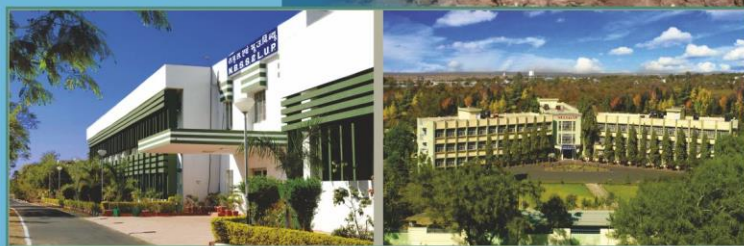




Volume : 01/No. 01  
September 2019 - August 2020



**e news letter**

**ICAR-NBSS & LUP**

**ICAR-National Bureau of Soil Survey & Land Use Planning**

Nagpur - 440 033, Maharashtra, India

## Director's Message

We are pleased to release the first e-Newsletter of ICAR-NBSSLUP on 23 August 2020, which marks the 44<sup>th</sup> Foundation Day of the Institute. The Bureau has touched several milestones during its 43-year journey and is known for producing the first soil resource map (1:1 million scale), the first soil erosion map (1:250000 scale), and the Agro-Ecological Region (AER) and sub-region (AESR) map of India. The ever-growing need for quick and precise farm-level information to develop land use plans has driven this institute to employ the latest remote sensing and mapping techniques and generate district-wise LRI maps on a 1:10000 scale. The importance and efficacy of LRI information for watershed-level planning was amply demonstrated to the Government of Karnataka through Sujala-III Project. This prompted the state Governments of Arunachal Pradesh, Tripura, Odisha, Karnataka and Bihar to come forward to join hands with the Bureau to generate LRI information for sustainable agricultural land use planning.



The last year has witnessed the institute develop land use plans for 27 aspirational districts at the behest of NITI Aayog. As a follow-up activity, the institute scientists virtually interacted with the district administrators to discuss land use plans based on the outputs pertaining to these districts on the Aayog portal (Champions of change). The Institute has created a hyperspectral library of the soils of Goa, followed by the development of HySIS, an android-based and user-friendly mobile application. We are in the process of revising and publishing the AESR maps of the country for which a draft document on "Revised Agro-ecological Sub-regions of India" has been prepared.

The Bureau has signed MoUs with different state governments and agencies for research and development projects. Several externally funded research projects were bagged by the Institute. During the last year, the Bureau has published 75 research papers, 3 books, 15 book chapters, 15 reports/bulletins, and 11 popular articles. I congratulate the scientists of the Bureau who have been awarded and recognized during the last year by professional bodies.

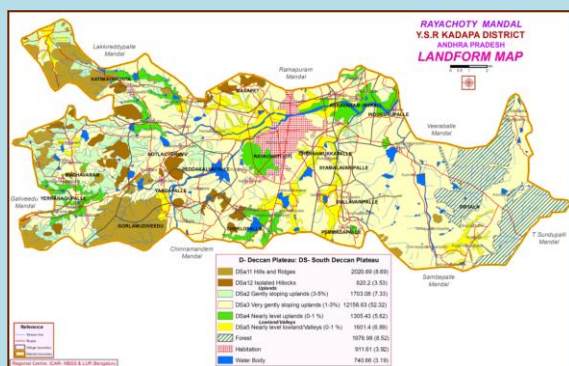
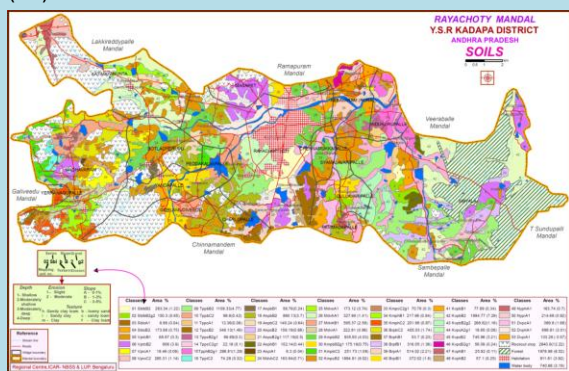
Several events were organized with fervour at the Bureau such as the ICAR Central Zone Sports Tournaments, *Rashtriya Ekta Diwas*, *Hindi Pakhwada/Saptah*, International Yoga Day, World Environment Day, World Soil Day, *Kisan Diwas*, *Swachh Bharat Abhiyaan*, to name a few. For the first time in the history of the Institute, the Parliamentary Standing Committee on Agriculture visited the ICAR-NBSS&LUP and reviewed the activities and future plans.

We are currently passing through a turbulent phase owing to the COVID-19 pandemic. I take this opportunity to thank the frontline CORONA-warriors (doctors, nurses, police personnel, sanitation workers) for their untiring efforts in assuring our safety. The Bureau is also following strict protocols to contain the spread of the virus. On the work front, I am confident that the scientists, technical and administrative staff of the Institute will continue to work with the same spirit and dedication and adapt to the "New Normal".

**P. Chandran**

## BUREAU'S FLAGSHIP PROGRAMME

Land Resource Inventory (LRI) on 1:10K was continued to be the flagship programme of the Bureau and was carried out in 122 different blocks across the country. Landscape ecological unit (LEU) maps for 100 blocks across 29 districts in 16 states were prepared. State-wise distribution of blocks is: Andhra Pradesh (1), Assam (1), Bihar (13), Haryana (7), Himachal Pradesh (2), Jharkhand (10), Karnataka (2), Kerala (1), Maharashtra (22), Mizoram (3), Odisha (1), Punjab (8) Rajasthan (14), Tamil Nadu (1), Telangana (1), Uttarakhand (1), and West Bengal (36).



Our work was also focused on agricultural land use plan of 27 aspirational district of India, consisting of 5 districts each in Assam, Uttar Pradesh, Bihar, Madhya Pradesh, 2 each in Rajasthan, Jharkhand and Odisha and one in Maharashtra.

## EXTERNALLY FUNDED PROJECTS

The institute bagged funds for land resource inventory of Arunachal Pradesh (345 lakhs), Tripura (185

lakhs), Majuli, Assam (22.4 lakhs), Susnigaria, Jharkhand (18 lakhs, STC), Majherpara, West Bengal (14.3 lakhs SCSP), Pench National Park (22.8 lakhs), Divisions of Forest Development Corporation, Maharashtra (25 lakhs). LRI of Andaman and Nicobar Islands was initiated with collaboration of ICAR-CIARI, Port Blair.

## MoUs SIGNED

The Bureau signed MoUs with Meghalaya Basin Development Authority (MBDA) (LRI of Ri-Bhoi district), Dept. of Agriculture, Govt. of Tripura (LRI of Tripura state), Govt. of Arunachal Pradesh (LRI of Arunachal Pradesh), United Nation Development programme (UNDP) for spatial crop planning, Govt. of Maharashtra (LRI for POCRA), Rain Forest Research Institute, ICFR&E, Jorhat for providing training to staff of RFRI in fields of laboratory analysis and RS&GIS.

## SUCCESS STORIES

### Integrated Farming Model for Improved livelihood (Jorhat, Assam)

A sustainable integrated farming model in 1 ha of land produced an annual net profit of Rs. 67,000 in Namdeuri village, Jorhat district of Assam under the STC programme. The crop component consisted of high yielding varieties of *rabi* crops (Kufri Jyothi-potato, Godie-pea, TS-38-mustard and Green express-cabbage). The other components are piggery (Cross bred Hampshire and Rani), poultry (50 Nos. of Rhode Island breed), duck farming (Khaki Camphel and Australian White), fish farming (Common carp, Grass carp and Catla) and apiculture.





## Crop diversification (Chamrajanagar, Karnataka)

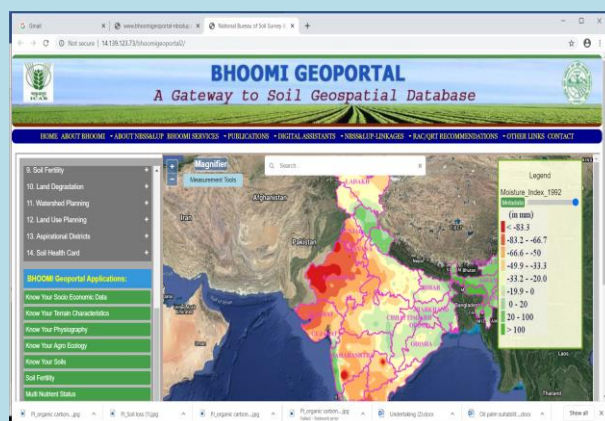
The Bureau facilitated the adoption of crop diversification by creating farm-pond with fish culture and electricity services for the bore-well to the farmer Sh. Soma, who owns 1 ha of land in Jaganakote hamlet, HD Kote taluka, Chamrajanagar district (Karnataka). The farmer earned a net profit of 1.3 lakh by cultivating Bt cotton, finger millet, field beans, tomato, brinjal, sugarcane, banana, and fodder crops like napier hybrid grass in his farm and. He could expand his farming by cultivating an additional 2 acres of land and added few milch animals to his farm which further increased the income.



## TECHNOLOGY

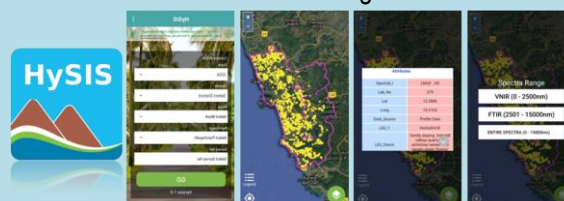
### Bureau goes Digital

The copyrighted Geoportal of ICAR-NBSSLUP, BHOOMI has been developed on an open source Geoserver platform for effective database management and visualization as a web map services (WMS). Bhoomi services have been grouped under 13 major groups, viz. administrative units, socio-economic data, terrain characteristics, image characteristics, physiography, agro-ecology, soils, soil fertility, land degradation, watershed database, land use planning, and aspirational districts. The benchmark soils and soil fertility point data have been processed and uploaded. The soil organic carbon map of India has also been processed and deployed in the Geoportal. Soils data at 1:1M and 1:250K have been reprocessed, updated with dominant and sub-dominant soil properties and deployed in Geoportal. Soil data on 1:10k for 37-blocks, and MODIS NDVI (250m) data for *rabi* season (2000 to 2018) have also been processed and deployed. Copyright has been obtained for design and innovative approach adopted to develop this digital platform.



## Mobile GIS application (HySIS)

The android based mobile GIS application is capable of visualizing, disseminating, sharing and data mining of hyperspectral signatures in a digital manner, and has been validated for the soils of Goa state. The HySIS provides point-wise information on state, district, taluka, panchayat and cadastral boundary, thereby reaching out to the farmers in a more realistic manner. The point data provides the attribute information of soil and site characteristics and fertility information. The App can either locate the user's location on hierarchical drop down selection basis or the GPS enabled location tracking.



## IMPORTANT EVENTS

### Parliamentary standing committee visit

Parliamentary committee on agriculture consisting of members of the parliament (Loksabha and Rajyasabha) visited the Bureau on 24 January, 2020 during the Maharashtra leg of its tour. The Hon'ble committee members were Shri P. C. Gaddigoudar – Chairman, Shri Afzal Ansari (UP), Shri Kanakmal Katara (Rajasthan), Shri Devji Mansingram Patel (Rajasthan), Smt. Shardaben Anilbhai Patel (Gujarat),

Shri A. Ganeshmurthi (TN), Smt. Navneet Ravi Rana (M.S.), Shri Ram Kripal Yadav (Bihar) and Shri Kailash Soni (MP). The committee interacted with the scientists and reviewed the research achievements of the Institute and future plans. Deputy Director General (NRM), Dr. S.K. Chaudhari and Director of NBSSLUP, Dr. P. Chandran responded to the queries/concerns raised by the committee. The committee also visited and appreciated Bureau's Soil Museum.



### Deputy Director General's visit to the Bureau

Dr. S. K. Chaudhari, DDG (NRM) visited ICAR-NBSSLUP, Nagpur on 15 February 2020. He was felicitated by Dr. P. Chandran, Director and Heads of Divisions, Dr. R. Srivastava and Dr. N.G. Patil.. He interacted with the Scientists regarding ongoing projects and also all staff regarding general problems.

### Kisan Diwas

The Bureau celebrated Kisan Diwas on 18.11.2019 jointly with Sakshi Chem. India Ltd. Nagpur at Masada village, Katol Taluka, Nagpur with the participation of 45 farmers. The regional centres also conducted different events to mark the day. Dr. Ashok Kumar, Scientist, RC, Delhi delivered a talk on *Bhumi Upyog Niyojan Evam Kendra Sarkar Ki Yojanaon Se Kisanon Ke Liye Fayde* in the Kisan mela-cum-exhibition held at Khera Khalilpur District Nuh (Haryana), organized by Agriculture & Farmer Welfare Department under ATMA Scheme on 19.12.2019.





### Kisan mela-cum-Swachhta-hi-Sewa

The Bureau and its regional centres organized *Kisan mela-cum-Swachhta-hi-Sewa* programme. Many farmers, farm-women, children, and students have actively participated in the programme in Mhasala and two of its adjoining villages (Malkapur and Miniwada) of Nagpur on 23.12.2019.



### Activities on Rajbhasha

The Bureau and its regional centres celebrated Hindi *saptah/pakhwada* from September 14, 2019 onwards by organizing Hindi essay competition, quiz, lectures by dignitaries, workshop, conference, poem recitation etc. The Town Official Language Implementation Committee (TOLIC), Jorhat organised a one-day Hindi Workshop at RC, Jorhat on 27.09.2019.



### Swachh Bharat Abhiyaan

The Institute and its regional stations organized Swachh Bharat Abhiyan during 16-31 December, 2019. Daily swachhta drive included cleaning work, removal of unwanted weeds and cleanliness in office

premises. During the programme, awareness on no-to-single use plastic was organized involving various stakeholders including school students.



### Rashtriya Ekta Diwas

ICAR-NBSS&LUP Headquarters and Regional Centres observed Rashtriya Ekta Diwas on 31 October, 2019 by taking pledge.



### Constitution Day

The Bureau HQ. and its regional stations organized Constitution Day. An event was organized at Masada and adjoining villages in Katol Taluka, Nagpur on 26.11.2019.



### ICAR Zonal Sports Tournament (Central Zone)

ICAR-NBSS&LUP, Nagpur successfully organized ICAR-Zonal Tournament (Central Zone) at RTMNU Ground, Ravi Nagar, Nagpur during 8-10 November, 2019, with a participation of 498 athletes from 14 ICAR institutes. The event was inaugurated by Deputy Commissioner of Police Sh. Vivek Masal and Dr. S.K. Chaudhari, DDG, ICAR, New Delhi in the presence of Dr. P. Chandran, Director ICAR-NBSS&LUP, Nagpur. The closing ceremony was chaired by Dr Tapas Bhattacharya, former Vice Chancellor, DBSKKV, Dapoli and Sh. Anup Deshmukh, International Master Chess, Nagpur as Guest of Honour. ICAR-IARI, New-Delhi won the overall championship and ICAR-CIAE, Bhopal took the second place. ICAR-NBSS&LUP, Nagpur bagged the best march-past trophy



### World Soil Day

World Soil Day 2019 was celebrated on 5 December with the theme "Stop soil erosion, Save our future". Dr. Tapas Bhattacharyya, former Vice Chancellor, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, inaugurated the programme and also delivered a lecture on "Pedology: Basics of Soil Science". The scientists, under-graduate students of Agriculture Colleges of Amravati and Nagpur and other distinguished scientists attended the programme. The laboratories and museum were open for the students and farmers who interacted with the scientists of the Bureau



### World Environment Day

The World Environment Day with the theme "Celebrate Biodiversity" was celebrated on 5<sup>th</sup> June, 2020. Sh. Lal Chand Malav, Dr. G.K. Sharma, and Dr. (Ms.) K.S. Karthika delivered talks on varied topics related to the state of environment, effects of climate change and plausible solutions to mitigate land degradation and maintain ecosystem services. On the same day, Regional Centre, Jorhat arranged a virtual presentation by Dr. Manoj Shrivastava, Principal Scientist (Soil Science), CESCRA, Nuclear Research Laboratory, ICAR-IARI, New Delhi.

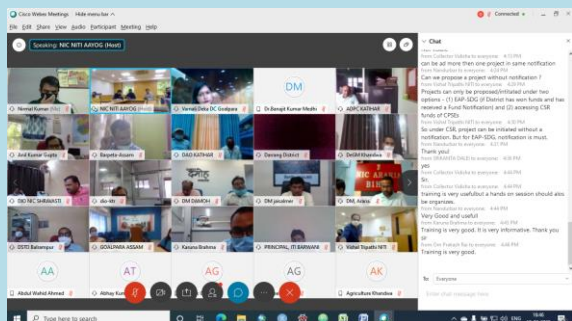
### International Yoga Day

The staff of the Institute Headquarters and Regional Centres celebrated the International Day of Yoga on 21 June, 2020 by performing *Yogasanas* at their home as per the directives received from the Ministry of AYUSH, Government of India. Earlier, on 11.01.2020, RC, Jorhat organized a one-day Yoga programme on the occasion of Swami Vivekananda's birthday.

### Virtual Meetings

Dr. S.K. Chaudhari, DDG (NRM) interacted with the Bureau Scientists along with scientists of NRM institutes on 8 May regarding future course of action and inter-Institutional collaboration for data sharing to effect faster LRI-based planning in different states.

Another expert meet on “ICAR-Geoportal Spatial Data Infrastructure and Applications – Way forward” was convened on 2 June, 2020. An online training session to sensitize the commissioners of 27 aspirational districts on the use of outputs (Alternate Land Use Planning, Soil and Water Conservation Planning, and possible locations for Water Harvesting Structures) on the Champions of change platform of NITI Aayog was organized by the Institute scientist on 10<sup>th</sup> Aug, 2020.



## VISITS ABROAD

- ❖ Dr. G.P. Obi Reddy visited State Information Technology Agency (SITA), South Africa and participated in Annual GovTech-2019 Conference on “*Digital Transformation-Gearing towards 4IR and beyond*” held at International Convention Centre, Durban, KwaZulu-Natal, South Africa during 27-30 October, 2019.
- ❖ Dr. S. Dharumarajan attended annual review meeting of ATCHA project in University of Montpellier, Montpellier, France during 4-7 November 2019 and was trained in advanced modeling in digital soil assessment during 8-15 November 2019 in LISAH, Montpellier, France.

## AWARDS/RECOGNITIONS

- Dr. S.K. Ray, Principal Scientist and Head was nominated as Member of the Research Advisory Group of RFRI, Jorhat, and as Member of the Academic Council of Assam Women's University, Jorhat.
- Dr P.Chandran Principal Scientist and Head was nominated as Member of the Research Advisory

Council of ICAR-National Research Centre of Banana(ICAR-NRCB), Trichi ,

- Dr. M.S.S. Nagaraju, Principal Scientist and team received Best Research Paper Award from Indian Academy of Horticultural Sciences, New Delhi.
- Dr. (Mrs.) Jaya N. Surya, Principal Scientist received “Outstanding Scientist Award” by the Society of Tropical Agriculture, and was elected as a “Councilor of Indian Society of Soil Science” for the 2020 and 2021.
- Dr. Hrittick Biswas, Principal Scientist, received Gold Medal for the year 2019 by the Indian Association of Soil and Water Conservationists, Dehradun
- Dr. M.S. Raghuvanshi, Principal Scientist received Fakhruddin Ali Ahmed Award for Outstanding Research in Tribal Farming Systems 2019 by the Indian Council of Agricultural Research, New Delhi and the India Poultry Award for Social Impact-2019 by Agriculture Today.
- Dr. R.P. Sharma, Sr. Scientist and team received Best Paper in the International Conference on “Soil and Water Resources Management for Climate Smart Agriculture, Global Food and Livelihood Security” jointly organized by SCSi, WASWAC and the ISCO at New Delhi.
- Dr. S. Bandyopadhyay, Sr. Scientist, Dr. (Mrs.) S. Gupta Choudhury, Scientist (SS), Dr. (Mrs.) J. Mukhopadhyay, Sr. Technical Officer and Smt. Soma Saha, Technical Officer obtained first class with Distinction in the “Praveen Hindi” Examination (16 Nov, 2019).
- Dr. R. Srinivasan, Scientist, received Best oral presentation in national Seminar on landslide mitigation and slope management organized by Tamil Nadu State Chapter of SCSi & ICAR-IISWC, Udhagamandalam, Tamil Nadu.
- Ms. Surabhi Hota, received the third prize for oral presentation in the International Seminar on Sustainable Development and Climate Change by Department of Environmental Science, Amity University, Madhya Pradesh, Gwalior.



## TRAINING PROGRAMMES

### Organized

Land Resources Management for Climate Smart Agriculture (Nagpur), 3-23 Sept 2019

Fish farming as economically viable livelihood option (RC, Jorhat) for 12 farmers of Nimati Borali gaon, Jorhat district, Assam, 24-26 Sept 2019

30<sup>th</sup> Prof. S.P. Raychowdhury Memorial Lecture (RC, Kolkata), 27 Sept 2019.

1<sup>st</sup> Prof. S.K. Gupta Endowment Lecture (RC, Kolkata), 04 Nov 2019

Remote Sensing and GIS to four PG students of the Dept. of Horticulture and Forestry, CAU, Pasighat, Arunachal Pradesh (RC, Jorhat), 26-27 Nov 2019

Agricultural land use planning for Aspirational districts of Assam (RC, Kolkata) to 14 state line department officials, 12-13 Dec 2019

Agricultural land use planning for Aspirational districts of Bihar (RC, Kolkata) to 15 state line department officials, 16-17 Dec 2019

Agricultural land use planning for Aspirational districts of Jharkhand and Odisha (RC, Kolkata) to 09 state line department officials, 05-06 Feb 2020

### Participated

Smt. Nirmala Kumar, Assistant, Training programme on "Pensions & Other Retirement Benefits" at Institute of Secretariat Training & Management, MoPPG&P, Gol, 02-09 Sept 2019

Drs. Rajesh Kumar Meena and P.C. Moharana attended National Facilitators Development Program (NFDP) entitled "Advances in Data Science using R" at ICAR-IASRI New Delhi, 21 Sept-11 Oct 2019

Drs. R.Srinivasan and S. Dharamrajan attended "Indo-French monsoon school on Remote Sensing"

sponsored by the French Government at Dept. of Civil Engineering, ICWaR, IISc, Bangalore, 28-30 Oct 2019

Drs. Chandrakala and Kalaiselvi B., 3 days training on Indo-French monsoon school on Remote sensing at IISc, Bangalore, 28-31 Oct 2019

Dr. Kalaiselvi, B, workshop on "Land Resource Inventory (LRI) Recommendation at work: Monitoring and Evaluation Experience" by IISWC, Ballari at NBSS&LUP, Bangalore, 23 Dec 2019

Dr. Kalaiselvi, B, 107<sup>th</sup> Indian science congress at GKVK, Bangalore, 03-07 Jan 2020

Dr. M. Lalitha, 107<sup>th</sup> Indian Science Congress. She demonstrated the activities of NBSS&LUP in the exhibition stall at UAS, Bengaluru, 03-07 Jan 2020

Sh. A.K. Maitra, Technical officer, training programme on "Remote Sensing & GIS" organized by the Department of Science & Technology and Bio-Technology, Geo Informatics & Remote Sensing Cell, Govt. of West Bengal, Kolkata, 13-14 Jan .2020

Dr. Kalaiselvi, B, 5 days training on "Survey data analysis using R", ICAR-NAARM, Hyderabad 03-07 Feb 2020.

Smt. Bedantika Dutta, AAO, Smt. Nirmala Kumar, Assistant and Sh. Sitaram Bishnoi, Technical Assistant, "E-Office workshop" conducted at ICAR-CIFRI, Barrackpore, 11-12 Feb 2020

Dr. Lalitha, M., training on Spectral measurement of soil samples using NIR/MIR spectroscopy under ATCHA project, ICAR-NBSS&LUP, Bangalore, 16-18 Mar 2020,

Dr. Hritick Biswas, online training course on "Remote Sensing & GIS Technology and Applications for University Teachers & Government Officials", Indian Institute of Remote Sensing (IIRS), Dehradun 13 Jun-1 Jul 2020



## PERSONNEL

### Transfers

Dr. S.K. Singh, Principal Scientist and Acting Director, ICAR-NBSSLUP, Nagpur to ICAR-CCARI, Goa

Dr. S. K. Mahapatra, Principal Scientist, RC, Delhi to ICAR-MGIFRI, Motihari

Dr. Sunil Kumar Yadav from RC, Udaipur to RC, Delhi

Dr. (Smt.) Nisha Sahu, Scientist, RSA division , Nagpur to ICAR-IISS, Bhopal

Dr. S. Ramachandran, Scientist, RC, Jorhat to ICAR – IIHR, Bengaluru

Dr. Roomesh Kumar Jena, Scientist, RC, Jorhat to ICAR-IIWM, Bhubaneswar

Dr. Prasenjit Ray, Scientist, RC, Jorhat to ICAR-IARI, New Delhi

Dr. Gulshan Kumar Sharma RC, Jorhat to ICAR – IISWC, Dehradun

### New Joining

Dr. P. Chandran, Head, Division of SRS, Nagpur took over the charge of Acting Director on 1 November, 2019

Dr. U.K. Maurya joined as Senior Scientist, Division of SRS, NBSS & LUP

Dr. Hrittick Biswas joined as Principal Scientist, RSA Division, NBSS & LUP

Sh. Unni J, AAO (on Deputation) RC, Bengaluru

### Promotions

#### Scientists

- Dr. Nirmal Kumar to Sr. Scientist (Pay level-12)
- Dr. M. Chandrakala, to Pay level -11
- Dr. Shilton Padua to Pay level-11
- Dr. P. Ray, to Pay level -11
- Dr. P.C. Moharana, to Pay level -11
- Dr. R. S. Meena, to Pay level -11
- Sh. Ashok Kumar to Pay level -11
- Sh. Vikas, to Pay level -11

### Technical

- Sh. B. R. Meena to Pay level – 6
- Sh. Manish Choudhary to Pay level – 4
- Sh. Atul Dandhade to Pay level - 4

### Administrative

- Sh. A. P. Tembhurnikar to Pay level-7
- Sh. U. S. Kapse to Pay level – 6
- Smt. Shalu Nandanwar to Pay level – 6
- Smt Ranjana Sharma to Pay level-

### Retirements / Supperannuation

Shri N.C. Saikia, Skilled Supporting Staff, Regional Centre, Jorhat on 31.10.2019.

Shri R.K. Dutta, Technical Officer (T-5) Regional Centre, Kolkata on 31.10.2019.

Dr. T.K. Sen, Principal Scientist and Head, Division of Land Use Planning, Nagpur on 30.11.2019

Shri. V.R. Vinchurkar, Technical Assistant (T-3), Nagpur on 30.11.2019

Shri Someswar Das, Technical Assistant (T-3), Regional Centre, Jorhat on 30.11.2019.

Shri. S. Islam, Sr. Technical Assistant (T-4) Regional Centre, Kolkata on 31.12.2019.

Shri. V.R. Bhongade, Chief Technical Officer (T-9), Nagpur on 29.02.2020

Shri. Vasdev, Technical Assistant (T-2), Regional Centre, New Delhi on 29.02.2020

Dr. K.D. Sah, Principal Scientist, Regional Centre, Kolkata on 31.05.2020

Shri. B.N.M. Reddy, Sr. Technical Assistant (T-4), Regional Centre, Bengaluru on 31.05.2020

Shri. U.B. Gaikwad, Sr. Technical Assistant (T-4), Nagpur on 31.05.2020

Shri. A. P. Tembhurnikar, Asst. Admin Officer, Nagpur on 31.05.2020

Dr. Rajeev Srivastava, Principal Scientist and Head, Division of RSA, Nagpur on 30.06.2020

Shri. A.T. Kantode, Skilled Supporting Staff, Nagpur on 31.07.2020

## INNOVATION CORNER



Pedal-operated hand sanitizer developed by RC, Jorhat

## NBSS in the MEDIA



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Dr. P. Chandran, Director

**Compiled and Edited by**  
Dr. Hrittick Biswas  
Dr. M.S. Raghuvanshi  
Dr. D. Vasu

**Technical Assistance**  
Sh. P.S. Butte

**Layout and Design**  
Sh. Prakash Ambekar

For copies mail to: [director.nbsslup@icar.gov.in](mailto:director.nbsslup@icar.gov.in)

Website: <https://www.nbsslup.in>

**ICAR-National Bureau of Soil Survey and Land Use Planning, Amravati Road, Nagpur, Maharashtra-440033**  
**Tel: +91-712-2500386, 2500545 (O); FAX: +91-712-2500534**