Gantt Chart of Work Plan

Project Title: Timberline and altitudinal gradient ecology of Himalayas, and human use sustenance in a warming climate

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S. No	Activity	1st Year				2nd Year				3rd Year			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Objective – I: To characterize and map timberline zone in the IHR using satellite and ground based observations including smart phone applications													
1.	Recruitment of project staff / Procurement of field / lab. Items, including satellite data												
2.	Timberline mapping of five states& ground truthing												
3.	Workshop & training												
4.	Software development & testing												
5.	State wise map printing												
6.	Launch of Application Software												
7.	Data compilation, synthesis and integration with other components												
8.	Reports (Annual/FTR)												
Objective – II: To determine the temperature lapse rate (TLR) and pattern of precipitation along altitudinal gradients in different precipitation regimes across the IHR													
9.	Recruitment of project staff / Procurement of field / lab. Items, complilation of												
10.	Selection of sites for met stations and installation												
11.	Data generation from field sites and quality control, processing of the data												
12	Data analysis for micro/ meso-scale												

	temperature and precipitation variability												
13.	Estimation of TLR and precipitation gradient												
14.	Report (Annual/FTR)												
Objective – III: To study plant diversity, community structure, tree diameter changes and natural recruitment pattern along the three principal sites in the IHR													
15	Recruitment of project staff / Procurement of field / lab. Items												
16	Standardization of field sampling approach												
17	Establishment of altitudinal transects along with study plots												
18	Sampling for timberline ecotones structure/composition												
19	Floristic surveys along elevation gradient												
20	Vegetation community structures along altitude gradient												
21	Study of recruitment and establishment of plots for study of key plant species in timberline ecotone												
22	Ecophysiology of key plant species in timberline ecotone												
23	Synthesis of taxonomic, functional and phylogenetic dimensions along the elevation gradient and response of species to climate change												
24	Preparation & organization of national workshop												
25	Workshop proceedings & policy/programme briefs												
26	Reports (Annual/FTR)												

Objective – IV: To understand tree phenological responses, nutrient conservation strategies and tree-water relations in response to warming climate													
27	Recruitment of project staff / Procurement of field / lab. items												
28	Selection of sites/species for detailed field work												
29	Marking of trees of selected species and recoding of phenophases												
30	Data collection on pheono-phases, leaf characters of selected species												
31	Micro-climatic data collection during field work												
32	Collection of leaves for nitrogen analysis												
33	Laboratory investigation on leaf area and leaf mass and nitrogen												
34	Soil & plant water potential measurements												
35	Monitoring leaf conductance/ Photosynthesis rate and relating it with drought stress												
36	Measurements of leaf resistances and Rate of transpiration												
37	Measuring tree girth, wood density and Specific Leaf Mass (SLM)												
38	Data compilation, syntheses, integration with climatic data												
39	Report writing (annual & FTR)												
Objective – V: To study relationship between tree ring growth and past climatic changes in different climate regime across IHR													
40	Recruitment of project staff / Procurement of field / lab. Items												
41	Literature review, selection of site and tree species												

42	Collection of increment cores from J&K, UK and SK												
43	Laboratory analysis, cross-dating, and standardization of cores and preparation of results												
44	Collection of increment cores Comparison of chronologies from all sites of three states, Modeling the climate–tree-growth relationships for three sites												
45	Report writing (Annual & FTR)												
Objective – VI:To understand the impact of depletion of snow-melt water on growth of tree seedlings, grassland species composition and selected functional processes													
46	Recruitment of project staff / Procurement of field / lab. Items												
47	Selection of sites and reconnaissance survey												
48	Assessment of species diversity patterns												
49	Assessment & Monitoring of Biomass, Production, nutrient cycling and Carbon sequestration												
50	Phenological studies												
51	Experimentation on snowmelt water												
52	Data compilation, synthesis and establishing patterns												
53	Report writing (Annual & FTR)												
Objective – VII:To promote participatory action research (Citizen Science) on innovative interventions to improve livelihoods, women participation in conservation and management of timberline resources													
54	Recruitment of project staff / Procurement of field / lab. Items												
55	Selection of villages/stakeholder groups and needs assessment												
56	Dependence assessment and potential resource documentation												

57	Field level workshops and consultations												
58	Development of stakeholder oriented learning and interpretation modules												
59	Needs assessment based livelihood improvement interventions (pilots only)												
60	Awareness creation events and promotion of citizen science based activities												
61	Analysis and synthesis of results/data												
62	Report writing (Annual & FTR)												
Project Management Unit (PMU)													
63	PMU made functional (space, staff, & necessary procurements)												
64	Disbursement of annual budget to each partner												
65	Inception workshop –IW (harmonization of approaches for sampling, synthesis and reporting)												
66	Development of standard formats/protocols based on IW												
67	Repository of global literature on subject												
68	Annual reviews (partners' synergy building and review meetings)												
69	Mid-term review and evaluation workshop (Expert evaluation of progress in each component and corrective measure)												
70	Liaison with partners and NMHS PMU												
71	Policy papers/Synthesis documents/approach papers etc												
72	Result dissemination and impact assessment (each component)												

73	Establishing national & global linkages for long-term sustainability												
74	Reports (Annual and FTR)												