

11/7  
Sikkim  
Project

To,  
The Director

Annexure 4e

## MEMORANDUM OF UNDERSTANDING

An agreement made on first day of December two thousand and eleven (2011) among National Bureau of Soil Survey and Land Use Planning, hereinafter referred to as the NBSS&LUP (ICAR), Amrabati Road, Nagpur, 440033 and having its Regional Centre at Jorhat and Kolkata which expression shall include its successors and assigns of the one part and Govt. of Sikkim represented by the Director, Department of Agriculture, FS&AD Department, Govt. of Sikkim which expression shall include its successors and assigns of the other part.

Whereas the Department of Agriculture, FS&AD Department, Government of Sikkim is actively involved in the agricultural development of the state and it is recognized that NBSS&LUP (ICAR) have common interest in National Resource Management with special reference to status of important soil parameters and macro and micro nutrients in the State of Sikkim. To this end, it has been agreed upon by both the parties that NBSS&LUP (ICAR) shall undertake mapping of nutrients status in soils of 4 districts of Sikkim and the Department of Agriculture, FS&AD Department, Government of Sikkim shall make payment for the same as per terms and conditions of the proposal mutually agreed upon under this Agreement.

Now it is hereby mutually agreed and declared by and between parties here to as follows:

NBSS&LUP (ICAR) shall undertake the work as per the terms and conditions of the project proposal enclosed at Annexure I & II of this Agreement.

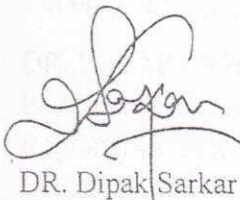
Department of Agriculture, FS&AD Department, Govt. of Sikkim shall not entertain any excess expenditure from the provision made in the agreement unless prior approval is taken from Department of Agriculture, FS&AD Department, Govt. of Sikkim for any enhancement due to unavoidable reasons.

The research programme shall be reviewed quarterly by Department of Agriculture, FS&AD Department, Govt. of Sikkim and NBSS&LUP and a progress report shall be submitted by Research Scientists of NBSS&LUP (ICAR) of respective discipline to the Govt of Sikkim.

Both the parties shall abide by this Agreement and in case of any dispute both shall resolve the matter by mutual Agreement.

Department of Agriculture, FS&AD Department, Govt. of Sikkim shall be at liberty to revoke and/or cancel the agreement contemplated here at any point by giving one month notice or its intention to do so, to the NBSS&LUP (ICAR). It shall not be necessary for Department of Agriculture, FS&AD Department, Govt. of Sikkim to assign any reason to NBSS&LUP (I CAR) for its actions contemplated in this para.

In witness thereof the parties hereto have set their hand and seal in this deed on this first day /December of two thousand eleven (01-12-2011) in presence of the witnesses.



DR. Dipak Sarkar

Director


NBSS & LUP (ICAR),

Nagpur

DR. DIPAK SARKAR

DIRECTOR

NBSS&LUP (ICAR), DARE, GOI  
Amravati Road, Nagpur-440 010



Shri Khorlo Bhutia

Director, Agriculture

FS&AD Department

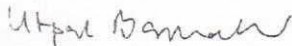
Govt. of Sikkim

Director

F. S. & A. D. Deptt.

Govt. of Sikkim

Witness



1.12.11.

DR. U. BARUAH

Principal Scientist & Head

Regional Centre,

NBSS & LUP (ICAR),

Jorhat



Dr. S.K. Singh

Principal Scientist & Head

Regional Centre,

NBSS & LUP (ICAR),

Kolkata



Dr. Yashoda Pradhan

Asst. Director

Plant Census & Soil Management

FS&AD Department

Addl. Director, Agriculture

Govt. of Sikkim

FS&AD Department

Govt of Sikkim



Dr. T.H. DAS

Principal Scientist

NBSS&LUP(ICAR),

Kolkata

## ANNEXURE - I

## Project Proposal

1. Project title : Assessment and mapping of some important soil parameters including macro and micro nutrients for the state of Sikkim towards optimum utilization of land resources for integrated and sustainable development
2. Objectives : To assess and map important soil parameters including macro and micro nutrients for four districts of Sikkim for agricultural planning and development.
3. Scope : The soil nutrient data in respect of soil pH, organic carbon as well as soil available nutrients (N,P,K) and micronutrients (Fe, Mn, Zn Cu), some important microbiological properties, soil texture (by feel method) from each grid points of the state will help the planners to develop land use plan.
4. Duration : 1 year six months for four districts of Sikkim from the date of start.
5. Works envisaged under the project :
  - Preparation of base map of the state by using satellite imagery with demarcation of district/block, Gram Panchayat boundary and grid points at 500 m interval.
  - Collection of gridwise surface soil samples (0 to 25 cm), totaling approximately 7,000 samples.
  - Analysis of important parameters including soil pH, organic carbon, available N,P,K micronutrients (Cu, Zn, Fe and Mn), some important microbiological properties and soil texture (by feel method).
  - Compilation of data and preparation of soil nutrient map district wise using computer aided GIS technology.
  - Preparation of reports with maps and other documents with interpretation.



6. **Activity of works** : 1. Collection of base maps viz. Survey of India  
**Activities\*** toposheets and IRS Satellite Data from NRSC  
 2. Digitization of maps showing block boundary, road, rivers etc.  
 3. Marking of grid points at 500 m interval.  
 4. Collection of soil samples at 500 m interval up to a depth of 0-25 cm.  
 5. Processing and analyzing of soil samples for N,P,K, pH, O.C. and available micronutrients (Cu, Zn, Mn, Fe).  
 6. Preparation in GIS platform/Soil nutrient maps.
7. **Report writing and printing of maps**  
 \*Activity No.1,2,3 and 4 will be carried out simultaneously. Sl.No.6 for processing and analyzing of soil samples will be made whenever Sl.No.5 for one district completes. Similarly whenever the activities from 1 to 6 are completed for one district, activity No.7 and 8 will be started for that district.
7. **Benefit to client on :** • Information on soil nutrient status (N,P,K) including micronutrients as well as pH and organic carbon of the state and subsequent management practices towards alternate land use.  
 utilization of the project • The map will provide information regarding available N,P,K and micronutrients for each district of the state which will be very useful for agricultural planning and development of the state.  
 • Identification of the site specific problems regarding soil fertility/acidity status and their management practices, alternate land use.
8. **Implementing organization** : National Bureau of Soil Survey and Land Use Planning (ICAR), Regional Centre, Jorhat, Kolkata and Headquarters, Nagpur.
9. **Necessary instructions** Necessary instructions from the office of the Director of Agriculture, Govt. of Sikkim will be issued to the Agricultural Officers of the state during collection of gridwise soil samples as well as logistic support.

## 10. Project Team

Name	Status
Dr. T.H. Das Principal Scientist Regional Centre, Kolkata	Project Investigator (PI)
Dr. D.C. Nayak Principal Scientist Regional Centre, Kolkata	Project Associate
Dr. A.K. Sahoo Principal Scientist Regional Centre, Kolkata	Project Associate
Sh. S. Mukhopadhyay, Senior Scientist Regional Centre, Kolkata	Project Associate
Dr. S.K. Reza Scientist Regional Centre, Jorhat	Project Associate
Dr. S. Bandopadhyay Scientist Regional Centre, Jorhat	Project Associate
Dr. (Smt.) Yashoda Pradhan, Addl. Director FS&AD Department Govt. of Sikkim Gangtok	Project Coordinator
Dr. U. Baruah Head Regional Centre Jorhat	Regional Co-ordinator
Dr. S.K. Singh Head Regional Centre Kolkata	Regional Co-ordinator
Dr. Dipak Sarkar Director NBSS & LUP (ICAR), Nagpur	Chief Co-ordinator

## 11. Budget/Consultancy fee to be offered by the Govt. of Sikkim

: Total Rs.28,18,000/- (Rupees Twenty eight lakhs eighteen thousand only) for four districts of the State.



## ENCLOSURE - I

Project "Assessment and mapping of some important parameters including macro and micronutrients for the state of Sikkim towards optimum utilization of land resources for integrated and sustainable development"

## ANNEXURE-II

## Budget Estimate

Sl.No.	Items	Amount
<b>A. Expenses</b>		
1.	Cost of man days of staff deployed	Rs. 3,00,000.00
2.	Contingency for collection of soil samples from approximately 7000 Grid Points at the interval of 500 m in the area under agriculture. (Contingency for soil survey articles and POL, hiring of vehicle need based, local transport, labour charges, TA & DA, etc. of field staff and other associates of the project)	Rs. 3,50,000.00
3.	Cost of soil analysis including chemicals, glasswares, AAS spares and gas etc. and outsourcing of part of soil microbiological property analysis and micronutrient analysis etc.	Rs. 5,00,000.00
4.	Cost of physical inputs (Lab. Equipments, GIS Packages, Notebook Computer, GPS etc.). Details of equipments : pH meter, UV Spectro Photometer, Distillation set, Rotary shaker, Flame Photometer etc.	Rs. 3,00,000.00
5.	Contractual man power for collection of soil samples, soil grinding, soil analysis and data entry in computer package.	
	a) Manpower for field work (2 skilled)	Rs. 1,00,000.00
	b) Manpower for soil grinding (2 unskilled)	Rs. 80,000.00
	c) Manpower for soil analysis and data entry (skilled)	Rs. 2,00,000.00
6.	Salary of SRF (one) as per ICAR norms for 1 and a half year	Rs. 3,00,000.00
7.	Cost of Training for Field Workers and expenditure on Review Meeting including refreshment, display materials, stationery, photographs etc.	Rs. 1,00,000.00
8.	Data processing, report finalization and printing of reports etc.	Rs. 1,50,000.00
	<b>Total (1 to 8)</b>	<b>Rs.23,80,000.00</b>
9.	Overhead cost (10% of the total cost)	Rs. 2,38,000.00
<b>B. Intellectual Fee</b>		
	<b>Total cost of the project (A + B)</b>	<b>Rs.28,18,000.00</b>

Total expenditure = Rs.28,18,000.00 (Rupees Twenty eight lakhs and eighteen thousand only)

## Break up intellectual fee

Item	Amount in Rs.
Honorarium/Consultants (60%)	Rs. 1,20,000.00
Institutional fund (35%)	Rs. 70,000.00
Staff Welfare Fund (5% = 3.5% + 1.5%)	
Institute 3.5%	Rs. 7,000.00
ICAR Headquarters 1.5%	Rs. 3,000.00
<b>Total</b>	<b>Rs. 2,00,000.00</b>