

Reflections

Triannual Inhouse Newsletter



Shri Amit Shah Ji, Hon'ble Union Minister of Home & Cooperation, Chairman of NEC and President of NESAC Society, Chairing the Special Meeting of NESAC Society held on 24 July, 2021 at NESAC, Umiam

From the Director's desk



The centre has completed 21 years of its existence on 5 September, 2021. Last one year, and particularly last few months have been very eventful for the centre. The Hon'ble Home Minister of India, who is also the President of NESAC Society, Chaired a special meeting of the NESAC Society on 24 July, 2021. The meeting was also attended by Hon'ble Chief Ministers of eight NE states, Hon'ble Union Minister for Department

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A report on Special Meeting of NESAC Society

For the first time in NESAC history, a special meeting of NESAC Society was convened by the President of the Society and Hon'ble Union Minister of Home & Cooperation, Shri Amit Shah Ji on 24 July, 2021 at NESAC, Umiam. Hon'ble Union Minister of DONER, Shri G. Kishan Reddy Ji, Hon'ble Minister of State (i/c

Affairs, MDoNER, Chief Secretaries of NE States, Secretaries of Union Home Ministry, MDoNER, DoS, and NEC, and other members of the NESAC Society participated in the meeting. The meeting was convened to review the progress of the actions identified during the 9th meeting of NESAC Society



Dr K Sivan, Chairman, ISRO welcoming Hon'ble Home Minister of India with a traditional shawl and a memento

of MoES, S & T, Space & Atomic Energy, Dr. Jitendra Singh Ji; Hon'ble Minister of State for DONER, Shri B.L. Verma Ji; Hon'ble Chief Ministers of all eight states of NER along with senior officials from Ministry of Home

Dr. K. Sivan, Secretary, Department of Space and Chairman, NESAC Governing Council welcomed Hon'ble Union Home Minister, all other members and invitees. Shri Inder Jit Singh, Secretary, DONER initiated the meeting by highlighting the action points identified during the 9th meeting of NESAC Society held on 23 January, 2021. Dr. Raj Kumar, Director, NRSC made a technical presentation highlighting the action taken report of the actions identified during the last Society meeting. He presented the work done on restoration of water bodies like lakes, check dams and ponds in appropriate locations for diversion of flood water as means for flood control, irrigation and development of tourism. Dr. Raj Kumar also highlighted the Plan of Actions (PoA) comprising of 110 projects prepared for 8 NE States on utilization of Space technology applications for development and governance in active consultation with user departments and reviewed by MDoNER,



Special Meeting of the NESAC Society is in progress at NESAC, Umiam

A report on Special Meeting of NESAC Society



Hon'ble Chief Minister of Meghalaya, Shri Conrand Sangma Ji while sharing his views during the meeting

NEC, and ISRO/DoS through series of interactions during the last 6 months.

Hon'ble Home Minister invited all the Chief Ministers from NE state to share their views and suggestions on the PoA and other areas. Hon'ble Chief Minister of



Hon'ble Chief Minister of Arunachal Pradesh Shri Pema Khandu Ji while sharing his views during the meeting

Meghalaya, Shri Conrand Sangma Ji appreciated the efforts of NESAC in carrying out a large number of projects supporting the development and planning in NER. He suggested that Govt. of Meghalaya and NESAC should work together in the areas of weather forecast, flood forecast, climate change studies, afforestation in

the mining affected areas, etc.

Hon'ble Chief Minister of Arunachal Pradesh, Shri Pema Khandu Ji mentioned about the requirement of upgrading the State Remote Sensing Application Centre of Arunachal Pradesh and capacity building of middle level officers of Arunachal Pradesh on space technology applications. NESAC has been providing such training programs for the user departments.



Hon'ble Chief Minister of Assam, Dr. Himanta Biswa Sarma Ji attended the meeting and gave a few valuable suggestions

Dr. Himanta Biswa Sarma Ji, the Hon'ble Chief Minister of Assam informed about the preparedness on rejuvenation of wetlands and diversion of flood water in the state. He told that a pilot project will be taken up in Dhemaji district on diversion of flood



Hon'ble Chief Minister of Manipur, Shri N. Biren Singh Ji attended the meeting and shared his views

A report on Special Meeting of NESAC Society



Hon'ble Chief Minister of Mizoram, Shri Zoramthanga Ji attended the meeting and shared his views

water to wetlands jointly by Water Resources Dept. of Govt. of India and Govt. of Assam. He also mentioned that space technology could play critical role in monitoring of inter-state borders and monitoring of forests in the border areas. Shri N. Biren Singh Ji, Hon'ble Chief Minister of Manipur also informed that twelve wetlands have been identified for rejuvenation in the state.



Hon'ble Chief Minister of Nagaland, Shri Neiphiu Rio Ji also attended the meeting and shared his views

Hon'ble Chief Minister of Mizoram, Shri Zoramthanga Ji highlighted the importance of studies on identification of potential sites for wetland rice

cultivation and horticultural crops in the state. Shri Neiphiu Rio Ji, the Hon'ble Chief Minister of Nagaland told that efficient management of water in the state is very important. He mentioned about the Micro hydro power projects and its potential in the state for meeting the power requirement. He also requested NESAC to take up studies on mapping of the mining areas in Wokha and Mon district.

Hon'ble Chief Minister of Sikkim, Shri Prem Singh Tamang Ji mentioned the key areas that require space technology interventions in Sikkim, such as inter linking water surplus with deficit areas for water security, identification of dried up lakes for their rejuvenation, support to check soil erosion and floods,



Hon'ble Chief Minister of Sikkim, Shri Prem Singh Tamang Ji while sharing his views during the meeting

human animal conflict, geo-tagging of assets, identification of potential sites for organic farming, etc. Hon'ble Chief Minister of Tripura, Shri Biplab Deb Ji mentioned that space technology has been extensively used for extraction of ground water and implementation of "Har Ghar Main Paani" mission in the state of Tripura. He also appraised that 21 projects have been identified under PoA - Tripura and assured full support from the Govt. of Tripura to implement those.

Dr. Jitendra Singh Ji appreciated the valuable contribution made by NESAC since its inception and suggested to expand programs on different areas. He also opined that space technology should support in resolving inter-state boundary issues in NER, to fill the forest gap areas with afforestation measures, etc.

A report on Special Meeting of NESAC Society



Hon'ble Chief Minister of Tripura, Shri Biplab Deb Ji while sharing his views during the meeting

He also suggested increasing the number of training and capacity building programs particularly for the government officials of NE states. Shri B.L. Verma Ji highlighted on greater and efficient use of the large volume of geospatial database along with web portals & dashboards that NESAC has developed. He also stressed on the need of research on climate change, disaster management support, geo-tagging and monitoring of assets, afforestation in the degraded areas, digital classroom, and tele-education services in the remote places of NE, etc. Shri. G. Kishan Reddy Ji appreciated the efforts of NESAC in taking up many crucial projects supporting planning and development in NE. He told that Shillong could be the space technology capital of east with NESAC playing a bigger role in terms of providing strategic inputs for development and governance.

In his Presidential remarks, Shri Amit Shah Ji

highlighted the effort of union government in providing adequate support in improving connectivity and overall development of NE region. He stressed on the need of Science & Technology intervention in developing the region. He expressed his happiness at the progress made following his advice offered during last NESAC Society's meeting with regards to drawing up of Plan of Action by all the 8 States. He also emphasized on making NE flood free and suggested that a pilot project should be executed for diversion of flood water in Assam. He further suggested that the resources of NESAC should be used as much as possible towards planning of afforestation in barren lands and rejuvenation of wetlands in NE. He asked NESAC to take the lead role in disaster early warning in NE and provide training to a large number of officers of NE states for effective utilization of space technology by various user department.

The meeting provided a unique opportunity to NESAC to place itself at the centre of providing space based support for development, governance, disaster management support and all planning process by various central and state government departments in



Hon'ble Union Minister of DONER, Shri G. Kishan Reddy Ji, Hon'ble Minister of State (i/c) of MoES, S & T, Do & DAE Dr. Jitendra Singh Ji; and Hon'ble Minister of State for DONER, Shri B.L. Verma Ji also attended the meeting and gave valuable suggestions

NER. It was the most high profile and biggest event hosted by NESAC which helped NESAC getting national level coverage. The meeting also gave huge responsibility on NESAC to coordinate execution of 110 projects in addition to about 70 ongoing projects within a short time.

Dr. S. P. Aggarwal assumed the charge of Director, NESAC

Dr. S. P. Aggarwal assumed the charge of Director, NESAC on 17 September, 2021. Dr. Aggarwal is a



Dr. S. P. Aggarwal after assuming the charge of Director, NESAC

highly accomplished scientist in the field of Remote Sensing and GIS applications and at the same time he has immensely contributed in the capacity building and outreach program of ISRO. He did Ph.D. from Indian Agricultural Research Institute, New Delhi and post doctoral research from ITC/IHE, The Netherlands in the field of hydrological modeling.

He served as the Group Head of Water Resources Department at Indian Institute of Remote Sensing (IIRS), ISRO, Dehradun, before joining NESAC. Dr. Aggarwal is a renowned scientist in the field of water resources management, disaster management, climate change impact assessment in water resources, etc. He is also a well known academician with immense contribution in the capacity building and outreach program of ISRO. He served as the programme coordinator of the UN affiliated Centre for space science and technology education in Asia and the Pacific (CSSTEAP) during 2016-2021 periods and played the pivotal role in strengthening the regional and international cooperation in capacity building in space science, technology and applications in the Asia-Pacific region

He received several awards and honours including the Institution of Engineers of India conferring him with the Eminent Engineers Award for 2014, President's Appreciation medal by Indian Society of Remote Sensing (ISRS) for 2016, National Geospatial Award for Excellence by ISRS for 2018, etc. He is a Fellow of the Institution of Engineers (India) and Indian Association of Hydrologist.

Dr. Aggarwal is an active member of several scientific and professional societies. He is serving as Secretary of Technical Commission V of International Society of Photogrammetry and Remote Sensing (ISPRS) on Education and outreach (2016-2021). He has more than 150 research publications in peer reviewed International and National Journals and conference

proceedings. He has also authored 4 book chapters and 19 technical reports



Director, NESAC during his maiden address to the NESAC staff

Team Reflections welcomes Dr. S. P. Aggarwal as the Director of NESAC

Laying of foundation stone for Multi-Purpose Convention Centre cum Space Exhibition Facility of NESAC

Hon'ble Union Home Minister, Shri Amit Shah Ji, remotely laid the foundation stone for the Multi Purpose Convention Centre cum Space Exhibition facility at NESAC on 24 July, 2021 in the presence of Hon'ble Union Minister of DONER, Shri G. Kishan Reddy Ji, Hon'ble Minister of State (i/c) of MoES, S & T, DoS & DAE, Dr. Jitendra Singh Ji; Hon'ble Minister of State for DONER, Shri B.L. Verma Ji; and Dr K Sivan, Chairman, ISRO. The detailed plan of the facility, a 3D model, flythrough, etc. of the proposed facility was exhibited. The Bhoomipujan was also done parallelly at the proposed site which was live broadcasted.



A 3D view of the proposal facility at NESAC



Hon'ble Union Home Minister, Shri Amit Shah Ji while laying the foundation stone for the Multi-Purpose Convention Centre

The proposed facility will have two floors with auditorium having seating capacity of 500 persons, stage, green room, reception, VIP lounge, office, toilet facilities, food court, exhibition hall, open area for make-shift exhibition / poster presentation or other activities etc. An exclusive virtual reality hall shall be constructed in the ground floor near to the exhibition area. Once completed it will be a state of art facility for entire NE region.

NESAC bids farewell to Shri P. L. N. Raju as Director, NESAC

Shri P L N Raju, Former Director, NESAC was superannuated from his service on 30 June, 2021. He was serving as Director of NESAC at that time. He took over the charge of Director, NESAC from Dr P G Diwakar, on 7 October, 2015. During his tenure of almost six years, he was instrumental in setting up an exclusive outreach facility at NESAC with international standards for conducting training and other outreach activities. Training programs and capacity building was made part of the NESAC core activity by him. The activity of centre grew both horizontally and vertically during his tenure as Director. He also took personal



NESAC staff with Shri P L N Raju after the farewell program



Dr K K Sarma presented a shawl and a silver memento acknowledging his services

interest to set up a vibrant residential facility for NESAC staff at Umiam. The centre attained new heights under the able leadership of Shri P L N Raju, which was lauded by all NESAC family members.

Team Reflections wishes Shri P. L. N. Raju a Healthy and Happy post retirement life

Continued from page 1.....

of Space and Hon'ble Union Minister for Ministry for Development of NE region (MDoNER) along with Chief Secretaries of all NE states and several secretaries to the Government of India. We could present the Plan of Actions (PoA) prepared for each of the eight NE states on utilization of space technology for development and governance. The PoAs consisting of 110 projects was approved in principle by the NESAC Society. Hon'ble Home Minister appreciated NESAC for completing the assignment of preparing the PoA for eight states in a very short time and said that the implementation of these projects shall be a game changer for the development of the NE region. I express my sincere thanks to the Hon'ble Home Minister for his guidance and Hon'ble Chief Ministers for assuring full support from the states towards implementing the PoA projects.

We took up a massive exercise of preparing eight PoAs in five months time with direct involvement of the state machinery from all the NE states and under the supervision of MDoNER, North Eastern Council (NEC), and ISRO HQs. The PoA is envisaged to be the pivot of activities in next couple of years at NESAC. This gave us excellent opportunity to reach out to all of our major users, discuss with them directly on their requirements on space technology interventions, and how NESAC can support them in realizing their departmental goals using space technology. We also reached out to those potential users, who could not make best use of the space technology so far and demonstrated the potential benefits of using it in their scheduled activities.

The exercises lead to the formation 110 projects with 12 regional projects covering entire NER or more than one state of NER and 98 state specific projects. Maximum number of projects are from Agriculture & Allied areas (24 projects) followed by Planning & Development (15 projects), Water Resources Management (14 projects), Forest, Ecology and Environment (14 projects), Surveying and Monitoring (13 projects), Disaster Management (10 projects). There are a few projects in the areas of Human Resources Development, UAV Applications, Geology and Mining, Transport and Communication, etc. We could successfully

complete this mammoth task of finalizing the PoAs in about five months, while second wave of COVID-19 was sweeping across the region and while working on about seventy ongoing projects. We are thankful to the state RS applications centres, who actively participated in completing the exercise in the respective states. I also thank the former Director of NESAC, Shri P L N Raju who lead the team at NESAC till 30 June, 2021 and ensured that the PoAs were prepared on time.

Flood has been a perennial problem in Assam and Government has taken up multiple activities to mitigate the impact of flood. The flood early warning system developed by NESAC with support from ASDMA is one such initiative. Recently, the idea of diverting the flood water to the lakes, ponds, and other water bodies as a flood mitigation measure has been gaining popularity. Hon'ble Union Home Minister asked ISRO and NESAC to take up a feasibility study for flood water diversion to such water bodies in Assam. NRSC and NESAC took up a pilot study and identified more than 15 water bodies in three districts in Assam where large volume of flood water could be diverted. The findings were presented to the NESAC Society and it helped Government of Assam to initiate a project on pilot basis for diverting the flood water in Dhemaji district in Assam. We are poised to take up the detailed study to map all potential sites in Assam flood plains for such flood water diversion, that, in addition to helping in flood mitigation, will also promote tourism, fisheries, encourage rain water harvesting, etc.

With more than seventy ongoing projects and the addition of the PoA projects, we will soon be handling almost 200 projects at NESAC! This is an enormous assignment given the human resources available at NESAC. But we are ready and happy to take up this challenge and see it as an opportunity to showcase the strength of space technology as well as NESAC. We remain committed to finish the projects on time and maintaining the absolute quality policy of NESAC.

Shifting cultivation or slash and burn agriculture is the rudimentary form of agriculture in the hilly terrain of northeast India. In the larger part of north eastern India, the term frequently used for shifting cultivation is *jhum* and are prevalent in areas where different indigenous tribes are settled. It involves the clearing of vegetation and the slashing and burning of the plants. After 2-3 years of cropping, the soil loses its fertility and the farmer shifts to another piece of virgin or secondary forest for cultivation. The vegetation in the fallow land regenerates during the fallow period.

Mapping of area under *jhum* is done on regular basis at a five yearly interval under the nation-wide project on Wasteland mapping coordinated by NRSC (National Remote sensing Centre), Hyderabad at 1:50,000 scale using multi-temporal LISS III data. NESAC took up the exercise of mapping the same at 1:25,000 scale using Sentinel-2 data (downloaded from www.glovis.usgs.gov) pertaining to March/April 2019. On-screen visual interpretation technique was followed for identifying *jhum* fields and fallows. Area deforested for *jhum* field in each year as depictable from the False Colour Composite (FCC) of the imagery were delineated. The *jhum* fields appeared light grey to dark grey tone amidst the red toned forested area. The pre-burnt *jhum* plots have higher reflectance in

both the red and NIR band while the burnt *jhum* plots have low reflectance in the red as well NIR band. The current *jhum* with current year crop fields and the current *jhum* with second year crop were also identified by referring to the vegetation cover in the preceding year's imagery.

Table: Area under shifting cultivation (2019)

Name of the States	Area (km ²)	Area under Current <i>Jhum</i> (ha)	Area under Abandoned <i>Jhum</i> (ha)
Arunachal Pradesh	83,743	13,305	25,354
Assam	78,438	10,517	23,969
Manipur	22,327	17,863	36,134
Meghalaya	22,429	11,548	22,749
Mizoram	21,081	39,395	76,635
Nagaland	16,579	34,467	58,342
Tripura	10,486	12,401	22,171
Total	2,55,083	1,39,496	2,65,354

It was observed that an area of 1.39 lakh ha was under shifting cultivation in the whole of north east states while 2.65 lakh ha was abandoned *jhum* fields. Area under *jhum* cultivation is maximum under Mizoram state with an area of 39,395 ha followed by Nagaland with an area of 34,467 ha. Manipur has the third highest area under *jhum* with 17,863 ha and least was recorded in Assam (10,517 ha). The area under abandoned *jhumland* (considering 2 years of abandonment at present) was also highest in Mizoram and Nagaland and least in Tripura.

In the state of Arunachal Pradesh *jhum* fields cover an area of 13,305 ha which is about 0.2% of the total geographical area. Large part of the *jhum* fields were in undivided Tirap district and West Siang district. Lower Dibang and Lohit had the least area under *jhum*.



A view of land being prepared for shifting cultivation

Mapping of area under shifting cultivation in North East India

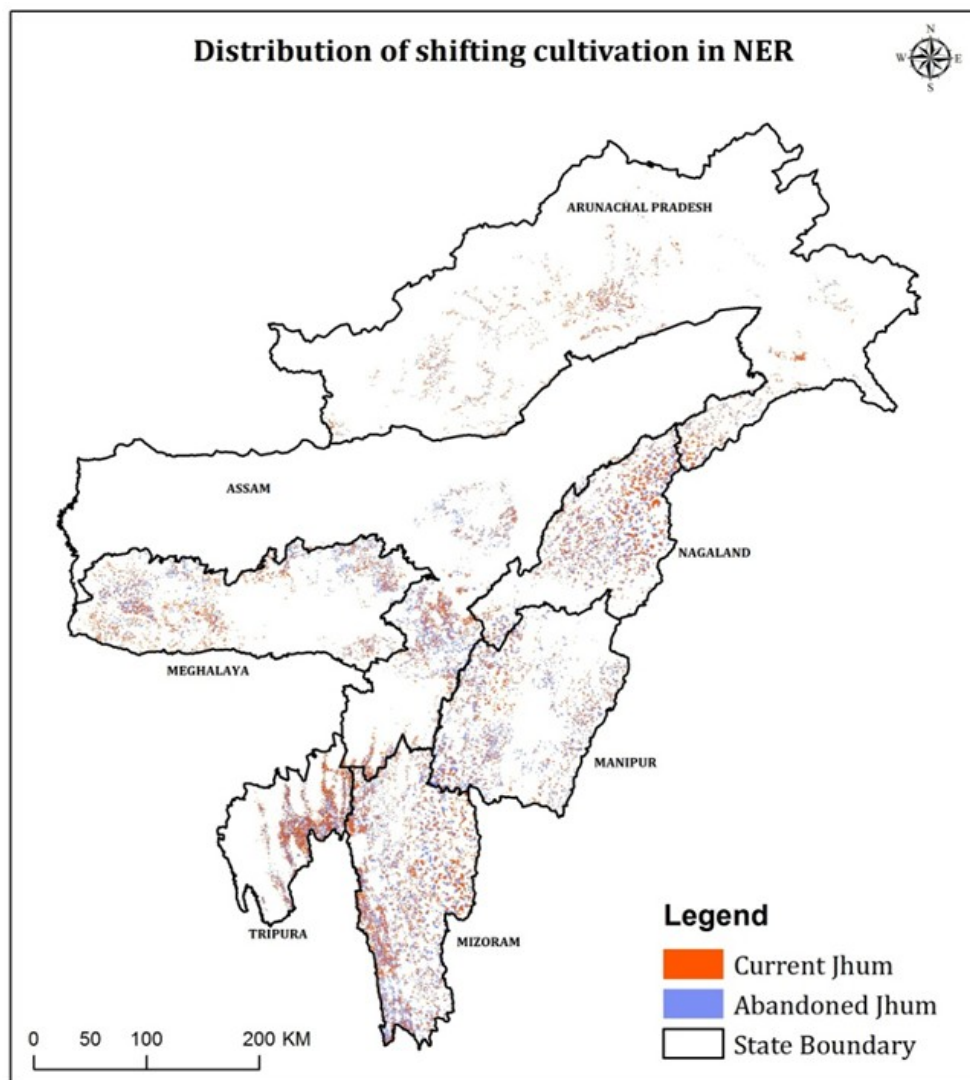
In Assam, *jhum* cultivation covered an area of 10,517 ha, which were mostly recorded in the hilly districts of the state, more predominantly in the districts of Karbi Anglong and North Cachar Hills. They were also common in the hilly tracks of the districts bordering Mizoram and Tripura like Hailakandi, Karimganj, and Cachar.

In Manipur, the *jhum* cultivation are confined to the hilly districts surrounding the flat Imphal valley. A total area of 17,863 ha was recorded as active *jhum* in the state which accounts for 0.80% of the total geographical area of the state. Maximum area under *jhum* fields were recorded in the undivided district of Tamenglong followed by Churhandpur and least in Senapatil.

Meghalaya recorded 11,548 ha of area under shifting cultivation which is 0.5% of the state's area distributed across all the districts. Fifty percent of the *jhum* fields were recorded from the Garo Hills with maximum in West Garo Hills district and minimum in South West Garo Hills district. The remaining 50% of the *jhum* fields were recorded in Khasi-Jaintia Hills with maximum occurrence in West Khasi Hills district.

Mizoram recorded the highest area under *jhum* cultivation among all the other north eastern states with a total area of 39,395 ha (1.9% of total geographical area) distributed across all the districts. Champhai district bordering Myanmar accounts for maximum area under *jhum* followed by Lunglei district towards the south and the least was observed in northern part of the state, i.e. Kolasib district.

Jhum cultivation is prevalent in all the districts of Nagaland comprising an area of 34,467 ha under active *jhum* lands which is about 2.1% of



Spatial distribution of the jhum fields in NE states

the total geographical area. The eastern districts of Mon, Tuensang and Kiphire accounts for 60% of the state's area under *jhum* and Dimapur district recorded the least.

The *jhum* fields in the state of Tripura are confined to the hilly tracks of all the districts settled by different tribes of Tripura covering an area of 12,401 ha that accounts for 1.2 % of the state's total geographical area. Among the districts, Dhalai district comprised of 50.5% of all the *jhum* lands followed by North Tripura district and the least was recorded in Sepahajala district.

The above information generated will be helpful for the departments and agencies involved with rural development planning, tribal welfare, other agri-horti related schemes, and forest department for conservation planning.

NESAC organized Space Exhibitions as part of Azadi Ka Amrit Mahotsav

NESAC has planned a series of Space Exhibitions as part of the “Azadi Ka Amrit Mahotsav” celebrations to showcase the achievements of the country in the areas of Space Science and Technology. The first in the series of such Space Exhibitions was organized at Barnagar College in Barpeta district, Assam on 25 Sept, 2021, where the ‘Space on Wheel’ exhibition bus was stationed along with other visual displays. A large number of students from the college and nearby schools participated in the programme. Dr. B. K. Chakravorty, Principal, Barnagar College chaired the inaugural program and addressed the students, teachers and other participants of the event. Dr. Prakash Kr. Sarma, Vice Principal of the college delivered a motivational speech for the students and stressed on the need of developing scientific acumen among students.

NESAC organized another Space exhibition at Bhola Nath College in Dhubri, Assam on 28 Sept, 2021. More than 400 students from the college and nearby

colleges and schools participated in the programme. The program was inaugurated by Dr Dhruba Chakraborty, Principal B N College in presence of Head of the Department of Physics, Dr (Mrs) Nandita Pradhani and heads and senior faculties of several



Students visiting the Space on Wheel exhibition bus

departments. He lauded ISRO and Department of Space and said that every Indian is proud of the success of ISRO. He specially thanked NESAC for organizing the program at his college.



Students visiting the open exhibition and sharing their experience with national media

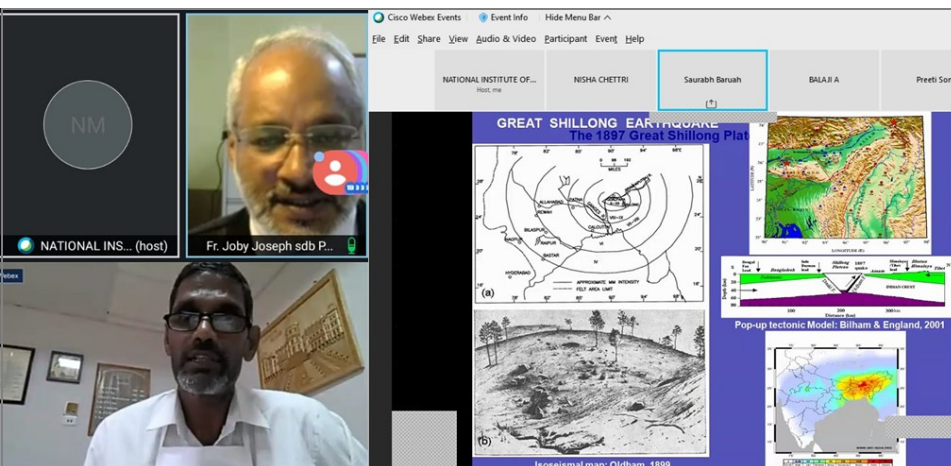


Dr. Sarujinee Gogoi, Asst. Professor, Dept. of Mathematics, Barnagar College coordinated the exhibition from her college while Shri Rafiul Karim Mollah, Asst. Professor, Dept. of Physics, B N College coordinated the exhibition from his college. Dr Bijay K Handique, Sr Scientist and Dr Shyam S Kundu, Sr Scientist coordinated the program from NESAC. The students and teachers from the college, nearby colleges & schools thoroughly enjoyed the exhibition and provided very good feedback to the NESAC team. The program also got very good media coverage

NESAC conducted webinar on use of Science and Technology in early warning of disaster in NER

India University and Institution Network on Disaster Risk Reduction – National Institute of Disaster Management (IUINDRR-NIDM) in collaboration with NESAC and Department of Geology, St. Anthony's College, Shillong, Meghalaya conducted a webinar on use of Science and Technology in early warning of disaster in North Eastern Region of India on 20 May, 2021 through Zoom meetings and YouTube platforms. A total of 314 participants from various organisations attended the programme. The webinar was coordinated by Dr. Preeti Soni, senior programme consultant, IUINDRR-NIDM and Asst. Prof, Nisha Chettri, Department of Geology, St. Anthony's College with assistance from NIDM and NESAC.

Rev. Father Joby Joseph SDB, St. Anthony's College, Shillong delivered the keynote address and welcomed the participants on behalf of Rev. Br. Dr. Albert L. Dkhar, Principal St. Anthony's College. Shri P L N Raju, Director, NESAC delivered the special keynote address, where he highlighted about the key roles of NESAC in Disaster management. Prof. Santosh Kumar, Head GDRR, NIDM, in his address emphasized on the use of science and technology in early warning system,



disaster scenario and other uncertainties, which may play a vital role in the immediate future. Dr. Saurabh Baruah, Scientist G, CSIR-NEIST delivered a talk on Seismic Hazard of Meghalaya Plateau and its vulnerability and use of Science & Technology for dissemination of early warning. Prof Parag Phukon, Department of Geological Sciences, Gauhati University talked on landslides in the NE region of India, its causes and consequences.

Release of Project Report and SILKS Portal for Chirang District of BTR



Mapping of potential areas for expansion of sericulture was taken up under the CSB (central silk board) funded project on Applications of RS and GIS in Sericulture development for three districts under BTR (Bodoland Territorial Region) viz., Udalguri, Kokrajhar, and Baksa. Directorate of Sericulture, BTR, Government of Assam, requested NESAC to take the project on Applications of Geospatial and Web technology for Sericulture development in Chirang district of BTR, Assam.

The project has successfully been completed with mapping of suitable areas for expansion of Mulberry, Eri, and Muga in the district. The project outputs have been integrated in the SILKS webportal and hosted in the public domain. Shri Pramod Boro, Hon'ble Chief of BTR released the project report and the SILKS portal for the district on 29 May, 2021 via online mode. The program was also attended by Shri Jogesh Deuri, Director, Sericulture, BTR and Shri

P L N Raju, Director, NESAC, Dr. B.K. Handique, Project Coordinator and Smt Pratibha T. Das, Principal Investigator of the project, officials from BTR and project team of NESAC.

Flagging off the tricycle-rickshaw for waste management at NESAC residential complex

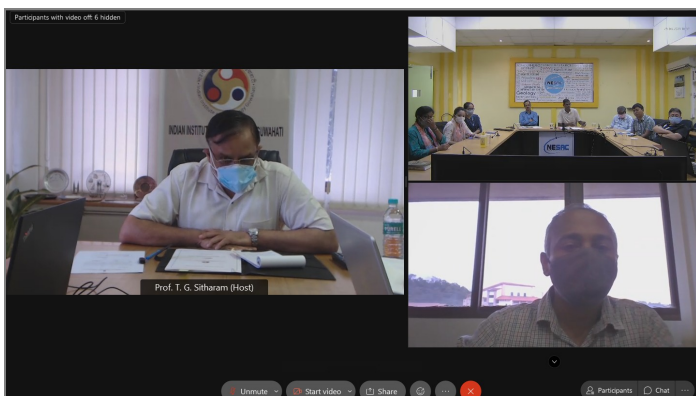
As part of the NESAC commitment towards Swachh Bharat Mission, Shri P L N Raju, Director NESAC, on 14

June, 2021 had flagged off the manual tricycle-rickshaw for collecting household waste (wet and dry separately). On this occasion, Shri P L N Raju, Director NESAC quoted Hon'ble Prime Minister, Shri Narendra Modi Ji, that "Mahatma Gandhi never compromised on cleanliness. He gave us freedom, and we should give him clean India". He briefed the importance of health, hygiene and cleanliness and further explained the main objective of the Tricycle-rickshaw which was to fulfill a much needed requirement for easy movement of dustbins and also to promote the health and hygiene by preventing human contact with waste thereby enhancing the safety of the safai karamcharis (cleaning staff).



NESAC signed MoU with Indian Institute of Technology, Guwahati

NESAC signed an MoU with Indian Institute of Technology, Guwahati on 28 June, 2021 to carry out several initiatives jointly for development of the NER and create a mass of skilled professionals in the field. The MoU was signed via virtual mode.



Some of the initiatives that would be taken up under this partnership include internship programmes, joint

degree programmes, short-term training programmes, student exchange programmes and joint projects, among others. The MoU will specifically focus collaboration with CDMR (Centre for Disaster Management and Risk Reduction) at IIT-G through multi-disciplinary approach to study ways to tackle disasters. The program was attended by Prof. T. G. Sitharam, Director, IIT Guwahati and Shri P L N Raju Director, NESAC among others.

NESAC signed MoU with NERIWALM, Tezpur



NESAC signed another MoU with North Eastern Regional Institute of Water & Land Management, Tezpur (NERIWALM) on 29 June, 2021 at Director's Conference Hall, NESAC. The signatories of the MoU were Dr. Pradip Bora, Director, NERIWALM and Shri P.L.N. Raju, Director, NESAC.

This MoU was signed for carrying out multiple objectives, namely, outreach support to students of NERIWALM, internship programs, capacity building of faculties of both NERIWALM and NESAC, joint collaboration for projects, access to resources of both the institutions to each other, etc.

Signing of MoU between NESAC and NECTAR

One more MoU was signed between NESAC and North East Center for Technology Applications and Reach (NECTAR), Shillong on 30 June, 2021 via virtual mode, aiming at joint initiatives and collaborations in the areas of teaching, research, technology support and projects requiring expertise and logistics from both the institutes. Dr. Arun Kumar Sarma, DG, NECTAR apprised all the participants about a number of new initiatives taken by NECTAR in NE region. He also stressed that NECTAR and NESAC have a wide range of common programs to implement in NER and this



mutual collaboration and hand holding will go a long way for overall development support to entire NE region. Director, NESAC appreciated NECTAR for taking a wide range of programs and coming forward to join hands with NESAC in realizing its future endeavors.

Shri Keshab Mahanta, Hon'ble Minister of Health, S & T and IT, Govt. of Assam visited NESAC

Shri Keshab Mahanta, Hon'ble Minister of Health, Science & Technology, and IT, Govt. of Assam visited NESAC on 22 July, 2021 with a team of high level officials from his departments. Dr. K. K. Sarma, Sr. Scientist, NESAC welcomed the Hon'ble Minister and felicitated him on the occasion of his maiden visit to NESAC.

Hon'ble Minister reviewed the preparedness with regards to preparation of Plan of Action (PoA) on use of Space Technology by the user departments of Assam as per the suggestion of Hon'ble Union Home Minister &



President of NESAC Society. Dr. B. K. Handique, Scientist-SF, NESAC & the State Coordinator on preparation of the PoA for the state of Assam made a presentation to the Hon'ble Minister on various ongoing activities of NESAC and also the proposed plan on implementation of various projects as per the PoA. Hon'ble Minister appreciated the effort of NESAC in providing space technology support for developmental planning in all the eight states of NER and offered his best wishes for future endeavors of NESAC.

NESAC Celebrated 75th Independence Day of the Nation

75th Independence Day of the Nation was celebrated at NESAC on 15 August 2021. Due to the ongoing COVID-19 pandemic, gathering of NESAC staff was restricted and only senior Scientists of NESAC were present during the program. Dr. K. K. Sarma, Sr. Scientist, NESAC hoisted the National Flag at 09:00 AM amidst singing of National Anthem. He gave a brief speech on the prevailing challenging situation and summed up



the activities and achievements of NESAC in the present year.

NESAC celebrated its 21st Foundation Day

21st Foundation Day of NESAC was celebrated on 6 Sept, 2021 with a combination of technical and cultural programs. The celebrations began at 10 AM in the NESAC auditorium. Keeping in mind the COVID restrictions, the number of in-person attendees was kept at minimum with only the senior Scientists and members of the administration and organizing committee were present in the auditorium. Other guests were

invited to attend the program through virtual mode.

The Foundation Day program began with the lighting of lamp by Dr K. K. Sarma, Sr. Scientist NESAC and other Sr. Scientists present in the auditorium. In his address Dr Sarma complemented all the staff on this important occasion and mentioned that NESAC has entered into the stage of adulthood leading to more demand and expectation from various user departments in NE region. He also urged all the NESAC scientists and other staff to be more responsible and deliver timely and high quality outputs and services to various users. Shri P. L. N. Raju, former Director, NESAC and presently the Special Secretary, Department of Science & Technology, Govt. of Assam



released the upgraded version of the NER-DRR web portal and addressed all the NESAC staff on the occasion.

Dr. V. K. Dadhwal, former Director, Indian Institute of Space Science & technology (IIST), Trivandrum delivered the Foundation Day talk on “Earth Observation from Space: Opportunities and Challenges”. A brief cultural program was also organized to celebrate the event. Appreciation certificates were distributed to the “COVID Warriors” of NESAC by Dr K K Sarma, NESAC. A tree plantation drive was also organized at the end of the program.

Director NESAC visited Assam Survey & Settlement Training Centre (ASSTC), Guwahati

Dr. S. P. Aggarwal, Director, NESAC visited the Assam Survey & Settlement Training Centre (ASSTC) at Dakhingaon, Guwahati on 23 September, 2021. Principal, ASSTC, Shri Pankaj Chakravarty, ACS, welcomed Director, NESAC and apprised him of the initiatives taken by NESAC to create quality work in

land management system using modern technology.



Dr. Aggarwal interacted with Assam Land & Revenue Service officials at an ongoing crash course on ‘Mission Basundhara’ at the ASSTC. He also attended a separate interactive session with Lot Mandals during a state level Lot Mandals capacity building program on the cadastral survey of non-cadastral villages under Mission Basundhara

Mock drill exercise on earthquake evacuation was



conducted at NESAC

An earthquake evacuation mock drill exercise was conducted at NESAC office campus on 24 September, 2021 in collaboration with teams from 1st Battalion, NDRF, Guwahati and CISF Unit, NESAC. Shri H. P. S. Kandari, Commandant, 1st Bn, NDRF, along with other staff of NDRF conducted the mock drill exercise at NESAC for around 2 hours. A brief demonstration of

Trainings, Important visits, News & Events

drone operations and other technical facilities at NESAC were also given to the NDRF staff.

WHO officials visited NESAC for collaboration of national T. B. elimination programme

A team of Senior Officials from World Health Organization (WHO), India visited NESAC on 27 September, 2021 to discuss the development of decision support system under National T. B.



elimination programme. Dr. S. P. Aggarwal, Director, NESAC welcomed the officials of WHO, India and highlighted the role of space technology applications initiated by NESAC for various developmental activities of NE region. He also mentioned that the Centre has developed a number of mobile Apps and dashboard applications for various users of the region under various Governance activities.

The IT & Geoinformatics group of NESAC gave a live demonstration of the prototype dashboard and mobile Apps on TB developed for the state of Meghalaya. The officials of WHO, India appreciated the efforts of NESAC and requested Director, NESAC for joint collaboration along with IIM, IIPA, and NIC for development of regional level application for NER. The officials of WHO included Dr. Kiran Rade, Team lead NPO, WHO India; Dr. Shanta Rao, Regional team lead, WHO; Dr. M. Mawrie, State TB officer, Meghalaya

and Dr. Gautom Borgohain, WHO-NTEP consultant, Meghalaya.

Celebration of Hindi Fortnight-2021 at NESAC

The Hindi Pakhwada was celebrated at NESAC from 14 to 29 September 2021 with limited programs following the COVID-19 protocols. The Fortnight was inaugurated on 14 September by Dr. K. K. Sarma, senior Scientist, NESAC followed by administering of pledge to all the employees. Message from Hon'ble Home Minister on the occasion of Hindi Diwas was read out to all. A number of competitions such as creative writing, Hindi poetry recitation, Hindi story reading, extempore speech, dictation and calligraphy competition were organized. A Hindi workshop was also organized on 24 September, 2021 for all permanent employees by Dr. Sharmila Tai, Hindi Pradhyapak from Central Hindi Training Institute, Guwahati on the topic – "Hindi Grammar and Noting – Draft Writing".

The closing ceremony was organized on 29 the Sept, 2021. Dr. S. P. Aggarwal, Director, NESAC chaired the closing ceremony and congratulated everyone for the successful completion of Hindi Pakhwada. He also handed over prize money and certificates to the winners of various competitions.



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