

First NMHS-Quarterly Progress Report (QPR) – June to August 2024

Kindly update the NMHS-Quarterly Progress Report (QPR) segregated into following Part-A. Technical Progress and Part-B. Financial Progress, in respect of the Objectives & Quantifiable Deliverables as per the NMHS-Sanction Letter.

NMHS Grant ID:	NMHS2023-24/SC-XI/SG92/07						Year:	2024
Project Title:	“Assessing Health of the High-Altitude Lake (HAL) Tenbawa and Ecosystem Sustainability in Response to Changing Climate in the Lachung Valley, Sikkim Himalaya”							
PI & Lead Implementing Organization:	Dr. Manasi Debnath, Nagaland University							
Quarter (please put √):	Qtr. 1		Qtr. 2	✓	Qtr. 3		Qtr. 4	
Progress Reporting Period:	From June to August							
Project Site(s) covered:								

Part-A. Technical Progress

(i) Progress against each of the Sanctioned Objective*

Sanctioned Objectives	Quantifiable Progress against each Objective	attach Annexure
<ul style="list-style-type: none"> • Objective A • Objective A.1 A near-precise higher-altitude lake inventory, classification in the Lachung Basin entirely, and assess the benchmark Tenbawa lake area dynamics in Sikkim Himalaya for the past half a century, and annually respectively. • Objective A.2 Quantify the lake volume using the bathymetric survey and assess the geomorphological landscapes for stability analysis of the Tenbawa lake. • Objective A.3 Quantify and assess the potentiality of Glacial Lake Outburst Flood (GLOF). • Objective A.4 Quantify the Holocene climate dynamics in relation to water resource assessment, of select areas. • Objective B • Objective B.1 Identify knowledge gaps in conserving High-Altitude Lake (HAL) across the Himalaya. • Objective B.2 Quantify the role of HAL in biological assemblages. • Objective B.3 Assess the risk and vulnerability of high-altitude lake ecosystems due to climate change. 	<ul style="list-style-type: none"> ✓ 1.1 The lake inventory, classification of lakes adopted various important parameters, including Glacier boundaries at higher spatial scale has been done. ✓ 1.3 The identification of potentially dangerous glacial lakes at basin level taking different parameters was done. ✓ 2.1 literature surveys initiated. 	<ul style="list-style-type: none"> ✓ Annexure 1.1 (submitted in 1st QPR) ✓ Annexure 1.2

<ul style="list-style-type: none"> • Objective B.4 Distribution model of Yarsagumba (caterpillar fungus or Cordyceps sinensis) and their socio-ecological linkages with HAL in Sikkim Himalaya. • Objective B.5 Assessing ecosystem services provided by high altitude lakes in the Lachung Valley of the Sikkim Himalaya. • Objective B.6 International Research Publications. 		
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*As issued in the NMHS-Sanction Letter; also specify the compliance with the General Conditions.

(ii) Progress against each of the Sanctioned Deliverable in view of Monitoring Indicators*

Sanctioned Deliverables	Quantifiable Progress against each Deliverable	attach Annexure
<ul style="list-style-type: none"> • Deliverable 1.1 High resolution updated Lake inventory map for entire Lachung basin, and quantification of changes in glaciers and lakes to identify potential catastrophic breaches in the near future under prevailing climate. • Deliverable 1.2 Topographic and bathymetric analysis of Tenbawa Lake to provide a near-precise inundation impact map for GLOF hazard management along the Lachung Valley. • Deliverable 1.3 The input from lake volume estimation, surrounding landscape stability associated with the adjacent glacier surface velocity data (Using COSI_Corr) will be used to run the GLOF models. • Deliverable 1.4 Palaeo-hazard sites will be reconstructed using sediment, rock and organic material association and sampling for Optically Stimulating Luminescence (OSL) Dating, Cosmogenic Radionuclide Dating (CRN), & Carbon Dating techniques for zeroing on the return period if any. • Deliverable 2.1 Elaborate literature review using the SALSA technique to identify research gaps. • Deliverable 2.2 Detailed surveys of various taxonomic groups of both plants and animals adjoining the Tenbawa Khangse Lake ecosystem and the surrounding Lachung valley as per the based one altitudinal range. • Deliverable 2.3 Assessment of diatom diversity for determining the health of the Tenbawa Khangse 	<ul style="list-style-type: none"> ✓ 1. The lake inventory map for the entire Lachung basin. ✓ 1.2. Glacier inventory map for the selected same study region. Lachung Basin, North Sikkim. ✓ 1.3. Glacial Lake area dynamic maps from 1988 to 2023 have been prepared. ✓ 1.4. Potentially dangerous glacial lakes map at the basin level have been prepared. ✓ 2.1 Advertisement is under process and GEM purchase initiated ✓ 2.2 Papers reviewed on High altitude wetland biodiversity. 	<ul style="list-style-type: none"> ✓ Annexure 2.1 (submitted in 1st QPR) ✓ Annexure 2.2 ✓ Annexure 2.3

<p>Lake of Sikkim. Diatom samples will be collected according to the ISS/SNPA MG.111/2014 standard protocol.</p> <ul style="list-style-type: none"> • Deliverable 2.4 By investigating these linkages, this research aims to inform sustainable resource management strategies and promote the conservation of both the caterpillar fungus and the high-altitude lake ecosystems in Sikkim Himalaya. • Deliverable 2.5 Measurement of the impact on the ecology of Tenbawa Lake and surrounding regions. Explore the perceived importance of these Ecosystem Services and related perceptions of a wider variety of stakeholders (Such as locals' residents, experts from Government agencies, research institutions etc.). • Deliverable 2.6 Anticipated international research publications emerging from the project. 		
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(iii) Progress against Data, Demonstration, & Publication

Particulars	Description with Quantification	attach Annexure
• Baseline and Database <i>collected</i> :	Data collected from multitemporal satellite imageries, Published Literatures	✓ Annexure 3.1 (submitted in 1 st QPR)
• Models <i>demonstrated</i> :		
• Trainings/ Workshops <i>conducted</i> :	Inception meeting held on 08.07.24 at Barad Sadhan, Gangtok, Sikkim	✓ Annexure 3.2
• Knowledge Products <i>prepared</i> :		

(iv) Beneficiaries & Stakeholders

Beneficiaries/ Stakeholders:	Total	Women	Youths	SC	ST	Farmers/HHs	Collaborations
	1	...	Junior Project Fellow has taken admission for the PHD program at Nagaland University

Part-B. Financial Progress

(i) Expenditure under each Budget Head

S#	Standard Budget Heads	Fund Sanctioned	Quarterly Expenditure (NU+NIHE)	% Fund Utilization*	Remarks, if any
1.	Professional Services ¹	261600	43600	23.12%	
2.	Training Expenses ²	60000	15035	25.06%	
3.	Domestic Travel Expenses ³	267800	82879	30.95%	
4.	Office Expenses ⁴	17000	10172.45	81.86%	
5.	Printing and Publication ⁵				
6.	Digital Equipment ⁶	1220000	447900	36.71%	
7.	Materials and Supplies ⁷	15000	10008	66.72%	
Total		1841400	653194.45	34.22%	

*Per cent (%) fund utilization of the total grant sanctioned under each prescribed budget head by NMHS-PMU.

(ii) Project Staff Information:

S#.	Project Staff <i>deployed</i>	Designation	Fellowship/ Emoluments (paid @/ mo)	Remarks, if any
1.	Samikcha Rai	Junior Project Fellow (JPF)	(20000 + 1800) = 21800	+9% HRA
2.				
3.				
4.				

Note: Kindly take note of the following budget components into consideration to fill the details adequately:

- ¹ **Professional Services:** Hiring charges to various services/ expertise of Govt. and Non-Govt. Institutions, Organizations for conducting Mission activities, and salary of consultants and others NMHS professional staff and payment to other departments for service rendered, Overheads. Number of manpower along with the designation and per month salary should be enlisted and submitted separately.
- ² **Training Expenses:** Capacity Building and Training Programs, workshops, extension programs through State Govt. agencies.
- ³ **Domestic Travel Expenses:** Traveling expenses during the professional services, field visit for various projects sites, and meetings.
- ⁴ **Office Expenses:** Recurring and non-recurring contingent expenses, Stationary charges, other Office expenses and Contingency expenses during implementation of various activities, Minor office equipment, Office assistant and Data Entry Operators.
- ⁵ **Printing and Publication:** Printing and publication of the books, manuals, papers, etc.
- ⁶ **Digital Equipment:** Hardware & software, Minor equipment, etc.
- ⁷ **Materials and Supplies:** Lab supplies and materials store, such a light and sound systems, demonstrations models, pilot plant, educations supplies, agricultural supplies, chemical and glassware, spare parts and supplies and goods. A separate list along with per item cost with justification should be mentioned separately.