SOCIETY FOR RESOURCE PLANNING, DEVELOPMENT AND RESEARCH, BHOPAL (M.P)
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(A non-profit organization devoted to Research and Development of Natural Resources)
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TERMS OF REFERENCE (ToR)

Remote Sensing & GIS Consultant – Map Preparation for Two Model Sites under RECAP4NDC Project, Uttarakhand

About the RECAP4NDC Project

The "Restore, Conserve and Protect Forest and Tree Cover for NDC Implementation in India (RECAP4NDC)" is an Indo-German development cooperation initiative commissioned by the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) and supported under the International Climate Initiative (IKI). It is being implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, in collaboration with key national and international partners including the Forest Survey of India, IUCN India, TERI, ICFRE, and ICIMOD.

RECAP4NDC aims to strengthen India's capacity to plan, finance, implement and monitor Forest Landscape Restoration (FLR) and Trees Outside Forests (TOF) measures to help meet the country's Nationally Determined Contributions (NDCs) under the Paris Agreement. Due to socio-economic and climatic pressures, a significant portion of India's forest area is degraded; restoring these landscapes is critical for enhancing ecosystem health, improving livelihoods, and contributing to climate mitigation and adaptation goals.

The project supports state forest departments and other stakeholders through scientific analysis, planning tools, capacity building, and integrated monitoring systems. It is active in several Indian states, including Uttarakhand, where model sites are being identified for restoration planning, including detailed mapping and zonation work, which this consultancy will support. By 2029, RECAP4NDC is expected to contribute to restoration of approximately 0.4 million hectares of degraded landscapes and benefit millions of people through improved ecosystem services.

About SRPDR (Society for Resource Planning and Development), Bhopal

The Society for Resource Planning and Development (SRPDR), based in Bhopal, India, is a non-governmental organization (NGO) engaged in natural resource planning, sustainable development, and community-oriented environmental work. SRPDR's mission is to promote responsible management and use of natural resources, strengthen sustainable livelihoods, and support biodiversity conservation through applied research, planning, training, and project implementation.

Established in 2005, the organization comprises professionals with expertise in forest management, natural resource management, social and life sciences, and sustainable

development. It has experience in designing and implementing projects related to forest and watershed management, non-timber forest product (NTFP) value chain development, climate resilient practices, and participatory approaches to resource governance. SRPDR works across several Indian states, engaging with government agencies, communities, and other stakeholders to promote integrated resource planning and development outcomes that enhance environmental sustainability and socio-economic well-being. SRPDR is the DPR consultancy agency for the RECAP4NDC Uttarakhand landscape.

About Uttarakhand Model sites

Project Area – Uttarakhand (Garhwal and Kumaon region)

The Uttarakhand part of the project covers two model sites spread across about 30,246 hectares in the Kumaon and Garhwal regions:

Model site 1: Kumaon (Almora, Bageshwar, and Pithoragarh), area 15131ha: These areas have a mix of forests, Van Panchayat lands, and agriculture. People depend on forests for fodder, fuelwood, and water, but face issues such as soil erosion, drying springs, and migration of youth.

Model site 2: Garhwal (Pauri Garhwal and Tehri Garhwal), area 15115 ha: These districts are mountainous with steep slopes, degraded forests, and problems like water scarcity and landslides. Communities here rely on farming, livestock, and forest produce, but also have potential for eco-tourism and non-timber forest product (NTFP) development.

Landscape	District Name	Total Degraded area (in ha)		No. of Micro watershed	
		Degraded area within the MS	Degraded area within the RFA	Inside degraded area	Inside degraded RFA
MS1	Almora, Bageshwar and Pithoragarh	15,131	649	36	27
MS2*	Pauri Garhwal and Tehri Garhwal	15,115	1,017	33	16
Total Area		**30,246**	**1,666**	**69**	**43**

District	Village	Development Block	Forest Range	Forest Division
Almora	389	6	7	2
Bageshwar	56	1	3	1
Pithoragarh	53	1	1	1
Pauri Garhwal	343	4	11	2
Tehri Garhwal	116	1	4	2
Total	**957**	**13**	**26**	**8**

Objective of the Assignment

The objective of this assignment is to support evidence-based planning under RECAP4NDC by developing spatial datasets and thematic maps that:

- Clearly depict administrative, ecological, and biophysical characteristics of the model sites
- Identify degradation patterns and drivers
- Support selection and zonation of appropriate FLR interventions
- Facilitate range-wise and village-wise planning, budgeting, and monitoring
- Strengthen the spatial foundation of the DPR for implementation and convergence with line departments

Duration: 1 month from the date of starting the assignment
Location: RECAP4NDC room, Van Bhavan, Dehradun-248001, Uttarakhand
Renumeration: **Approx INR 1,30,000**

Scope of the Assignment
A total of 124 maps to be prepared for Uttarakhand model sites.

Map	Purpose	No of maps *(Indicative)*
Location, Forest Administrative and Developmental Boundary Map *(District, Block, Village, Forest Division, Forest Range)*	To establish the precise geographical location of the model site within civil and forest administrative frameworks, supporting statutory referencing, inter-departmental coordination, assignment of implementation responsibility, budgeting, and monitoring.	Total 4 maps of two model sites.
Degradation Pressure Map	To spatially identify degraded forest and non-forest patches and integrate multiple degradation drivers into a composite pressure index. This map will indicate priority intervention zones (high medium low) and scientifically justify where restoration interventions are required.	2 maps total showing degradation pressure in landscape level
Drivers of Degradation Maps (Thematic Layers) *(e.g., fire-prone areas, HWC)*	To spatially represent dominant degradation drivers for designing driver-responsive, site-specific FLR interventions.	The no. of maps will vary with the no. of drivers of degradation highlighted in the DPR wherever feasible. 10 maps per driver of degradation incorporating below: *2 maps total showing drivers of degradation in*

		landscape level-Kumaon and Garhwal
Topography Map (DEM-based Elevation)	To represent terrain elevation patterns that influence soil depth, moisture availability, accessibility, and ecological zonation, and to guide elevation-sensitive restoration planning.	2 map in total at landscape level
Slope Map	To assess slope gradients and erosion vulnerability and guide appropriate design and placement of conservation structures such as contour trenches, gully plugs, contour bunds, and vegetative barriers.	2 map in total at landscape level
Hydrology and Micro-Watershed Delineation Map	To delineate drainage networks, catchments and micro-watersheds for ridge-to-valley planning, water harvesting structure placement, spring-shed development, and watershed-based restoration.	Total 26 maps at forest range level
Land Use Land Cover (LULC) Map – Current Year ***Based on secondary data***	To classify land cover into forest, agriculture, scrub, grassland, built-up and waterbody classes and form the spatial baseline for selection of suitable FLR models.	2 maps at landscape level 8 maps at forest division level.
FLR Intervention Zonation Map (Range-wise and LULC-wise)	To spatially demarcate the recommended FLR interventions within each forest range and associated villages, aligned to specific Land Use Land Cover (LULC) classes. Since the forest range is the primary planning and implementation unit in the DPR, this map will clearly indicate **which intervention is to be implemented, where, and under which land-use category** (forest, scrub, abandoned agriculture, grassland, settlement interface, etc.). **Include a table highlighting the names of villages under each forest range where the interventions are proposed.** This map will serve as the **spatial implementation blueprint** of the DPR by: • Linking restoration models (e.g., assisted natural regeneration, enrichment planting, Silvi pasture, agroforestry, grassland restoration, spring-shed treatment, soil and water	2 maps at landscape level 8 maps at forest division level. Total 26 maps at forest range level Total 22 maps at cluster level. **Cluster are identified as a part of secondary pilot sites in the DPR for immediate action.** *2 maps showing overview of the whole clusters in each landscape* *Cluster wise maps showing FLR interventions in range level with highlighting land use and hydrology.*

	conservation measures, invasive species management, fire protection, etc.) to specific villages, compartments, and LULC classes within each forest range. • Enabling clear budgeting, phasing, and monitoring of activities range-wise and village-wise. • Supporting convergence with line departments and facilitating on-ground execution by frontline forest staff.	

Deliverables

The RS & GIS consultant shall submit:

1. **Soft copies** of all maps in:
    - GIS format (Shapefile / GeoPackage / GeoTIFF as applicable)
    - Editable layers with proper legends, scales, and metadata
2. **High-resolution PDF maps** suitable for inclusion in DPR and presentations
3. **Raw spatial datasets and processed layers** used in analysis
4. A brief **methodology note** explaining:
    - Data sources used
    - Tools/software applied
    - The analysis/tools used.

Software and Data Standards

The RS & GIS consultant is expected to use:

- ArcGIS / QGIS / Google Earth Engine (as appropriate)
- Latest available satellite imagery (e.g., Sentinel, Landsat, or equivalent)
- Government boundary datasets where available

All maps should include:

- North arrow
- Scale bar
- Legend
- Source of data
- Date of preparation

Reporting and Coordination

The RS & GIS Consultant will:

- Report to SRPDR
- Coordinate with the RECAP4NDC Project Team, Forest Department, and field teams as required

- Incorporate feedback from SRPDR and relevant stakeholders

Expected Outcome
The assignment will result in a comprehensive spatial framework that strengthens scientific planning, implementation, and monitoring of FLR interventions under the RECAP4NDC project in Uttarakhand.

Interested candidates are requested to submit their application along with the required documents either in soft copy via email at srpdr.bhopal@gmail.com or in hard copy to the address mentioned below.
Address: 06, Aranya Vihar, Chuna Bhatti, Kolar Road, Bhopal

President
Society for Resource Planning, Development and Research (SRPDR) Bhopal