

**ICAR-National Bureau of Soil Survey and Land
Use Planning, Amravati Road, Nagpur - 440 033,
India**



Training Report

Title: Soil Survey and Mapping using Remote Sensing & GIS

Duration: 29-11-2023 to 19-12-2023 (21 days)



Venue: ICAR-NBSS&LUP, Regional Centre, Bangalore - 560024,
Karnataka

OVERVIEW OF TRAINING PROGRAMME

The program on Soil survey and Mapping using Remote sensing & GIS focuses on understanding of remotes sensing and used for base map preparation and characterizing of soils and mapping and preparation of different thematic maps and crop suitability evaluation. The 3 weeks training program, first week focused on base map preparation using recent remote sensing dataset, second week is completely field training on soil profiles study and mapping in practical mode and last week was training is soil map preparation, DSM, thematic map preparation and crop suitability evaluation. It pays particular attention on soil survey and mapping related to soil morphology and the geographic distributions of soils, and the placement of soil bodies into larger temporal and spatial dimensions and develops systems of soil classification, soil maps, and theories and practical for characterizing temporal and spatial interrelations among soils. Systematic soil survey has been carried out for over one hundred years. Soil surveys are an important basic component for effective technology transfer. They are needed for transferring the knowledge from agricultural research labs into agricultural fields. Soil surveys allow us to identify and delineate areas that have similar soils which respond uniformly to given set of technologies. Soil surveys also identify the important soil characteristics, major limitations and qualities of the soil for the effective transfer of technologies. With the availability of farm scale information and grid-based soil nutrients recommendations integrated with geospatial and computing technologies, enable us to adopt precision farming.

Capacity building of human resources at different levels, from decision makers to working professionals, academia and the people at grass root level, is recognized as a critical element for effective use of the wealth of information generated by the soil survey organizations. Keeping this requirement in view, ICAR- NBSS&LUP supports capacity building activities in the country so that the benefits of the soil mapping reach the society at large.

OBJECTIVES

Creating awareness and understanding about

- Pedology, Soil Survey, Remote Sensing, GIS, Soil Mapping, Land Evaluation and Crop Suitability Assessment.

Participant list from different parts of India

Sl. No	Name	University and Address	Mail Id
1.	Dr. B. Asha Jyothi	Principal Scientist, Dept. of Soil Science, Geospatial Technology Centre (GTC), RARS, Lam, Guntur. ANGRAU, Andhra Pradesh	b.ashajyothi@angrau.ac.in
2.	Ms. D. Saya	Dept. of Soil Science, School of Agriculture Sciences, Nagaland University, Medziphema, Nagaland	sayazinamai02@gmail.com
3.	Dr. Shabir Ahmed Bangroo	Assistant Professor, Division of Soil Science, SKUAST-Kashmir, Shalimar	shalzsab@gmail.com
4.	Ms. Hrangbung Jurist Anal	Dept. of Soil Science, School of Agriculture Sciences, Nagaland University, Medziphema, Nagaland	hbjuristanal@gmail.com
5.	Dr. Bishnuprasad Dash	Assistant Professor Dept. of Soil Science, M.S. Swaminathan School of Agriculture, Centurion University of Technology and Management, Odisha	Bishnu.soil.222@gmail.com
6.	N. Maddileti	Technical Officer, ICAR-NBSS&LUP Regional Centre, Bengaluru	Nmt6785@gmail.com

COURSE CONTENT

- Participants shall be trained extensively on theory aspect on
- Pedology concept and application,
- Rock and Minerals,
- Geology,
- Geomorphology,
- Landform analysis,
- Soil survey,
- Application of Remote Sensing,
- Image interpretation,
- Base map preparation,
- Soil-Landscape relationship,
- Digital soil mapping,
- Application of GIS,
- Ground truth observation (Field traversing, Selection of transects and soil profile studies & identification of master profiles),
- Sample collection,
- Laboratory characterization of soil samples,
- Soil mapping & correlation,

- Soil classification,
- LCC & LIC,
- Land use planning,
- Soil degradation and mapping,
- Soil and Water conservation planning,
- Crop soil suitability evaluation and
- Economic evaluation of land resources.

Course lecture schedules for 21 days training programme

**Training Program (21 days) on "Soil Survey and Mapping using Remote Sensing & GIS."
(November 29 –December 19, 2023)**

Date	9.30-10.30 am	10.30 am-10.45 am	10.45-11.45 am	11.45- 1.00 pm	1.00-2.00 pm	2.00-3.00 pm	3.00-3.15 pm	3.15-5.15 pm
29.11.2023	Registration	Tea break	Inaugural and Director talk		Lunch	Status of Land Resources and its Management Using LRI data - Dr. B.P. Bhaskar, Principal Scientist (GL)	Tea break	Importance of LRI for land use planning Dr. V. Ramamurthy, Principal Scientist & Head
30.11.2023	Rocks and Minerals - Dr. M. Lalitha, Senior Scientist		Soil Forming Factors & Processes – Dr. R. Srinivasan, Senior Scientist	Soil survey Techniques and Kinds of Soil survey- Dr. R. Srinivasan, Senior Scientist		Geomorphic Processes and Landform Analysis- Dr. S. Thayalan, Principal Scientist (GL)		Landforms of study area (Hodonahalli, Doddaballapur Taluk) Dr. S. Thayalan, Principal Scientist (GL)
01.12.2023	Remote sensing tools in Soil Survey- Dr. Obi Reddy, Principal Scientist (GL)		Basics of GIS and Application -Dr. S. Srinivas, Principal Scientist	Base map preparation- Dr. M. Lalitha, Senior Scientist		Practical-Image interpretation visual / Digital in GIS Lab - (Dr. M. Lalitha, R. Sujatha & N. Maddiletti)		
02.12.2023	Visit to Pedonorium							
03.12.2023	Sunday							
04.12.2023	Soil – Landform relationship at different scale- Dr. B.P. Bhaskar, Principal Scientist		Satellite data products and application in Soil survey-Dr. S. Dharumarajan, Senior Scientist		Lunch	Toposheet data interpretation Dr. M. Ramesh, Chief Technical Officer (GL)		
05.12.2023	Digital Soil Mapping -Dr. S. Dharumarajan, Senior Scientist	Soil profile study- Site characteristics- Dr. R. Srinivasan, Senior Scientist		Soil profile study - Soil characteristics- Dr. R. Srinivasan, Senior Scientist				
Soil survey fieldwork at KVK, Hadonahalli, Doddaballapur Taluk, Bengaluru Rural District. (06.12.2023 to 12.12.2023)								
13.12.2023	Soil grouping, correlation, and identifying typifying pedons- Dr. R. Srinivasan, Senior Scientist		Mapping of Soils at Phase level - Dr. R. Srinivasan, Senior Scientist		Lunch	Laboratory Analysis Theory – Dr. R. Vasundhara, Senior Scientist	Tea break	Laboratory Analysis Practical - Arti Koyal & S. Parvathy)
14.12.2023	Digital Soil Mapping practical- Dr. S. Dharumarajan, Senior Scientist					Thematic Map preparation- Dr. B. Kalaiselvi, Senior Scientist		Thematic and crop suitability maps preparation practical in GIS lab: Dr. B. Kalaiselvi, R. Sujatha & N. Maddiletti)
15.12.2023	Climate Analysis, water balance, LGP for crop planning- Dr. L.G.K Naidu, Principal Scientist (GL)	LRI data interpretation for LCC and FCC- Dr. M. Chandrakala, Scientist	Crop suitability evaluation - Ramamurthy, Principal Scientist & Head			Status of Land degradation and its assessment - Dr. K. S. Karthika, Scientist		Land Use Planning at different Scales and its Implications- Dr. V. Ramamurthy, Principal Scientist & Head
16.12.2023	GIS Lab visit- preparation of soil Maps							
17.12.2023	Sunday							
18.12.2023	Soil Taxonomic Classification- Dr. K. S. Anil Kumar, Principal Scientist (GL)					Soil and Water conservation Methods-S. P. Maske, Senior Scientist	Tea break	Economic Assessment of Land Use Planning- Dr. S. C. Ramesh Kumar, Principal Scientist
19.12.2023	Report preparation and presentation				Feedback, closing ceremony, and certificate distribution			

21 days training programme was inaugurated by our honorable Dr. N.G. Patil, Director, ICAR-NBSS&LUP, Nagpur, along with special case other regional centre and head quarter heads and scientists and T6 above all are participated.

**ICAR-NBSS&LUP, Regional Centre,
Bangalore - 560024, Karnataka**

**Training on
Soil Survey and Mapping using Remote
Sensing & GIS**

Date: 29-11-2023 to 19-12-2023 (21 days)

Programme		
10.30 AM	ICAR Geet	
10.35-10.40 AM	Welcome Address	Dr. V. Ramamurthy Head ICAR-NBSS&LUP, Bangalore
10.40-10.50 AM	Introduction of Trainees and Staffs	
10.50-11.00 AM	Introduction of Training programme	Dr. R. Srinivasan, Senior Scientist, Bangalore
11.00-11.15 AM	Inaugural Talk	Dr. N. G. Patil, Director, NBSS&LUP, Nagpur
11.15-11.20 AM	Vote of Thanks	Dr. M. Lalitha, Senior Scientist, Bangalore

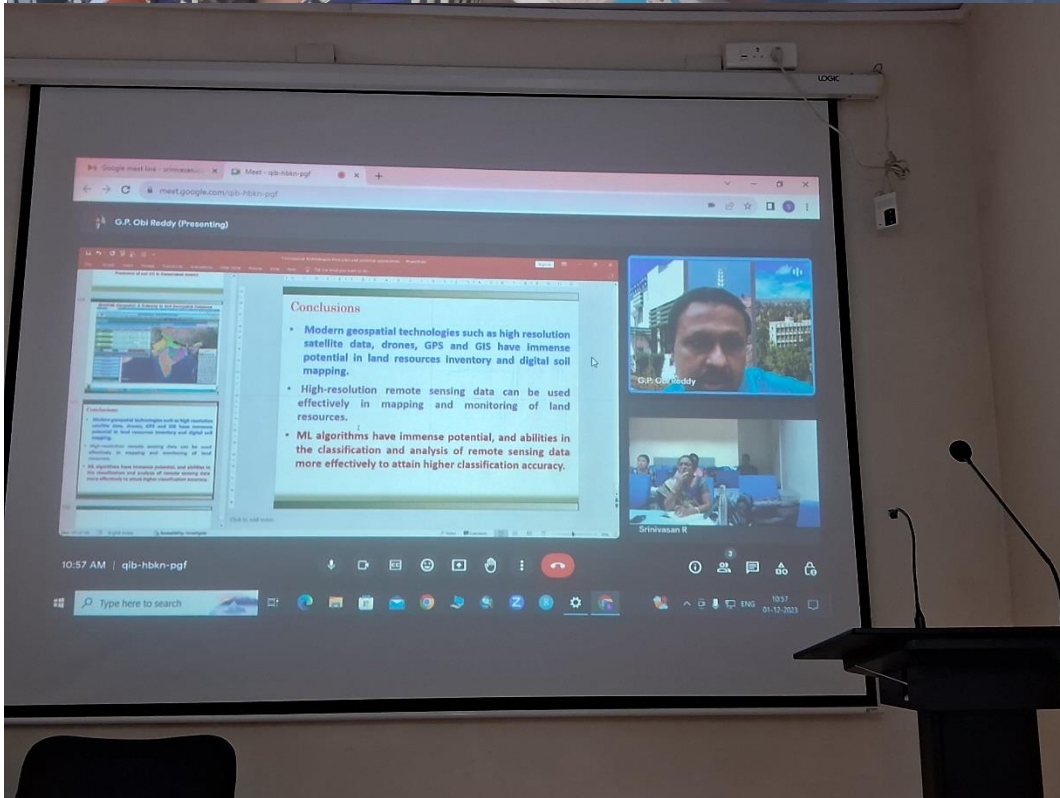
Link - <https://meet.google.com/qib-hbkn-paf>



Training inauguration session at ICAR-NBSS&LUP, Regional Centre, Bangalore

OUTCOME OF TRAINING

- ✓ Its great opportunity to learning and enhancing knowledge about pedology, soil survey, mapping and land use planning from the experts in soil survey and land use planning.
- ✓ Training programme started with Google form registration. Totally 23 members are registered from several part of India.



First week we focused on base map preparation and basic of soil survey



Soil survey field work and mapping

Last week focused on soil map preparation, thematic map preparation and crop suitability evaluation.



Chief guest Dr. V. Venkatasubramanian, Director, ICAR-ATARI, Bangalore felicitated by Dr. B.P. Bhaskar, Ex-Director, NBSS&LUP, Nagpur.

Certificate distribution by chief guest to all the trainees participants in training programme.



Dr. B. Asha Jyothi



Dr. Bishnuprasad Dash



Dr. Shabir Bangroo



Ms. Saya



Ms. Hrangbung Jurist Anal



Mrs. N. Maddileti



Final group photo of validator function