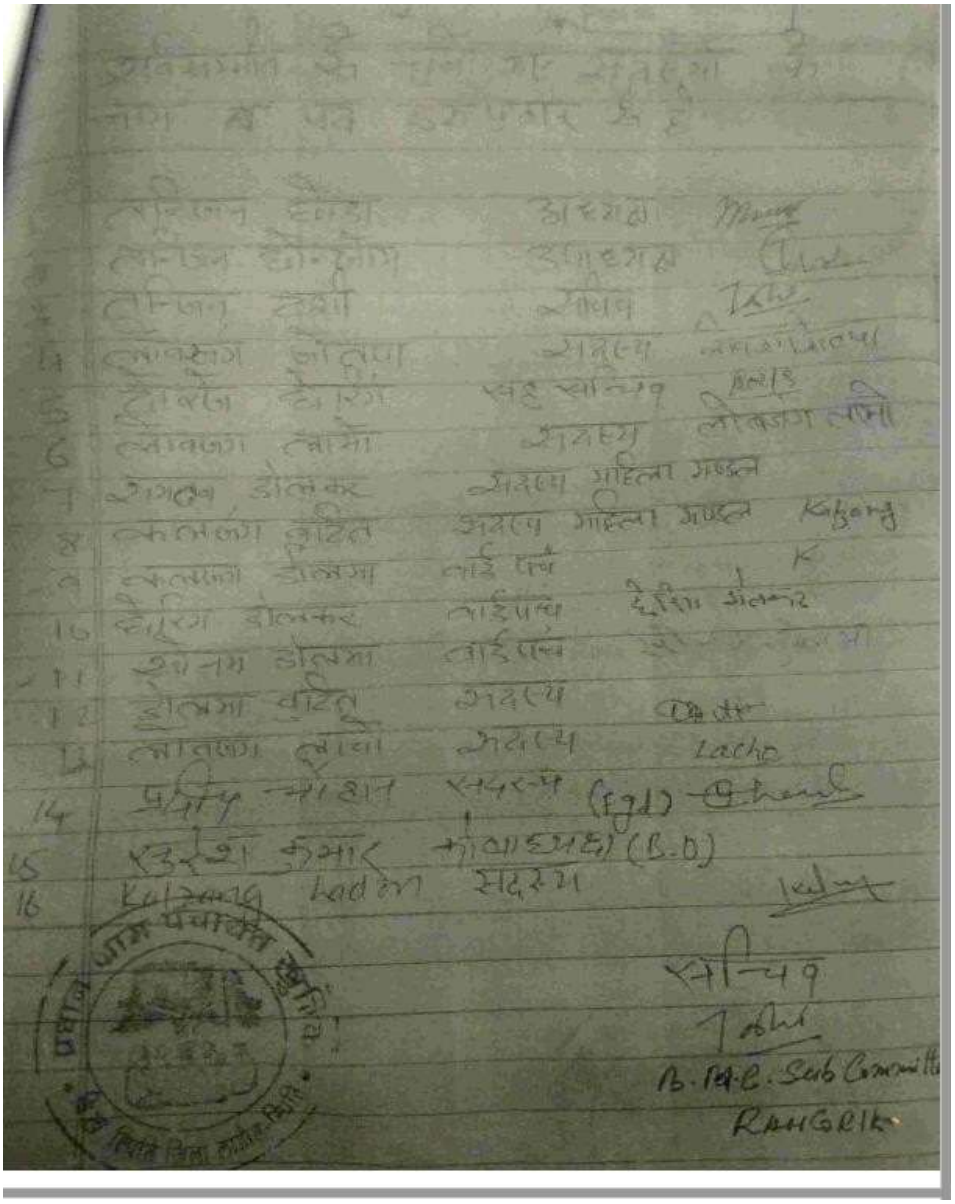
ii "**Conflict Resolution Group**" means a group consisting of representatives of the concerned Gram Panchayats, a representative of the local non-government organizations or local community based organizations, a representative from local/migratory community and the concerned Assistant Conservator of Forests/Forest official;

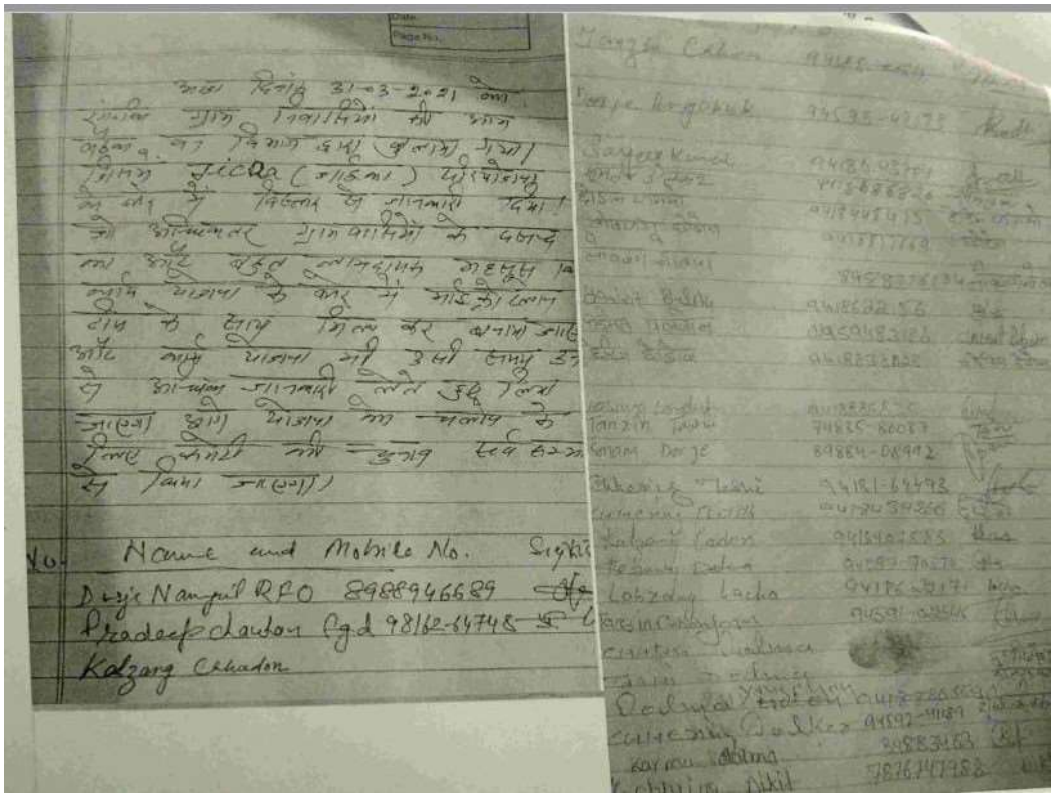
iii "**common land', "family', "Gram Panchayat', "Panch", "Pradhan", "Village" and "Ward**" shall have the meanings respectively assigned to them in the Himachal Pradesh Panchayati Raj Act, 1994 (Act No.4 of 1994);

iv **CD & LIP:** Community Development and Livelihood Improvement Plan refers to the plan activities that shall be included in the microplan to enhance community well being and resilience of household economy.

v **CIG:** Common Interest Group refers to a group of persons who have a common interest in a particular Livelihood Improvement Activitiy.

vi "**Department**" means the Himachal Pradesh Forest Department.





No.	Name and Mobile No.	Sign
	Dorje Nangyal RFO 8988946689	
	Pradeep Chauhan Fgd 9816-64748	
	Kalzang Chhadon	

Annexure-X

CertificateofRegistrationofSocieties

Annexure-XIGlimpsesofmicroplanningprocess

Annexure-XIIGlimpsesofRangrikWard

AnnexureXIII

MicroPlan Assessment Criteria for Financing and Sanctioning

DMU:WildlifeDivision……. FTU:WildlifeRange KAZA..Beat: KAZA

GP: …khurick…BMCSub-Committee:…Rangrik…..

S.NO	AssessmentCriteria	Achievement DD/MM/YY	Status at the timeAppling forApproval
	ProcessRelated		
1.	GPLevelandWardLevelawarenessdone	31/03/2021	DONE

2.	GPConsent/WardConsenttoworkwithProjectObtained	31/03/2021	DONE
3.	BMC Sub-Committee Formed/ExecutiveCommittee Constituted	14/10/2020	DONE
4.	BMCSub-CommitteeRegistered	03/06/2022	DONE
5.	MOU Signed between DMU and BMC Sub-Committee for undertaking micro-planningand implementation	21/11/2022	DONE
6.	EC1st meetingheldtoexplaintheirrolean dresponsibilities	15/04/2022	DONE
7.	BMCSub-CommitteeaccountOpened	30/11/2022	DONE
8.	Percentofhouseholdsrepresentedinmicro-planningprocess(App.)	50-60%	DONE
9.	Percent of Women Participants involved inmicro-planningprocess(App.)	60%	DONE
10.	Collectedinformationcrosscheckedandupdated in GreenAssembly	30/10/2022	DONE
11.	Women, Poor, Youth and othercommunities were involved in micro-planningprocess	YES	DONE
12.	BMC Sub-Committee involved ininformation analysis and finalizing keyemergingactivities	YES	DONE
13.	Micro Plan (CBMP, CD&LIP) approved byBMC Sub-Committee in General Assemblyand confirmedbyexecutivecommittee	30/11/2022	DONE

14.	Formats prescribed for MP(CBMC,CD&LIP)usedbysocialandtechnicalstaff		DONE
15.	Total amount of CBMP, CD&LIP andconvergencementionedinMicroplan		DONE
16.	Days taken to complete MP (CBMP,CD&LIP)	3MONTH	DONE
17.	MicroplanSubmittedbyFTUtoDMU	10/11/2022	DONE
18.	Micro planapprovedbytheHeadofDMU	21/11/2022	DONE
	Outputrelated		
19.	Listofexecutivemembersattached	YES	DONE
20.	BMCSub-Committeecontributionisthere	YES	DONE
21.	Are CBMP and CD&LIP activities in linewith projectobjectives	YES	DONE
22.	Livelihood activities checked for initialtechnical feasibility and economic viabilitybymicroplanningteam	YES	DONE
23.	Convergenceactivitiesincluded	YES	DONE
24.	BMC Sub-Committee training and capacitybuildingaspectincluded	YES	DONE
25.	CostingofCBMP,CD&LIPcheckedbyDMU	YES	DONE
26.	Micro plan includes adversely affectedhouseholds/group,if any	YES	DONE
27.	PRA tools, wellbeing analysis, BMC sub-committee resolution, maps of CBMP andother documentsareannexed	YES	DONE

28.	Sources of secondary informationmentioned I micro plan	YES	DONE

AssessedbyFMU Recommended byDMU ApprovedbyPMU