

Template/Pro forma for Submission

NMHS-Himalayan Institutional Project Grant

NMHS-FINAL TECHNICAL REPORT (FTR)

Demand-Driven Action Research and Demonstrations

NMHS Reference No.:	NMHS/LG-2016/005
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Date of Submission:	0	7	1	2	2	0	2	0
	d	D	m	m	y	y	y	y

PROJECT TITLE (IN CAPITAL)

TECHNOLOGY DEVELOPMENT, MANAGEMENT AND LONG-TERM MONITORING OF SHIFTING CULTIVATION AND COAL MINING IN NORTH-EASTERN INDIA

Project Duration: *from (31/03/2016) to (30/06/2020).*

Submitted to:

Er. Kireet Kumar
 Scientist 'G' and Nodal Officer, NMHS-PMU
 National Mission on Himalayan Studies, GBP NIHE HQs
 Ministry of Environment, Forest & Climate Change (MoEF&CC), New Delhi
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Submitted by:

S K Barik
 Director,
 CSIR-National Botanical Research Institute (NBRI),
 Lucknow, Uttar Pradesh
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GENERAL INSTRUCTIONS:

1. The Final Technical Report (FTR) has to commence from the date of start of the Project (as per the Sanction Order issued at the start of the project) till its completion. Each detail has to comply with the NMHS Sanction Order.
2. The FTR should be neatly typed (in Arial with font size 11 with 1.5 spacing between the lines) with all details as per the enclosed format for direct reproduction by photo-offset process. Colored Photographs (4-5 good action photographs), tables and graphs should be accommodated within the report or should be annexed with captions. Sketches and diagrammatic illustrations may also be given giving step-by-step details about the methodology followed in technology development/modulation, transfer and training. Any correction or rewriting should be avoided. Please give information under each head in serial order.
3. Training/ Capacity Building Manuals (with details contents of training programme technical details and techniques involved) or any such display material related to project activities along with slides, charts, photographs should be brought at the venue of the Annual Monitoring & Evaluation (M&E) Workshop and sent at the NMHS-PMU, GBP NIHE HQs, Kosi-Katarmal, Almora 263643, Uttarakhand. In all Knowledge Products, the Grant/ Fund support of the NMHS should be duly acknowledged.
4. The FTR Format is in sync with many other essential requirements and norms desired by the Govt. of India time to time, so each section of the NMHS-FTR needs to be duly filled by the proponent and verified by the Head of the Lead Implementing Organization/ Institution/ University.
5. Five (5) bound hard copies of the Project Final Technical Report (FTR) and a soft copy should be submitted to the **Nodal Officer, NMHS-PMU, GBP NIHE HQs, Kosi-Katarmal, Almora, Uttarakhand.**

The FTR is to be submitted into following two parts:

Part A – Project Summary Report

Part B – Project Detailed Report

Following Financial and other necessary documents/certificates need to be submitted along with Final Technical Report (FTR):

Annexure I	Consolidated and Audited Utilization Certificate (UC) & Statement of Expenditure (SE) , including interest earned for the last Fiscal year including the duly filled GFR-19A (with year-wise break-up)
Annexure II	Consolidated Interest Earned Certificate
Annexure III	Consolidated Assets Certificate showing the cost of the equipment in Foreign and Indian currency, Date of Purchase, etc. (with break-up as per the NMHS Sanction Order and year wise).
Annexure IV	List of all the equipment, assets and peripherals purchased through the NMHS grant with current status of use including location of deployment.
Annexure V	Letter of Head of Institution/Department confirming Transfer of Equipment Purchased under the Project to the Institution/Department
Annexure VI	Consolidated Manpower Certificate and Direct Benefit Transfer (DBT) Details showing the education background, i.e. NET/GATE etc. qualified or not, Date of joining and leaving, Salary paid per month and per annum (with break up as per the Sanction Order and year-wise).
Annexure VII	Details, Declaration and Refund of any Unspent Balance transferred through Real-Time Gross System (RTGS) in favor of NMHS GIA General

NMHS-Final Technical Report (FTR) *template*

Demand-Driven Action Research Project

DSL: Date of Sanction Letter

3	1	0	3	2	0	1	6
d	d	m	m	y	y	y	y

DPC: Date of Project Completion

3	0	0	6	2	0	2	0
d	d	m	m	y	y	y	y

Part A: Project Summary Report

1. Project Description

i.	Project Reference No.						
ii.	Type of Project	Small Grant		Medium Grant		Large Grant	
iii.	Project Title	Technology Development, Management and Long-Term Monitoring of Shifting Cultivation and Coal Mining In North-Eastern India					
iv.	State under which Project is Sanctioned	<p>Component I: Shifting cultivation: Mapping of shifting cultivation areas and temporal dynamics for all the seven states; Model development in five states of North-Eastern India</p> <p>Component II: Coal mining: Mapping and dynamics: Entire north-east and AMD treatment model development in two states viz., Meghalaya and Assam (for coal mining area restoration).</p>					
v.	Project Sites (IHR States covered) (Maps to be attached)	7 states of North East India such as Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura (map attached)					
vi.	Scale of Project Operation	Local		Regional	Y	Pan-Himalayan	
vii.	Total Budget/ Outlay of the Project	2,85,65,600 (in Cr)					
viii.	Lead Agency	CSIR-NBRI, Lucknow					
	Principal Investigator (PI)	Prof. S.K. Barik Prof. S.R. Joshi Dr. M.D. Behera Dr. Kiranmay Sarma Dr. Neizo Puro Dr. Tawnenga					
	Co-Principal Investigator (Co-PI)						

ix.	Project Implementing Partners	<p>CSIR-NBRI, Lucknow NEHU, Shillong IIT Kharagpur GGs IP University, Delhi Nagaland University, Nagaland Pachaunga University College, Aizawl</p>
	Key Persons / Point of Contacts with Contact Details, Ph. No, E-mail	<p>Prof. S.K. Barik, Director, CSIR-Lucknow, Email: sarojkbarik@gmail.com, Ph No. - 9436100688</p> <p>Dr. MD Behara, CORAL, IIT Kharagpur, W.B.- 721302, E-mail: mdbehera@coral.iitkgp.ac.in, Ph No. - 03222-281802</p> <p>Prof. S.R. Joshi, Dept of Biotechnology & Bioinformatics, NEHU, Shillong. Email: srjoshi2006@gmail.com; Ph No. - 9436102171</p> <p>Dr. Kiranmay Sarma, University School of Environment Management, GGS Indraprastha University, New Delhi 110078; Email: kiranmayipu@gmail.com; Ph No. - 9891481545</p> <p>Dr. Neizo Puro, Central University of Nagaland, Nagaland Email : neizopuro@gmail.com; Ph No. – 8837490882 Dr. Tawnenga Pachau, Pachaunga College, Mizoram University, Aizawl E-mail: tawnenga8351@gmail.com Phone No. 9436154811, 8413828656</p>

2. Project Outcomes

2.1. **Abstract** (not more than 500 words) [it should include background of the study, aim, objectives, methodology, approach, results, conclusion and recommendations).

Background: Identification and assessing the spatial and temporal dynamics of shifting cultivation is important for effective land use planning. In comparison to the exhaustive and laborious field sampling, land surface attributes captured by remote sensing sensors are being used to monitor shifting cultivation dynamics. Long term ecological monitoring of the shifting cultivation sites laterally with the implementation of the developed Technology should help in the restoration of the degraded *Jhum* sites. Mapping and identification of the coal-affected areas in northeast India is a significant way to identify the risk reduction from environmental disasters. Technology was to be developed for the treatment of acid mine drainage (AMD) and rehabilitation of the affected areas.

Objectives/ Aim:

- Long-term ecological monitoring of shifting cultivation areas using imageries and GIS along a temporal and spatial scale; and to depict the changes in cropping pattern in shifting cultivation.
- Technology development for restoration of shifting cultivation areas in five states of northeastern India.
- Environmental monitoring and technology development for treatment of acid mine drainage (AMD) and restoration of coal mine affected areas in two states viz., Meghalaya and Assam of northeastern India.

Methodology: The deforested burned areas were identified and mapped by applying the suitable threshold values of Normalized Difference Vegetation Index (NDVI) and Normalized Burnt Ratio (NBR). Further the methodology was modified and a simple decision tree based multistep threshold method was applied to automatically identify the shifting cultivation areas, wherein the relative difference of NDVI and NBR was employed. Long-term ecological monitoring of shifting cultivation and coal mining areas were done using satellite imageries. Technologies such as site-specific four-tier models (viz. top-storey, middle-storey, under-storey and belowground layer) and biofertilizers with emphasis on rhizobia and phosphorous solubilizing bacteria were developed at the shifting cultivation sites in each state. The crops from traditional shifting cultivation, N-fixing crops, and climate/drought resilient varieties were introduced in the models in consultation with the villagers. The cultivators were organized into self-help groups (SHGs) and provided with alternate livelihood trainings (e.g. mushroom cultivation) under non-land based activities. Monitoring of ecosystem services (i.e., pollinators, nutrient conservation, and provisioning services) as indicators of ecosystems recovery were done following standard methods of ecological survey and analysis. Technology development of acid mine drainage sites in Meghalaya was done using potential bioremediating bacterial isolates and their applications in prototype and field models developed as treatment tanks.

Approach: Threshold approach was followed to categories different levels of burn severity and accordingly automatic classification of shifting cultivation areas was done, and thereby suitable cropping pattern could be prescribed. Satellite imageries were used to monitor the selected shifting cultivation and coal mining sites in the northeastern states. The 4-tier models in selected shifting cultivation sites in 5 states were developed with active participation of the farmers through selection of appropriate tree-shrub-herb-underground tuber crop combinations in order to retain soil nutrients in the agricultural fields. The SHGs were constituted and non-land-based livelihood trainings were provided to them according to the need and interest of the villagers to further develop their capacities. Seed money were provided to carry out various non-land based activity by the SHGs to reduce pressure on the land. Monitoring ecosystem services as an indicator of recovery of ecosystems i.e., pollinators, nutrient conservation, and provisioning services were done following standard methods. Locally available resources and microbial consortia from the acid mine drainage sites in Meghalaya and Assam were used for developing AMD treatment technology. Treatment tanks using hybrid approach through active (bacterial consortia) as well as passive (limestone bed) methods were constructed. Technology for rehabilitation of mine-affected areas was standardized in situ using temporary structures for experimental treatments.

Results: In general, a decrease in shifting cultivation fallow land was observed from 1975 to 2018. Manipur state accommodates highest percentage of shifting cultivation fallow area, whereas Tripura accommodates the least. 4-tier cultivation system was introduced using climate resistant and N-fixing crops. Biofertilizers using local strains of PSB were developed and field trials revealed an increase in crop yield by 50%. Ecosystem recovery as assessed through flow of ecosystem services indicated a positive trend till the second year of cropping under the model.

Conclusion: The change dynamics pattern of shifting cultivation fallow areas and coal mine affected areas were clearly classified and mapped using satellite data that has potential for future comparison. Technological interventions such as shifting cultivation improvement models and AMD treatment models are cost effective, environment friendly and are simple to be constructed and set up. Use of these technologies will improve ecosystem health and services; enhance the benefit of agricultural activities, thereby promoting the sustainable utilization of bio resources and overall socio-economic improvement.

Recommendations: Satellite based shifting cultivation fallow dynamics should be used to enhance the land resource management. These technologies namely four tier model and integrated AMD treatment plants should be up scaled by the local farmers and miners respectively to reduce the pressure on forest, land, water and overall environment.

2.2. Objective-wise Major Achievements

S. No.	Objectives	Major achievements (in bullets points)
1	Long term ecological monitoring of shifting cultivation areas using imageries and GIS along a temporal and spatial scale	Four time periods (1975-76, 2000-01, 2014-15, 2017-18) mapping of shifting cultivation fallow areas were done
2	To depict the changes in cropping pattern in shifting cultivation	Site suitability for different cropping pattern were prescribed based on different scientific criteria
3	Development of site specific land use models through application of appropriate technologies with active participations of the farmers as an alternative shifting cultivation.	<ul style="list-style-type: none"> Trends in shifting cultivation area and practice have been determined. Climate resistant crop and vegetable varieties has been screened and introduced. Development of biofertilizers using local strains of Rhizobium and PSB. Tribe-specific sustainable land use models have been developed.
4	Monitoring ecosystem services as an indicator of recovery of ecosystem	<ul style="list-style-type: none"> Data on pollinator diversity (i.e., butterflies), soil nutrient (NPK), soil organic carbon, and provisioning services comprising of the diversity of useful plants were collected before model development and through subsequent phases of the model development to assess ecosystem recovery. Shifting cultivation model plots did show the recovery of selected ecosystem services.
5	Long term—environmental monitoring of coal mining areas in north—east using imageries and GIS along temporal scale	<ul style="list-style-type: none"> The objectives of the study were fulfilled following latest methods. For identification and mapping of coalmines of northeast India, IRS P6 LISS IV data was extensively used.
6	Development of integrated technology involving locally available resources and microbial consortium for treatment of AMD in Assam and Meghalaya	<ul style="list-style-type: none"> An integrated technology involving both active and passive approaches, viz., limestone, and aerobic and anaerobic bacterial consortia has been developed for AMD treatment.
7	Development of technologies for rehabilitation of mine effective areas	<ul style="list-style-type: none"> Two Acid Mine Drainage sites were selected for treatment using integrated technology in the two states namely, Assam and Meghalaya. These treatment plants harbour the growth of potent microbial consortium and have the phytoremediation abilities that reduce release of trace elements into the environment.
8	Monitoring ecosystem services as an indicator of recovery of ecosystem	<ul style="list-style-type: none"> The treated water can be fit for use in the domestic purposes of washing and cleaning, and solve the problem of water shortage to some extent.

2.3. Outputs in terms of Quantifiable Deliverables*

S. No.	Quantifiable Deliverables*	Monitoring Indicators*	Quantified Output/ Outcome achieved	Deviations made, if any, & Reason thereof:
1.	Five model plots of shifting cultivation for sustainable land use	<p>Economic yield does not decrease year after year</p> <p>Soil health does not deteriorate even after continuous cropping</p> <p>Flow of ecosystem services recovers</p>	<p>About 40% increase over traditional shifting cultivation in a jhum cycle</p> <p>NPK maintains constancy year after year</p> <p>Improved in comparison to fallow lands.</p>	<p>Studies need to continue beyond project period for assessing long-term impact including the trends in flow of ecosystem services.</p> <p>No deviation.</p>

2	Two models of IMD treatment	pH of AMD Heavy metal content	Improved from 3 to 5.9 (only bacterial consortia) and 6.4 (with limestone treatment + consortia) Reduced significantly	No deviation.
3.	Map depicting shifting cultivation dynamics in north-east India	Spatial and temporal trends in shifting cultivation area	Shifting cultivation areas showed a decreasing trend during three years period of assessment i.e., 2014-15 to 2017-18,	No deviation.
4.	Map depicting dynamics of coal mine affected areas in north-east India	Spatial and temporal trends in coal mining area	New areas have been mined and the net area has increased over a period of 10 years i.e., 2007 to 2017.	No deviation.

(*) As stated in the Sanction Letter issued by the NMHS-PMU.

2.4. Strategic Steps with respect to Outcomes (in bullets)

S. No.	Particulars	Number/ Brief Details	Remarks/ Attachment
1.	New Methodology developed	Mapping of shifting cultivation dynamics	Maps attached
2.	New Models/ Process/ Strategy developed	Index based Decision Tree classification algorithm. Five shifting cultivation models developed. Two AMD treatment models developed.	
3.	New Species identified	-NA-	
4.	New Database established	Baseline and temporal dynamics data on shifting cultivation and coal mining in northeast India generated.	
5.	New Patent, if any		
	I. Filed (Indian/ International)	Nil	
	II. Granted (Indian/ International)	Nil	
	III. Technology Transfer (if any)	Not yet	
6.	Others (if any)		

3. Technological Intervention

S. No.	Type of Intervention	Brief Narration on the interventions	Unit Details (No. of villagers benefited / Area Developed)
1.	Development and deployment of indigenous technology	Index based Decision Tree classification algorithm. Five shifting cultivation models developed. Two AMD treatment models developed.	Five/2.5 ha. Two villages
2.	Diffusion of High-end Technology in the region	Nil	
3.	Induction of New Technology in the region	Index based Decision Tree classification algorithm. Five shifting cultivation models developed. Two AMD treatment models developed.	
4.	Publication of Technological / Process Manuals	Prepared. Not published.	
	Others (if any)	Research paper on shifting cultivation fallow assessment has been published (in <i>Tropical Ecology</i> , Springer journal)	

4. New Data Generated over the Baseline Data

S. No.	New Data Details	Status of Existing Baseline	Additionality and Utilisation New data
1	Shifting cultivation fallow area maps of four time periods (1975-76, 2000-01, 2014-15, 2017-18)	Various agencies e.g. North east Council, FAO, FSI, ICFRE, NRSC-ISRO have done shifting area cultivation mapping and provided varied statistics	Automatic mapping of shifting cultivation fallow areas using satellite remote sensing and GIS and decision tree classification algorithm
2	Site suitability for different cropping pattern	Improved using the developed technology. Sustainable nutrient management would ensure settled cultivation.	Prescribed based on different scientific criteria, useful in appropriate land resources management

5. Demonstrative Skill Development and Capacity Building/ Manpower Trained

S. No.	Type of Activities	Details with number	Activity Intended for	Participants/Trained			
				SC	ST	Woman	Total
1.	Workshops	4	Planning and implementation among the PIs and resource persons		48		60
2.	On Field Trainings	26	Development of models		397		397
3.	Skill Development	2	Mushroom cultivation		45		45
4.	Academic Supports	1 JPF(IITK), 1 JPF(NEHU), 2RA(NEHU) 2RA(NBRI), 11 other support staff	Research & PhD			1 2 3	 11
	Others (if any)						

6. Linkages with Regional & National Priorities (SDGs, INDC, etc)/ Collaborations

S. No.	Linkages /collaborations	Details	No. of Publications/ Events Held	Beneficiaries
1.	Sustainable Development Goal (SDG)	SDG 1: No poverty SDG 2: Zero hunger SDG 5: Gender equality SDG 13: Climate action SDG 15: Life on land	1	95
2.	Climate Change/INDC targets	The United Nations Framework Convention on Climate Change (UNFCCC, 2010) has encouraged the developing countries to detect explicit drivers of deforestation and forest degradation and to assess their potential impacts towards mitigation of climate change	One published (Tropical Ecology-Springer-Jr.), One under preparation for submission to (Land Degradation and Development - Wiley Journal)	Benefit to Land Resources Managers
3.	International Commitments	CBD, CCC		
4.	Bilateral engagements			
5.	National Policies	Environment Protection		
6.	Others collaborations			

7. Project Stakeholders/ Beneficiaries and Impacts

S. No.	Stakeholders	Support Activities	Impacts
1.	Gram Panchayats	Involved in planning and implementation	Upscaling of models possible through their participation
2.	Govt Departments (Agriculture/ Forest)		
3.	Villagers	Active participation in planning and implementation	Quick upscaling of the models possible
4.	SC Community		
5.	ST Community	100% participating villagers	Inclusive development
6.	Women Group	50% project beneficiaries	Gender balance
	Others (if any)		

8. Financial Summary (Cumulative)

S. No.	Financial Position/Budget Head	Funds Received	Expenditure/ Utilized	% of Total cost
I.	Salaries/Manpower cost	1330000	1063866	41.2
II.	Travel	30000	394358	15.3
III.	Expendables & Consumables	300000	328209	12.7
IV.	Contingencies	0	0	0
V.	Activities & Other Project cost	300000	443573	17.2
VI.	Institutional Charges	150000	150000	5.8
VII.	Equipments	200000	199994	7.8
	Total	2580000	2580000	100.0
	Interest earned	16693		
	Grand Total	2596693		

* Please attach the consolidated and audited Utilization Certificate (UC) and Year wise Statement of Expenditure (SE) separately, *ref. Annexure I.*

9. Major Equipment/ Peripherals Procured under the Project** (if any)

S. No.	Name of Equipments	Cost (INR)	Utilisation of the Equipment after project
1.	Workstation(IITK) Workstation(NEHU)	199994 100000	Shifting cultivation dynamics analysis by the JPF for PhD degree (for Research)
2.			
3.			
4.			
5.			

**Details should be provided in details (*ref Annexure III & IV.*)

10. Quantification of Overall Project Progress

S. No.	Parameters	Total (Numeric)	Remarks/ Attachments/ Soft copies of documents
1.	IHR States Covered	5 shifting cultivation + 2 coal mining Mapping in all 7 northeastern states both for shifting cultivation and coal mining.	
2.	Project Site/ Field Stations Developed	5 shifting cultivation + 2 coal mining	
3.	New Methods/ Modeling Developed	Automatic mapping of shifting cultivation fallow areas using satellite remote sensing and GIS and Decision Tree classification algorithm. Five shifting cultivation models developed. Two AMD treatment models developed.	
4.	No. of Trainings arranged	28	
5.	No of beneficiaries attended trainings	502	
6.	Scientific Manpower Developed (Phd/M.Sc./JRF/SRF/ RA):	1 JPF	PhD research (continuing)
7.	SC stakeholders benefited		
8.	ST stakeholders benefited	490	
9.	Women Empowered	247	
10.	No of Workshops Arranged along with level of participation	4 (PIs, Co-PIs and resources persons from national institutions)	
11.	On field Demonstration Models initiated (attach maps about location & photos)	Attached Fig. 1.
12.	Livelihood Options promoted	3	
13.	Technical/ Training Manuals prepared	1	
14.	Processing Units established	0	Attached Fig. 2-4
15.	No of Species Collected	87	
16.	New Species identified	-NIL-	

17.	New Database generated (Types):		
	Others (if any)		

11. Knowledge Products and Publications:

S. No.	Publication/ Knowledge Products	Number		Total Impact Factor	Remarks/ Enclosures
		National	International		
1.	Journal Research Articles/ Special Issue:		Published (Tropical Ecology-Springer-Jr.), Under Submission - (Land Degradation and Development - Wiley Jr.)	(0.95 + 3.86) 4.81	One published paper attached
2.	Book Chapter(s)/ Books:				
3.	Technical Reports				
4.	Training Manual (Skill Development/ Capacity Building)				
5.	Papers presented in Conferences/Seminars	Indian Science Congress, 2018			
6.	Policy Drafts/Papers				
7.	Others:				

* Please append the list of KPs/ publications (with impact factor and further details) with due Acknowledgement to NMHS.

12. Recommendation on Utility of Project Findings, Replicability and Exit Strategy

Particulars	Recommendations
Utility of the Project Findings	<p>Forest Survey of India (FSI, MOEFCC) is involved in biannual mapping of India's forest cover including forest cover loss due to shifting cultivation. FSI may find this automated Decision Tree based algorithm useful for rapid and automatic mapping of shifting cultivation fallow areas in India.</p> <p>The models developed for treatment of AMD and sustainable shifting cultivation models can be easily replicable in the entire northeast.</p>

Replicability of Project	<p>Using the approach used in the project, shifting cultivation fallow area and coal mining affected area mapping can be done at required temporal scale for better land resources management.</p> <p>The models developed for treatment of AMD and sustainable shifting cultivation models can be easily replicable in the entire northeast.</p>
Exit Strategy	<ul style="list-style-type: none"> ● Agreements have been made with the farmers/coal mine owners to continue the management of the models developed under the project beyond the project period at least for three more years. Since the management cost is extremely low, it is expected that shifting cultivation plots will be converted into settled sustainable cultivation plots. Similarly, the coal mine AMD treatment models will be maintained by the mine owners to protect their surrounding environment with a minimum cost for their own health and environmental benefits. ● With efficient performance as validated through scientific data collected over the project period, both the shifting cultivation and coal mine models will be presented to the respective state governments for their adoption. ● The maps prepared for the spatial and temporal dynamics of shifting cultivation and coal mining affected areas should be extremely helpful to the policy planners.

(PROJECT PROPONENT/ COORDINATOR)

(Signed and Stamped)

(HEAD OF THE INSTITUTION)

(Signed and Stamped)

Place:

Date:/...../.....

Annexure-I

Consolidated and Audited Utilization Certificate (UC) and Statement of Expenditure (SE)

For the Period:

1.	Title of the project/Scheme/Programme:	
2.	Name of the Principle Investigator & Organization:	
3.	NMHS-PMU, G.B. Pant National Institute of Himalayan Environment, Kosi-Katarmal, Almora, Uttarakhand Letter No. and Sanction Date of the Project:	
4.	Amount received from NMHS-PMU, G.B. Pant National Institute of Himalayan Environment, Kosi-Katarmal, Almora, Uttarakhand during the project period (Please give number and dates of Sanction Letter showing the amount paid):	
5.	Total amount that was available for expenditure (Including commitments) incurred during the project period:	
6.	Actual expenditure (excluding commitments) incurred during the project period:	
7.	Unspent Balance amount refunded, if any (Please give details of Cheque no. etc.):	
8.	Balance amount available at the end of the project:	
9.	Balance Amount:	
10.	Accrued bank Interest:	

Certified that the expenditure of **Rs.**_____ (**Rupees** _____) mentioned against Sr. No. 6 was actually incurred on the project/scheme for the purpose it was sanctioned.

Date:

(Signature of
Principal Investigator)

(Signature of Registrar/
Finance Officer)

(Signature of Head
of the Institution)

OUR REF. No.

ACCEPTED AND COUNTERSIGNED

Date:

COMPETENT AUTHORITY
NATIONAL MISSION ON HIMALAYAN STUDIES (GBP NIHE)

Statement of Consolidated Expenditure

[Institution Name here]

Statement showing the expenditure of the period from
Sanction No. and Date :

1. Total outlay of the project :

2. Date of Start of the Project :

3. Duration :

4. Date of Completion :

a) Amount received during the project period :

b) Total amount available for Expenditure :

S. No.	Budget head	Amount received	Expenditure	Amount Balance/ excess expenditure
1	Salaries			
2	Permanent Equipment Purchased (Item-wise)			
3				
4				
5				
6				
7				
8				
9				
10	Institutional charges			
11	Accrued bank Interest			
12	Total			

Certified that the expenditure of **Rs.**_____ (**Rupees:**_____)
mentioned against Sr. No.12 was actually incurred on the project/ scheme for the purpose it was sanctioned.

Date:

(Signature of
Principal Investigator)

(Signature of Registrar/
Finance Officer)

(Signature of Head
of the Institution)

OUR REF. No.

ACCEPTED AND COUNTERSIGNED

Date:

COMPETENT AUTHORITY
NATIONAL MISSION ON HIMALYAN STUDIES (GBP NIHE)

Consolidated Interest Earned Certificate

Please provide the detailed interest earned certificate on the letterhead of the grantee/ Institution and duly signed.

Consolidated Assets Certificate

Assets Acquired Wholly/ Substantially out of Government Grants

(Register to be maintained by Grantee Institution)

Name of the Sanctioning Authority: _____

1. Sl. No. _____
2. Name of Grantee Institution: _____
3. No. & Date of sanction order: _____
4. Amount of the Sanctioned Grant: _____
5. Brief Purpose of the Grant: _____
6. Whether any condition regarding the right of ownership of Govt. in the property or other assets acquired out of the grant was incorporated in the grant-in-aid Sanction Order: _____
7. Particulars of assets actually credited _____ or acquired _____
8. Value of the assets as on _____
9. Purpose for which utilised at present _____
10. Encumbered or not _____
11. Reasons, if encumbered _____
12. Disposed of or not _____
13. Reasons and authority, if any, for disposal _____
14. Amount realised on disposal _____

Any Other Remarks: _____

(PROJECT INVESTIGATOR)

(Signed and Stamped)

(FINANCE OFFICER)

(Signed and Stamped)

(HEAD OF THE INSTITUTION)

(Signed and Stamped)

List or Inventory of Assets/ Equipment/ Peripherals

S. No.	Name of Equipment	Quantity	Sanctioned Cost	Actual Purchased Cost	Purchase Details

(PROJECT INVESTIGATOR)

(Signed and Stamped)

(FINANCE OFFICER)

(Signed and Stamped)

(HEAD OF THE INSTITUTION)

(Signed and Stamped)

Letter of Head of Institution/Department confirming Transfer of Equipment Purchased under the Project to the Institution/Department

To,

The Convener, Mountain Division
Ministry of Environment, Forest & Climate Change (MoEF&CC)
Indira Paryavaran Bhawan
Jor Bagh, New Delhi-110003

Sub.: Transfer of Permanent Equipment purchased under Research Project titled “...” funded under the NMHS Scheme of MoEF&CC – reg.

Sir/ Madam,

This is hereby certified that the following permanent equipment purchased under the aforesaid project have been transferred to the Implementing Organization/ Nodal Institute after completion of the project:

1.
2.
3.
4.
5.
6.
7.

Head of Implementing Organization:
Name of the Implementing Organization:
Stamp/ Seal:
Date:

Copy to:

1. The Nodal Officer, NMHS-PMU, National Mission on Himalayan Studies (NMHS), G.B. Pant National Institute of Himalayan Environment (NIHE), Kosi-Katarmal, Almora, Uttarakhand-263643

National Mission on Himalayan Studies (NMHS)

DIRECT BENEFIT TRANSFER (DBT) DETAILS

Scheme Name:	National Mission on Himalayan Studies (NMHS)
Scheme Type:	Central Sector (CS) Grant-in-Aid Scheme
Scheme Code:	NMHS
Category:	Fellowship under Project Grant
Month-Year:	

PRO FORMA FOR DBT DETAILS

University/Institution Name:

S#	Position (H-RA, H-JRF/ H-JPF)	Name	DoB*	DoI*	PI	Research title	Objectives	Study Area, IHR State	Contact details (Complete corresponding address), Mobile No., E-mail ID	Bank details (Account number, IFSC Code)	Emolumen ts /Fellowshi p	Aadha ar No.
1.												

Note: For each month, the DBT Details Pro forma dully filled and signed for each Himalayan Fellowship Grant under NMHS must be submitted at finance.nmhspmu2017@gmail.com; nmhspmu2016@gmail.com. *DoB (Date of Birth); DoJ (Date of Joining).

(Authorized Signatory)

Month 2019 – Latest Updated List of Himalayan Researchers or Fellows (working in the current time)

S#	Name	Fellowship (RA/JRF/JPF)
1.		
2.		

Details, Declaration and Refund of Any Unspent Balance

Please provide the details of refund of any unspent balance and transfer the balance amount through RTGS (Real-Time Gross System) in favor of **NMHS GIA General** and declaration on the official letterhead duly signed by the Head of the Institution.

Kindly note the further Bank A/c Details as follows:

Name of NMHS A/c: NMHS GIA General
Bank Name & Branch: Central Bank of India (CBI), Kosi Bazar, Almora, Uttarakhand 263643
IFSC Code: CBIN0281528
Account No.: 3530505520 (Saving A/c)

In case of any queries/ clarifications, please contact the NMHS-PMU at e-mail: nmhspmu2016@gmail.com