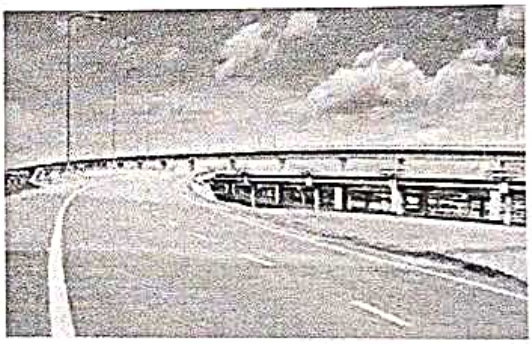
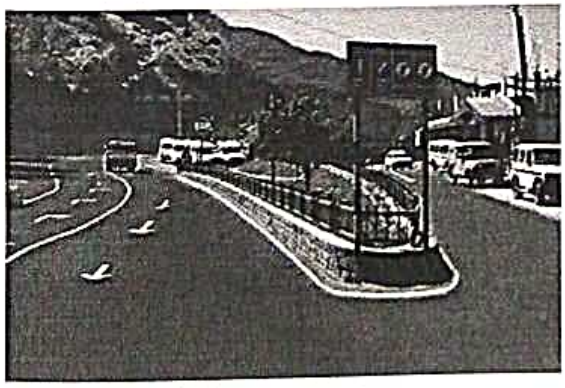
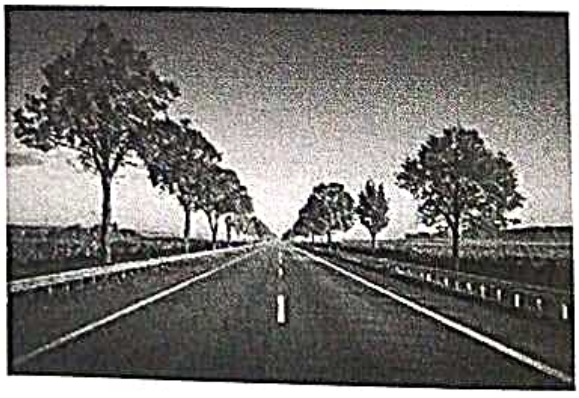
HIMACHAL PRADESH
FOREST DEPARTMENT

SOIL AND MOISTURE CONSERVATION PLAN

IN LIEU DIVERSION OF 1.8686 HAC OF FOREST LAND IN FAVOUR OF Technical Education Department FOR THE CONSTRUCTION OF Govt. Polytechnic College at Dalash WITHIN THE JURISDICTION OF ANI FOREST DIVISION DISTT. KULLU HP







SUBMITTED BY :-
ANI FOREST DIVISION AT LUHRI

Dr. Chaman Lal, HPFS
Divisional Forest Officer
Anni Forest Division at Luhri

INTRODUCTIOIN TO DIVISION/ RANGEWISE LOCATION SPECIFIC SMC PLAN:

It is important that a SOIL AND MOISTURE CONSERVATION PLAN should provide site specific prescription for the activities to beundertaken under each heading of the SMC Plan components.

Objective of Study.

The broad objectives for preparation of Soil and Moisture Conservation are outlined as under:

i) Checking soil erosion and land degradation by taking up adequate and effective soil conservation measures, both engineering as well as biological, in erosion prone areas (mainly under very severe and severe erosion intensity categories)

ii) Rehabilitation of degraded forest areas through afforestation and facilitation natural regeneration.

iii) Rehabilitation of degraded slopes and landslide areas.

In order to have the latest image, fresh satellite imagery was obtained from Forest Survey of India, Dehradun in February-2019. The area calculated using Arc-GIS is tabulated for Haripur Beat under the SMC. We are certain that this will benefit the Forest officials in better management of areas under their control.

It must be noted that the over all data for the entire catchment together with area statement is followed by the analysis of each Range.

Analysis of problem:-

Soil Erosion:

- Lack of vegetal cover is a contributing factor for accelerated soil erosion in the tract as also for environmental degradation. While ideally, dense tree cover or forests would have been the best insurance against soil loss and environmental degradation, the condition in the trat are otherwise, Large areas are either blank or bear thin tree crop. The lower reaches of the tract along the river are generally barren and devoid of any tree growth. The good forests are confined to upper reaches. Thus these natural conditions are a limiting factor in addressing the problem of soil erosion and environmental degradation. , the condition in the tract are otherwise. Large areas are either blank or bear thin tree crop. The lower reaches of the tract along the river are generally barren an devoid of any tree growth. The good forests are defined to upper reaches. Thus these natural conditions are al limiting factor in addressing the problem of soil erosion and environmental degradation. Nevertheless remedial measures can be undertaken t minimize their impact to some extent.

Treatment measures:-

SOIL AND MOISTURE CONSERVATION PLAN is the optimal use of Soil and water resources within a give geographical area so as to enable sustainable production. It implies changes in land use, vegetative cover, and other structural and non structural action that are taken in SMC. The overall objectives of SOIL AND MOISTURE CONSERVATION PLAN are to;

- Increase infiltration into soil
- Control excessive runoff
- Manage & utilize runoff for useful purpose

Shrub Plantation:-

Grazing land Development:-

Grazing land development will be undertaken for treatment under silvo-pastoral model. Areas will be closed and staggered trenching of size 30x30 cm will be dug over the area to be treated. About 400 running meters of trenches ill be dug per hectare. Improved variety of grass will be sown on the berm of the tranches. In the space between the reches, fodder tree species shall be raised. Suggested species for grazing land development are andrpogon squarrosus (Khas-Khas), apluda mutica, arthraxon prionodes, Brachiaria mutica, Cenchrus ciliaris, Cenchrus ciliaris chloris gayana (Rhodes grass), Cyondon dactylon Desmostachya bipinnata, Digitaria decumbens (Pagnola grass) etc.

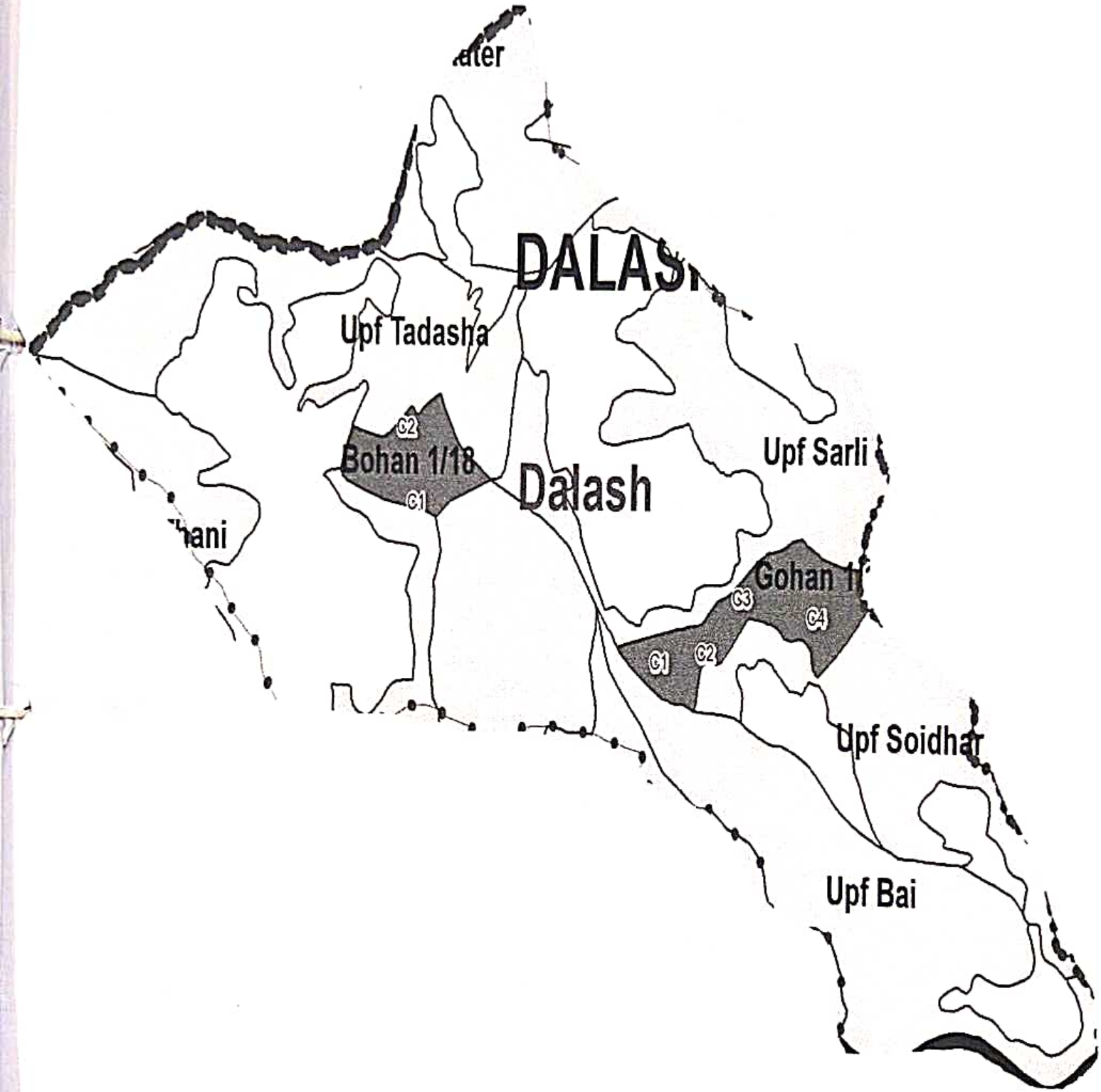
Engineering measures:-

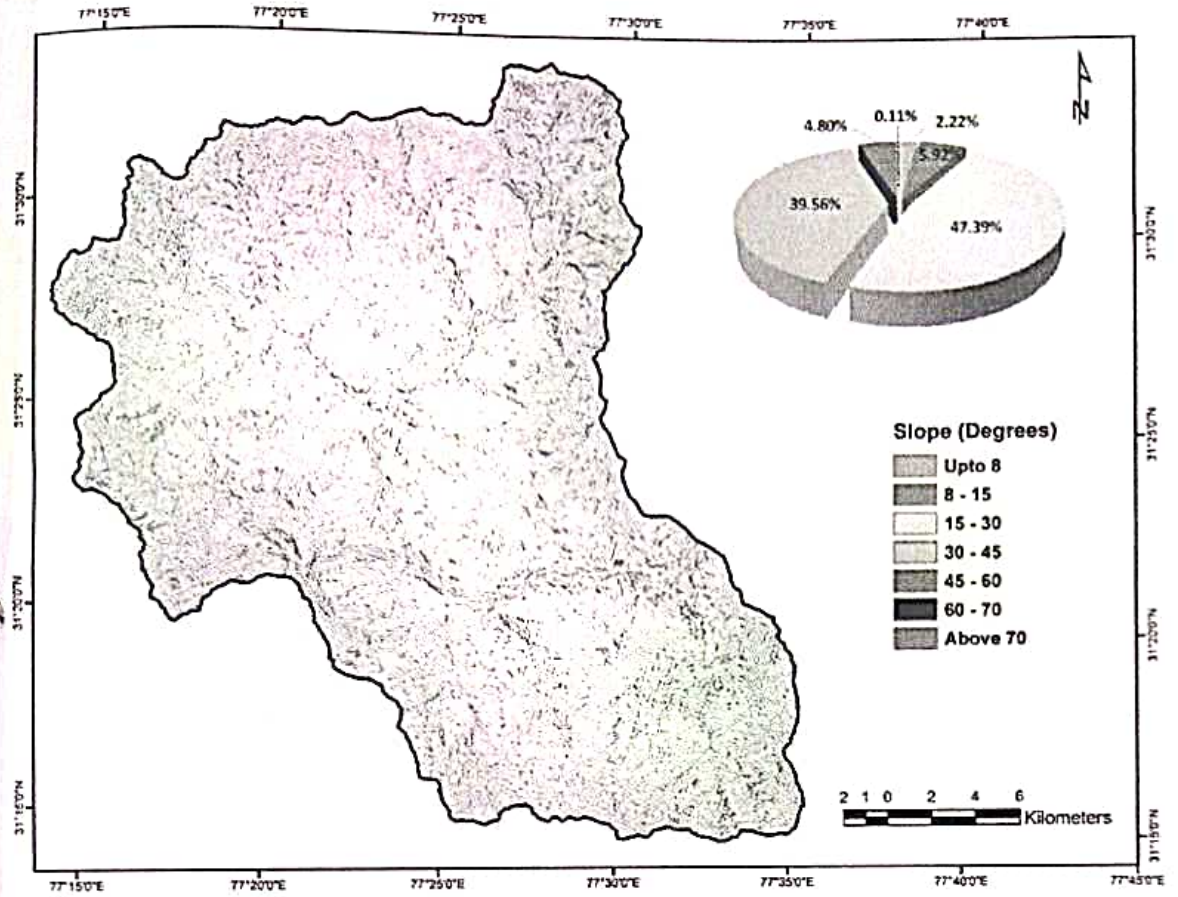
i) Moisture Retention measures

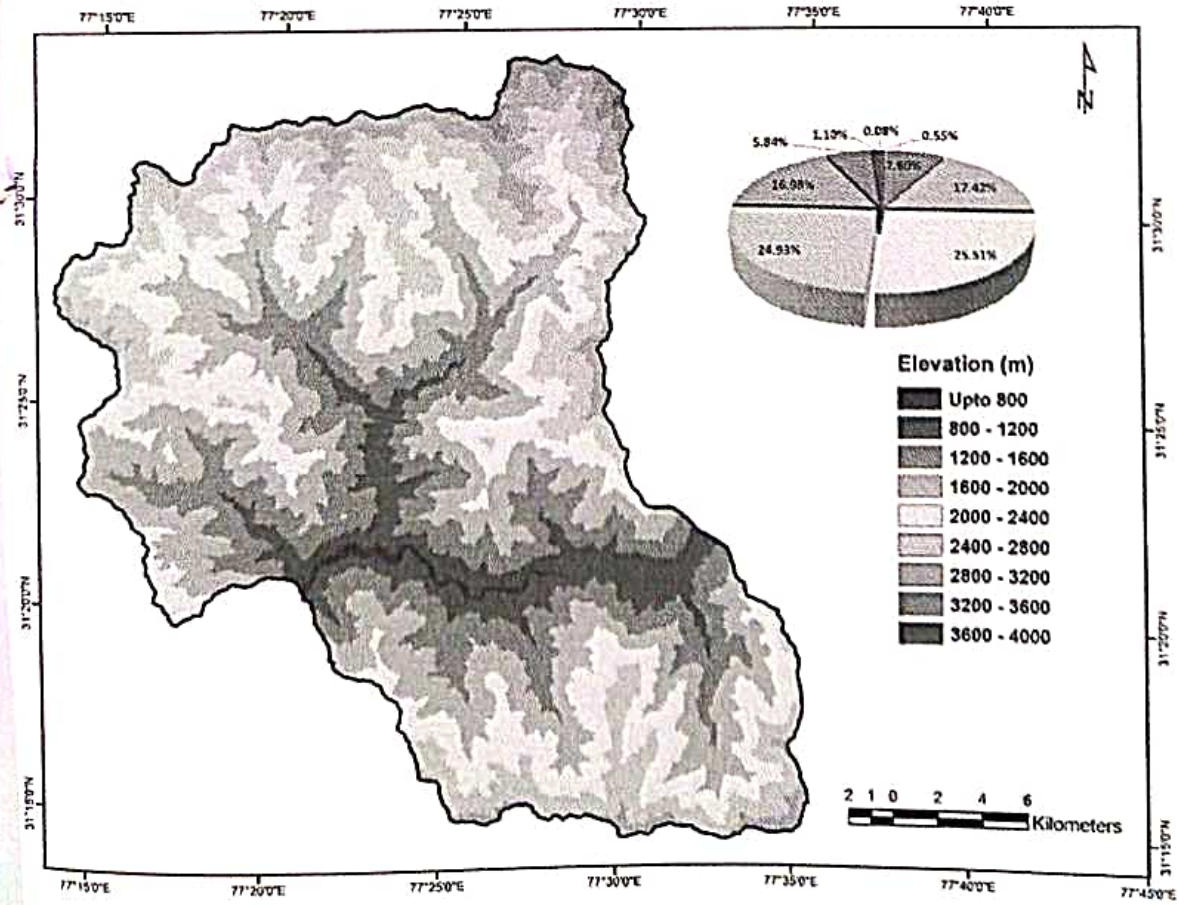
ii) Drainage Line Treatment

iii) Stabilization of landslide/landslips

SLOPE, ELEVATION, LANDUSE, LANDCOVER AND ASPECTS OF DALASH BEAT, DALASH BLOCK OF NITHER FOREST RANGE




77°15'0"E
77°20'0"E
77°25'0"E
77°30'0"E
77°35'0"E
77°40'0"E
77°45'0"E
31°30'0"N
31°25'0"N
31°20'0"N
31°15'0"N
N
4.80%
0.11%
2.22%
5.92%
39.56%
47.39%
Slope (Degrees)
Upto 8
8 - 15
15 - 30
30 - 45
45 - 60
60 - 70
Above 70
2 1 0 2 4 6
Kilometers


77°15'0"E
77°20'0"E
77°25'0"E
77°30'0"E
77°35'0"E
77°40'0"E
77°45'0"E
31°30'0"N
31°25'0"N
31°20'0"N
31°15'0"N
N
5.84%
1.10%
0.08%
0.55%
16.98%
17.42%
24.93%
25.51%
Elevation (m)
Upto 800
800 - 1200
1200 - 1600
1600 - 2000
2000 - 2400
2400 - 2800
2800 - 3200
3200 - 3600
3600 - 4000
2 1 0 2 4 6
Kilometers

Slope

The slope has a great influence on the soil and water loss from the area and thereby influences the landuse capability. The slope determines the erosion susceptibility of the soil depending on its nature. This helps in classifying various lands in suitable capability classes which enables us to formulate suitable conservation measures for the prevention of soil erosion. The degree slope was divided into different slope classes as per Soil and Land Use Survey of India (SLUSI). The areas falling under various standard slope categories in the catchment area have been tabulated below in Table. The slope map is enclosed as Figure. As seen from the table and map, maximum of the catchment area falls under 15° to 30° slope range. The other dominant slope range is 30° to 45°.

Slope (Degrees)	**Area (sq km)**	**(%)**
Upto 8	15.73	2.22
8 – 15	41.97	5.92
15 – 30	335.74	47.39
30 – 45	280.27	39.56
45 – 60	34.04	4.80
Above 60	0.78	0.11
	708.54	**100.00**

Landuse/ Landcover

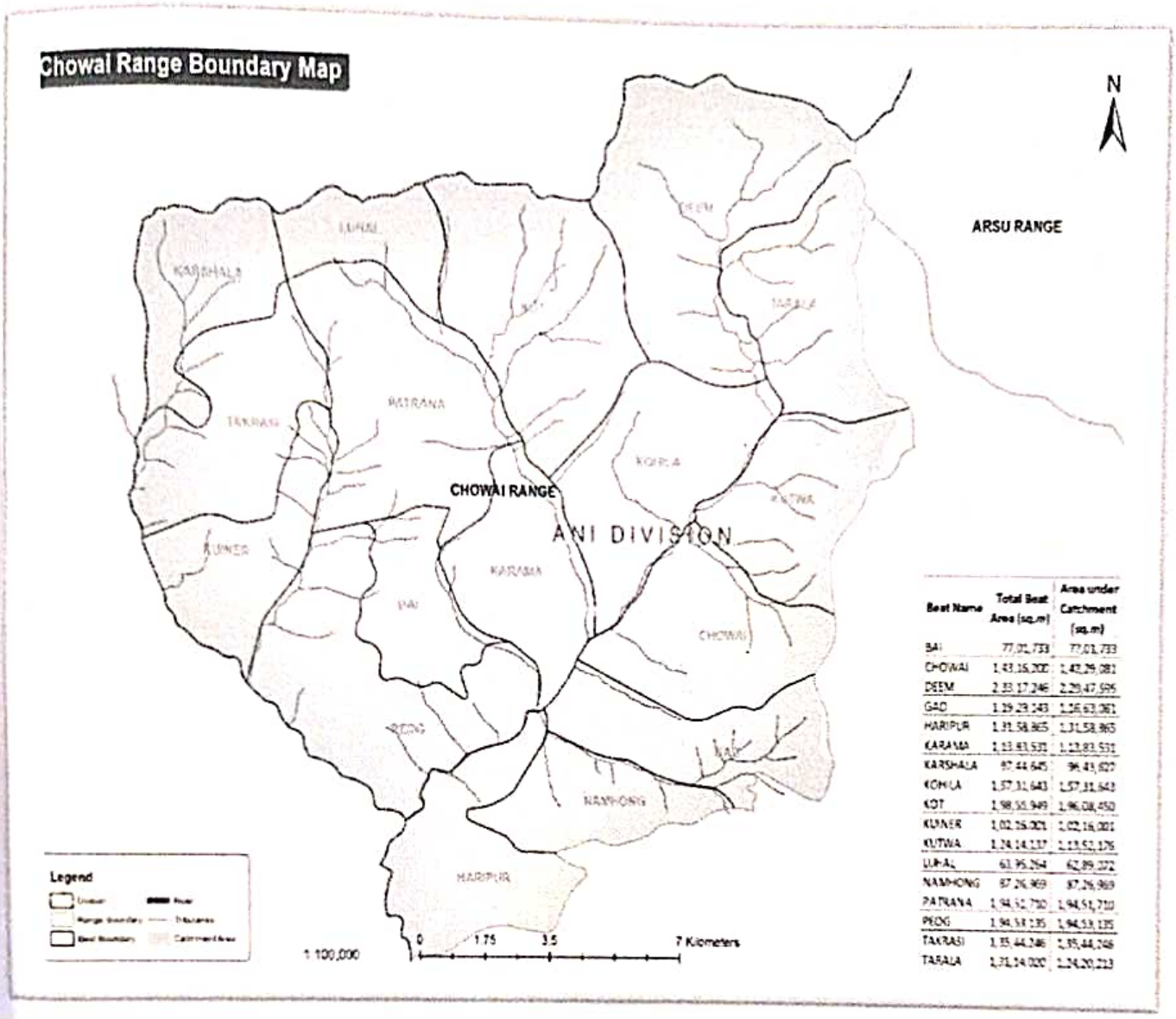
For the preparation of land use/ land cover classification of the catchment area, forest cover data for the year 2017 has been procured from Forest Survey of India (FSI). FSI has classified the area into fiveclasses viz., very dense forest, moderately dense forest, open forest, scrub land and non forest. The forest cover is broadly classified in 3 classes, namely very dense forest, moderately dense forest and open forest. The other classes include scrub and non-forest. These classes are defined as below:

- Very Dense Forest: All Lands with tree cover of canopy density of 70% and above
- Moderately Dense Forest: All lands with tree cover of canopy density between 40% and 70% above
- Open Forest: All lands with tree cover of canopy density between 10% and 40%
- Scurb: All forest lands with poor tree growth mainly of small or stunted trees having canopy density less than 10%
- Non Forest: Any area not included in the above classes

all the classes except non forest classified by FSI were used as it is and the non forest area was further classified into grazing land, agricultural land, settlement, barren land and waterbody. These classes are defined as below:

- Agriculture Land: These are the lands primarily used for farming and for production of food, fiber, and other commercial and horticultural crops.
- Settlement: It is an area of human habitation developed due to non-agricultural use and that has a cover of buildings, transport and communication, utilities in association with water, vegetation and vacant lands. It consists of urban as well as rural areas.
- Grazing: These are the areas of natural grass along with other vegetation, predominantly grass-like plants and non-grass-like herbs (except Lantana species which are to be classified as scrub). It includes natural/semi-natural grass/ grazing lands of Alpine/Sub-Alpine and manmade grasslands.
- Barren Land: These are rock exposures of varying lithology often barren and devoid of soil and vegetation cover.
- Waterbody (River): Rivers/streams are natural course of water flowing on the land surface along a definite channel/slope.

MAP 10.2 RANGE BOUNDARY MAP OF NITHER RANGE.



Beat Name	Total Beat Area (sq.m)	Area under Catchment (sq.m)
BAI	77,01,733	77,01,733
CHOWAI	1,43,16,200	1,42,29,081
DEEM	2,33,17,246	2,29,47,595
GAD	1,29,29,143	1,26,63,361
HARIPUR	1,31,58,865	1,31,58,865
KARAMA	1,13,83,531	1,13,83,531
KARSHALA	97,44,645	96,43,827
KOHLA	1,57,31,643	1,57,31,643
KOT	1,98,55,949	1,96,08,450
KUNER	1,02,16,001	1,02,16,001
KUTWA	1,24,14,137	1,13,52,176
LUHAL	63,95,264	62,89,372
NAMHONG	87,26,969	87,26,969
PATRANA	1,94,52,710	1,94,51,710
PEDG	1,94,53,135	1,94,53,135
TAKRASI	1,35,44,246	1,35,44,246
TARALA	1,31,14,020	1,24,20,213

Range Wise Summary Projection for Nither Forest Range

Sr. No.	Name of Component and Sub-Activity	Nither Range	
		Phy.	Fin
	Soil Moisture and conservation Works		
1	Crate wire CheckDams	10	100000
2	Planting Of Shrubs	L/s	50000
3	Trenching	L/s	20000
	Total SMC Works i.e. 0.5 % of the Project Cost		**170000/-**

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Table:- Physical and Financial Target

SMC MEASURES IN RESPECT OF Dalash Beat OF ANI FOREST DIVISION In lieu of Construction of Polytechnic College Dalash

Name of Work	Beat	MWs No.	Activity	Area	Unit	Unit Cost (Rs.)	Phy	Fin. (Rs.)	No. and size ofstructures
SMC WORKS IN FOREST AREAS	Dalash	Sk1a	Check Wall	Dalash	Rmt/Nos	10000	5	50000	
		Sk1a	Crate wire Check Dam	Dalash	Rmt/Nos	10000	5	50000	
		Sk1c	Trenching	Dalash	Rmt/Nos	20000	1	20000	
			Shrubs	Near by Polytechnic College			L/s	50000	
				Total				**170000**	

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