

Kindly fill the NMHS Annual Progress Report segregated into the following 11 segments, as applicable to your project nature and outcomes.

1. Project Information
2. Project Site Details
3. Project Activities Chart w.r.t. Timeframe [Gantt or PERT]
4. Financial and Resource Information
5. Equipment and Asset Information
6. Expenditure Statement and Utilization Certificate (UC)
7. Project Beneficiary Groups
8. Project Progress Summary (as applicable to the project)
9. Project Linkages (with nearby Institutions/ State Agencies)
10. Additional (publication, recommendations, etc.)
11. Project Concluding Remark

Please let us know in case of any query at: [nmhspmu2016@gmail.com](mailto:nmhspmu2016@gmail.com)

## NMHS Progress Report

(Period from **April 01, 2017 to March 31, 2018**)

### 1. Project Information

Project ID:	NMHS/2015-16/SG11/11	Sanction Date:	31-03-2016
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Project Title:	Vegetational heterogeneity and impacts of changing climatic and land use patterns on two contrasting timberline ecotones of Upper Chenab catchment, J & K and conservation strategies thereof
BTG:	

PI and Affiliation	<b>Prof. Anil K Raina</b> Department of Environmental Sciences, University of Jammu, Jammu
Name & Address of the Co-PI, if any:	Dr. Neeraj Sharma Faculty of Life Sciences, Institute of Mountain Environment, University of Jammu

Structured Abstract - detailing the current year progress [Word Limit 250 words]:	<ul style="list-style-type: none"> <li>• Field survey and installation of Data loggers</li> <li>• Floristic analysis of the study sites</li> <li>• Phytosociological survey of the study sites</li> <li>• Secondary data collection using questionnaire approach</li> <li>• Soil nutrient status of the study sites</li> <li>• Response of selected species on Phenological response to climate change</li> <li>• Compilation of herbarium</li> </ul>
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Project Partner Name	Affiliations	Role & Responsibilities
Partner 1	Institute of Mountain Environment, University of Jammu	Field investigations and project liaisoning.
Partner 2	Department of Environmental Sciences, University of Jammu	Overall Administration and reporting. Remote Sensing / GIS and soil monitoring laboratories (Ion chromatograph, etc.) of the department shall be used for mapping and modeling.
Partner 3	Indian Institute of Remote Sensing, Dehradun	Advisory support and guidance on tree line mapping, landscape analysis and niche modeling

## 2. Project Site Details

Project Site	Site-1 (Kailash Circuit)	Site-2 (Machail-Suncham Circuit)
IHR States Covered	JAMMU AND KASHMIR STATE	
Long. & Lat.	32°45'14" to 32°53'55"N 75°35'50" to 75°50'10" E	32°55'01" to 33°24'42"N 76°03'53" to 76°38'56"E
Site Maps	[Attached as Fig-1]	
Site Photographs	[Attached as Fig-2]	

## 3. Project Activities Chart w.r.t. Timeframe [Gantt or PERT]

PROJECT ACTIVITIES	WORK UNDERTAKEN				OUTPUT
	Year 2017-18				
	Qtr 1	Qtr 2	Qtr 3	Qtr 4	
Project Activity 1		Community analysis and creation of herbarium	Community analysis and creation of herbarium	Identification of plants and creation of herbarium	Annexure -1
Project Activity 2		Soil collection and analysis	Soil collection and analysis	Soil analysis	Annexure -2
Project Activity 3		Plant Phenology	Plant Phenology	Plant Phenology	Annexure -3
Project Activity 5		Installation of data loggers	Installation of data loggers		Annexure -4
Project Activity 6	Digital repository of plants			Digital repository of plants	Annexure -5
Project Activity 7		Identificator of anthropogen c stressors	Identification of anthropogenic stressors		Annexure -6

## 4. Financial and Resource Information

*Note:* A separate bank account is expected to be opened for NMHS Project as per the provision of Direct Beneficiary Account (DBA) as laid out by the Govt. of India and also facilitate the audit of accounts. The interest earned out of the NMHS project funds should be reported clearly in the utilization certificate.

Total Grant:	25,21,400.00	Grant Received Date:	11,42,800.00
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Project Partner(s)	Affiliations/ Institution	Budget Allocated to	Work Done
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Partner 1	Institute of Mountain Environment, University of Jammu	Nil	
Partner 2	Department of Environmental Sciences, University of Jammu	11,42,800.00	Purchase of Equipment, Travel, consumables, contingency, Wages of Field staff and others(Annexure-7, Expenditure statement)
Partner 3	Indian Institute of Remote Sensing, Dehradun		

Project Staff Information:

S. No.	Name	Qualification	Designation	Fellowship/ Wages paid	Remarks
1.	Mr. Bushan Kumar	M.Sc	Junior project fellow	10,000.00	Engaged w.e.f 08-05-2017 to 05-05-2018
2.	Mr. Arwan Parihar	10 + 2	Field Assistant	6200.00	Engaged w.e.f 21-12-2016 to 31-07-2017
3.	Mr. Manoj Kumar	10 + 2	Field Assistant	6200.00	Engaged w.e.f 01-12-2016 to till date
4.	Mr. Anil Kumar	10 + 2	Field Assistant	6200.00	Engaged w.e.f 22-11-2017 to till date

5. Equipment and Asset Information

S. No.	Equipment Name (Qty)	Details (Make/ Model)	Cost	Date of Installation	Photographs of Equipment	Lowest Quotation , IF NOT purchased
1.	Equipment 1	Camera DSLR (1 no.)	29995 .00			
2.	Equipment 2	Computer Hard disk (2 nos)	10481.00			
3.	Equipment 3	Varnier caliper & digital thermometer	21625.00			
4.	Equipment 4	Rucksacks, tents, Sleeping bags	43166.00			
5.	Miscellaneous items for soil collection	Khurpi, cutter, digger, etc.	1550.00			

6.	Herbarium Sheets		10000.00			
7.	Chemical / Glassware		100703.00			
Total			187525.00			

## 6. Expenditure Statement and Utilization Certificate

Please update the annual Expenditure Statement and Utilization Certificate (UC) periodically.

Expenditure Information:

S. No.	Financial Position/Budget Head	Funds Sanctioned	Expenditure	% of Total cost
I	Salaries/Manpower cost	340800.00	280202/-	82.21 %
II	Travel	100000.00	100000.00	100 %
III	Expendables & Consumables	150000.00	149081/-	99.38 %
IV	Contingencies	75000.00	69897/-	93.19 %
V	Activities & Other Project cost	60000.00	61166/-(-1166/-)	100 % ( Excess amount of Rs1166/-)
VI	Institutional Charges	Nil	Nil	NIL
VII	Equipments	417000.00	395419.00	94.82%
<b>Grand Total</b>		<b>1142800.00</b>	<b>1055765/-</b>	<b>92.38</b>

Period	Expenditure Statement	Utilization Certificate (UC)
Annual	[Attached as Annexure -7]	[Attached as Annexure -8]

## 7. Project Beneficiary Groups

Beneficiary Groups [Capacity Building]	Target	Achieved
No. of Beneficiaries with income generation:		
No. of stakeholders trained, particularly women:		
No. of capacity building Workshops/ trainings:		
No. of Awareness & outreach programmes:		
No. of Research/ Manpower developed:	03	

## 8. Project Progress Summary (as applicable to the project)

Description	Total (Numeric)	Description
<i>IHR States Covered</i>	Jammu and Kashmir	
<i>Project Site/ Field Stations Developed:</i>	Project sites established	
<i>No. of Patents filed (Description):</i>	Nil	
<i>Article/ Review/ Research Paper/ Publication:</i>	Nil	
<i>New Methods/ Modellings Developed (description in 250 words):</i>	NA	
<i>No. of Trainings (No. of Beneficiaries):</i>	NA	
<i>Workshop:</i>	NA	
<i>Demonstration Models (Site):</i>	.... (attach maps about location & photos)	
<i>Livelihood Options:</i>	NA	
<i>Training Manuals:</i>	NA	
<i>Processing Units:</i>	NA	
<i>Species Collection:</i>	99 plant specimen collected from Site-1 (Kailash-Chattergalla circuit) 80 from Paddar circuit	
<i>Species identified:</i>	104 species identified	
<i>Database/ Images/ GIS Maps:</i>	Available	

*Note:* Photos/ maps should be attached in high quality in compatible formats viz., JPEG, .JPG, .PNG, .SHP, etc. along with a suitable figure legend/ caption.

## 9. Project Linkages (with nearby Institutions/ State Agencies)

S. No.	Institute/ Organization	Type of Linkages	Brief Description
	Yet to be developed		

## 10. Additional (publication, recommendations, etc.)

Time Period	Publications (Research Papers, Information Material, Policy drafts, Patents, etc.)
Annual [Year .....]	Under way

## 11. Project Concluding Remark

Kindly update the following Progress Parameters for the Reporting Period:

Project Objectives	Project output against each objective	Progress made against monitoring indicators (specified in Sanction letter)	Remarks
<b>Objective 1.</b> to assess the structure, composition and pattern of vegetation in different communities along tree line-rangeland interfaces	Field surveys under way for the selected sites and sub sites	Data base on species composition and diversity analyses in progress	Assessment Report on Species composition and diversity shall be presented on the completion of field surveys
<b>Objective 2.</b> to assess the biomass and productivity of various interface forest-meadow communities.	Data collection on biomass and productivity under process	Soil nutrient analysis under way	Site-specific soil nutrients status report and long-term analysis of the data base under compilation
<b>Objective 3.</b> To study the phenological attributes of important tree line plants and assess the impact of altered climatic conditions on phenology and growth along an altitudinal gradient.	The phenological studies under way	Digital Herbarium in the University for conservation education shall be the final outcome	Assessment Report on Phenological response to Climate Change is subject to the final findings
<b>Objective 4.</b> Delineation of timberline, landscape dynamics and niche	Under process		

<p>modeling (<i>Betula utilis</i>) using Remote Sensing and GIS.</p>			
<p><b>Objective 5.</b> To identify and categorize the commercially important plants (MAP, RET and fodder) and their ethno-botanical relevance in the forest interfaces</p>	<p>The identification and categorization of TMAP under process</p>		
<p><b>Objective 6.</b> To study the anthropogenic influences (grazing, browsing and fire wood pressures) on the course of tree line and its interfaces</p>	<p>Under process</p>		
<p><b>Methodology</b></p>	<p>The density, frequency and total basal area of each species per site being calculated following Misra (1968) and Muller-Dombois and Ellenberg (1974). The Species Importance Value (SIV) is calculated by summing up the relative values of density, frequency and total basal area following Curtis (1959). Total species richness is simply taken as a count of number of species present in the respective forest type. Species richness (number of species per unit area) is being calculated as Margalef's Index (1968) using formula <math>SR = S-1/\ln(N)</math> and Menhinik's index of richness (Whittaker, 1977) calculated as <math>Richness = S/\sqrt{N}</math>, where, S = number of species and N = Total number of individuals (of all species in case of Menhinik's index). The diversity (H') is determined by using Shannon-Weiner information index (Shanon and Weaver 1963) as <math>H' = -\sum ni/n \log_2 ni/n</math>; where ni is the IVI value of a species and n the sum total IVI values of all species in a forest type. Simpson's diversity index (Simpson, 1949) would be calculated as <math>D: 1/Cd</math>, Where <math>Cd = Simpson's\ concentration\ of\ dominance = (\sum ni/n)^2</math>. The maturity index related to the structural complexity and organization (Margalef, 1968) shall be recorded following Pichi-Sermolli (1948).</p> <p>Aboveground and belowground biomass structure and productivity of woody vegetation are quantified through well established regression equations (Garkoti &amp; Singh 1994; Adhikari <i>et al.</i> 1995a), while the nutrient dynamics following Whittaker &amp; Woodwell (1968), Garkoti &amp; Singh (1994, 1995) and Adhikari <i>et al.</i> (1995b).</p> <p>The important plant phenophases <i>viz.</i>, bud bursting, flowering, leafing, fruiting, fruit maturation, seed fall, leaf fall and senescence are being studied for the selected species representing timberline ecotone in BBCH scale.</p> <p>The soil of the selected sites is being analyzed by using standard methodologies</p>		



	(mostly by volumetric analysis) for <u>Physical parameters</u> - Texture, Moisture, Temperature, pH, Conductance; <u>Chemical parameters</u> - Carbonates, Bicarbonates, Organic Carbon, Calcium, Magnesium, Chlorides, Sodium, Potassium, Phosphorous, Sulphate & Nitrate by titration and other standard methodologies
Major Research Achievements:	Primary data for all parameters as proposed has been collected and the analysis part comprising of laboratory work has been done during lean field season. The research papers on specific parameters under compilation.
Brief Conclusion - the current year (the reporting period)	<ul style="list-style-type: none"> <li>• Data loggers installed for temperature and RH recording at the identified sites in the respective study areas</li> <li>• Floristic surveys for the vegetational composition and plant specimen collection completed for the third and fourth quarter</li> <li>• Phytosociological surveys for plant species richness, abundance and diversity completed for the third and fourth quarter</li> <li>• Secondary data collection using the questionnaire approach and structured interviews completed for the selected sites</li> </ul> <p>Ethno botanical relevance and commercial exploitation of tree line wealth noted for the study period</p>
Progress Achieved (%):	55 %
Remaining work to be done:	45%

Submitted to:

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Project PI (Signature):  
Institution (Seal): Dept. of Environmental Sciences  
University of Jammu  
Dated (dd/mm/yy): 11/06/2018

Please fill the NMHS Progress Report pro forma as applicable with respect to time and other requirements and return *via* post/ e-mail. In case of any query, please contact at: [nmhspmu2016@gmail.com](mailto:nmhspmu2016@gmail.com)