



ANNUAL REPORT 2019-20

ERNET INDIA

**An autonomous Scientific Society under
Ministry of Electronics and Information Technology, Government of India**

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PREFACE

Education and Research Network of India, or ERNET India, is an autonomous scientific society under the Ministry of Electronics and Information Technology. ERNET not only has made a significant contribution to the emergence of networking in the country, it brought internet to India and supports building up national capabilities in the areas of networking, especially in protocol software engineering and tools for collaboration. ERNET has developed a great network over the years, that provides numerous services to the education and research community.

ERNET is the nationwide terrestrial and satellite network with point of presence located at the premiere educational and research institutions in cities of the country. ERNET's focus isn't limited to just provide connectivity, but to meet the needs of academic and research institutions by providing Training, Project management guidance, IT consultancy, Global roaming services etc. Other value added services are Video Conferencing, Domain registration and CUG services. Moreover, Further to keep pace with the developing technology and enhancing innovation, ERNET focuses in research and development in newer areas like Internet of Things, Virtual Reality, Augmented reality (AR) & Artificial Intelligence (AI) etc.

To improve the growth of internet, the network needs to be constantly improved. ERNET is also operating VSAT network in C-Band using GSAT satellite to provide internet and intranet access to education and research institutions. Its Master Earth Station, located in Bengaluru, is functioning as the Network Operations Center (NOC). ERNET India has established VSAT connectivity for Internet/ Intranet access at 60 educational institutes/ schools in the North-Eastern states of India funded by MeitY, GoI and further, broadband VSAT links for Internet access in 22 JNVs mainly located in North-Eastern States. To provide the connectivity as much as possible so that user can be benefited, we established nine numbers of High Capacity SCPCVSAT links for Lakshadweep Information Technology Services Society (LITSS) in 09 islands of Lakshadweep. Also, Internet Protocol version 6 is the new protocol on which the Internet will expand since it offers nearly unlimited number of IP addresses to connect devices to the Internet. ERNET is also involved in Development of a Distributed Architecture using DNSsec for enforcing security updates in IPv6 enabled IoT smart devices. ERNET India, the DoT empaneled consulting service provider and MeitY's nodal agency for IPv6 implementation has been handholding and providing consultancy and turnkey IPv6 implementation services to organizations across the country.

ERNET India is also working with MoHFW (Ministry of Health and Family Welfare) for setting up of e-classroom Infrastructure in 50 Medical colleges under the NMCN (National Medical College Network) Project. This implementation by ERNET India will facilitate tele-education, tele-CME, sharing of surgical & interventional Skill, capacity building of HRH etc. for medical and paramedical professionals by setting up modern ICT enabled e-infrastructure.

Everyone deserve the access to technology, regardless of their special abilities and ERNET took a huge step towards the digital advancement and making web content available to all citizens, Under Accessibility India Campaign, one of the target is to make Government websites and Digital contents accessible to all. For this, Department of Empowerment of Persons with Disabilities (DEPwD) has funded ERNET India to make State Govt. websites accessible as per GIGW and WCAG-2.0 (A, AA level) standards. 573 websites have

been developed and 383 websites made live under the project. In an effort to change the narrative around accessibility, ERNET has actively collaborated with Microsoft India and NASSCOM Foundation, Department of Empowerment of Persons with Disabilities (DEPwD), & DST under Ministry of Science and Technology to create a program - Innovate for an Accessible India campaign. An MoU was signed by the five stakeholders and the program was launched on March 17, 2020.

Being an exclusive registrar for Domain Services for education and research under .in registry- edu.in, res.in and ac.in. 5457 academic domains during the year and Total 14663 domains have been registered. ERNET is also registering विद्या.भारत (vidya.bharat) domains.

As we know, worldwide mode of Education is witnessing transcending transformation towards digitization and use of various technologies. Tele education is no more a luxury, but a way of education which utilizes all forms of digital contents and delivers best of breed lecturers to the far flung areas using internet.

A similar and extremely successful project which was funded by Ministry of Electronics and Information Technology (MeitY), Government of India has been envisaged, successfully implemented and operated by ERNET India. The concept of technology enabled teaching and learning through an online two-way interactive learning system is called Smart Virtual classroom. The implemented Smart Virtual Classroom successfully improved the quality of education, addressed the need of specialized teaching staff at remote/rural location and provided a single cross-state ICT enabled knowledge sharing platform for training & skill development of educationist / teachers. ERNET India established Smart Virtual Classroom facilities in 3204 Govt. owned/controlled schools plus 50 DIETs in Himachal Pradesh, Gujarat, Rajasthan, Tripura, Haryana, Andhra Pradesh and Tamil Nadu. The above project has been successful in conducting 16,573 sessions, benefitting 70,77,600 students and training 65,092 teachers across 3204 Schools and 50 DIETs.

In order to support the Smart Virtual classroom infrastructure with the latest technology augmentations, ERNET India plans to augment the student's learning with more advanced & latest technological tools / solutions advancements in education domain. This will aid student's learning, increase their knowledge retention, improve teacher student engagement and students will remain motivated during learning. We are planning to bring in e-content from Pre-primary to class 12th, source digital content using Immersive technologies & working to build assessment and classroom engagement mechanisms using AI (Artificial Intelligence) and AR (Augmented Realty).

Education and training needs are for all domains and hence ERNET India progressively identifies need of technology in various domains. ERNET India approached agriculture domain and scheduled various online interactive expert sessions with farmers by utilizing the established Smart virtual classroom infrastructure. The successful idea gave birth to the concept of Digital Krishi Schools. Digital Krishi Schools are scheduled, online, agricultural expert-led pedagogical intervention where experts are not present physically with farmers but instead experts interact through network in an online learning interactive live environment.

This is just like a real classroom, wherein a farmer and agricultural expert are logged into the interactive video conferencing sessions and experience the virtual classroom environment by making use of electronic interactive equipment's such as board, projector and Professional Desktop. The farmers attend the

concurrent live and interactive sessions taken via mentor location. The Mentor location is the location from where specialized agricultural experts take lectures and those lectures can be viewed & interacted live at remote IARI Centres. ERNET is planning to build such Digital Krishi Schools in the coming years and support the agriculture domain in the education and training objective.

ERNET India has always been in a sincere endeavor to find alternate means of connectivity solutions for the places where the connectivity has not been implemented or unsuccessful due to various challenges such as difficult terrain, River/ Railway tracks between the sites, frequent fiber cuts etc. In pursuit of exploring the alternative solutions, ERNET India is currently working on a pilot R&D project based on free space optical communication technology (FSOC Technology) to provide high speed network connectivity.

Every technology comes with its own challenges. The rapid pace at which technologies change are bringing different challenges. As soon as a technology begins to arrive, the associated learning, implementation of use cases and development of ecosystem starts. By the time it has reached a stage to get adapted, a newer technology gets introduced. Hence, it is utmost important for each of stakeholders including Administrators, Policy makers, Engineering Staff / Scientists from Technical Organizations, students & researchers etc. to be able to understand what each technology can they offer, how they are beneficial and how to use them judiciously. Hence there is a need of “A Learning & Skilling Centre” that shall help to reduce the technology learning period & helps in adapting to this change. Emerging technologies change “future of work”, we need to adapt quickly to leverage this advantage. ERNET India is also aiming to provide specialized technical training by establishing a Future Tech Learning and Skilling Centre with a concept of Competency development and skilling of Manpower on future technologies starting with 5G, Li-Fi, IoT, etc. the concept will be an incessant and sustainable effort to cater to current and upcoming future technology skilling demand.

The Digital India Program is in full force, and for the same reason, Wi-Fi has become a growing need for the public globally, especially among students, staff and even visitors/guests. MeitY, in consultation with MHRD identified 5 universities namely Allahabad, Pune, Osmania, NEHU and Utkal University, and directed ERNET to set up Wi-Fi enabled campus networks. The Wi-Fi projects have been successfully completed in Allahabad, Pune, NEHU and Osmania University and phase-II is under process in Utkal University. This has enabled access to the cyber world through smart-phones, tablets, laptops and other Wi-Fi enabled devices. Thousands of Wi-Fi users have been using the same for educational purposes.

With global connections, the field of education and research should also be affected. Collaborating with international partner, eduroam- Global roaming services is successfully running in India. National and International users are availing seamless wi-fi roaming service free of cost. In India, Approx. 280 Institutes have been added in the list of globally connected institutions and have been serving educators, students and researchers ever since.

ERNET India jointly worked with Indian Institute of Science (IISc), Bangalore and setup an experimental LoRaWAN network integrated with smart streetlights. The outcome of the project has resulted in a book chapter titled "LPWAN Technologies for IoT and M2M Applications", published in March 2020 by Elsevier. Based on this experience and outcome, ERNET India also plans to implement their outcome of this project in Tamil Nadu Villages under the project named ‘Smart Streetlight Monitoring and Control for villages’ with TNeGA fund support.

In research and development aptitude, ERNET India has been carrying out research activity on LiFi jointly with IIT Madras. Under this project, indoor LiFi Multi user testbed was setup to carry out experiments to study coverage range, optical power received at different coordinates, outage analysis at different distances in both Line of Sight (LoS) and Non Line of Sight (NLoS).

ERNET India as part of global project collaboration with APAN (Asia Pacific Advanced Network) Asi@Connect initiative, had actively participated in Cyber Performance Phase-I activity. Under this project, ERNET had participated in the tech-culture fusion platform including training programs and Cyber Performances with 6 beneficiary countries, namely India, Vietnam, Malaysia, Bangladesh, South Korea and Pakistan. Subsequently, Cyber Performance Phase-II has been initiated for focusing production and broadcast of multinational cultural contents created by the beneficiary nations to document/broadcast aspects of local culture, history, ethnography, agriculture, health, musical and theatrical performance jointly with 5 beneficiary nations namely India, Bangladesh, Malaysia, Pakistan and Nepal.

ERNET also worked with NASSCOM in Public Private Partnership (PPP) mode to set up a Center of Excellence in IoT to not just jumpstart innovation, but to also promote startup culture in India. ERNET India, under the fresh thinking initiative progressively identifies newer areas to enhance its contribution to National missions. The identified new areas which are work in progress are Smart Village concept to utilize network established under BharatNet, establishing sustainable Future tech skilling and learning center, developing in-house software development competency.

Cybersecurity is important because it encompasses everything that pertains to protecting our personal information. The lack of awareness about cyber security makes most people an easy target for anyone trying to hack into their data. There are various cyber Security initiatives at ERNET India. ERNET is in process for creating the Gamified Platform for Cyber Security through advanced Virtualization Technology - Virtual Reality (VR) & Augmented reality (AR). Through this platform, ERNET will educate officials in the area of cyber security like phishing, Social Media and Online Payment Security, Information Type etc. ERNET India is also in process for Implementation of Cyber Crisis Management Plan (CCMP) and ISO/IEC 27001:2013. It is the international standard for securing information assets from threats. It provides precise requirements for a holistic information security management. Implementations of ISO 27001 standards will help manage the security of sensitive assets such as financial data, intellectual property, employee records, customer data, and other sensitive information. Under Information Security Education & Awareness (ISEA), MeitY funded project with an objective for capacity building in the area of Information Security by training Govt. officials and organizing mass information awareness programs. ERNET India has trained almost 300 government officials.

**Governing Council, ERNET India
01.04.2019 to 31.03.2020**

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|---|--|--|
| 1 | Shri Ravi Shankar Prasad
Hon'ble Minister for Law & Justice,
Communications and Electronics &
Information Technology
New Delhi | Chairperson
01.04.19 to 31.03.2020 |
| 2 | Shri S.S. Ahluwalia
Hon'ble Minister of State Electronics &
Information Technology,
Ministry of Tourism | Deputy Chairperson
01.04.19 to May,2019 |
| | Shri Dhotre Sanjay Shamrao
Hon'ble Minister of State for Education,
Communications and Electronics &
Information Technology
New Delhi | May, 2019 to 31.03.2020 |
| 3 | Shri Ajay Sawhney
Secretary
Ministry of Electronics & Information Technology
New Delhi | Executive Vice Chairperson
01.04.2019 to 31.03.2020 |
| 4 | Shri Pankaj Kumar
Additional Secretary
Ministry of Electronics & Information Technology
New Delhi | Member
01.04.2019 to 23.10.2019 |
| | Shri Gopalakrishnan S.
Additional Secretary
Ministry of Electronics & Information Technology
New Delhi | 24.10.2019 to 31.03.2020 |
| 5 | Ms. Kiran Soni Gupta
Additional Secretary & Financial Adviser
Ministry of Electronics & Information Technology
New Delhi | Member
01.04.2019 to 31.07.2019 |

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|----|---|------------------------------------|
| | Ms. Jyoti Arora
Additional Secretary & Financial Advisor
Ministry of Electronics & Information Technology
New Delhi | 01.08.2019 to 31.03.2020 |
| 6 | Shri Rajiv Kumar
Joint Secretary (ABC Division)
Ministry of Electronics & Information Technology
New Delhi | Member
01.04.2019 to 31.03.2020 |
| 7 | Ms. Geeta Kathpalia
Group Coordinator (e-Infra)
Ministry of Electronics & Information Technology
New Delhi | Member
01.04.2019 to 31.03.2020 |
| 8 | R. Subrahmanyam
Secretary (Higher Education)
Ministry of HRD
New Delhi | Member
01.04.2019 to 15.12.2019 |
| | Shri Amit Khare
Secretary (Higher Education) | 16.12.2019 to 31.3.2020 |
| 9 | Shri R S Sharma
Chairman
Telecom Regulatory Authority of India
New Delhi | Member
01.04.2019 to 31.3.2020 |
| 10 | Ms. Preeti Sudan
Secretary
Ministry of Health & Family Welfare
New Delhi | Member
01.04.2019 to 31.03.2020 |
| 11 | Ms T.K. Anuradha
Director
Deptt. of Space
Bengaluru | Member
01.04.2019 to 31.3.2020 |

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|----|---|---|
| 12 | Shri Sanjay Bahl
Director General
Indian Computer Emergency Response Team
Ministry of Electronics & Information Technology
New Delhi | Member
01.04.2019 to 31.3.2020 |
| 13 | Prof. V Ramagopal Rao
Director
Indian Institute of Technology
New Delhi | Member
01.04.2019 to 31.3.2020 |
| 14 | Ms Debjani Ghosh
President NASSCOM
NOIDA | Member
01.04.2019 to 31.3.2020 |
| 15 | Dr. Neena Pahuja
Director General
ERNET India | Member Secretary
01.04.2019 to 5.09.2019 |
| | Ms. Geeta Kathpalia
Director General
ERNET India | 06.09.2019 to 31.03.2020 |

**General Body of ERNET India
01.04.2019 to 31.03.2020**

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|---|--|--|
| 1 | Shri Ravi Shankar Prasad
Hon'ble Minister for Law & Justice,
Communication & Electronics & Information Technology
New Delhi | Chairperson
01.04.19 to 31.03.2020 |
| 2 | Shri S.S. Ahluwalia
Hon'ble Minister of State
Electronics & Information Technology,
Ministry of Tourism | Deputy Chairperson
01.04.19 to May,2019 |
| | Shri Dhotre Sanjay Shamrao
Hon'ble Minister of State for Education,
Communications and Electronics &
Information Technology
New Delhi | May, 2019 to 31.03.2020 |
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01.04.2019 to 31.03.2020 |
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New Delhi | Member
01.04.2019 to 23.10.2019 |
| | Shri Gopalakrishnan S.
Additional Secretary
Ministry of Electronics & Information Technology
New Delhi | 24.10.2019 to 31.03.2020 |
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Additional Secretary & Financial Adviser
Ministry of Electronics & Information Technology
New Delhi | Member
01.04.2019 to 31.07.2019 |

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Ministry of Electronics & Information Technology
New Delhi | 01.08.2019 to 31.03.2020 |
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01.04.2019 to 31.03.2020 |
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01.04.2019 to 31.3.2020 |
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New Delhi | Member
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| 14 | Ms Debjani Ghosh
President NASSCOM
NOIDA | Member
01.04.2019 to 31.3.2020 |
| 15 | Dr. Neena Pahuja
Director General
ERNET India | Member Secretary
01.04.2019 to 5.09.2019 |
| | Ms. Geeta Kathpalia
Director General
ERNET India | 06.09.2019 to 31.03.2020 |

**KEY
HIGHLIGHTS****Financial Highlights for 2019-20**

- Total Revenue of the society was ₹ 62.18 crores and surplus was Rs. 6.10 crores. Corpus of the Society has reached to ₹ 137.21 crores as on 31.03.2020.

Connecting India as part of Digital India Initiative & Research & Technology

- ERNET India has a VSAT network operating in C-band on GSAT satellite which provides Internet & Intranet access to education and research institutions located all over the country. The Master Earth Station (MES) is located at Bengaluru and is functioning as the Network Operations Centre (NOC). The network provides three types of VSAT links, viz., DVB-S2 ACM / MF-TDMA based Broadband VSATs; Normal SCPC VSATs and High Capacity SCPC VSATs. Presently the satellite bandwidth of the network is enhanced to 111MHz on GSAT and this bandwidth is successfully used in providing High Capacity VSAT links to two sites (in Kavaratti and Port Blair) for NKN; 09 sites in (different islands of) Lakshadweep for Lakshadweep Information Technology Services Society (LITSS) as well as for providing Broadband VSAT links to remotely located educational institutes in North East states, A & N Islands and Lakshadweep Islands.
- To achieve the target of making available web content to every Indian including Persons with disability, under Accessibility India Campaign, Department of Empowerment of Persons with Disabilities (DEPwD) has funded ERNET India to make State Govt. websites accessible as per GIGW and WCAG-2.0 (A, AA level) standards. Under the project, 573 websites have been developed and 383 websites made live.
- As a part of Digital India Initiative, ERNET India successfully envisaged, implemented and operated Smart Virtual Classroom facilities in 3204 Govt. owned/controlled schools plus 50 DIETs in Himachal Pradesh, Gujarat, Rajasthan, Tripura, Haryana, Andhra Pradesh and Tamil Nadu. The implemented Smart Virtual Classroom successfully improved the quality of education, addressed the need of specialized teaching staff at remote/rural location and provided a single cross-state ICT enabled knowledge sharing platform for training & skill development of educationist / teachers. The above project has been successful in conducting 16,573 sessions, benefitting 70,77,600 students and training 65,092 teachers across 3204 Schools and 50

DIETs. The project funding support from MeitY has ended on 31st December 2019 and the project is handed over to State Education Department. Currently the States of Himachal Pradesh & Gujarat are managing the operations & maintenance of installed infrastructure through ERNET India by utilizing State funds and remaining project States namely Tamil Nadu, Andhra Pradesh, Haryana, Rajasthan and Tripura are managing the operations & maintenance of installed infrastructure by their own resources. ERNET India is providing the central infrastructure support to all seven project states.

- ERNET India has implemented the project for setting up of e-classroom Infrastructure in 50 Medical colleges including 6 Medical Colleges from NE Region. This implementation by ERNET India will facilitate tele-education, tele-CME, sharing of surgical & interventional Skill, capacity building of HRH etc. for medical and paramedical professionals by setting up modern ICT enabled e-infrastructure. More than 16552 sessions (including test sessions, CME & Live surgery sessions) from various medical colleges have been conducted on the infrastructure.
- ERNET India has always been in a sincere endeavor to find alternate means of connectivity solutions for the places where the connectivity has not been implemented or unsuccessful due to various challenges such as difficult terrain, River/ Railway tracks between the sites, frequent fiber cuts etc. In pursuit of exploring the alternative solutions, ERNET India is currently working on a pilot R&D project based on free space optical communication technology (FSOC Technology) to provide high speed network connectivity.
- Under Digital India program as Wi-Fi has become a universal expectation among Universities/institutions students, faculty & staff as well as visitors/guests. For achieving the goal, MeitY in consultation with MHRD identified following five universities and directed ERNET India for setting up Wi-Fi enabled Campus Networks at Allahabad, Pune, Osmania, NEHU & Utkal University. It will enable on campus students, faculty, teachers, staff, guests to have entry to cyber world having intelligent Wi-Fi devices such as Tablets, smartphone, Laptop Computer to access, retrieve and post information on any-time-any-where basis across Wi-Fi enabled Campuses.

- o Osmania University, Hyderabad - The Wi-Fi project has been set up, completed and commissioned. The Wi-Fi Network enable students, faculty, teachers, staff, guests to have entry to Cyber world having intelligent Wi-Fi devices like Tablets, Smartphone, Laptop Computers to access, retrieve and post information at any-time-any-where basis across the Wi-Fi coverage area.
- o NEHU, Shillong - The Wi-Fi project has been set up, completed and commissioned. The Wi-Fi Network enable students, faculty, teachers, staff, guests to have entry to Cyber world having intelligent Wi-Fi devices like Tablets, Smartphone, Laptop Computers to access, retrieve and post information at any-time-any-where basis across the Wi-Fi coverage area.
- o Utkal University, Bhubaneswar - The Wi-Fi project (phase -1) has been implemented at Utkal University and it is operational. The Wi-Fi Network enable students, faculty, teachers, staff, guests to have entry to Cyber world having intelligent Wi-Fi devices like Tablets, Smartphone, Laptop Computers to access, retrieve and post information at any-time-any-where basis across the Wi-Fi coverage area. Action is under process to cover remaining locations.
- o Allahabad University - ERNET India has set up Wi-Fi enabled campus network in University of Allahabad, Allahabad, U.P. The Wi-Fi project has been implemented & completed.
- o Savitribai Phule Pune University (SPPU), Pune - ERNET India has augmented the network and set up, completed and commissioned Wi-Fi enabled Network at SPPU, Pune to cover the dark zone in the Wi-Fi coverage and new buildings which were not connected or were not Wi-Fi enabled areas and integrated with the existing Campus Network. The Augmentation of Wi-Fi enabled campus network improved the Wi-Fi coverage in the campus and facilitate connecting the leftover building to the campus network.
- ERNET added appx 280 Indian institutes in the list of globally connected institutes using 'eduroam'. This service realizes the objective of 'one world one connectivity' by providing a secure, seamless world-wide roaming

access service over shared virtual Wi-Fi campuses to researchers and academicians.

- ERNET is an exclusive Registrar for Domain Services for the education and research under .in registry – edu.in, res.in and ac.in. ERNET is also registering विद्या.भारत(vidya.bharat) domains. ERNET had registered/renewed 5457 academic domains and Total 14663 domains have been registered.
- In order to experiment newer technologies to be utilized in the era of Internet of things (IoT), ERNET India jointly worked with Indian Institute of Science (IISc), Bangalore and setup an experimental LoRaWAN network integrated with smart streetlights. The outcome of the project has resulted in a book chapter titled "LPWAN Technologies for IoT and M2M Applications", published in March 2020 by Elsevier. Based on this experience and outcome, ERNET India also plans to implement their outcome of this project in Tamil Nadu Villages under the project named 'Smart Streetlight Monitoring and Control for villages' with TNeGA fund support.
- ERNET is hosting 3 Live IPv6 only root server as part of the global experiment on testing the performance and stability of DNS root servers worldwide under the Yeti-DNS initiative. ERNET is also involved in Development of a Distributed Architecture using DNSsec for enforcing security updates in IPv6 enabled IoT smart devices.
- Currently WiFi is being used to enable ubiquity of Internet. Experiments have been conducted for Light Fidelity (LiFi) and research is necessary to experiment with their co-existence. ERNET India is also jointly working with IIIT Delhi on 'Optical Wireless Access Network for rural and urban communications', under the R&D project funded by MeitY. As part of the project, a Hybrid LiFi-WiFi testbed will be setup and algorithms for AP selection and link aggregation experiments will be developed. In the rural communication scenario, a low cost VLC communication will be developed utilizing the solar panels as data receivers.
- One of the key drivers of Digital India could be skilled manpower. Hence,

initiative towards skilling manpower in various critical areas is essential. While looking forward to the growth of the nation, it's not limited to the students and staff, it also includes the government officials from all sectors. Information Security Education & Awareness (ISEA) is a MeitY funded project with an objective for capacity building in the area of Information Security by training Govt. officials and organizing mass information awareness programs. Under this project ERNET India has trained almost 300 government officials till date.

- In order to lubricate the IoT eco-system and democratize innovation, ERNET worked with NASSCOM in Public Private Partnership (PPP) mode to set up a Center of Excellence for IoT at Bengaluru to not just jumpstart innovation, but to also promote startup culture in India. MeitY has taken further steps to add three more CoE's besides CoE-IoT Bengaluru in various states across the country viz.at Gurugram (Haryana), Gandhi Nagar (Gujarat) and Visakhapatnam (Andhra Pradesh). Operations of Gurugram CoE IoT started from June,2018 and the same were inaugurated on 5th October 2018. Gurugram CoE IoT is focusing on Industry4.0, Automotive/ Transportation, Healthcare and Agriculture sector.
- ERNET India has dedicated R&D offices in Chennai and Bangalore where innovative projects are being envisaged and collaboratively researched or developed. Recently, ERNET India has been carrying out research activity on LiFi jointly with IIT Madras. Under this project, indoor LiFi Multi user testbed was setup to carry out experiments to study coverage range, optical power received at different coordinates, outage analysis at different distances in both Line of Sight (LoS) and Non Line of Sight (NLoS).

New Directions

- ERNET India is also in process for Implementation of Cyber Crisis Management Plan (CCMP) and ISO/IEC 27001:2013. It is the international standard for securing information assets from threats. It provides precise requirements for a holistic information security management. Implementations of ISO 27001 standards will help manage the security of sensitive assets such as financial data, intellectual property, employee

records, customer data, and other sensitive information.

- ERNET has actively collaborated with Microsoft India and NASSCOM Foundation, Department of Empowerment of Persons with Disabilities (MSJE), & DST under Ministry of Science and Technology to create a program - Innovate for an Accessible India campaign. A MoU was signed by the five stakeholders.
- ERNET is expanding the opportunistic reach in pedagogy techniques (personalized adaptive & collaborative learning) for educational Institutions by using emerging & futuristic technologies.
- Technology for every student, a globe for every classroom, a project has been funded by Meity, ERNET will set up ICT Infrastructure in 40 Government Schools of North East Region with familiarize usage of personalized adaptive learning by using Virtual Reality content.
- Education and training needs are for all domains and hence ERNET India progressively identifies need of technology in various domains. ERNET India approached agriculture domain and scheduled various online interactive expert sessions with farmers by utilizing the established Smart virtual classroom infrastructure. The successful idea gave birth to the concept of Digital Krishi Schools. Digital Krishi Schools are scheduled, online, agricultural expert-led pedagogical intervention where experts are not present physically with farmers but instead experts interact through network in an online learning interactive live environment. This is just like a real classroom, wherein a farmer and agricultural expert are logged into the interactive video conferencing sessions and experience the virtual classroom environment by making use of electronic interactive equipments such as board, projector and Professional Desktop. The farmers attend the concurrent live and interactive sessions taken via mentor location. The Mentor location is the location from where specialized agricultural experts take lectures and those lectures can be viewed & interacted live at remote IARI Centres. ERNET is planning to build such Digital Krishi Schools in the coming years and support the agriculture domain in the education and training objective.

- In order to support the Smart Virtual classroom infrastructure with the latest technology augmentations, ERNET India plans to augment the student's learning with more advanced & latest technological tools / solutions advancements in education domain. This will aid student's learning, increase their knowledge retention, improve teacher student engagement and students will remain motivated during learning. We are planning to bring in e-content from Pre-primary to class 12th, source digital content using Immersive technologies & working to build assessment and classroom engagement mechanisms using AI (Artificial Intelligence) and AR (Augmented Reality).
- Emerging technologies is 'Future of Work' and it is essential that we quickly leverage the advantages of the newer technologies. In order to build skilled Manpower capacity for Future Technologies like 5G/AI IoT etc., ERNET India is aiming to provide specialized technical training by establishing a Future Tech Learning and Skilling Centre with a concept of Competency development and skilling of Manpower on future technologies starting with 5G, Li-Fi, IoT, etc. the concept will be an incessant and sustainable effort to cater to current and upcoming future technology skilling demand.
- ERNET India as part of global project collaboration with APAN (Asia Pacific Advanced Network) Asi@Connect initiative, had actively participated in Cyber Performance Phase-I activity. Under this project, ERNET had participated in the tech-culture fusion platform including training programs and Cyber Performances with 6 beneficiary countries, namely India, Vietnam, Malaysia, Bangladesh, South Korea and Pakistan. Subsequently, Cyber Performance Phase-II has been initiated for focusing production and broadcast of multinational cultural contents created by the beneficiary nations to document/broadcast aspects of local culture, history, ethnography, agriculture, health, musical and theatrical performance jointly with 5 beneficiary nations namely India, Bangladesh, Malaysia, Pakistan and Nepal.
- As highlighted in the National Policy for Software Product (2019), there is a need of a framework where industry, academia and government will work in

synergy. Also leveraging newer & emerging technologies like AI, IoT, Blockchain, etc. will maximize innovation and will help our country to keep pace with the advancement of technology. With the similar motive, ERNET India is working to develop In-house software development capabilities, leveraging its internal resources to develop & implement innovative and Problem specific software solutions in the current focus areas such as Digital Credential Management, E-governance, Cyber-Security, Governance & Enforcement solutions for Social Networks, etc. using technologies like Blockchain, AI, IoT, Machine Learning, Big Data Analytics, 5G, AR etc.

- ERNET India is also working on specific solutions development in the area of Artificial Intelligence It will be performing application based research that shall perform Machine Learning based text analysis of Microblog Social Networks (Twitter), to enable country wide cyber surveillance in order to support law enforcement agencies of India.
- To support ongoing flagship scheme of Government of India named as “BharatNet” for provision of broadband access to the citizens in rural and remote areas thereby bridging the digital divide, ERNET India is aiming to contribute towards leveraging the “BharatNet” by enabling Smart Elements in villages towards utilizing the “BharatNet” available at the Gram Panchayat. The concept “Smart Village” is envisaged to make the villages smarter through innovation in Information and Communication Technology (ICT)/ Internet of things (IoT) technology to improve the service delivery, safety, security, health care, education and internet connectivity, information dissemination at villages by implementing the respective smart elements infrastructure.
- ERNET India is working towards conceptualizing “Working from home solution” by leveraging the VDI (Virtual desktop infrastructure) technology that enabled the hosting of desktop environments on a centralized server and deploys them to end-users on request. The technology will let the users/employees access their desktop environment (e-office, email, windows, folders, toolbars, etc.) stored in remotely located server, rather than on a local PC or other client computing device. This will enable anywhere, anytime access of computers and allows working environment from any device such as Mobile, Laptop.

About ERNET

ERNET India, an autonomous scientific society under the administrative control of the Ministry of Electronics & Information Technology is functioning under the overall control and guidance of its Governing Council. The Hon'ble Minister for Electronics & Information Technology is the Chairperson of the Council and the members have been chosen from premier academic & research institutions, government organizations and professional bodies.

ERNET India is serving academic and research institutions in the country by innovatively connecting them on Intranet and Internet using appropriate state-of-the-art technologies. Institutions anywhere in the country can now be connected to ERNET network. ERNET India provides services through its following 05 Points of Presence (PoPs) located across the country, which help in rapidly responding to the needs of the institutions in the country:

- ERNET India HQs, New Delhi
- Indian Institute of Technology (IIT), Guwahati
- University of Rajasthan, Jaipur
- VSAT Hub located at Software Technology Parks Of India (STPI), Bengaluru
- Indian Institute of Technology Madras, Chennai

These PoPs provide technical support and hand-holding to user sites. The PoP at STPI Bengaluru provides Intranet and Internet access through Satellite.

In addition to 05 PoPs, ERNET India has setup regional centers at following 2 locations:-

- Bengaluru
- Chennai

**ERNET
Network
Architecture**

The ERNET network is a judicious mix of terrestrial and satellite based wide area network. The satellite Wide Area Network (WAN) uses Very Small Aperture Terminal (VSAT) technology which is easily deployable and facilitates reliable and quick access to remote areas. The ERNET terrestrial WAN provides backbone links between the PoPs. The ERNET Network is connected to pan-European Education and Research Network (GEANT) and Trans Eurasia Information Network (TEIN3) through NKN. Following are the salient features of the ERNET backbone:

- MPLS Enabled
- Dual stack support- Both IPv4 and Ipv6
- High Capacity Backbone
- Scalable, Secure and Guaranteed QoS
- Support for IPv4 / IPv6 MPLS VPN services
- Multicast enabled VPN for running Multicast applications

The ERNET Backbone has been overlaid on National Knowledge Network (NKN) with backbone bandwidth of 100 Mbps (upgradable to 1 Gbps)

**IPv6
Enabled
Network**

ERNET network supports IPv4 and IPv6 Internet Protocol in native mode with dual stack, unicast and multicast. IPv6 routing protocol OSPFv3, end-to-end Ethernet services, QoS (DiffServ), video conferencing, authentication and authorization have also been implemented on ERNET Network.

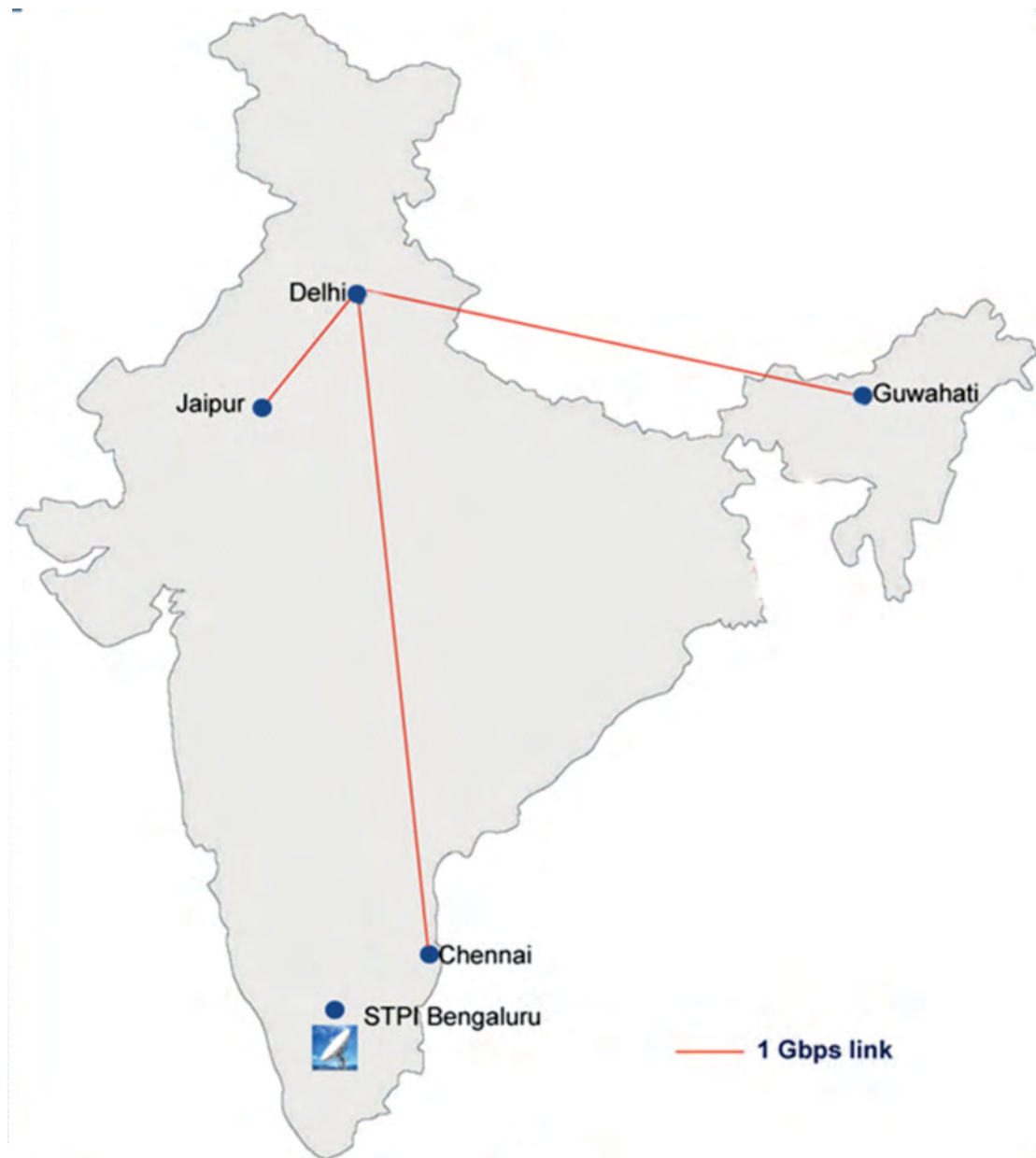


Fig. 1: IPv6 Enabled MPLS Backbone

eduroam- Global wi-fi users

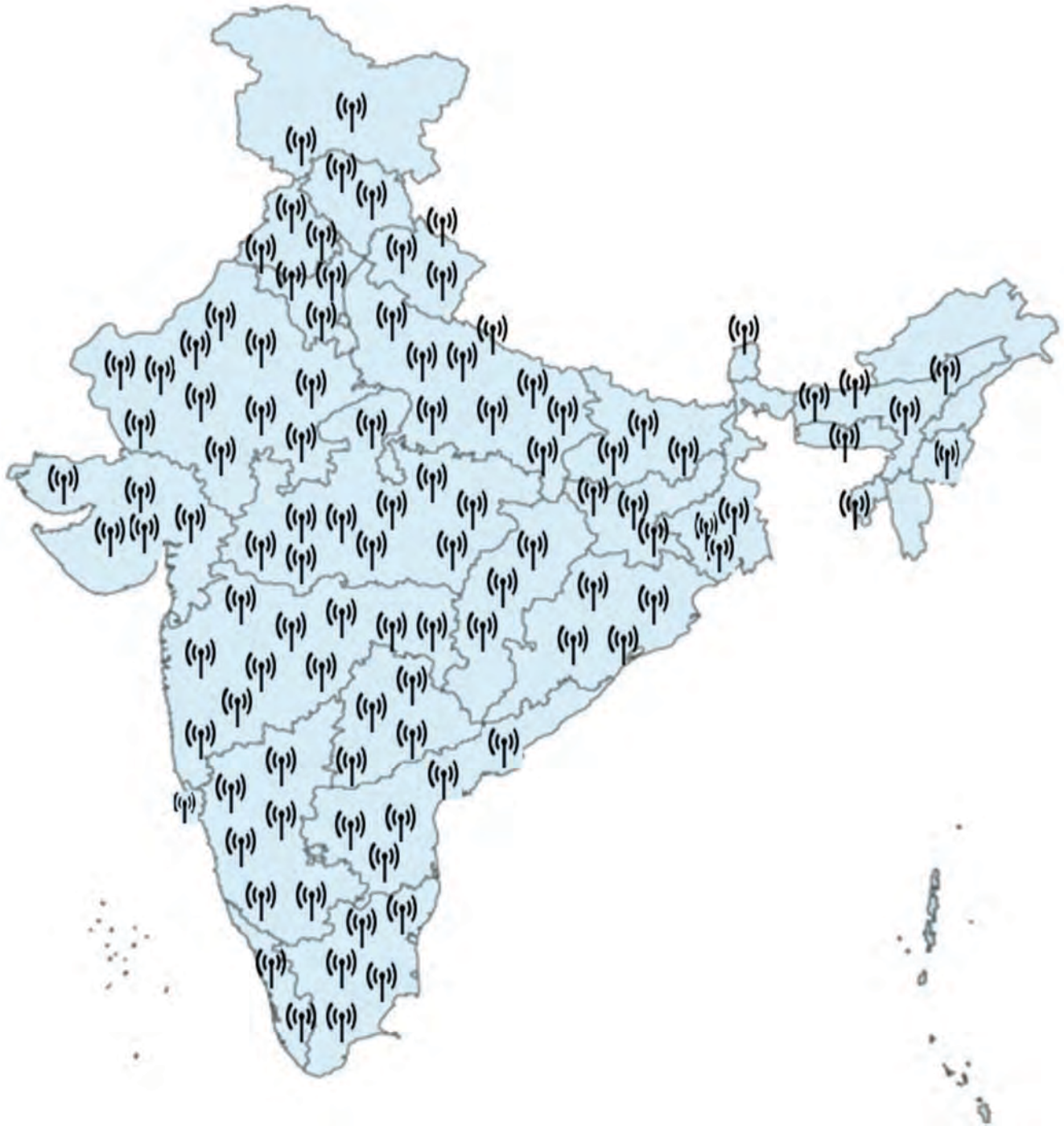


Fig. 2: Eduroam Users

Smart Virtual Classroom users

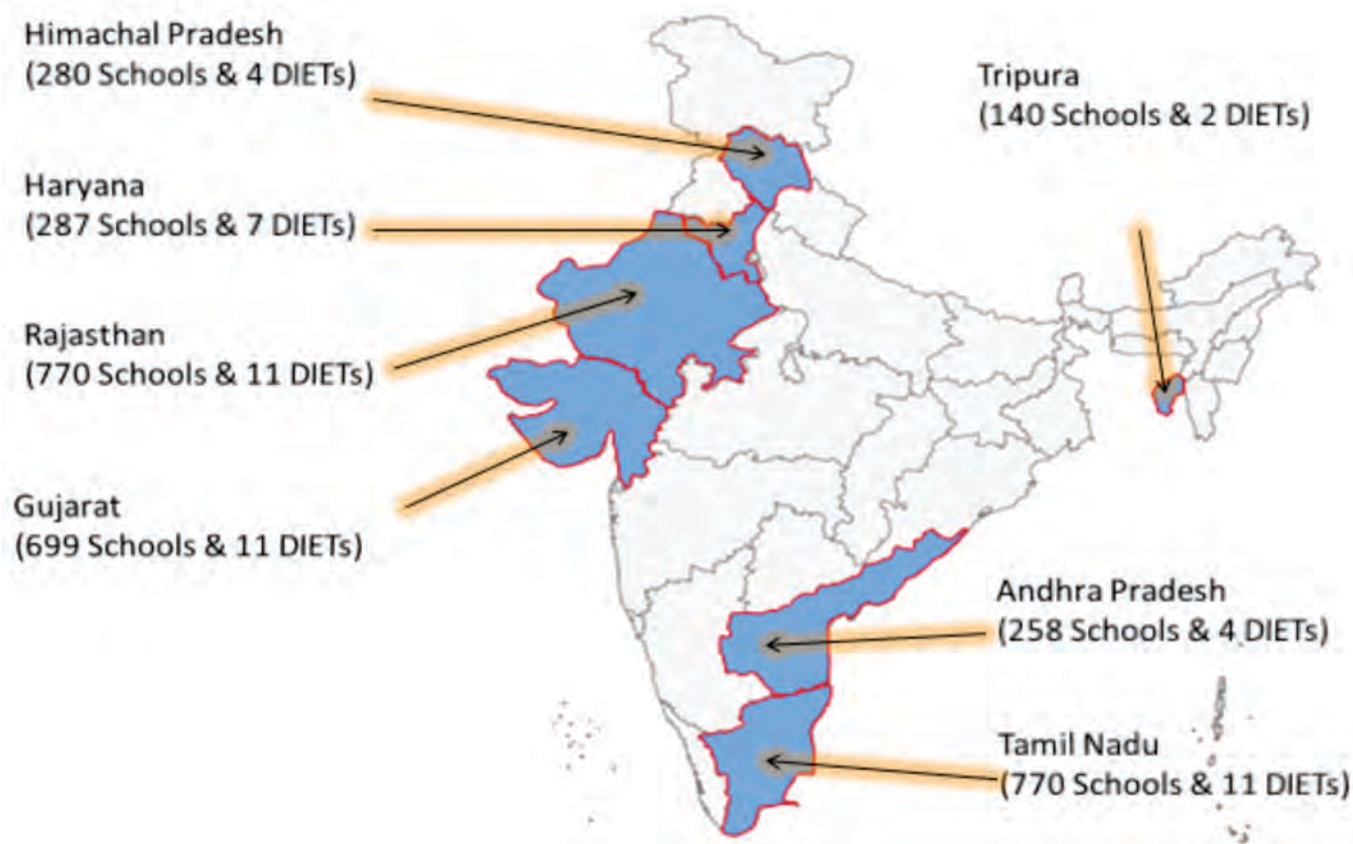


Fig. 3: Smart Virtual Classroom users

e-classroom users in NMCN Network

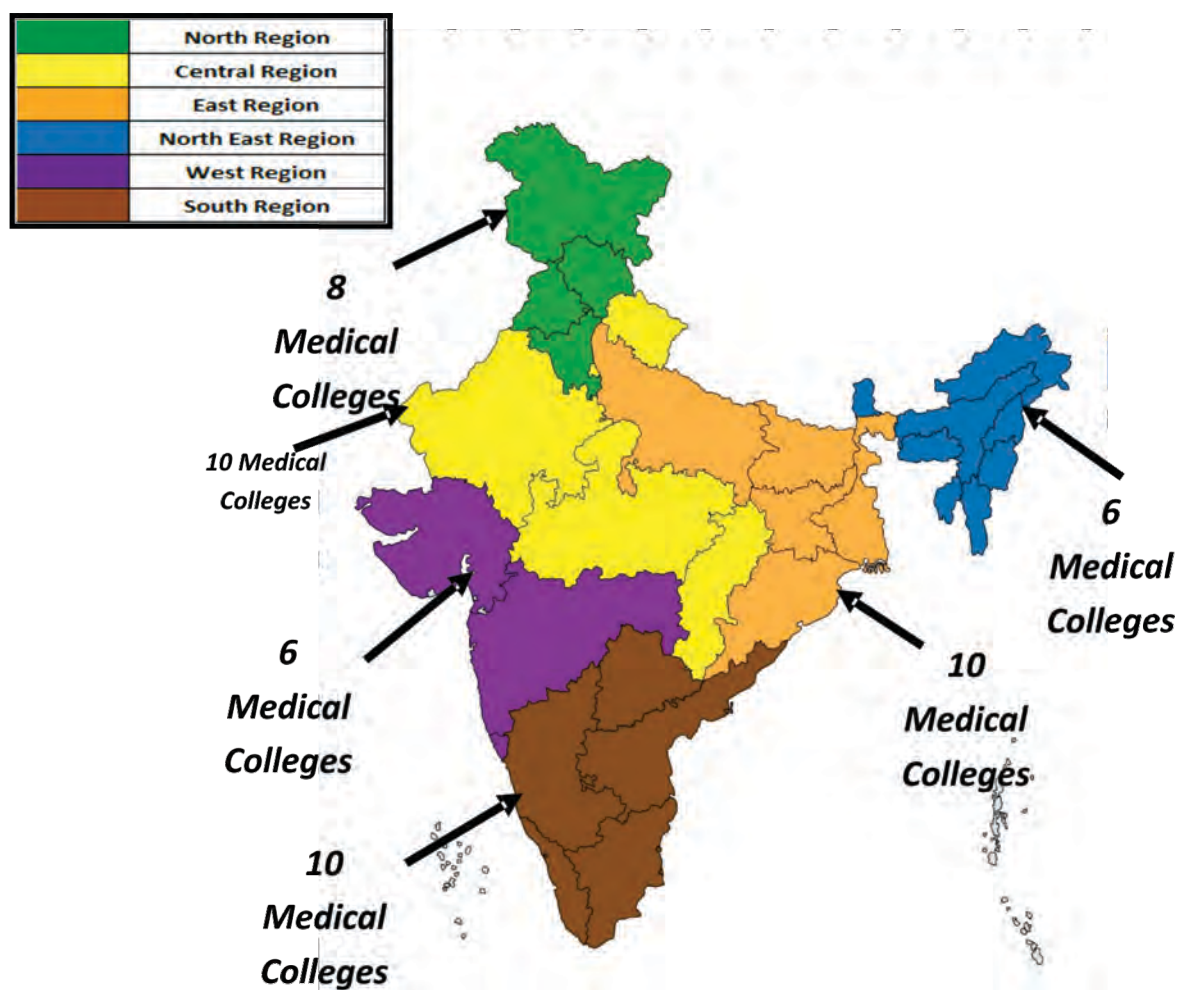


Fig. 4: e-classroom users in NMCN Network

**VSAT
Network**

ERNET India operates a VSAT network in C-Band using GSAT satellite for providing Internet & Intranet access to education and research institutions located all over the country. The Master Earth Station (MES) which is also functioning as the Network Operations Centre (NOC) is located at Bengaluru. The MES is equipped with 9.2 meter antenna.



Fig. 5 : The Master earth station (MES) at ERNET India, Bengaluru

Distinguishing features of VSAT links provided by ERNET India: ERNET VSAT Network operates in C-band of satellite transponder space segment, therefore VSAT links provided by ERNET India are least affected by rain and other weather conditions. These VSAT links provide a high degree of reliability and continuous operation all over the country. They work efficiently even in difficult and far-flung areas of Andaman and Nicobar Islands, Lakshadweep Islands and North-Eastern states of the country in all weather conditions.

**Network
Traffic**

ERNET PoPs provide four types of services, namely, Access Services, Application Services, Hosting Services and Operations Support Services.

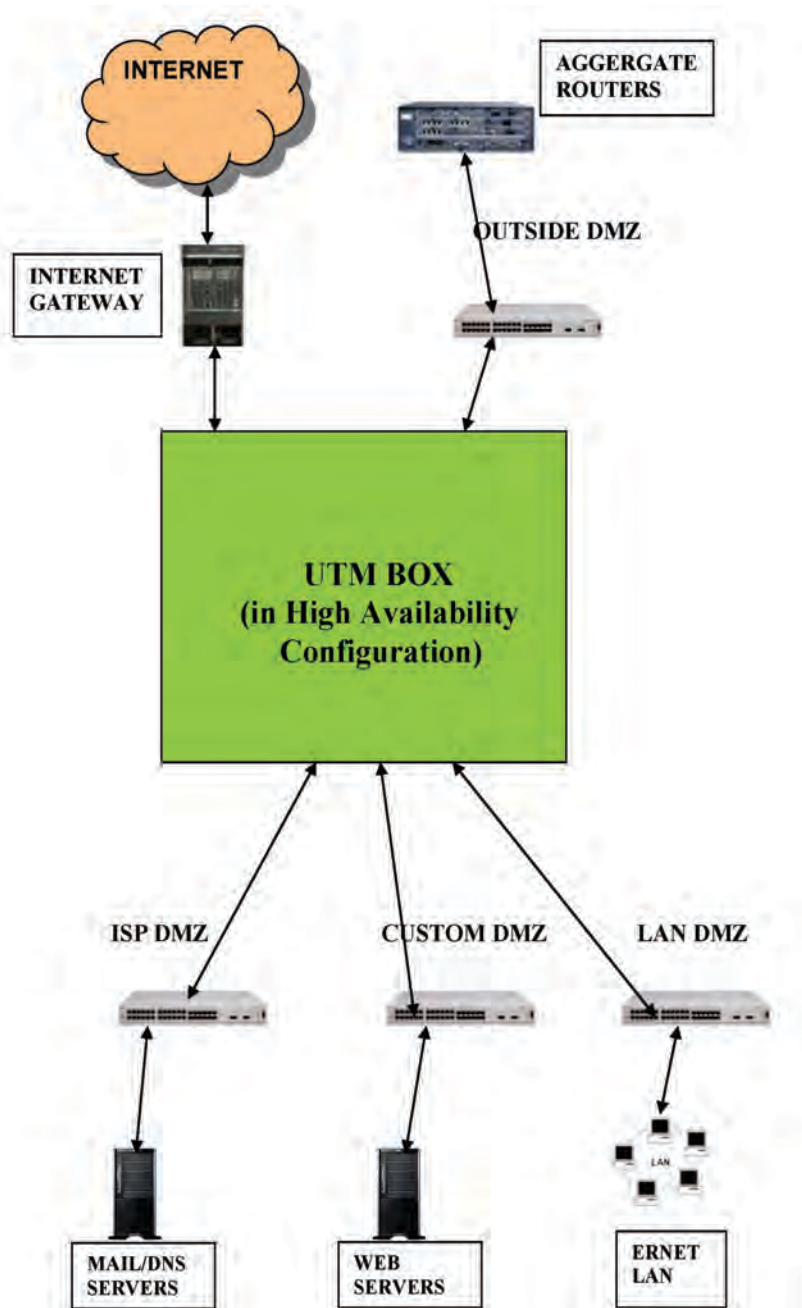


Fig. 6 : POP Infrastructure

**Access
Services**

Access Services at the ERNET PoP comprise of services that provide access to the ERNET network. Subscribers use, radio links and VSATs with satellite bandwidth for data rate up to 50 Mbps.

Radio Link and 802.11

This kind of connectivity requires line of sight clearance from the network node to the concerned user site. Such types of networks have distance limitation of 30 to 40 Kms

DVB-S2 ACM/MF-TDMA based Broadband VSAT

ERNET's DVB-S2 ACM /MF-TDMA based Broadband VSAT network has a two-way star topology architecture. The Broadband VSAT links have common outbound capable of reaching up to 110 Msp. It supports all standard IP applications such as Internet/Intranet, VoIP, video conferencing, etc. These VSATs are cost effective and capable to provide data rate up to 4Mbps.

Normal SCPC VSAT

ERNET's Single Channel Per Carrier (SCPC) VSAT provides Point-to-Point connectivity in star topology configuration using SCPC modems. Both Outbound and Inbound carriers are dedicated in SCPC VSAT to provide assigned bandwidth to the institute. The normal SCPC VSAT is capable of providing data rate up to 8 Mbps which is suitable for institutions having large LAN and running critical applications requiring high uptime.

High Capacity SCPC VSAT

ERNET's high capacity SCPC VSAT provides Point-to-Point connectivity in star topology. These high capacity SCPC VSATs are suitable for delivering high data rates in the range of around 50Mbps with uptime of more than 99%. These are suitable for institutions having large LAN setup and running critical applications requiring high uptime.

**Applications
Services**

Network Application Services comprise of applications provided for ERNET subscribers. eduroam –Global wi-fi roaming services, Domain name service and hosting services are the basic and most required services provided for ERNET customers.

eduroam services in India

eduroam stands for education roaming. It is the secure, world-wide roaming access service developed for the research and education community. It allows students, researchers and staff from participating institutions to obtain Internet connectivity across campus and when visiting other participating institutions by simply opening their laptop and working on local Wi-Fi network. 'eduroam has rapidly expanded throughout the research and education community and is now available in 101 territories worldwide and emerging pilot locations.

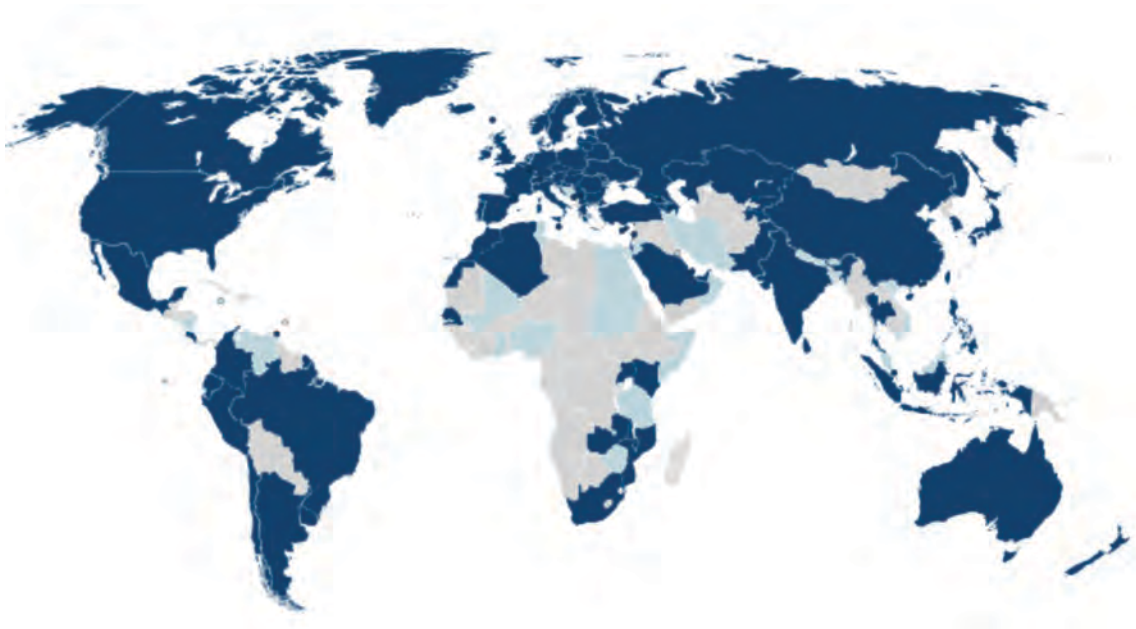


Fig 7 : eduroam worldwide presence

ERNET acts as the National eduroam operator for India and is the central point for connecting all the universities/institutes with access to the Indian eduroam national federation service. In India, appx. 280 Universities/Institutions have joined eduroam Network. eduroam facility has been successfully availed by Indian and foreign participants in the universities/institutions and also in international conferences.

Participated in APAN 50 (Virtual Meeting) and provided the eduroam update for India and demonstrated the open source elastic tools for real time distributed Monitoring for the use of National Roaming Operator.

Web Domain Name Registration under ac.in, edu.in, res.in and vidya.bharat

Domain Registrations for Educational & Research Institution including schools, colleges and universities.



ERNET India is an exclusive domain registrar for education and research domains; registering the domains under ac.in, edu.in & res.in from 2005. The domain registration, renewal & modification process is fully automated with online payment facility for registering and renewing domain names on just a click. The automated website is GIGW compliant. In automated system, customer can modify online their DNS entries and other permissible information related to their institution. ERNET has also started registering domain names under विद्या.भारत under Internationalized domain names (IDN).

During the financial year April 19-March 2020, ERNET had registered/renewed 5457 academic domains and Total 14663 domains have been registered.

Hosting Services

ERNET India is providing web hosting services to the various Educational/ Academic & Research Institutes, Departments / Organizations. ERNET India has a huge web hosting infrastructure in its state of the art IDC (Internet Data Centre) which includes a large number of performance tuned, hi-end and secured servers. The Data Centre is connected to Internet on a high speed/bandwidth. Web Hosting services are offered on Linux & Windows Platforms and the servers are powered with the state-of-the-art web technologies such as CGI, Perl, PHP, ASP, ASP.NET, JSP, Tomcat etc. Popular Databases like MS SQL, MySQL are also supported.

ERNET India mandates to get the website audited by a certifying agency for any security vulnerability. To ensure utmost security, no website can be hosted on the ERNET web servers without undergoing the mandatory Security Audit. ERNET

India also facilitates remote access facility that allows to update and maintain the sites from customer's office or any other remote location through VPN (Virtual Private Network) or through E-Mails.

About 40 websites are hosted at ERNET India web platform. Snapshot of some hosted websites are placed below:

- Maharaja Surajmal Brij University, Bharatpur (Raj.)
<http://brijuniversity.ac.in>
- G.B Pant Engineering College, Puri Garwhal
<http://www.gbpec.ac.in/>
- Hemwati Nandan Bahuguna Garhwal University
<http://www.hnbgu.ac.in>



Fig. 8 : Hosted Websites

PROJECTS AT ERNET INDIA

Development/renovation of Government / State Govt. websites to make them accessible for Persons with Disabilities (PwD) as per GIGW/WCAG. 2.0 (A, AA level)

Under Accessibility India Campaign, one of the target is to make Government websites and Digital contents accessible to all. For this, Department of Empowerment of Persons with Disabilities (DEPwD) has funded ERNET India to make State Govt. websites accessible as per GIGW and WCAG-2.0 (A, AA level) standards.

917 websites across 23 states and UTs of the country are being redeveloped to make them accessible to all specially to Persons with Disabilities (PwD) and responsive irrespective of type of device or browser. Approx. 573 websites have been developed and 383 websites made live under the project till the year 2019-20.

ERNET has setup a captive lab for GIGW Compliance testing, Website Security testing and WCAG testing of the developed websites so as to maintain the quality and functionality of the websites developed under the project apart from getting the websites independently Tested and Audited by CERT-In Auditors and STQC certified labs.

NASSCOM – MeitY – ERNET Center of Excellence (CoE) for Internet of Things (IoT)

NASSCOM-MeitY- ERNET CoE for IoT was setup in June 2015 with the overall objective of enabling India as technology hub for emerging technologies. The CoE is funded 50:50 on Public Private Partnership (PPP) model between MeitY and NASSCOM through its industry partners. The CoE – IoT program at Bengaluru started out as IoT ecosystem to help start-ups by having an incubation center with fully equipped hardware lab and other program to help out the start-ups developing innovative products. The program has done well since its inception and its objectives and scope have grown. Program has created strong start-ups ecosystem and connected to large number of start-ups throughout the country which are benefited in different ways in development and showcasing of their products. CoE IoT Bangalore center has become the most vibrant center and well recognized start-ups ecosystem in the country by not just innovators but also industry players, both the technical players and user industries. The following are the major highlights of CoE- IoT, Bengaluru:

- 80 Start-ups enrolled in house, connected with 1075 start-ups pan India
- 100 IoT researchers incubated
- 66 Prototypes showcased
- 23 Papers presented in global conferences

- IP's applied (post incubation start) -19, Received- 5
- 34 Societal projects executed
- Funds raised by startups - Rs. 118 Cr.
- Revenue raised by start-ups - Rs. 49 Cr.
- Events / Workshops Conducted – 63
- Industries Connected - 119
- Industries Partnered – 35
- Academia Connected- 22
- Govt. Delegations & International delegations hosted at CoE-140
- Partners Signed up: Strategic-16, Co-create-2, Innovation-3, Infrastructure-5, Technology-4

MeitY has taken further steps to add three more CoE's besides CoE-IoT Bengaluru in various states across the country viz. at Gurugram (Haryana), Gandhi Nagar (Gujarat) and Visakhapatnam (Andhra Pradesh).

Internet of Things (IoT) management framework for Smart Cities

ERNET India's joint work with Indian Institute of Science (IISc), Bangalore on experimental LoRaWAN network integrated with smart streetlights for real-time experimentation has resulted in Book Chapter publication. As part of the project, the LoRaWAN smart streetlights deployed in IISc campus were considered for experimentation to understand LoRaWAN performance and scalability aspects in real time.

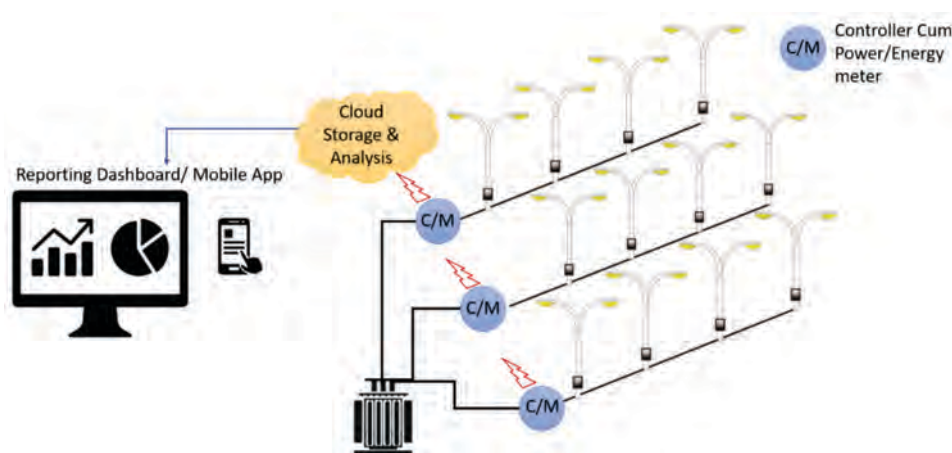


Fig 9. Proposed architecture for Smart Street Light Monitoring and Control

Based on the outcome and experience with LoRa enabled Smart Streetlights developed under this project, ERNET plans to implement Smart Streetlight Monitoring and Control mechanism in Tamil Nadu jointly with TNeGA. Further utilizing all Smart elements experienced till date like Smart Soil Quality Monitoring, Smart grid, Smart Streetlight, etc., ERNET is in the process of preparing Smart Village concept and may seek relevant funds for the POC.

Publication: The outcome of the project has resulted in a book chapter titled "LoRaWAN for smart cities: experimental study in a campus deployment" in the book titled "LPWAN Technologies for IoT and M2M Applications" and it was published in March 2020 by Elsevier.

Information Security Education & Awareness (ISEA)-Phase II

ERNET India is one of the implementing agencies for Government officials training under the project Information Security Education & Awareness (ISEA) Phase II, funded by MeitY for the duration of 5 years (2015-2020). Under this project, ERNET India has organized 12 training programs in which 299 Government officials have been trained in Tamilnadu and Karnataka regions. A 5-day Certified IoT Security Professional (CIoTS) training program was conducted jointly with International Telecommunication Union (ITU) and Malaysia University of Science and Technology (MUST) on 16th - 20th December 2019. The training program covered topics on Information & Network Security, Smart Grid Security, IoT Security and relevant hands on session for the benefit of Government officials. The participants came from various Government organizations like Indira Gandhi Centre for Atomic Research (IGCAR), Commissionerate of Municipal Administration (CMA), Tamilnadu Electricity Generation and Distribution Corporation (TANGEDCO), National Institute of Ocean Technology (NIOT), National Institute of Wind Energy (NIWE), Defence Research and Development Organisation (DRDO) and India Meteorological Department (IMD).



Fig 10 (a). 5-day ISEA Training Participants at ERNET Chennai, 16th - 20th Dec 2019.



Fig 10 (b). 5-day ISEA Training: Remote presentation from Malaysia, 16th - 20th Dec 2019

Optical Wireless Access Network for Rural and Urban Communication

ERNET India has earlier executed an internally funded LiFi project jointly with IIT Madras with an objective to study LiFi as an alternate communication technology and perform visible light communication experiments. Under this project, indoor LiFi Multi user testbed was setup at ERNET Chennai and various LiFi experiments are being carried out. The experimental results based on channel characterization for user mobility was studied.

ERNET India is currently executing a joint project with IIIT Delhi funded by MeitY on 'Optical Wireless Access Network for rural and urban communications' that received administrative approval from MeitY in Oct, 2019. Under this project, the objective is to provide optical wireless (OW) connectivity for rural and urban communication scenarios: (i) OW connectivity for Rural includes designing a relay broadcast unit and rooftop receiver unit for end-to-end bidirectional last mile communication. (ii) OW connectivity for Urban includes developing a Hybrid LiFi-WiFi testbed, AP selection and resource allocation algorithm and link aggregation experiments. The outcome will be demonstrated in real-field with use case scenarios like auditorium/ hospital environment. Both ERNET and IIIT Delhi are jointly working towards setting up Hybrid LiFi-WiFi testbed for the experimental work.

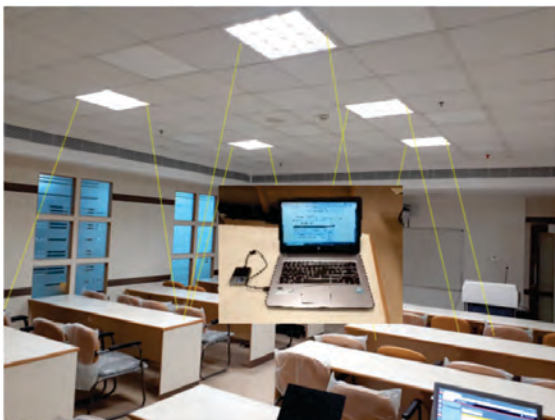


Fig 11 (a). LiFi Multi user testbed with user node at ERNET Chennai



Fig 11 (b). Rural OWC architecture using solar

Publication: LiFi experimental work on 'Indoor Visible Light Communication Channel Characterization for User Mobility: A Use-Case Study' will be presented at International Conference on Visible Light Communication and Positioning (ICCLCP 2020), July 16-17, 2020, Stockholm, Sweden.

Pilot R&D project Using Free Space Optics Technology

The "Free Space Optics Technology (FSOC) for providing the connectivity to Kohima Science College from Kohima Secretariat, Nagaland" is MeitY funded R&D pilot project with the overall

aim of providing the high speed network connectivity and measuring the performance of the FSO link between the Kohima Science College and Kohima Secretariat office, Nagaland.

This infrastructure connectivity project aims to perform rich R&D on Free Space Optics Technology (FSOC) by implementing the high speed communication link using FSOC across two sites where the connectivity has not been implemented or unsuccessful due to various challenges such as difficult terrain, River/ Railway tracks between the sites, frequent fiber cuts etc. The project will establish a live & working end to end FSO based Internet connectivity provisioning at a Kohima Science College site (Remote Side) from Kohima Secretariat (Base Side) with at-least 1Gbps/10 Gbps throughput in clear visibility conditions (without fog/rain/snow/sandstorms etc.).

Free Space Optics is a line-of-sight technology that uses invisible beams of light to provide optical bandwidth connections that can send and receive voice, video, and data information. The technology propagates the light in free space means air, outer space, vacuum, or something similar to wirelessly transmit data for telecommunication and computer networking. It operates between the 780 – 1600 nm wavelengths bands and use O/E and E/O converters. This optical connectivity doesn't require expensive fiber-optic cable or securing spectrum licenses for radio frequency (RF) solutions. With this project implementation, ERNET sees a great opportunity to deploy FSOC technology where other connectivity solution cannot be used due to different factors like location, cost, etc.

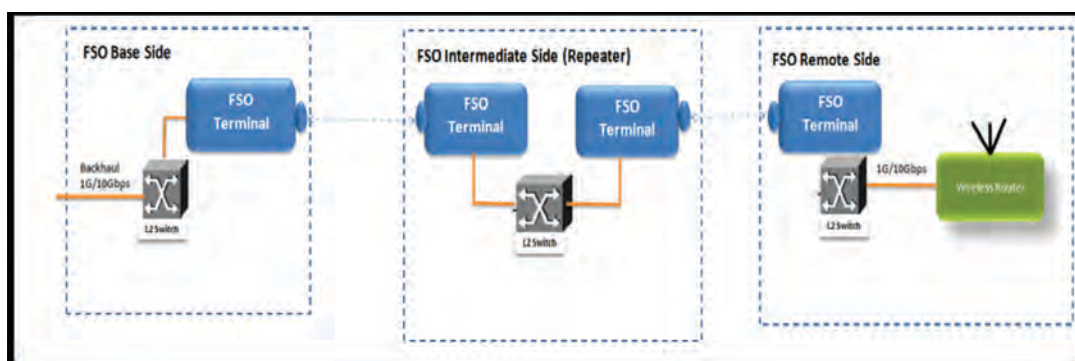


Fig. 12

With this project, the existing Kohima Secretariat office NKN / SWAN connectivity will be extended by Free Space Optics Link (FSOL) from Kohima Secretariat to Kohima Science College. This extension of network will benefit the students of Science College of Kohima. The project R&D will result in understanding the impact of Kohima's weather conditions on FSO technology by measuring the FSO link performance during the Pilot which will help in preparing the guidelines for selecting the other locations which can be connected via FSO. The project will explore another promising means of High Speed infrastructure connectivity provisioning.

Setting up ICT Infrastructure in Government Schools to familiarize usage of personalized adaptive learning- Technology for every student, a globe for every classroom

ERNET is taking initiative for learning through innovative and leading technology. In this regard, a project has been sanctioned by Ministry of Electronic and Information Technology (Meity). The objective of the project is to create ecosystem for Personalized adaptive learning. Activities include:-

- Setting up the advanced Digital ICT Lab infrastructure in 40 Government school in 8 North East states by using latest tools and technology
- To conduct the awareness workshop across the 8 states towards enhanced, advanced Digital learning for teachers and students.
- To provide training of Virtual Reality (VR) contents using project infrastructure to teachers.



Fig :13

Setting up of e-classroom Infrastructure in 50 Medical colleges

Ministry of Health and Family Welfare (MoHFW), Government of India had selected ERNET India as System Integrator (SI) for implementing the project for setting up of e-classroom Infrastructure in 50 Medical colleges. This MoHFW Project has been implemented in 50 Medical Colleges / institutions including an NRC and 7 RRCs spread across the country. The Delivery, Installation & Go Live activities in the medical colleges have been completed. Operation & Maintenance activity has been started and will continue for 5 Yrs. (till 2023). Utilization of the infrastructure by the medical colleges is increasing day by day and more than 16552 sessions (including test sessions, CME & Live surgery sessions) from various medical colleges under NMCN have been conducted

on the infrastructure. ERNET India is regularly interacting with MoHFW for making architectural changes & adding additional infrastructure for bringing redundancy and DR. Also, the efforts will be made for including LMS (Learning Management System) in the Project.



Fig :14

Showcase at Annual International Tele-health Conference (Telemedicon-2019)

ERNET India demonstrated the NMCN project related activities during the Annual International Tele-health Conference (Telemedicon-2019) held at Indian Spinal Injuries Centre, Vasant Kunj, New Delhi .The theme of the conference was “Telehealth: From Illness to Wellness” in synergy with the Wellness concept as envisaged under the Ayushman Bharat Scheme and Universal Health Coverage.

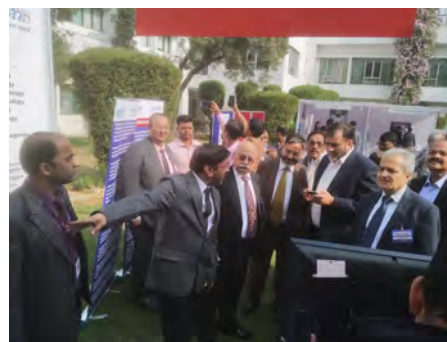


Fig :15 (a&b)

Projects under VSAT Network

Presently, VSAT network is using C-band satellite bandwidth of 111 MHz on GSAT satellite and this bandwidth is successfully used in providing connectivity for education and research in the country, as detailed below:-

VSAT connectivity for Internet/Intranet access in the North-Eastern States of the country

ERNET India has established VSAT connectivity for Internet/ Intranet access at 60 educational institutes/ schools in the North-Eastern states of India funded by MeitY, GoI. The connectivity is provided at all 60 sites up to 22.2.2020 for 03 years period. Thereafter, it is extended for 1 more year, i.e. up to 22.2.2021, at 37 schools on MeitY funding. The objective of the project is to connect schools and institutes located in the remote parts of North-Eastern states of the country through satellite based VSAT links, where reliable terrestrial connectivity is not available, for promoting equitable and sustainable development of these remote areas.

High Capacity SCPC VSAT link for NKN

ERNET India has established two High Capacity SCPC VSAT links for NKN project of MeitY located at (i) NKN Kavaratti, the U. T. of Lakshadweep Islands functional from 1.3.2017; and (ii) NKN Port Blair, the U. T. of A & N Islands functional from 9.1.2018; which are individually providing data rate of 47 Mbps at both locations. The National Knowledge Network (NKN) is using these links for providing connectivity to the knowledge institutions of the respective areas.



Fig 16 : High Capacity SCPC VSAT at Kavaratti, the U.T. of Lakshadweep Island for NKN

High Capacity SCPC VSAT link for LITSS Lakshadweep

ERNET India has established nine numbers of High Capacity SCPCVSAT links for Lakshadweep Information Technology Services Society(LITSS) in 09 islands of Lakshadweep viz. Agatti, Amini, Andrott, Chetlat, Kadmat, Kalpeni, Kavaratti, Kiltan and Minicoy. The satellite bandwidth of 25.5 MHz is allotted w .e.f. 31.10.2019, which is further enhanced to 42.6 MHz w e f. 23.2.2020 among these 09 sites. All the links are functional and are being used by LITSS.

VSAT connectivity for CIC-VV centers

ERNET India is providing broadband VSAT links for Internet access in 62 Government Schools located at Andaman & Nicobar Islands (36 Nos.) and Lakshadweep Islands (26 Nos.). These links are funded by respective U. T.'s and are being used for removing the communication barriers and enhancing the efficiency of the schools.

VSAT connectivity for Jawahar Navodaya Vidyalaya

ERNET India is providing broadband VSAT links for Internet access in 22J NVs mainly located in North-Eastern States. These links are funded by Navodaya Vidyalaya Samiti and are being used by teachers and students for better learning and exploring higher education opportunities. It is also helping in improving the efficiency of the schools

Enabling Schools with Smart Virtual Class Room Facility

The objective of the project “Smart Virtual Classroom” was to set-up smart virtual class room facilities in 3204 Govt. owned / controlled schools plus 50 DIET in seven pilot states of Himachal Pradesh, Gujarat, Rajasthan, Tripura, Haryana, Andhra Pradesh and Tamil Nadu with the focus to improve the quality of education to students from remote/ rural part of the country. Also a Centralized control system was established in Delhi at ERNET’s data centre which hosted the MCU,



Streaming/ Recording server and other associated component for multiparty audio/ video interaction and also offline access of classroom sessions round the clock for learning / collaboration between all the stakeholders.

The basic aim of the SVC project was to create technology enhanced classrooms that will foster opportunities for teaching and learning by integrating learning technology, such as computers, electronic white boards, projectors, specialized software, interactive audio-video systems, etc. Under the project, the operational usage training of SVC infrastructure is provided to the Schools and DIETs teachers where DIET is acting as a mentor. Specialized faculty is taking the lectures live to the other schools in that district as well as in the adjoining areas.

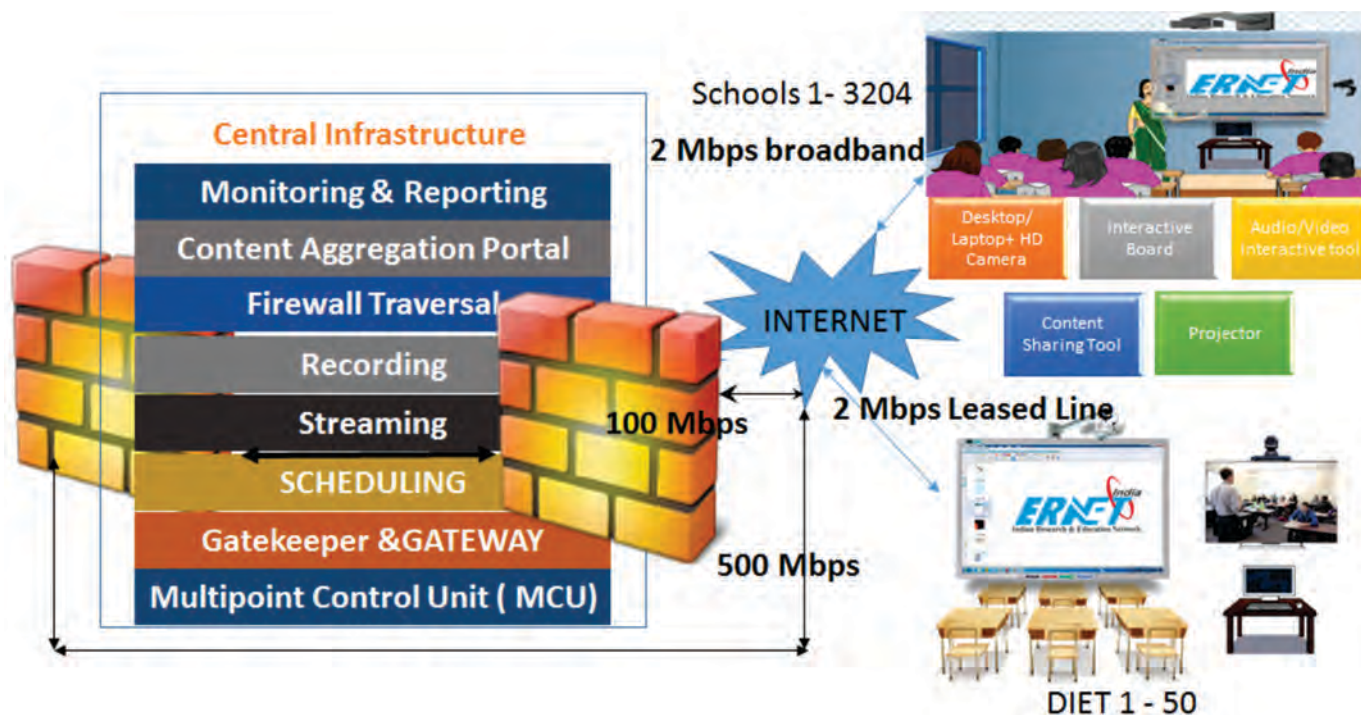


Fig 17 :Enabling Schools with Smart Virtual Class Room Facility

Smart Virtual Classroom (SVC) is a scheduled, online, teacher-led pedagogical intervention where, unlike conventional classrooms, teachers are not present with learners physically but instead interact through public network in an online learning environment.

Smart Virtual Classroom is just like a real classroom. A student in a Smart Virtual Classroom participates in a synchronous manner, which means that teacher and students are logged into video conferencing sessions and experience virtual classroom environment by making use of electronic interactive white-board, projector and personal Desktop. It allows participants to communicate with one another, view presentations or videos, interact with other participants, and engage with resources in work groups. Smart Virtual Classroom also has the ability to record the class/session as it happens, including any presentation audio and visuals. This means that the content is accessible even after being delivered. An added benefit for those, who want a quick refresher, or perhaps did not fully understand during the class.

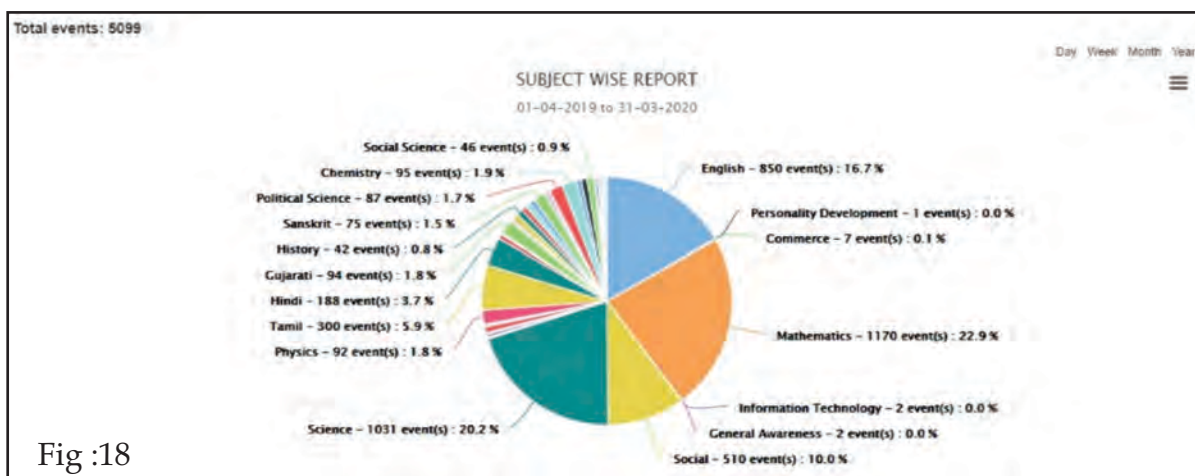
Smart Virtual Classroom project specific deliverables are mentioned below with achievements:

- ▶ Established 01 Central Location for Hosting MCU, scheduling s/w, Recording/ Streaming Solution for enabling storage of live sessions, offline access and multiparty conferencing.
- ▶ Established 50 high-end smart virtual classrooms in each of the identified 50 DIETs, equipped with hardware based Video Conferencing & electronic teaching aid equipments.

- ▶ Established 3204 smart virtual classrooms in 07 state, equipped with Software based Video Conferencing & electronic teaching aid equipments. (Andhra Pradesh, Tamil Nadu, Gujarat, Rajasthan, Haryana, Himachal Pradesh, Tripura).
- ▶ Established Knowledge aggregation portal acting as a single platform for scheduling of sessions, data analytics, accessing off-line repository of sessions through a unique user name password.
- ▶ Imparted operational hands-on training to the DIETs/ school staff with a training manual.

Project usage statistics

- ▶ The live virtual classroom sessions are being conducted through multiple DIETs and total 5099 such sessions conducted during 2019-20.
- ▶ More than 65092 teachers have been trained till date under the project for operational skill set.
- ▶ More than 70,77,600 students attended the live sessions till date and increasing on daily basis.
- ▶ More than 16,573 sessions conducted through Smart Virtual Classroom since the inception of this concept.



Current Status

The project funding support from MeitY has ended on 31st December 2019 and the project is handed over to State Education Department. Currently the States of Himachal Pradesh & Gujarat are managing the operations & maintenance of installed infrastructure through ERNET India by utilizing State funds and remaining project States namely Tamil Nadu, Andhra Pradesh, Haryana, Rajasthan and Tripura are managing the operations & maintenance of installed infrastructure by their own resources. Total 397 online sessions/lectures have been conducted during January, 2020 to March, 2020.

Model Wi-Fi enabled Campus Networks at five Universities

Government of India has approved 'Digital India' program with the vision to transform India into a digitally empowered society and knowledge economy. The vision is centered on three key areas:

1. Digital Infrastructure as a Utility to Every Citizen
2. Governance & Services on Demand
3. Digital Empowerment of Citizens

To realize the same, a need has been felt to Wi-Fi enable all the Higher learning Institutions/universities in the country as a part of 9th pillar (Early Harvest programs) under Digital India program as Wi-Fi has become a universal expectation among Universities/institutions students, faculty & staff as well as visitors/guests. This is one of the steps for achieving goals set under visionary Digital India program of Govt. of India for India Tomorrow.

For achieving the same, MeitY in consultation with MHRD identified following five universities and directed ERNET India for setting up Wi-Fi enabled Campus Networks at Allahabad, Pune, Osmania, NEHU & Utkal University. ERNET India has setup Model Wi-Fi enabled Campus Network as a Proof of Concept at all these five Universities and enabled on campus students, faculty, teachers, staff, guests to have entry to cyber world having intelligent Wi-Fi devices such as Tablets, smartphone, Laptop Computer to access, retrieve and post information on any-time-anywhere basis across Wi-Fi coverage area. The salient features of the solution architecture are:

- Wi-Fi LAN created through powerful combination of wired & wireless network technologies enable flexibility, resiliency, ease of access to information, data & services by any Wi-Fi enabled device.
- Highly available, secure, scalable & redundant Centralized Wireless Controller, Management & Authentication systems at Central site named as Core.
- Cost-effective network setup with centralized Wireless controller for better management, ease of configuration, dynamic environments & with increased flexibility
- Enable high speed wireless access to Internet & Intranet resources to campus employees, staff, faculty, teachers, students, official visitors, guest on any-time anywhere basis University campus.
- Improvement of delivery of student-centric services, employee performance & efficiency and real-time access to information, learning material & data. Enable faster and more efficient decision-making at all levels.

- Provide freedom of work on the move, faster & efficient delivery of services, easy access to teacher/student related information & services, ease of deployment and access, business continuity, increase in productivity and reduction in day to day cost.

i) Setting up Wi-Fi enabled Campus Network at Allahabad University, Allahabad:

ERNET India has set up Wi-Fi enabled campus network at University of Allahabad, Allahabad, U.P. The Wi-Fi project has been implemented and completed. The project is a powerful combination of wired & wireless network technologies enable flexibility, resiliency, ease of access to information, data & services by any Wi-Fi enabled devices across the campus. It enables high speed wireless access to Internet/Intranet resources to campus staff, faculty, teachers, students, visitors on any-time any-where basis across the coverage area.

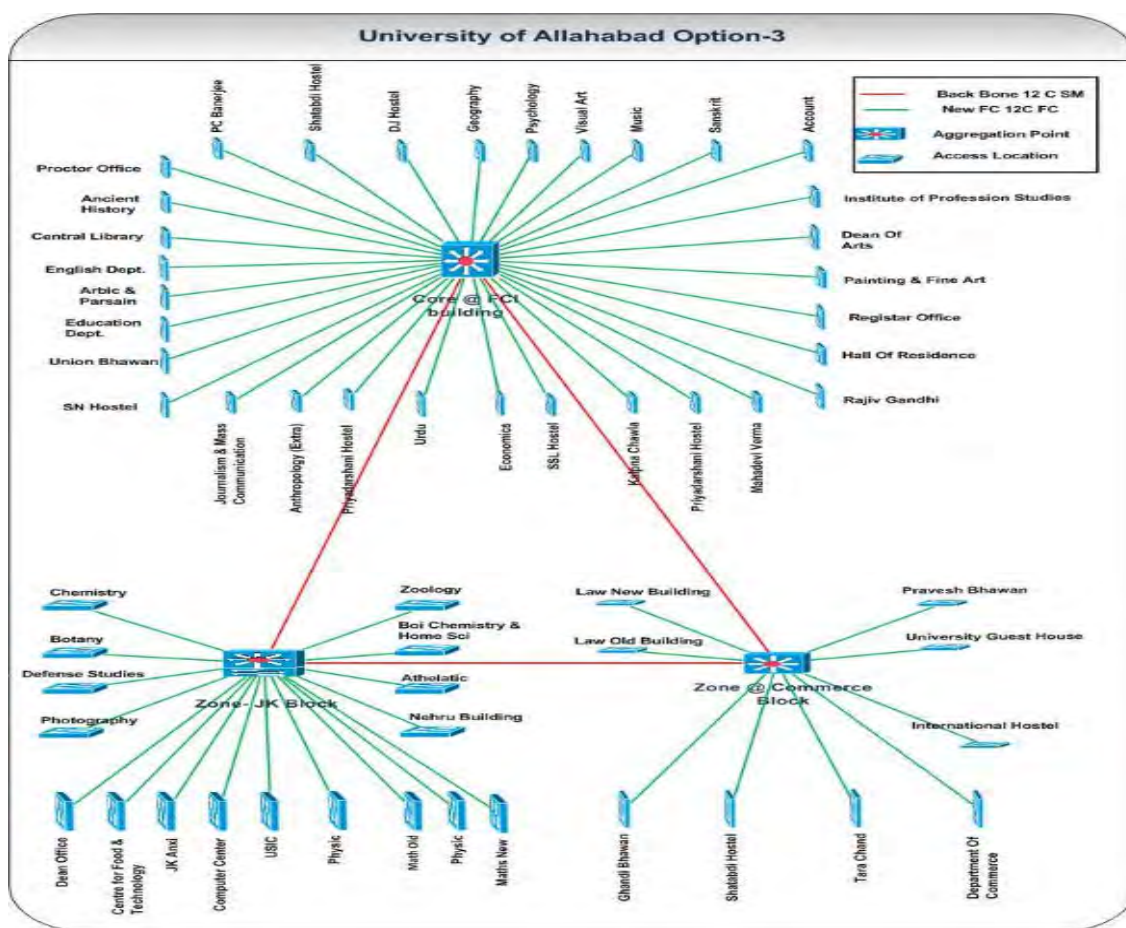


Fig 19: Wi-Fi enabled Campus Network at Allahabad University

ii) Augmentation of Wi-Fi enabled Campus Network at Savitribai Phule Pune University (SPPU), Pune

ERNET India has set up Wi-Fi facility in the building, departments, hostels which were not connected or were not Wi-Fi enabled areas and integrated with the existing Campus network. Project Implementation is completed and, operational. The Augmentation of Wi-Fi enabled campus network at SPPU has improved the Wi-Fi coverage in the campus and facilitate connecting the leftover building to the campus network.

The state of the art components (Access Switch, Wireless LAN Controller, Wireless Access points and Servers, etc.) have been installed to improve Wi-Fi coverage in the SPPU campus network. These items are deployed and integrated in the existing network of SPPU. Servers installed under the project have been configured to facilitate SPPU to deploy various applications and services in their running network.

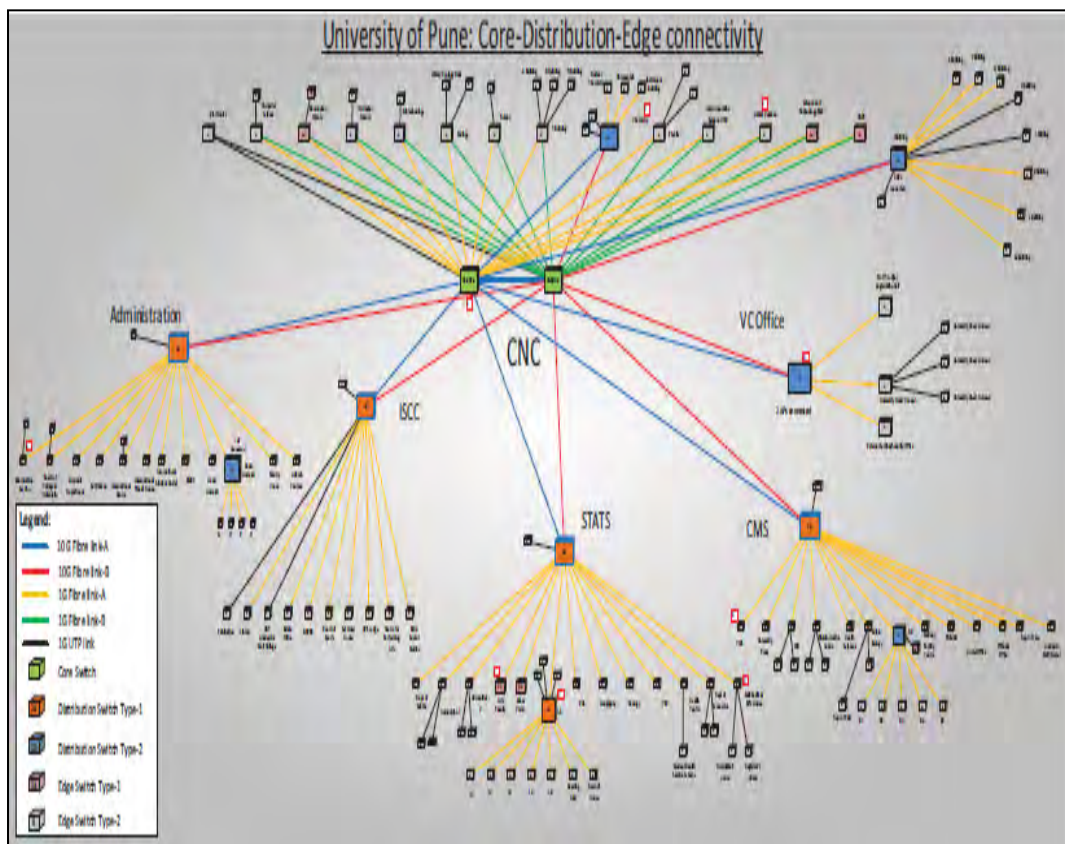


Fig 20 (a): Wi-Fi enabled Campus Network at SPPU, Pune



Fig 20 (a): Wi-Fi enabled Campus Network at SPPU, Pune



Fig 20 ©: Outdoor Wi-Fi Coverage at SPPU, Pune

iii) Setting up Wi-Fi enabled Campus Network at Osmania University (OU), Hyderabad,

The Wi-Fi network has been set up, completed and commissioned. It is a high speed wireless access to Internet & Intranet resources on any-time any-where basis across the coverage area in the campus. Wi-Fi users are using it for study purpose, e-Books, e-journals, Research, Digital Teaching, Literature Survey etc. It has improved performance, efficiency, real-time access to information, learning material & data. It enhanced user's participation where user from all part of the world can collaborate & share information/ data for research & development & Education.

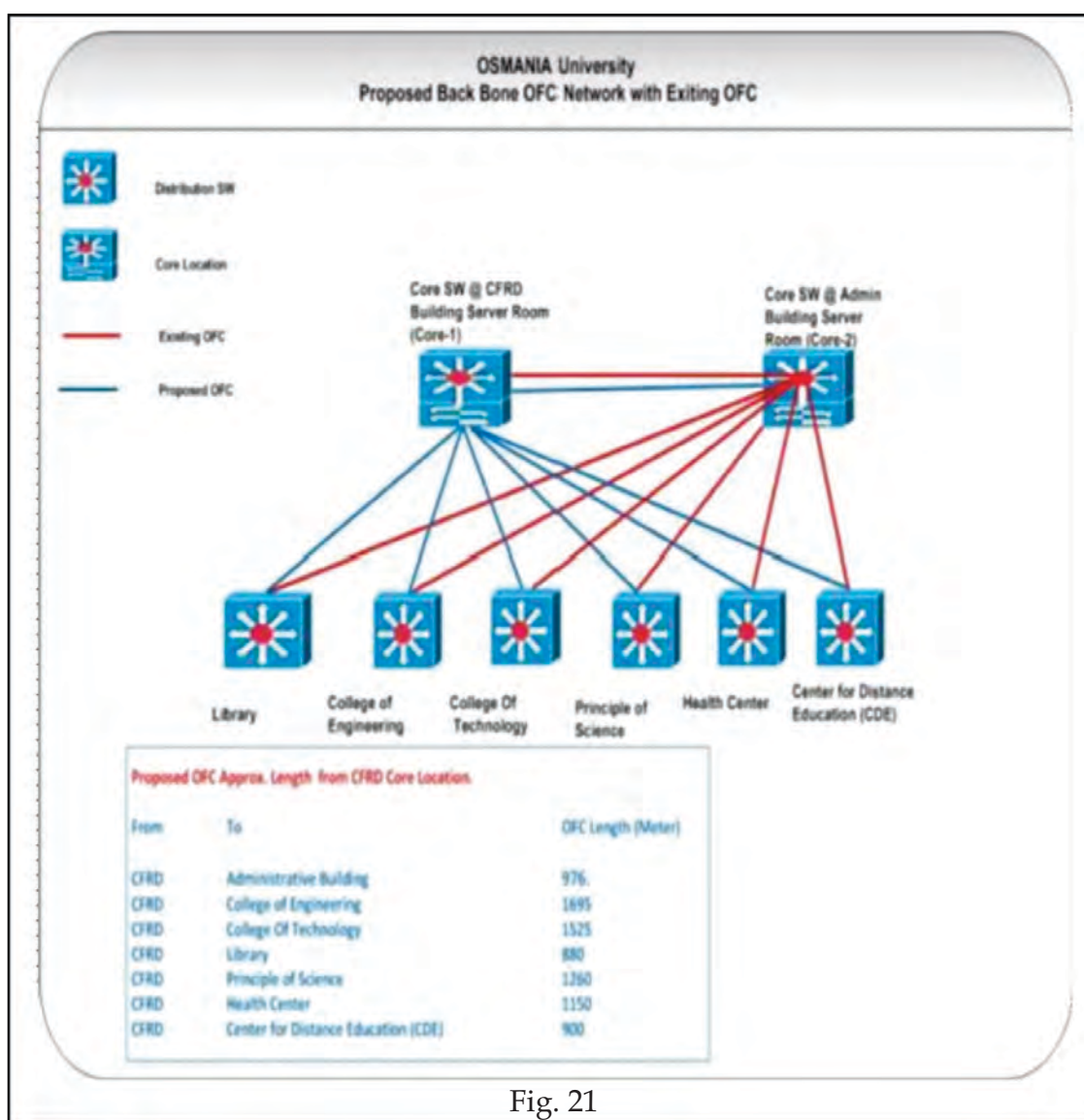


Fig. 21

iv) Setting up Wi-Fi enabled Campus Network at Utkal University, Bhubaneswar

The Wi-Fi project (phase -1) has been implemented at Utkal University and it is operational. It is a high speed wireless access to Internet & Intranet resources on any-time any-where basis across the coverage area in the campus. Wi-Fi users are using it for video lectures, online study material, applying for higher studies & jobs, etc.. It has improved performance, efficiency, real-time access to information, learning material & data. It enhanced user's participation where user from all part of the world can collaborate & share information/data for research & development & Education. Phase-2 of the project is under process.



Fig 22

v) Setting up Wi-Fi enabled Campus Network at North-Eastern Hill University (NEHU), Shillong

The Wi-Fi network has been set up, completed and commissioned. It is a high speed wireless access to Internet & Intranet resources on any-time any-where basis across the coverage area in the campus. Wi-Fi users are using it for accessing to journals from UGC-Infonet, E-journals, Digital Repository of NEHU, and all Departments' Research and projects and collaborations. It has improved performance, efficiency, real-time access to information, learning material & data. It enhanced user's participation where user from all part of the world can collaborate & share information/ data for research & development & Education.

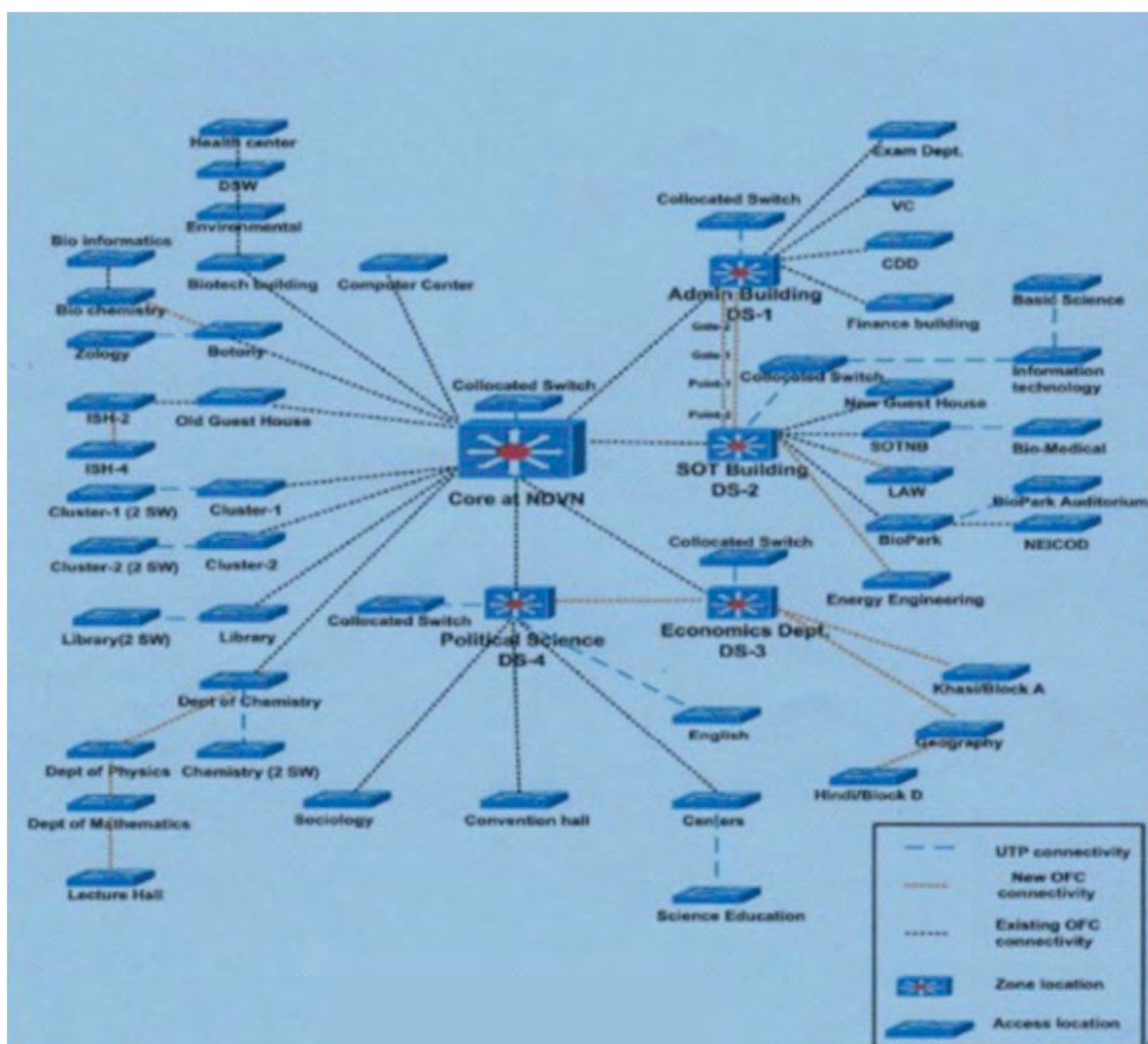


Fig 23

IPv6 – The Future Internet Initiative

ERNET has been in the forefront of cutting edge Internet technologies since its inception and has been actively participating in research and development in future networking initiatives. As part of its different initiatives in the field of IPv6 and Internet of Things, which are both interdependent and hold the key to the stability and resilience of the expected exponential expansion of the Internet, ERNET has undertaken many Research initiatives

Yeti – IPv6 only Internet Root DNS Server Research Test Bed



Fig. 24

The success of today's internet owes a lot to the 'One World, One Internet, One Namespace' philosophy, and the top level of the unique identifier system, the DNS root system, which has been operational for 25+ years.

It is considered somewhat vulnerable in terms of stability especially with the Internet Protocol version 6 (IPv6) being implemented across the world.

However, it is hard to test and implement new ideas in an effort to evolve to a more advanced

level and counter challenges like IPv6-only operation, DNSSEC key/algorithm rollover and scaling issues. In order to make the test more practical, highly diversified user environments was required to be created to study the effect of the changes in question. Yeti Project was undertaken to build an experimental live IPv6 DNS root system to discover the limits of present DNS root name service and deliver useful technical output. ERNET hosted 3 root servers spread across its two experimental setups at Delhi & Bangalore out of the 25 IPv6 root servers created globally serving the IPv6 Internet community globally and collecting required statistics and recording the findings of the test in first Phase.

Development of a Distributed Architecture using DNSsec for enforcing security updates in IPv6 enabled IoT smart devices



IoT devices are expected to be deployed in billions in the coming few years and these constrained tiny devices are expected to be used by scuptous elements is not properly managed and secured. This would in a big way threaten the very stability and reliability of the Internet. ERNET had been instrumental in providing its network and DNS expertise to an ICANN

initiative driven by NASSCOM and researched in IIT Hyderabad, where a Test ben with IPv6 enabled DNS hosted by ERNET at Delhi and Bangalore were used by IoT devices to identify themselves and query to find if any firmware or software update existed independent of the OEM. This was the initial simulated experiment which ERNET intends to take further research on.

Capacity Building & Skill Development in Ipv6

With the aim of churning out competent technical resource in the area of ICT and IPv6 networking apart from other areas, ERNET designs courses and has a specialized training infrastructure to expose participants to hands-on live environment. These courses help in capacity building and enhancing the skillsets required for propagating ICT knowledge and experience especially in new and emerging technologies such as AI and IoT.



It aims at creating pool of trained technical resources for managing and advancing the deployment and use of innovative technologies in terms of operating the existing computer network / WAN network and on the same time keeping the pace of advancement as per latest technological needs since with an expected trillion devices on the planet by 2030, it is expected that wars will be fought in cyber space to cripple a country.

IPv6 Consultancy & Turnkey Implementation Services

ERNET India, the DoT empanelled consulting service provider and MeitY's nodal agency for IPv6 implementation has been handholding and providing consultancy and turnkey IPv6 implementation services to organisations across the country.

A public portal for testing IPv6 connectivity of visitor's PC has been provided which has a host of scripts in the background to test and display the result of the IPv6 connectivity of the user device.

FAQ and Quiz is provided on the ipv6.ernet.in portal for users to gain and test their knowledge related to IPv6.

Both the portals ipv6.ernet.in and test-ipv6.ernet.in are compatible with mobile devices also.

Innovate for Accessible India (IAI)

In an effort to change the narrative around accessibility, ERNET has actively collaborated with Microsoft India and NASSCOM Foundation, Department of Empowerment of Persons with Disabilities (MSJE), & DST under Ministry of Science and Technology to create a program -

Innovate for an Accessible India campaign. A MoU was signed by the five stakeholders and the program was launched on March 17, 2020

This nation-wide innovation challenge aims to create the technology and tools required for better integration of PwDs into society, by giving them access to equal opportunities. The campaign will be an aggregator of workable technology solutions developed leveraging on Cloud (Supported by Microsoft Azure), Artificial Intelligence (AI) and other technologies that address gaps PwDs face in acquiring services and support in education, health, skill building, employment, mobility, rehabilitation and other areas.

“ERNET, will provide Consultancy & mentorship and will also identify the right products and companies in the Innovate for Accessible India applicants being primary and grand Juries at various stages as well as provide the much needed research support and guidance.

This programme will shortly start inviting Start-ups and student researchers and entrepreneurs to apply for showcasing their innovative ideas and prototypes for various financial awards to carry forward the research and creative ideas in the field of Accessibility.



The poster features the ERNET India logo and the 'INNOVATE FOR AN ACCESSIBLE INDIA' tagline. It asks 'Can you design technology for accessibility?' and encourages sharing ideas. A central diagram titled 'Who can apply?' lists five categories: Students, Entrepreneurs, Early stage startups, NGOs, and Social Enterprises. The poster also includes a photo of a person using a laptop on a wooden pallet. At the bottom, it lists joint initiatives from Microsoft and NASSCOM Foundation, and support from the Ministry of Social Justice and Empowerment, the Department of Science & Technology, and the Ministry of Electronics and Information Technology, all under the Accessible India Campaign banner.

Cyber Security Initiatives

Creation of Gamified Platform for Cyber Security

ERNET is in process for creating the Gamified Platform for Cyber Security through advanced Virtualization Technology - Virtual Reality (VR) & Augmented reality (AR). Through this platform, ERNET will educate officials in the area of cyber security like phishing, Social Media and Online Payment Security, Information Type -Personal Data, Internal use, Confidential level, Daily Actions in case of attack and Advance Persistent Threat etc. through emerging experience in AR & VR.



Implementation of Cyber Crisis Management Plan (CCMP)

The Cyber Crisis Management Plan (CCMP) takes into consideration the crises that occur due to cyber security incidents and breaches, and presents a broad based approach to deal with such crisis. ERNET India has implemented its own Cyber Crisis Management Plan (CCMP). This CCMP covers types of cyber incidents, policies, actions and responsibilities for a coordinated, approach to prepare for rapid identification, information exchange, response, and remediation to mitigate and recover from malicious cyber related incidents impacting critical business functions and processes of ERNET India.

Implementation of ISO/IEC 27001:2013

ISO/IEC 27001:2013 is the international standard for securing information assets from threats. It provides precise requirements for a holistic information security management. Implementations of ISO 27001 standards will help manage the security of sensitive assets such as financial data, intellectual property, employee records, customer data, and other sensitive information. It mandates that enterprises enforce information security, thereby reducing the possible risk of data thefts and breaches.

ERNET India has engaged the services of CERT-In empanelled company for providing consultancy services for obtaining ISO/IEC 27001:2013 certification. ERNET India is in the process of preparing the documents for ISMS implementation. The following activities have been completed :

- Information Security Awareness Training for officials of ERNET India has been conducted.
- The Gap Assessment report and ISMS documentation have been prepared.
- No. of meetings of Information Security Committee (ISC) of ERNET India have been conducted. Once the ISMS documentation and IT Acceptable Use Policy are approved, the process of internal audit shall be completed.

Social Initiatives Undertaken by ERNET through Smart Virtual Classroom (SVC)

1) Social and Vocational Focus:-

Various sessions/lectures have been conducted towards social awareness and Vocational classes. Social focus includes Environmental Education, Human Right Education, Yoga Education, E-waste Management, Dengue Awareness, Disaster Management, Personal Hygiene, Swachhta Awareness, Promotion of Digital Payment, etc.

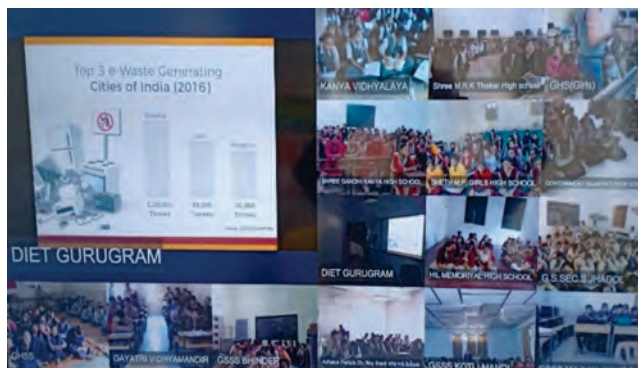


Fig : 27

Vocational focus includes IIT/JEE medical preparation, NEET Preparation, Career Counselling, B.Ed. training, etc.

2) Voluntary Community Services:-

On the occasion of 150th birth anniversary year of Mahatma Gandhi, ERNET India under the guidance of Ministry of Electronics and IT, Govt. Of India conducted a session on “Voluntary Community Services” using Smart Virtual Classroom. Session was presented from DIET Gurugram by Mr. Saadan Hussain, Sri Venkateswara College, Delhi awarded with *Verbal Commendation* in the World in United Nations Conference held at Kuala Lumpur, Malaysia in January, 2019.

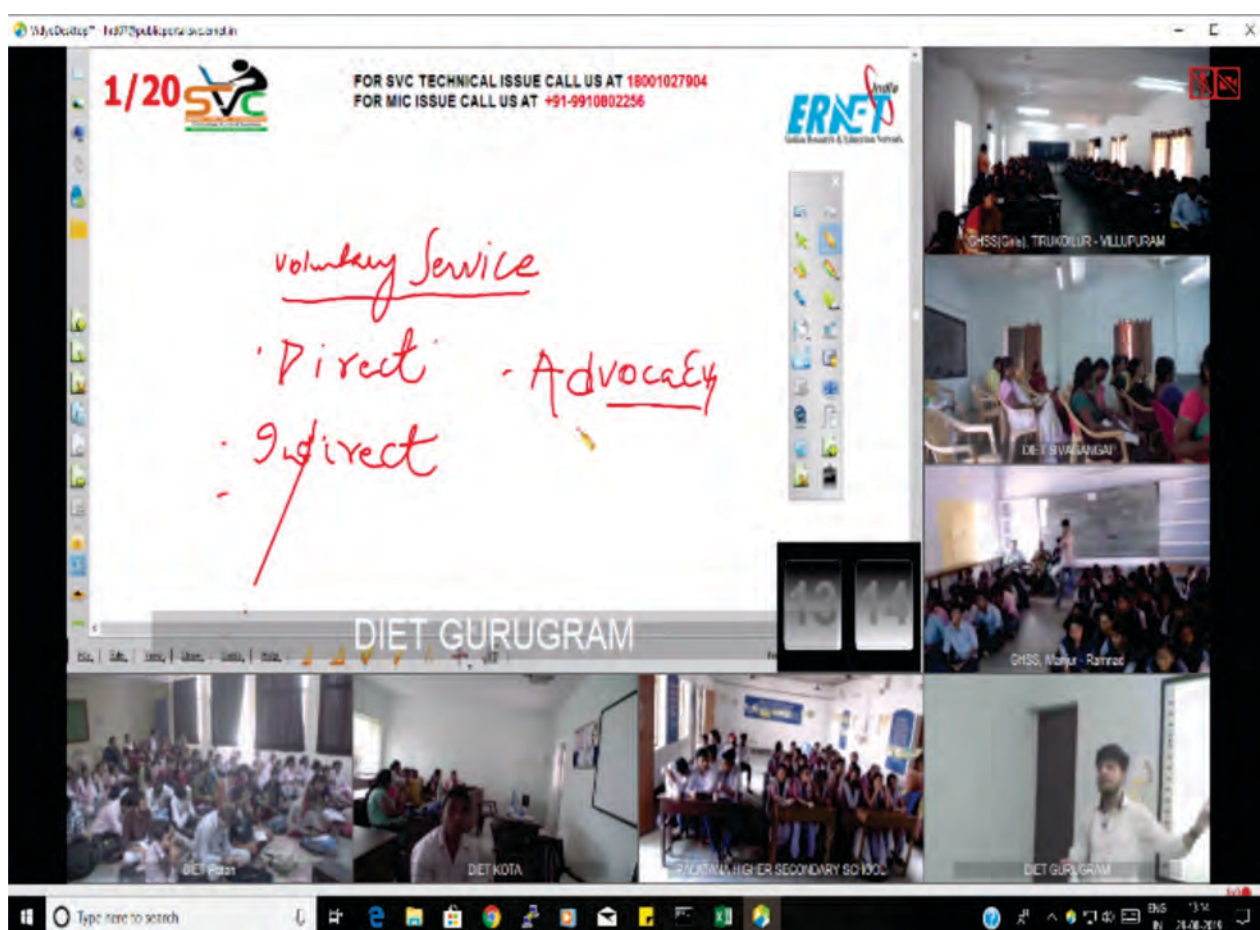


Fig : 28

3) Session for Farmers:-

Education and training needs are for all domains and hence ERNET India progressively identifies need of technology in various domains. ERNET India approached agriculture domain and scheduled various online interactive expert sessions with farmers by utilizing the established Smart virtual classroom infrastructure. It connected more than 40 farmers from Hisar, Kaithal, Sirsa and Mahendragarh remotely by utilizing existing Smart Virtual Classroom infrastructure provided to the state of Haryana. The successful idea gave birth to the concept of Digital Krishi Schools. Digital Krishi Schools are scheduled, online, agricultural expert-led pedagogical intervention where experts are not present physically with farmers but instead experts interact through network in an online learning interactive live environment



Fig : 29

4) Enhancing Classroom Engagement Mechanism using Artificial Intelligence (AI) and Augmented Reality (AR):-

In order to support the Smart Virtual classroom infrastructure with the latest technology augmentations, ERNET India plans to augment the student's learning with more advanced & latest technological tools / solutions advancements in education domain. This will aid student's learning, increase their knowledge retention, improve teacher student engagement and students will remain motivated during learning. We are planning to bring in e-content from Pre-primary to class 12th, source digital content using Immersive technologies & working to build assessment and classroom engagement mechanisms using AI (Artificial Intelligence) and AR (Augmented Reality).

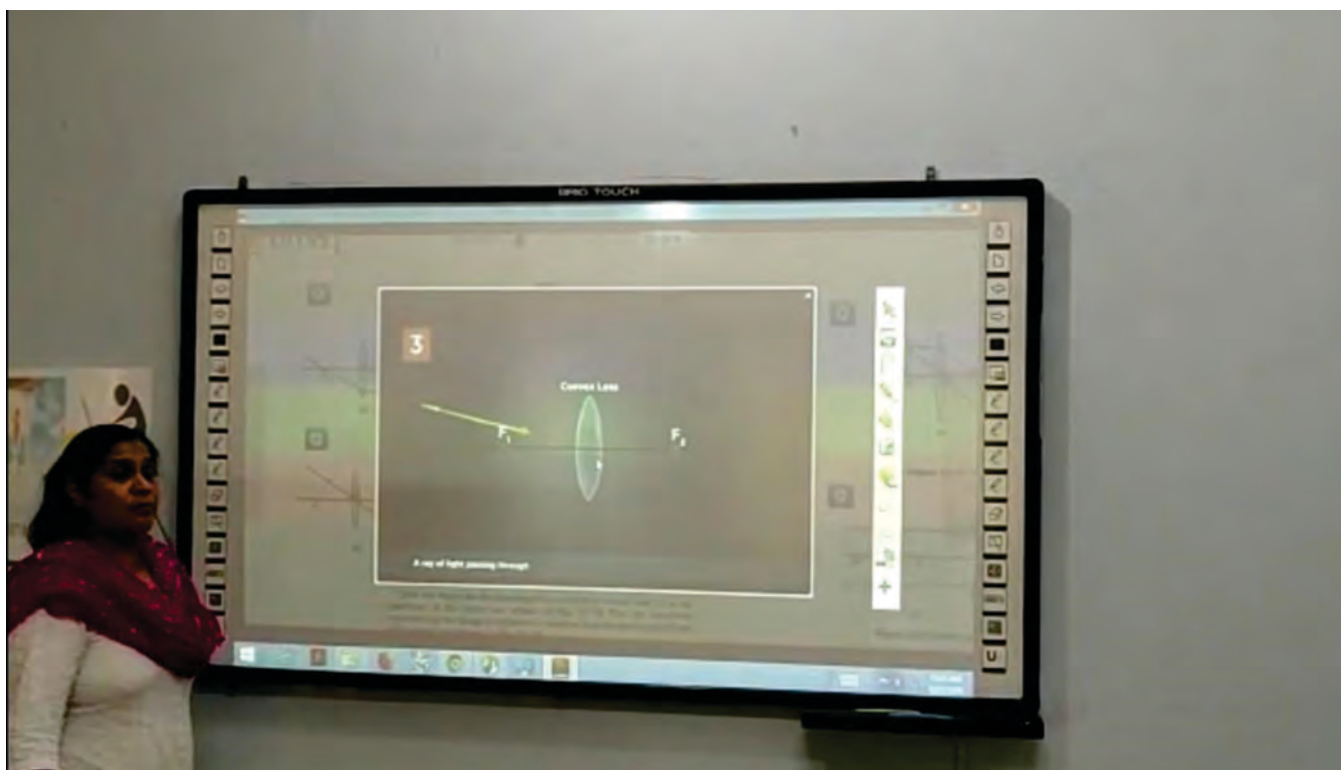


Fig. 30

**Organizational
Matters****Organizational Structure**

ERNET India is functioning under the overall control and guidance of the Governing Council. Minister of Electronics & Information Technology is the Chairperson of the Council. Members of the Council are from various organizations such as IIT Delhi, Ministry of Health & Family Welfare, Ministry of Human Resources Development, Department of Space, Ministry of Electronics & Information Technology, TRAI, I-CERT, NASSCOM etc.

Human Resources of the Society

There are 42 sanctioned posts in various categories. Out of which 33 are filled and 9 are vacant. To meet the additional requirement of manpower for various ongoing projects, ERNET India has engaged 37 technical and non technical employees on ERNET's contractual roll. In addition, 29 persons have also been engaged in various categories through outsourcing agencies.

Right to Information Act

In order to promote transparency and accountability in the working of the society, mandatory provisions under the Right to Information Act have been implemented in the society. A Central Public Information Officer, First Appellate Authority and Transparency Officer have been functioning in the society. The mandatory information including suo-moto disclosure under the Act has been hosted on the website of the society.

Vigilance Activities

The vigilance activity in ERNET India is supervised by a part time Chief Vigilance Officer. The vigilance activities of ERNET India are the preventive measures to create and provide transparent system at every level of working and also to create a healthy working environment.

Status of Sexual Harassment Cases

No complaint of sexual harassment has been received during the financial year 2019-20 by Internal Complaint Committee (ICC) of ERNET India.

Official Language Implementation

Official Language Implementation Committee has been set up to implement and monitor the usage of Hindi in the society. The Committee under the Chairmanship of Director General monitored the implementation of the official language from time to time.

Hindi fortnight was organized during 13.09.2019 to 27.09.2019 in ERNET India, New Delhi. Competitions on Hindi Noting / Drafting, Debate, Essay & Poem recitation were held and employees were given awards.

Swachhta Bharat Pakhwada

Swachhta Pakhwada at ERNET India was organized during 1st February to 15th February, 2020. The main objective was to sensitize employees and other stake holders about the benefit of maintaining cleanliness. Accordingly a session on E-Waste Management was presented by Ms. Amanpreet Kaur, Assistant Professor (Selection Grade), North Cap University, Gurugram using the Smart Virtual Classroom infrastructure on 11th Feb, 2020. The session was seen by almost 85 Schools across Haryana, HP, Gujarat, Rajasthan.



Fig. 31 (a) Opening of swachhta pakhwada & pledge taking ceremony



Fig. 31 (b) Lecture on Ban on Single use of plastic

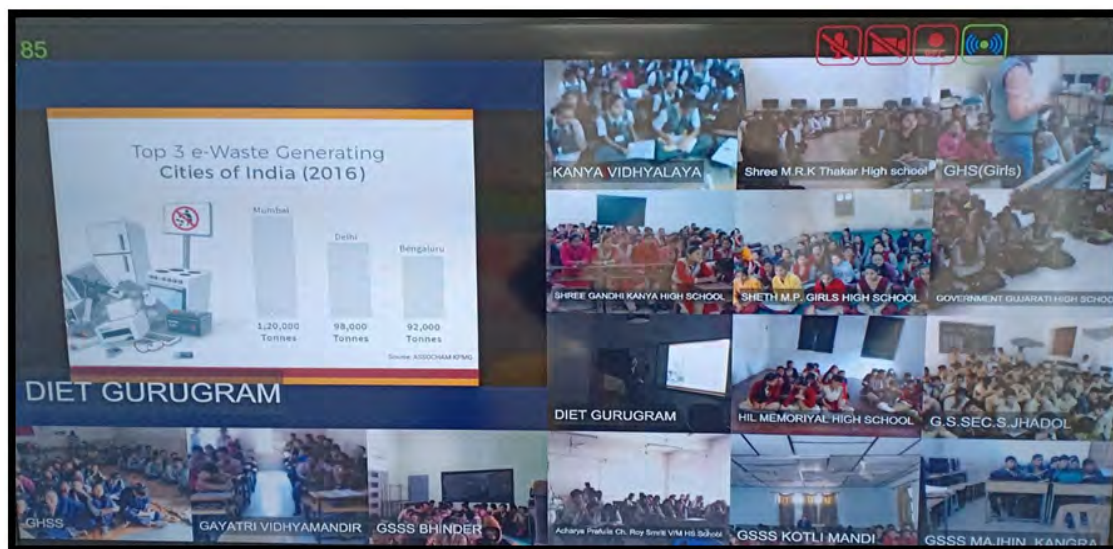


Fig. 31 (c) Lecture session on e-waste in various schools of India

Important events observed on commemoration of 150th Birth Anniversary of Mahatma Gandhi

Various activities observed in ERENT India on Commemoration of 150th Birth Anniversary of Mahatma Gandhi during the year 2019-20. All employees of ERNET India have participated in periodic cleaning of office.

Essay Competition at Govt. Girls Senior Secondary School

ERNET India has organized an essay competition for the students of Government Girls Senior Secondary School, Kailash Nagar, New Delhi on 17th July, 2019. Topic of the essay was "Importance of Non-Violence for a better world". Students of class 9th, 10th and 11th have participated in the competition enthusiastically and prizes given to winners of the competition including consolation prizes to all participants.



Fig. 32

Voluntary Community Services

Session on "Voluntary Community Services" for the students of 10th to 12th class and DIET staffs on 29th August, 2019 presented by Mr. Saadan Hussain from Sri Venkateswara College, Delhi awarded with 'Verbal Commendation' in the World in United Nations Conference held at Kuala Lumpur, Malaysia in January, 2019. Session was conducted using the Smart Virtual Classroom Infrastructure from DIET Gurugram and was attended by over 200 schools across 7 States (Gujarat, Tamil Nadu, Andhra Pradesh, Rajasthan, Haryana, Tripura, Himachal Pradesh)

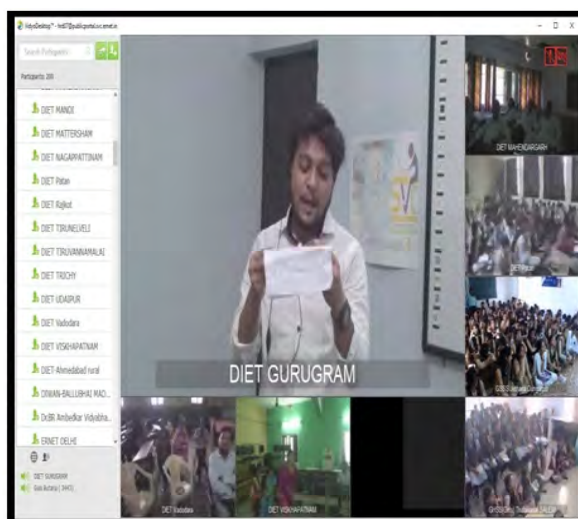


Fig. 33

Gandhian thought on communal unity

Essay competition on "Gandhian thought on communal unity" for the employees of ERNET India was organized on 27th September, 2019.



Fig. 34

Session on “Leprosy: Is Leprosy Curable

Session on leprosy has been conducted by Institute of Medical Sciences (IMS), BHU, Varanasi on National Medical College Network (NMCN) established by ERNET on 14.10.2019. Speaker of the session was Dr. Ratan K. Srivastava, Professor, Community Medicine, IMS BHU Varanasi. Session attended by the local participants including Medical personnel's and Medical students. 14 numbers of Medical Colleges located across India and ERNET India have attended as Remote participants.

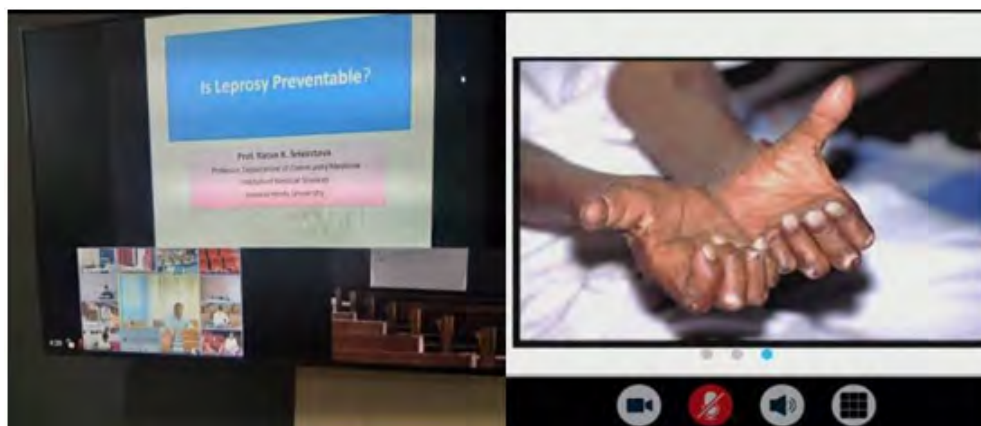


Fig. 35



Fig. 36

Interactive Session on Women Empowerment

An interactive session on “ Women Empowerment” undertaken on 26.11.2019 by Smt. Geeta Kathpalia, Director General of ERNET India for the employees of ERNET India.

Workshop on preparation and use of Vermi Composting

Training cum workshop was organized on 'How to use kitchen waste to convert into Vermi Compost' by Dr. Vartika Mathur, Assistant Professor and Dr. Abhishek Chandra, Assistant Professor and their team comprising of Final Year student Ms. Jassika Gupta,

Bsc. Hons.(Zoology), Sh. Ankit Yadav and Sh. Shiva Satija, B.Sc. (Life Sciences) from Sri Venkateswara College, Delhi for the employees of ERNET India on 20th December, 2019

PFRDA awarded ERNET India as Best Central Autonomous Body

“ERNET India migrated to National Pension Scheme (NPS) in February’2017. After one year of its implementation, ERNET India’s compliances with the scheme parameters were recognised by PFRDA by awarding ERNET India as Best Central Autonomous Body for F.Y. 2018-19”



PoP Coordinators	Node	Address
	ERNET, Delhi	Shri Dilip Barman Director ERNET India 5th Floor, Block-I, A Wing, Delhi IT Park , Shastri Park Delhi 110053
	IIT, Guwahati	Prof. D. Goswami Head Department of Computer Science & Engineering, Indian Institute of Technology, Guwahati – 781 031
	UoR, Jaipur	Dr. Shalendra Kumar Gupta Director Infonet Center, New CDPE Building University of Rajasthan, JLN Marg, Jaipur – 302004
	NIC, Salt Lake, Kolkata	Shri Dilip Barman Director ERNET India 5th Floor, Block-I, A Wing, Delhi IT Park , Shastri Park Delhi 110053
	VSAT Hub at STPI, Bangalore	Shri Avanindra Singh Director ERNET India 5th Floor, Block-I, A Wing , Delhi IT Park , Shastri Park Delhi 110053
	ERNET India New Delhi	Dr. A. Paventhan, Director Regional Center ,Chennai, ERNET India 3rd Floor, IIT Madras Research Park, Kanagam Road, Taramani, Chennai, Tamil Nadu - 600 113

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201010, INDIA E. Mail ID : office@cahsr.in

The Governing Council,
ERNET India,
New Delhi

INDEPENDENT AUDITOR'S REPORT

OPINION

We have audited the accompanying financial statements of ERNET India ("The Society"), which comprise the Balance Sheet as at 31st March, 2020 and the Income & Expenditure Account for the year ended and a summary of significant accounting policies and other explanatory information.

In our opinion and to the best of our information and according to the explanations given to us the aforesaid financial statements give the information required in the manner so required and give a true and fair view in conformity with the accounting principles generally accepted in India of the Balance Sheet of the society as at 31st March, 2020, and Income over Expenditure Account for the year ended on that date.

Basis for Opinion

We conducted our audit in accordance with the Standards on Auditing (SAs) issued by ICAI. Our responsibilities under those Standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the society in accordance with the Code of Ethics issued by ICAI and we have fulfilled our other ethical responsibilities in accordance with these requirements and the Code of Ethics. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Emphasis of Matter - Global Pandemic & its impact

The outbreak of Coronavirus (COVID-19) pandemic is causing disturbance and slowdown of economic activity throughout the world and is impacting operations of the businesses, by way of interruption in business operations. On March 23, 2020, the Government of India ordered a nationwide lockdown followed by phases of Lockdown. There has been considerable impact on travelling / commutation throughout the country amidst some relaxation by Government. Any Audit process requires the Professionals to visit the respective offices of the auditee to assess the effectiveness of the Internal Controls and checking of the relevant documentation / record / statements to gain reasonable assurance towards the accuracy and authenticity of the record that help form opinion whether the records give true and fair view and adhere to the relevant Auditing & Accounting Standards. Such travelling and commutation constraints affected the Audit & Assurance Function, rendering us unable to physically visit the auditee, thus compelling us to rely on Audit & Assurance work using only the Online Auditing Techniques. Although such techniques of Online Auditing embed utmost care and diligence, they can't match the level of assurance obtained by carrying out physical processes. Further, notwithstanding the auditee having considered its possible effects, the actual result may vary and may have effect on carrying amounts of assets, receivables & payables that can't be quantified at this stage.

H. S. RUSTAGI & CO.
CHARTERED ACCOUNTANTS

Continuation
Sheet - 2

KEY AUDIT MATTERS

We invite attention to:

1. PROJECTS:

Separate cost centre for each project is not defined in the books of account consequently project wise projected profit on taking project and the actual results are not known and monitored.

2. FIXED ASSETS

Physical verification of fixed assets and reconciliation thereof was reportedly done during the year whereon as explained, no discrepancy was noticed, however, the report of such verification and the supporting working papers could not be produced before us, hence we are unable to comment thereon and on any financial effect that may be required to recognized in the financial statements;

3. INTERNAL CONTROLS AND ACCOUNTING SYSTEM

The internal controls and accounting system of the society need to be strengthened to be made commensurate with the size, nature and volume of transactions of the society in respect of:

- (a) booking of expenses and income on accrual basis. Accounting policy No. 2 of Schedule 19 on 'Use of Estimates' and Accounting policy No. 6 read with 9 of Schedule 19 are not strictly followed as a result society booked during the year prior period expenses of Rs.2,42,55,695 /- (previous year Rs.1,36,04,266/-) and prior period income of Rs. 1,64,76,507/- (previous year Rs.6,61,21,087/-), consequently, the net profit for the year is understated by Rs.77,79,188 /-;
- (b) identification and provisioning for pending advances and receivables;
- (c) adjustment of old outstanding Sundry creditors;

MANAGEMENT'S RESPONSIBILITY FOR THE FINANCIAL STATEMENTS

The Society's management is responsible for the preparation of these financial statements that give a true and fair view of the financial position and financial performance of the Society in accordance with the accounting principles generally accepted in India and the applicable Accounting Standards issued by the Institute of Chartered Accountants of India ("The ICAI"). The responsibility also includes maintenance of adequate accounting records in accordance with the generally accepted accounting principles in India for safeguarding the assets of the society and for preventing and detecting frauds and other irregularities, selection and application of appropriate accounting policies; making judgments and estimates that are reasonable and prudent; and design; implementation and maintenance of adequate internal controls that were operating effectively for ensuring the accuracy and completeness of the accounting records, relevant to the preparation and presentation of the financial statements that give a true and fair view and are free from material misstatements, whether due to fraud or error.

H. S. RUSTAGI & CO.
CHARTERED ACCOUNTANTS

Continuation Sheet - 3

AUDITOR'S RESPONSIBILITY

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with the Standards on Auditing issued by the ICAI. Those Standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of risk of material misstatement in the financial statements, whether due to fraud or error in making those risk assessments the auditor considers internal controls relevant to the Society's preparation and fair presentation of the financial statements, in order to design audit procedures that are appropriate in the circumstances. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the management as well as, evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion on the financial statements.

REPORT ON OTHER LEGAL AND REGULATORY REQUIREMENTS

We report that:

- (a) we have sought and obtained all the information and explanations, which to the best of our knowledge and belief were necessary for the purpose of audit;
- (b) in our opinion, proper books of account as required by law have been kept by the society so far as it appears from our examination of those books;
- (c) Balance sheet and Income and Expenditure Account dealt with by this report are in agreement with the books of account;
- (d) in our opinion, the aforesaid financial statements comply with the applicable Accounting Standards issued by the ICAI.

UDIN-20085676AAAADD6583

For H. S. RUSTAGI & CO. CHARTERED
ACCOUNTANTS Firm Registration No.01890N
RUSTAGI) 85676)

Kaushambhi, Gzd
29th September, 2020

NARENDRA KUMAR RUSTAGI
PARTNER (M.No. 085676)

REPLIES OF POINTS RAISED IN AUDITOR'S REPORT FOR THE FINANCIAL YEAR 2019-20

S.No.	AUDITOR'S COMMENTS	REPLIES
1.	Projects	
a)	Separate cost centre for each project is not defined in the books of account, consequently project wise projected profit on taking project and the actual results are not known and monitored.	Separate ledgers are being maintained for each project in accounting software. For maintaining cost centre various indirect & common costs e.g. manpower cost, office premises, electricity, taxi services etc. need to be allocated and since these costs are not budgeted in the Project outlay, booking of these expenditure may not be justifiable. Still we will explore if we can define cost centre in accounting software and book the entire cost of project. Further, this is to apprise to the committee that not defining cost centre does not anyway impact the financial results of the society.
2.	Fixed Asset	
a)	Physical verification of fixed assets and reconciliation thereof was reportedly done during the year whereon as explained, no discrepancy was noticed, however, the report of such verification and the supporting working papers could not be produced before us, hence we are unable to comment thereon and on any financial effect that may be required to recognized in the financial statements;	Reconciliation of Fixed assets has been completed during FY 2019-20 for the FY 2018-19 and 2019-20.
3.	Internal Controls and Accounting System The internal controls and accounting system of the Society need to be strengthened to be made commensurate with the size, nature and volume of transactions of the society:	

a)	<p>In respect to booking of expenses and income on accrual basis. Accounting policy No. 6 read with 9 of schedule 19 are not strictly followed as a result society booked during the year prior period expenses of Rs. 2,42,55,695/- (previous year Rs. 1,36,04,266/-) and prior period income of Rs. 1,64,76,507/- (previous year Rs. 6,61,21,087/-), consequently, the net profit for the year is understated by Rs. 77,79,188/-;</p>	<p>Even though accounting systems are in place to identify and record/book every transaction pertaining to that particular financial year in that year itself. Sometimes due to the delayed/non receipt of information from various divisions, prior period income and expenditures is required to be booked.</p> <p>Further, during the current year booking of prior period income is reduced whereas prior period expenses increased due to rectification of past period(s), corrective actions taken in current period which result in classification of income & expenditure as prior period item.</p>
b)	<p>Identification and provisioning for pending advances and receivables;</p>	<p>ERNET India is adjusting the old outstanding advances and receivables from time to time.</p>
c)	<p>Adjustment of old outstanding Sundry creditors;</p>	<p>Old outstanding provision for creditors as on 31.03.2019 was Rs. 24.92 crore out of which Rs. 21.99 crore have been paid during current year.</p>

ERNET India
BALANCE SHEET AS AT 31.03.2020

Figures in Rupees in '000

CORPUS/CAPITAL FUND AND LIABILITIES	Schedule	Current Year	Previous Year
Corpus/Capital Fund	1	14,82,572	14,32,187
Balances under Ongoing Projects (GIA)	2	1,62,802	1,09,294
Current Liabilities and Provisions :-			
Other Current Liabilities	3	9,87,915	10,78,221
Provisions	4	6,17,111	6,71,225
TOTAL		32,50,400	32,90,927
ASSETS			
Fixed Assets	5	1,80,228	1,88,055
Current Assets, Loans, Advances etc.:-			
Inventories	6	460	634
Sundry Debtors	7	49,784	62,792
Receivables under Sponsored Projects	8	1,22,524	2,53,205
Balances with Scheduled Banks	9	25,56,538	24,60,663
Loan and Advances	10	3,40,866	3,25,578
TOTAL		32,50,400	32,90,927
Significant Accounting Policies	19		
Notes on Accounts	20		

Auditor's Report

In terms of our report
of even date

M/s H.S. Rustagi & Co.
Chartered Accountants
FIRM Reg. No. 1890N

Narendra Kumar Rustagi
Partner
M.No. 085676

Place : Kaushambhi
Date : 29.09.2020

For and on behalf of ERNET India

(Arun Kumar Singh)
Registrar & Director

(Geeta Kathpalia)
Director General

Place : New Delhi
Date :

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31.03.2020

Figures in Rupees in '000

INCOME	Schedule	Current Year	Previous Year
1. Revenue from Subscribers	11	2,95,449	2,48,386
2. Revenue from Projects	13	74,002	3,01,543
3. Revenue from Projects (GIA)	2A	86,848	1,89,971
4. Net Interest Earned	12	1,29,778	1,27,584
5. Other Revenue	14	35,881	71,690
5. Increase/(Decrease) in Inventories	15	(154)	553
TOTAL (A)		6,21,805	9,39,727
EXPENDITURE			
1. Operating Expenses	16	3,34,373	5,29,692
2. Expenditure under Projects (GIA)	2A	86,848	1,89,971
3. Establishment Expenses	17	80,277	86,388
4. Administrative Expenses	18	53,752	50,650
5. Depreciation	5A & 5D	5,510	4,323
TOTAL (B)		5,60,759	8,61,025
Balance being excess of Income over Expenditure (A-B)		61,046	78,703
Excess of Income over Expenditure		61,046	78,703
Provision For Tax		-	-
Net Excess of Income over Expenditure after Tax		61,046	78,703
Significant Accounting Policies	19		
Notes on Accounts	20		

Auditor's Report

In terms of our report
of even date
M/s H.S. Rustagi & Co.
Chartered Accountants
FIRM Reg. No. 1890N

Narendra Kumar Rustagi
Partner
M.No. 085676

Place : Kaushambi
Date :

(Vipin Aggarwal)
Director (Finance)

(Arun Kumar Singh)
Registrar & Director

(Geeta Kathpalia)
Director General

Place : New Delhi
Date :

For and on behalf of ERNET India

ERNET India
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.03.2020

Figures in Rupees in '000

SCHEDULE 1 - CORPUS/CAPITAL FUND	Current Year	Previous Year
Balance as at the beginning of the year	13,11,097	9,72,395
Add : Equipment Replacement Fund	-	2,60,000
Add : Excess of Income over Expenditure	61,046	78,702
Balance of Corpus Capital Fund (A)	13,72,143	13,11,097
<u>CAPITAL GRANT IN AID (DIT)</u>		
Balance as at the beginning of the year	1,03,616	1,78,090
Add : Depreciation for prior period	-	1,227
Less : Depreciation	7,862	9,265
Less : Sale of Grant in aid Assets	168	320
Less : Reduction of Assets in previous years	-	66,117
(B)	95,586	1,03,616
<u>Capital Fund (GIA) Fire Incident</u>		
Less : Depreciation	17,474	21,308
Less : Balance amount transferred to Balances outstanding under Closed Projects (GIA)	2630	3,113
	-	721
(C)	14,844	17,474
TOTAL BALANCE TRANSFERRED TO BALANCE SHEET (A+B+C)	14,82,572	14,32,187

ERNET India
SCHEDULE FORMING PART OF BALANCE SHEET AS ON 31.03.2020

Figures in Rupees in '000

SCHEDULE 2 - EARMARKED FUNDS FOR PROJECTS (In Progress)		GIA-VSAT at North Eastern States of the country	GIA- Pilot R&D Free Space Optics Technology	GIA-Setting up of WIFI Campus network in 4 Universities	GIA-NASSCOM-ERNET Centre of Excellence	Sub-Total (A)
A) Opening balance of the projects		3,712	4,982	70,356	30,239	1,09,290
B) Additions to the projects:						
(i)	Grant in aid Received	92,675			-	92,675
(ii)	Amount paid back / Adjustments	(6,288)	-	(5,418)	(96)	(11,802)
(iii)	Interest	424	138	1,725	605	2,892
(iv)	Penalty recovered credited to the project	-	-	5,754	-	5,754
(v)	Other Credits under the Project		-		-	-
Total (A+B)		90,523	5,121	72,417	30,748	1,98,809
C) Expenditure Incurred		53,757	1,234	13,722	23,275	91,988
Net Balance as at the Year end (A+B-C)		36,766	3,886	58,694	7,473	1,06,821

ERNET India
SCHEDULE FORMING PART OF BALANCE SHEET AS ON 31.03.2020

Figures in Rupees in '000

SCHEDULE 2 - EARMARKED FUNDS FOR PROJECTS (In Progress)		GIA-NER Region Setting up ICT Infrastructure in Govt. Schools	GIA-Optical Wireless Access Network for R & U Comm	GIA inform security Education & Awareness-Ph-II	Sub Total (B)	CURRENT YEAR (A+B)	PREVIOUS YEAR
A) Opening balance of the projects		-	-	4	4	1,09,294	(1,11,504)
B) Additions to the projects:							
(i)	Grant in aid Received	54,100	2,100	-	56,200	1,48,875	4,15,227
(ii)	Amount paid back / Adjustments			(27)	(27)	(11,829)	(51,285)
(iii)	Interest	124	20	-	144	3,036	6,960
(iv)	Penalty recovered credited to the project			-	-	5,754	27,469
(v)	Other Credits under the Project			-	-	-	425
Total (A+B)		54,224	2,120	(23)	56,321	2,55,130	2,87,292
C) Expenditure Incurred		-	362	156	518	92,506	2,51,242
Net Balance as at the Year end (A+B-C)		54,224	1,757	(179)	55,803	1,62,624	36,050
ADD: Excess Amount -Spent under ongoing projects (Transferred to Schedule 5)						179	73,244
Balances under Ongoing Projects (GIA) (Transferred to Balance Sheet)						1,62,802	1,09,294

ERNET India
SCHEDULE FORMING PART OF BALANCE SHEET AS AT 31.03.2020

Figures in Rupees in '000

SCHEDULE 2 A - EARMARKED FUNDS FOR PROJECTS COMPLETED	GIA - Enabling all Schools with Smart Virtual Classroom	GIA-ICT Centre in 204 Schools of Srikakulam, AP	Project -Directorate of Edu, Silvassa UT Dadar & Nagar Haveli	Project Dir of Education Daman & Diu	CURRENT YEAR	PREVIOUS YEAR
a) Opening balance of the schemes	(72,068)	-	(621)	(555)	(73,244)	4,862
b) Additions to the schemes:						
(i) Grant-in-aid Received	1,19,400	-	-	-	1,19,400	-
(ii) Penalty recovered credited to the project	37,004	-	1	-	37,005	-
(iii) Other Credits Under the Project	-	163	480	-	643	-
(iv) Interest	978	-	-	-	978	193
(v) Amount paid back / Adjustments	(107)	(117)	-	25	(200)	(4,624)
(vi) Balances outstanding under Closed Projects (GIA) (Refer Schedule 3)	(42,628)	(46)	140	530	(42,003)	-
TOTAL (a+b)	42,580	-	-	-	42,580	430
c) Expenditure towards projects (Sum total of Schedule 2 & 2A)	42,580	-	-	-	1,35,086	2,51,672
TOTAL (c)	42,580	-	-	-	1,35,086	2,51,672
Revenue from Projects	42,580	-	-	-	1,35,086	2,51,672
Less: Amount charged from the Project towards income of ERNET India pertaining to ERNET professional charges and Connectivity being shown Separately In Income & Expenditure account						
					(48,238)	(61,702)
	42,580				86,848	1,89,971

ERNET India
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.03.2020

Figures in Rupees in '000

SCHEDULE 3 - Other Current Liabilities		Current Year	Previous Year
1	Sundry Creditors for Goods and Services	1,77,576	1,99,413
2	Advances Received for Projects and Other Operating Activities	6,99,380	7,50,016
3	EMD and Other payables	454	751
4	Amount Payable to Transit Nodes	2,356	2,356
5	TDS Payable	26,676	18,371
6	Taxes Payable	3,889	7,350
7	Expenses Payable	4,579	6,168
8	Contributory Provident Fund	606	963
9	NPS Contribution	697	668
10	Retention Money	34,198	92,164
11	Ministry of Electronics and IT (Meity)	87	-
12	VSAT Equipments Liability	0.18	0.17
13	Balances outstanding under Closed Projects (GIA)	37,417	-
TOTAL		9,87,915	10,78,221
ANNEXURE TO SCHEDULE 3			
Sundry Creditors for Goods and Services			(Rs. in '000)
S.No.	Sundry Creditors for Goods	Current year	Previous Year
1	Echo Industries	143	143
2	HCIL Comtel Ltd	667	786
3	HCL Comnet Ltd	22,373	20,841
4	HCL Infosystems Ltd	1,718	1,718
5	Hewlett Packard India Sales Pvt. Ltd	3,955	3,955
6	Vayam Technologies Limited	16	16
7	Wipro Ltd.	5,229	5,229
8	Yash Technologies Private Limited	41,855	1,06,718
9	Ricoh India Limited	17,677	-
Sub Total (a)		93,634	1,39,406
S.No.	Sundry Creditors for Services	Current year	Previous Year
1	Antrix Corporation Ltd	23,227	23,227
2	Balmer Lawrie & Co Ltd	233	233
3	Bharat Sanchar Nigam Ltd	11,869	11,869
4	Mahanagar Telephone Nigam Ltd, New Delhi	1,798	1,798
5	National Informatics Centre Service Inc (Manpower)	-	1,063
6	Offcom Systems Pvt. Ltd.	-	670
7	Om Sales Corporation	1	1
8	Presto Infosolution Pvt. Ltd.	11,649	11,649
9	Railtel Corporation of India Ltd	-	65
10	Reliance Communication Infrastructure Ltd.	4,610	4,610
11	SIFY Limited	1,676	1,676
12	Tata Communications Ltd.	127	127
13	Tulip Telecom Ltd.	-	74
14	Umang Services	-	199
15	Wi-Fi communications Pvt. Ltd.	80	80
16	DOT, New Delhi	1,186	586
17	ICN (India) Pvt. Ltd.	-	1,767
18	APAN Korea	-	102
19	NASSCOM	22,018	-
20	Principal , IHM Pusa	-	13
21	Woodfun Interior Decorators	5,270	-
Sub Total (b)		83,743	59,809
S.No.	MTNL/BSNL CHARGES PAYABLE FOR LEASED LINE USERS	Current year	Previous Year
1	Mahanagr Telephone Nigam Ltd 2015-16	199	199
Sub Total (c)		199	199
Grand Total (a+b+c)		1,77,576	1,99,413

ERNET India
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.03.2020

ANNEXURE TO SCHEDULE 3

Figures in Rupees in '000

S.No.	ADVANCE RECEIVED	Current Year	Previous Year
1	Dial Up Users	1	1
2	Email Hosting Users	4	4
3	Group Connectivity Users	177	177
4	ICAR- New Delhi	785	942
5	Krishi Vigyan Kendra	46	46
6	Leased Line Users	3,901	3,901
7	MPLS Users	1,448	1,448
8	Radio Link Users	2	2
9	SCPC VSAT Users	37	1
10	Other Users	-	4
11	BB VSAT Users	1,976	1,963
12	Web Hosting Users	206	389
13	Domain Users	0	5
14	DANTE (APAN)	13	13
15	Z.P. Madhyamika Shalla (Girls) Ambajogai (685)	3	3
16	CIC- Govt. Sr. Sec. School	29	29
17	IIPA, New Delhi	-	2
18	PDFMD Nainital	4,220	4,220
19	NIXI for Setting up of Internet Connectivity	5,71,949	5,38,777
20	Video Conference Income Tax	3,268	3,268
21	Web Email Hosting Users	2	9
22	Union Territory of Lakshadweep	1,10,580	1,94,811
23	GCERT, Gandhi Nagar, Gujarat	732	-
Total		6,99,380	7,50,016
S.No.	OTHER CURRENT LIABILITIES	Current year	Previous Year
1	Ernest Money Deposit against Tenders	300	596
2	Performance Security Deposit	154	154
3	National Foundation for Communal Harmonoany	-	1
Total		454	751
S.No.	AMOUNT PAYABLE TO TRANSIT NODES	Current year	Previous Year
1	C-DAC Mumbai	2,356	2,356
Total		2,356	2,356
S.No.	TDS Payable	Current year	Previous Year
1	TDS - Contractors	113	173
2	TDS - Professional charges	21,997	15,719
3	TDS - Salaries	633	11
4	TDS - Rent	247	15
5	TDS - Interest	3,686	2,454
Total		26,676	18,371
S.No.	TAXES PAYABLE	Current year	Previous Year
1	CGST Payable	29	2,095
2	SGST Payable	29	2,095
3	Service Tax Payable old	2,471	2,471
4	GST TDS Payable	619	390
5	Interest Payable on GST	742	299
Total		3,889	7,350
S.No.	EXPENSES PAYABLE	Current year	Previous Year
1	Children Education Allowance	266	621
2	Conveyance Charges	22	20
3	Miscellaneous Expense	22	77
4	Medical Expenses	326	605
5	Salary	3,905	4,341
6	Salary Arrear	-	278
7	Telephone Expenses	39	226
Total		4,579	6,168

ERNET India
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.03.2020

ANNEXURE TO SCHEDULE 3

Figures in Rupees in '000

S.No.	RETENTION MONEY	Current year	Previous Year
1	Nikom Infrasonolutions Pvt. Ltd	95	95
2	Akal Information Systems Ltd.	2,516	1,829
3	IAP Company Pvt. Ltd.	2,996	1,794
4	ICN (India) Pvt. Ltd.	33	-
5	Midas Electricals Pvt. Ltd.	60	-
6	Wipro Ltd	3,682	3,682
7	Presto Infosolution (P) Ltd	4,969	4,969
8	Ricoh India Limited	4,049	66,342
9	HCL Comnet Ltd.	-	1,533
10	RV Solutions Pvt. Ltd.	2,338	955
11	Silica Infotech P Ltd.	614	2,189
12	Sunfest Infratech & Power Ltd.	76	76
13	Tulip IT Services Ltd.	4,884	4,884
14	Terasoft Technologies	518	-
15	Vayam Technologies Ltd.	7,367	462
16	Vinayak compserve Pvt. Ltd.	-	75
17	Woodfun Interior Decorators	-	654
18	Yash Technologies Pvt. Ltd.	-	2,625
	Total	34,198	92,164

SCHEDULE 4 - PROVISIONS

Figures in Rupees in '000

		Current Year	Previous Year
1	Gratuity	22,050	21,926
2	Accumulated Leave Encashment	30,453	29,455
3	Provision for Tax	3,56,000	3,56,000
4	Provision for Expenses	1,94,028	2,49,264
5	Misc. Liabilities	14,580	14,580
	TOTAL	6,17,111	6,71,225

SCHEDULE 5 - FIXED ASSETS FY- 2019-2020

Figures in Rupees in '000

S.No.	ASSETS	Schedule	Current Year	Previous Year
1	Fixed Assets Acquired From Capital Fund	5A	69,535	65,902
2	Fixed Assets Acquired From Grant-in-aid	5B	95,586	1,03,616
3	Fixed Assets Acquired to rebuild the infrastructure destroyed in fire	5C	14,844	17,474
4	Fixed Assets - Intangibles	5D	263	1,063
	Total (5A+5B+5C+5D)		1,80,228	1,88,055

ERNET India
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.03.2020
FIXED ASSETS (CAPITAL FUND)

(Schedule 5A)

2019-20

Figures in Rupees in '000

S.No.	Particulars	Rate	Opening WDV as at 01.04.2019	Addition During the Year		Deletion	Total	Depreciation During the Year	Closing WDV as at 31.03.2020
				Before 03.10.2019	After 03.10.2019				
I	Computer & Accessories								
	Additional PC Accessories	40%	4	-	-	-	4	1,483	2
	Computer & Servers	40%	1,033	229	146	4	1,403	531,910	871
	Printers	40%	287	24	12	-	323	126,775	196
	Total Computer & Accessories		1,323	253	158	4	1,729	660	1,069
II	Electronic Equipments								
	Cables & Connectors(Sub. Fund)	15%	9	-	-	-	9	1	8
	CISCO Routers(Sub. Funds)	15%	415	-	-	-	415	62	352
	Hubs(Sub Fund)	15%	250	-	-	-	250	38	213
	Modems/ Radio Modems	15%	98	-	-	-	98	15	83
	Multimeters	15%	0	-	-	-	0	0	0
	Multiplexer	15%	4	-	-	-	4	1	4
	Radio Antenna (Sub. Fund)	15%	3	-	-	-	3	0	2
	Testing Instruments	15%	14	-	-	-	14	2	12
	VSAT Antenna (Subs. Fund)	15%	6	-	-	-	6	1	5
	Networking Equipment (Sub)	15%	317	-	-	-	317	48	269
	Air Conditioning System (DMRC)	15%	3,003	-	-	-	3,003	450	2,552
	Misc. electronic equipments(sub)	15%	144	-	-	-	144	22	123
	Equipments under LiFi Projects	15%	556	-	-	-	556	83	473
	VSAT Equipments - Non depreciable	0%	0.17	-	0	-	0	-	0
	Total Electronic Equipments		4,820	-	0	-	4,820	723	4,097
III	Furniture & Fixture								
	Fittings, Flooring & Partitioning *	10%	585	2,163	-	-	2,748	1,072	1,676
	Misc. Furniture Items	10%	535	184	-	-	719	72	647
	Furniture & Fixture	10%	10,766	-	-	-	10,766	1,077	9,689
	Total Furniture & Fixture		11,886	2,347	-	-	14,233	2,221	12,012
IV	Office Equipments								
	Air Conditioners	15%	367	-	-	-	367	55	312
	D.G. Sets/Generator	15%	20	-	-	-	20	3	17
	Misc. Office Equipment	15%	785	8	82	-	875	125	750
	Projector (OHP)(Sub Fund)	15%	0	47	-	-	47	7	40
	UPS & Batteries	15%	1,312	-	-	-	1,312	197	1,115
	Telephone & EPABX System (Sub)	15%	181	24	25	-	230	33	198
	Electrical equipments (DMRC)	15%	3,482	-	-	-	3,482	522	2,960
	Total Office Equipment		6,146	79	108	-	6,333	942	5,391
V	Building								
	Building	10%	262	-	-	-	262	26	236
	Civil work at DMRC**	10%	1,383	-	-	-	1,383	138	1,245
	Total Building		1,645	-	-	-	1,645	165	1,481
VI	Land at Bangalore on lease	0%	40,082	-	5,403	-	45,485	-	45,485
	Total Land		40,082	-	5,403	-	45,485	-	45,485
	Grand Total		65,902	2,679	5,669	4	74,245	4,710	69,535
*Cost of work done is capitalised in current year under Wood Fun arbitration case									
**Civil work is done at third party premises without ownership									

ERNET India
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.03.2020
FIXED ASSETS (GRANT-IN-AID)

(Schedule 5B)

2019-20

Figures in Rupees in '000

S.N	Particulars	Rate	Opening WDV as at 01.04.2019	Addition During the Year		Deletion	Total	Depreciation during the year	Closing WDV as at 31.03.2020
				Before 03.10.2019	After 03.10.2019				
I	Computer & Accessories (GIA)								
	Addl. PC Accessories(GIA)	40%	2	-	-	-	2	1	1
	Computer Peripherals (Cards)	40%	0	-	-	-	0	0	0
	Computer & Servers(GIA)	40%	36	-	-	-	36	14	22
	Printers & Printing Devices	40%	3	-	-	-	3	1	2
	Softwares(GIA)	40%	11	-	-	-	11	4	6
II	Electronic Equipment (GIA)								
	Access Control System (GIA)	15%	40	-	-	-	40	6	34
	Active & Passive Components A/c	15%	22	-	-	-	22	3	18
	Air Pro Gold Router	15%	26	-	-	-	26	4	22
	Attenuator	15%	1	-	-	-	1	0	1
	Auto Sensing Switch	15%	7	-	-	-	7	1	6
	Base Band Hub	15%	4,296	-	-	-	4,296	644	3,651
	Beacon Receiver	15%	32	-	-	-	32	5	27
	C Band ODU/LNA/LNB	15%	149	-	-	-	149	22	127
	CISCO Router	15%	18,203	-	-	-	18,203	2,730	15,472
	CISCO Switch	15%	569	-	-	-	569	85	484
	EMS Hardware & Software	15%	347	-	-	-	347	52	295
	High Power Amplifier	15%	1,075	-	-	-	1,075	161	913
	Hubs A/c	15%	144	-	-	-	144	22	122
	Interface Convertors	15%	100	-	-	-	100	15	85
	Intrusion Prevention System (IPS) (GIA)	15%	189	-	-	-	189	28	161
	ISDN Modem	15%	1	-	-	-	1	0	1
	ISDN Simulator	15%	64	-	-	-	64	10	55
	Modems/Radio Modem (GIA)	15%	662	-	-	-	662	99	562
	Networking Equipments (GIA)	15%	3	-	-	-	3	0	3
	NMS Hardware	15%	597	-	-	-	597	90	507
	NMS IT Software	15%	567	-	-	-	567	85	482
	Protocol Analyser	15%	141	-	-	-	141	21	119
	Radio Antenna	15%	69	-	-	-	69	10	59
	Radio Link Installation (FA-GIA)	15%	82	-	-	-	82	12	70
	Raid Array3000 With Controller	15%	93	-	-	-	93	14	79
	Redundant Power Systems (RPS)	15%	30	-	-	-	30	4	25
	SMPS Power Plant	15%	13	-	-	-	13	2	11
	Splitter	15%	8	-	-	-	8	1	7
	Video Encoder	15%	126	-	-	-	126	19	107
	VSAT Antenna	15%	196	-	-	-	196	29	167
	VSAT (SCPC)	15%	795	-	-	-	795	119	675
	Misc. Electronic Equipment (GIA)	15%	17,239	-	-	-	17,239	2,586	14,653

ERNET India
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.03.2020
FIXED ASSETS (GRANT-IN-AID)

(Schedule 5B)

Figures in Rupees in '000

2019-20

[illegible]

ERNET India
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.03.2020
Fixed Assets (Grant In Aid Fire)

(Schedule 5C)

2019-20

Figures in Rupees in '000

Particulars	Rate	Opening WDV as at 01.04.2019	Addition During the Year		Deletion	Total	Depreciation During the Year	Closing WDV as at 31.03.2020
			Before 03.10.2019	After 01.10.2019				
Electronics Equipments								
CISCO ASR1002 Chassis 4 Built in GE	15%	635	-	-	-	635	95	539
CISCO WS-C2960S-24TS-L/catalyst 2960S	15%	212	-	-	-	212	32	181
CISCO WS- C3750X-24T-S/Catalyst	15%	70	-	-	-	70	10	59
CISCO ES C2696S-24TD-L/ Catalyst Switch	15%	32	-	-	-	32	5	27
CISCO 1941 Security bundle	15%	210	-	-	-	210	32	179
VMWare Virtualization Software	40%	111	-	-	-	111	44	67
CISCO Switch	15%	12,256	-	-	-	12,256	1,838	10,417
CHECK POINT	15%	2,492	-	-	-	2,492	374	2,118
CISCO ASR1002 Router	15%	995	-	-	-	995	149	846
Office Equipments								
Air conditioner	15%	41	-	-	-	41	6	35
Misc Office Equipment	15%	44	-	-	-	44	7	37
Office Furniture & fixture								
Fittings,Flooring & Partitioning	10%	65	-	-	-	65	6	58
Furniture & Fixture (DMRC)	10%	312	-	-	-	312	31	280
TOTAL								
		17,474	-	-	-	17,474	2,630	14,844

Intangible Assets

(Schedule 5D)

2019-20

Figures in Rupees in '000

Particulars	Rate	Opening WDV as at 01.04.2019	Addition During the Year		Deletion	Total	Depreciation During the Year	Closing WDV as at 31.03.2020
			Before 03.10.2019	After 03.10.2019				
Licenses Fee for ISP	25%	712	-	-	-	712	712	-
Domain registrar application programme	25%	151	-	-	-	151	38	113
E-Office Implementation	25%	200	-	-	-	200	50	150
TOTAL		1,063	-	-	-	1,063	800	263

ERNET India
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.03.2020

Figures in Rupees in '000

SCHEDULE 6 - Inventories		Current Year	Previous Year
1	Stores and Spares	61	81
2	Stock of VSAT Equipments	399	553
	Total	460	634
SCHEDULE 7 - Sundry Debtors		Current Year	Previous Year
	Sundry Debtors	1,34,271	1,42,390
	Less Provision for Doubtful Debts	(84,487)	(79,598)
	Total	49,784	62,792

Annexure to Schedule -7

Figures in Rupees in '000

S.No.	SUNDRY DEBTORS (SUBSCRIPTION CHARGES RECEIVABLE FROM USERS)	Current Year	Previous Year
1	AICTE Scheme	4,184	4,356
2	Dial-up Users	2,924	2,924
3	E-mail Hosting Users	301	312
4	Group Connectivity Users	22,634	33,207
5	ICAR Scheme	27,579	33,357
6	Leased Line Users	15,055	15,811
7	Leased Line (LAN) Users	207	207
8	MPLS Users	8,755	9,219
9	Other Users	158	158
10	Radio Link Users	3,741	3,227
11	SCPC VSAT Users	625	625
12	Web Email Hosting Users	13	77
13	BB VSAT Users	43,363	34,174
14	Web Hosting Users	4,732	4,738
	Total	1,34,271	1,42,390

ERNET India
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.03.2020

Figures in Rupees in '000

SCHEDULE 8 - Receivables under Sponsored Projects		Current Year	Previous Year
	Receivables under Sponsored Projects		
	a) Amount Receivable under projects (Non GIA)	1,22,345	1,74,488
	b) Amount Receivable under projects (GIA)	-	5,473
	c) Excess amount spent under ongoing Projects (Schedule 2)	179	73,244
	Total	1,22,524	2,53,205

Annexure to Schedule -8

Figures in Rupees in '000

S.No.	AMOUNT RECEIVABLE UNDER PROJECTS	Current Year	Previous Year
1	DGS & D NEW Delhi Video Conferencing	135	135
2	Trans Eurasia Information Network (TEIN3)	200	200
3	ICAR E-Linkage to 200 KVKs	20,989	20,989
4	SCPC VSAT link at Kavaratti (Lakshadweep)	16,025	21,886
5	Ministry of Health and Family Welfare	45,554	1,22,966
6	Ministry of Social Justice	22,662	7,955
7	Dadra Nagar Haveli	140	-
8	Daman & Diu	530	-
9	SCPC VSAT Link at Port Blair	16,109	358
10	Balances outstanding under Closed Projects (GIA)	-	5,473
	Total	1,22,345	1,79,961

ERNET India
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.03.2020

Figures in Rupees in '000

SCHEDULE 9 -Balances with Scheduled Banks		Current Year	Previous Year
	a) Fixed Deposit Accounts	24,33,116	23,74,664
	b) Savings Account and Current Account	1,23,423	85,999
	TOTAL	25,56,538	24,60,663

Annexure to Schedule -9

Figures in Rupees in '000

S.No.	BANK BALANCES WITH SCHEDULED BANKS IN FIXED DEPOSIT ACCOUNTS	Current Year	Previous Year
1	FDR - Bank of India	3,08,774	1,13,853
2	FDR- IDBI Bank Ltd.	-	5,16,695
3	FDR- Punjab & Sind Bank	-	73,585
4	FDR- State Bank of India Kashmere Gate (Incl FD's pledged against BG for Rs. 72,592.65 and Rs. 63,556.06 for FY 2019-20 and FY 18-19 respectively)	1,33,741	1,16,113
5	FDR - Canara Bank	19,90,600	15,54,418
	Total	24,33,116	23,74,664
S.No.	BANK BALANCES WITH SCHEDULED BANKS IN SAVINGS ACCOUNTS	Current Year	Previous Year
1	Bank of India	4,433	7,065
2	State Bank of India	97,368	71,350
3	IDBI Bank	21,621	7,585
	Total	1,23,423	85,999

ERNET India
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.03.2020

Figures in Rupees in '000

SCHEDULE 10 -LOANS, ADVANCES AND OTHER ASSETS		Current Year	Previous Year
	Advances and other amounts recoverable in cash or kind or for value to be received:		
a)	Security Deposits	24,993	20,104
b)	Prepaid Expenses	1,011	14,541
c)	Misc. Advance	225	-
d)	Income Tax Refund Due	41,983	82,930
e)	Income Tax Deposited and Refund Adjusted Against Various Demands	2,07,335	1,40,132
f)	Amount Receivable from Transit Nodes	118	118
g)	Advances/Recoverables	10,938	12,070
h)	Interest Receivable on IT refund	5,932	4,478
i)	GST Credits	33,484	50,213
j)	Accrued Income	14,848	992
TOTAL		3,40,866	3,25,578

Annexure to Schedule -10

Figures in Rupees in '000

S.No.	SECURITY DEPOSIT	Current Year	Previous Year
1	BSNL Bangalore TD	10	10
2	DMRC Ltd.	20,029	15,140
3	IIT Madras	1,604	1,604
4	Mahahagar Telephone Nigam Ltd.	100	100
5	Antrix Corporation Ltd. (ICRD)	3,250	3,250
Total		24,993	20,104
S.No.	PREPAID EXPENSES	Current Year	Previous Year
1	Repair and maintenance	3	9
2	Insurance	13	12
3	Outsourcing Charges	-	1,222
4	Membership Fee	-	376
5	WPC License Fees	160	12,885
6	Backbone Charges	698	9
7	Registration Charges	43	28
8	Office expenses	95	-
Total		1,011	14,541
S.No.	MISC. ADVANCE	Current Year	Previous Year
1	Imprest Advance	42	-
2	TA Advance	28	-
3	LTC Advance	138	-
4	Postal Advance	2	-
5	Contingency Advance	15	-
Total		225	-
S.No.	TDS RECEIVABLE	Current Year	Previous Year
1	TDS on FDR A/c	4,139	3,284
2	TDS Subscription Charges A/c	15,721	16,567
3	TDS Recivable Prior Periods	22,118	61,884
4	CGST TDS Receivable	3	598
5	SGST TDS Receivable	3	598
Total		41,983	82,930
S.No.	GST Credits	Current Year	Previous Year
1	CGST Credit	1,092	-
2	CGST Credit on Reverse Charge	29	1,476
3	CGST Paid on Advance Receipts	2,036	2,036
4	IGST Credit	10,110	13,375
5	IGST Paid on Advance Receipts	17,061	29,813
6	CGST Credit	1,092	-
7	SGST Credit on Reverse Charge	29	1,476
8	SGST Paid on Advance Receipts	2,036	2,036
Total		33,484	50,213

Figures in Rupees in '000

S.No.	ADVANCE TO TRANSIT NODES	Current Year	Previous Year
1	IIT Chennai	118	118
	Total	118	118
S.No.	ADVANCES/RECOVERABLES	Current Year	Previous Year
	Secured		
1	Advance to NASSCOM against BG for expenditure	8,278	8,278
	Unsecured		
2	Advance to National Internet Exchange of India	34	784
3	CPF Trust A/c	103	296
4	Karnataka Industrial Areas Development Board	691	691
5	National Informatics Centre Services Incorporated	1,553	1,545
6	National Internet Exchange of India	264	34
7	Perfect Info Solutions Pvt. Ltd.	-	4
8	National Informatics Centre Service Inc(Manpower)	1	425
9	DOT for WPC License Fees	13	13
10	Suspense (Domain)	-	0.10
	Total	10,938	12,070

ERNET India
SCHEDULE FORMING PART OF INCOME & EXPENDITURE
FOR THE YEAR ENDED 31.03.2020

Figures in Rupees in '000

SCHEDULE 11 - REVENUE FROM SUBSCRIBERS		Current Year	Previous Year
1	Services		
	a) VSAT/SCPC	2,65,105	2,00,417
	b) Other Services	12,138	14,979
	Total (1)	2,77,243	2,15,396
2	Domain Registration	9,700	8,843
3	Professional Charges on projects	8,506	24,147
	Total (1+2+3)	2,95,449	2,48,386

Annexure to Schedule 11

Figures in Rupees in '000

S.No.	Particulars	Current Year	Previous Year
1	<u>VSAT/SCPC</u>		
	a) Subscription Charges - SCPC	1,91,406	1,23,319
	b) Subscription Charges - VSAT	73,699	77,098
		2,65,105	2,00,417
2	<u>OTHER SERVICES</u>		
	a) Radio Link	1,555	2,570
	b) E-Mail & Web Hosting	4,229	3,930
	c) Smart Virtual Classroom - Operation and Maintenance	3,471	-
	d) Leased Line	2,883	8,479
		12,138	14,979

ERNET India
SCHEDULE FORMING PART OF INCOME & EXPENDITURE
FOR THE YEAR ENDED 31.03.2020

Figures in Rupees in '000

SCHEDULE 12 - NET INTEREST EARNED		Current Year	Previous Year
1	On Term Deposits:		
	a) Bank of India	330	4,816
	b) State bank of India	8,168	8,077
	c) Punjab & Sind Bank	352	1,10,740
	Less: Interest Transferred to Projects	-	9,818
	Net Interest Amount	352	1,00,923
	d) IDBI Bank	29,343	12,692
	Less: Interest Transferred to Projects	-	8,427
	Net Interest Amount	29,343	4,265
	e) Canara Bank	1,26,864	4,908
	Less: Interest Transferred to Projects	39,129	-
	Net Interest Amount	87,735	-
	Total (1)	1,25,928	1,22,988
2	On Saving Accounts		
	a) Saving Bank Account	1,982	18,356
	Less: Interest Transferred to Projects	1,403	16,108
	Net Interest Amount of Saving Bank Account	579	2,248
	b) Bank of India Saving plus Account	3,271	2,348
	Total (2)	3,850	4,596
	Total (1+2)	1,29,778	1,27,584

Annexure to Schedule - 12

Figures in Rupees in '000

Sl. No.	Interest transferred to Projects	Current Year	Previous Year
	On Term deposits		
1	GIA-NASSCOM-ERNET Centre of Excellence for IOT	605	766
2	GIA - Setting Up Wi Fi Campus Network - 4 University	1,725	5,302
3	GIA- Setting Up WI-FI Campus Network-Allahabad University	-	193
4	GIA -VSAT at North Eastern States of the Country	84	887
5	GIA- Ministry of Social Justics & Empowerment	-	2,665
6	GIA - Inform Security Education & Awareness-Ph-II	-	4
7	GIA - Enabling all Schools with Smart Classroom	978	-
8	GIA- Optical Wireless access Network for R&U Comm	20	-
9	GIA- Pilot R&D Free Space Optics Technology	138	-
10	GIA- Setting Up ICT Infrastructure in Govt. School	124	-
11	Project- NIXI Setting up of Internet Connectivity	35,455	8,427
	Total	39,129	18,245
	On Saving Accounts		
1	Project- NIXI Setting up of Internet Connectivity	1,403	16,108
	Total	1,403	16,108
	Grand Total	40,532	34,353

ERNET India
SCHEDULE FORMING PART OF INCOME & EXPENDITURE
FOR THE YEAR ENDED 31.03.2020

Figures in Rupees in '000

SCHEDULE 13 REVENUE FROM PROJECTS - OTHER THAN VSAT		Current Year	Previous Year
1	GIGW Project - Website Development	46,456	66,730
2	MOHFW - Opex, Installation, CAPEX	27,546	2,34,813
	TOTAL	74,002	3,01,543

Figures in Rupees in '000

SCHEDULE 14 OTHER REVENUE		Current Year	Previous Year
1	Misc. Receipts	18,073	3,444
2	Misc. Recovery	12	5
3	Prior Period Income	16,477	66,121
4	Sale of VSAT Equipments	-	263
5	Bad & doubtful debts (Provision reversed due to recoveries)	1,320	1,858
	TOTAL	35,881	71,690

Annexure to Schedule - 14

Figures in Rupees in '000

S.No.	Misc Receipts	Current Year	Previous Year
1	Excess Provisions of previous financial years reversed	1	30
1	Recruitment Income	9	-
2	Difference in Foreign Exchange (Gain)	-	5
3	LD Recovered	3,994	1,271
4	Interest on income tax refund	9,040	-
5	Other Misc. Reciepts	5,017	2,137
6	Profit on Sale of Fixed Assets	12	0
	Total	18,073	3,444

Figures in Rupees in '000

SCHEDULE 15 Increase/(Decrease) in Inventories		Current Year	Previous Year
1	Closing Inventories	399	553
2	Less: Opening Inventories	553	-
	TOTAL	(154)	553

ERNET India
SCHEDULE FORMING PART OF INCOME & EXPENDITURE
FOR THE YEAR ENDED 31.03.2020

Figures in Rupees in '000

SCHEDULE 16 - OPERATING EXPENSES		Current Year	Previous Year
1	International Gateway Access/Backbone Charges	3,375	3,999
2	O&M of Smart Virtual Classroom	2,706	-
3	Transponder Lease Charges	25,748	26,164
4	WPC Licence Fee	5,948	7,559
5	Hub Management & Repair & Maintenance charges	4,090	3,877
6	Registration charges - Domain	5,446	4,857
7	ERNET Project Expenses	1,96,705	2,01,927
8	BSNL/MTNL Charges - Connectivity	-	92
9	ISP License Fee for Terrestrial Division	300	300
10	Research and Development	-	1,634
11	Custom Duty	-	94
12	License Fee Interest Expenses to DOT	-	58
13	Liquidated Damages Expenses	-	413
14	Equipment Costs - MOHFW Project	28,975	2,26,795
15	VSAT Equipment Cost	37,434	39,813
16	Prior Period Expenses - Operative	23,633	12,111
17	Freight Charges	10	-
18	License Amendment Charges	1	-
TOTAL		3,34,373	5,29,692

Annexure to Schedule - 16

Figures in Rupees in '000

S.No.	Hub Management & Repair & Maintenance charges	Current Year	Previous Year
1	Repair & Maintenance charges	2,210	2,083
2	Infrastructure Facility- Rack at STPI Bangalore	947	861
3	NOCC Charges	933	933
	Total	4,090	3,877
S.No.	Project Expenses	Current Year	Previous Year
	Projects Sponsored from Ministries/ UTS/ Agencies (Other than those appearing in Schedule 2 and 2A)		
1	Dadra Nagar Haveli	-	37
2	MoHFW	1,554	3,458
3	GIGW Project - Website Development	34,099	47,998
4	Daman & Diu	-	338
5	VSAT at NE States of Country	40,648	40,997
6	VSAT SCPC at Kavaratti	54,510	51,734
7	VSAT SCPC at Port Blair	47,962	57,025
8	VSAT Connectivity at UT Lakshdeep	392	-
9	High Capacity Links to LITSS (Laksha)	17,266	-
	ERNET Self Sponsored Project Expenses		
	Eduroam	273	340
	Total	1,96,705	2,01,927

ERNET India
SCHEDULE FORMING PART OF INCOME & EXPENDITURE
FOR THE YEAR ENDED 31.03.2020

Figures in Rupees in '000

SCHEDULE 17 - ESTABLISHMENT EXPENSES		Current Year	Previous Year
1	Salaries and Allowances	71,204	71,704
2	Staff Welfare Charges	3,097	3,191
3	Expenses on Employees' Retirement & Terminal Benefits	4,373	8,855
4	Medical Reimbursement to employees	1,604	2,638
TOTAL		80,277	86,388

ANNEXURE TO SCHEDULE -17
SALARY AND ALLOWANCES

Figures in Rupees in '000

S.No.	Pay and Allowances	Current Year	Previous Year
1	Pay & Allowance	62,467	58,226
2	Children Education Allowance	649	621
3	Leave Travel Concession	662	910
4	Outsourcing charges	6,546	11,134
5	Security Service Charges	881	813
Total		71,204	71,704
S.No.	Expenses on Employees' Retirement and Terminal Benefits	Current Year	Previous Year
1	Leave Encashment	2,979	5,846
2	Gratuity	1,394	3,009
Total		4,373	8,855

ERNET India
SCHEDULE FORMING PART OF INCOME & EXPENDITURE
FOR THE YEAR ENDED 31.03.2020

Figures in Rupees in '000

SCHEDULE 18 - ADMINISTRATIVE EXPENSES		Current Year	Previous Year
1	Office Space charges	32,517	32,193
2	Advertisement and Publicity Charges	204	176
3	Audit Expenses	63	54
4	Auditors Remuneration	150	150
5	Bad & Doubtful Debts	6,209	689
6	Bank Charges	407	139
7	Books & Periodicals	113	110
8	Meeting Expenses	80	140
9	Membership & Subscription Fee	1,094	1,329
10	Postage & Courier Charges	82	72
11	Printing and Stationery	971	1,236
12	Misc. Expenses	723	827
13	Professional Charges	2,391	3,525
14	Repairs and Maintenance	724	727
15	Recruitment expenses	-	619
16	Registration Charges	103	4
17	Telephone Charges	554	805
18	Training, Seminars, Workshops, Exhibition & Conference Exp	309	165
19	Travelling, Conveyance & Taxi Hiring charges	3,942	5,812
20	Prior Period Expenses	622	1,493
21	Insurance Expenses	31	29
22	Interest Expense	443	299
23	CPF Trust Expenses	63	57
24	Compensation under Arbitration	1,952	-
Total		53,752	50,650

Annexure to Schedule - 18

ADMINISTRATIVE EXPENSES

Figures in Rupees in '000

S.No.	Travelling, Conveyance & Taxi Hiring Charges	Current Year	Previous Year
1	Conveyance Charges	151	77
2	TA Expenses (Staff & Others) Foreign Tour	716	2,623
3	TA Expenses (Staff & Others) Local	1,225	954
4	Taxi Hiring Charges	1,849	2,157
Total		3,942	5,812
S.No.	Professional Charges	Current Year	Previous Year
1	Internal Audit Fee	128	131
2	Professional Charges	283	1,711
3	Professional charges (Consultant)	923	1,518
4	Professional charges (License Fees)	47	-
5	Security Audit Fee	30	122
6	Professional Charges Towards CPF Audit	14	15
7	GST Audit Fee	24	28
8	Professional Charges (Legal)	943	-
Total		2,391	3,525

SCHEDULE 19 : SIGNIFICANT ACCOUNTING POLICIES FORMING PART OF FINANCIAL STATEMENTS FOR FY 2019-20

Figures in Rupees in '000

1) Accounting Convention

The Financial statements are prepared on the basis of historical cost convention using accrual method of accounting in accordance with the Generally Accepted Accounting Principles. The accounting policies have been consistently applied by the Society and are consistent with those used in the previous year.

2) Use of estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent liabilities at the date of the financial statements and the results of operations during the reporting year end. Although these estimates are based upon management's best knowledge of current events and actions, actual results could differ from these estimates.

3) Fixed Assets

- i) Fixed Assets are stated at cost of acquisition inclusive of freight, duties & taxes (net of claimable taxes) and all expenditure attributable to the condition required for its intended use and making such assets ready to put to use.
- ii) Fixed assets are reported at cost less accumulated depreciation.

4) Depreciation

- (i) Depreciation is provided on Written Down Value Method, the rates of depreciation prescribed as per Income Tax Act, 1961 are considered as the rates for charging depreciation.
- (ii) In respect of additions to fixed assets during the year depreciation is calculated @ 100% of the prescribed rates as listed in 4(v), if asset is used for 180 days or more and if asset is used for less than 180 days the same is calculated @ 50% of the prescribed rates. Depreciation on the assets sold during the year has been charged in the same manner.
- (iii) The capital assets having the value of less than Rs.5,000/- is charged to the income and expenditure account in the year of purchase.
- (iv) Depreciation on the fixed assets acquired through Grant-in-Aid(GIA) is charged to corresponding Capital fund account.
- (v) Rates of depreciation (as per Income Tax Act, 1961) are tabulated below-

S.No.	Category of Asset	Rate of Depreciation
a.	Building	10%
b.	Computer & Accessories	40%
c.	Electronic Equipment	15%
d.	Cables and connectors	15%
e.	Testing Instrument	15%
f.	Office Equipment	15%
g.	Furniture & fixtures	10%
h.	Intangible Assets incl. Software	25%

5) Government Grants for Projects

Expenditure under Projects (GIA) out of Grant-in-Aid (GIA) received is accounted for on accrual basis but while issuing the utilisation certificate expenditure is shown on cash basis by reducing the total expenditure by the amount of provisions made which are yet to be paid. This treatment towards UC is in compliance with General Financial Rules, 2017, issued by Ministry of Finance, Govt. of India. Such use of cash basis for issue of UCs does not have any effect on financial statements whatsoever.

Expenditure incurred on such projects is titled as “Expenditure under Projects (GIA)” in the financial statements. Expenditure incurred during the year is shown as contra item in the Income and Expenditure Statement. The unspent amount of GIA pertaining to ongoing Projects is shown as “Balances under Ongoing Projects (GIA)” under current liabilities and the excess amount spent is shown as “Receivables under Sponsored Projects” under current assets in the Balance Sheet.

6) Revenue Recognition

S.No.	Income Head	Recognition /Invoicing
(i)	VSAT/SCPC VSAT	Income is recognized as and when services are provided and the invoices are issued. Invoicing is done on half yearly basis as per the tariff rates.
(ii)	Leased Line	
(iii)	Radio Link	
(iv)	Web/ mail/ webmail hosting	
(v)	Domain Registration	"Receipts pertaining to domain services are booked as “Income from Domain” after receiving confirmation of users’ details. Pending confirmation of user details, these receipts are credited to suspense account. Balances lying in suspense account at the end of the month are treated as Miscellaneous Receipts (inclusive of applicable taxes).” Income is recognized fully in the year of receipt irrespective of number of years for which Domain is registered.
(vi)	ERNET consultancy/ Professional Charges	ERNET Professional charges are billed in the projects as per the project terms and conditions.

Revenue is recognized when no significant uncertainty exists for the ultimate collection thereof.

7) Employee Benefits

- i) Retirement Benefits to employees like Gratuity, Leave Encashment etc are provided based on Actuarial Report for valuation at the end of FY in terms of Accounting Standard (AS) 15 issued by Institute of Chartered Accountants of India.
- ii) Provision for accumulated leave encashment and gratuity benefits to the employees is accrued and computed on the assumption that the employees are entitled to receive the benefit as at the end of each year.

8) Inventory

- i) Consumables stores are stated at cost.
- ii) Stock in trade is valued at lower of cost or net realizable value.
- iii) VSAT equipments are stated at cost.

9) Provisions

- i) Provision towards expenses on ERNET India's account (other than on projects A/c) is recognized when the organisation has a present obligation as a result of past event; it is probable that an outflow of resources will be required to settle the obligation, in respect of which a reliable estimate can be made. Provisions are not discounted to its present value and are determined based on best estimate required to settle the obligation at the balance sheet date. These are reviewed at each balance sheet date and adjusted to reflect the current best estimates.
- ii) Provision towards Bad and doubtful debts is made in respect of current users who have not paid their dues for more than three years and for the users who are not availing the services, provision is made, if dues are outstanding for more than one year.

10) Interest earned and refunded under the Projects

On the amounts received in advance interest is paid as per following policy:

- i) In case of projects funds received from Central Govt. Ministry / Department stipulating payment of interest earned on unspent funds, interest income so earned is derecognised and credited to project fund account at the rate of interest of saving bank account, unless the underlying GIA document specifies otherwise.
- ii) In case of advance received from State Govt. / UTs / Govt. Agencies or any other agency and also in case of Projects which are based on purchase / work order and for which no UC is required to be issued; interest is not paid unless the underlying contact document specifically provides for payment of interest. Interest if payable, is paid as per contract terms at the rate of interest earned on the saving bank account; unless contract document specifically provides otherwise.
- iii) The amount of interest after payment of interest as above is credited to the Income and Expenditure account as "Net Interest Earned" in schedule 7 of the financial statements.

11) Utilization of accumulated surplus for the purpose of compliance with provision of Section 11 of the Income Tax Act

The amount of surplus of “Income over Expenditure” is being accumulated over a period of time. Last years’ accumulated surplus shall be first utilized to meet the expenses of current year on FIFO basis, balance left out of accumulated surplus is being utilized against the expenses of subsequent years till the time it get fully exhausted up to the expiry of five years.

12) Goods and Services Tax (GST)

GST is charged on the services provided by ERNET India at the rates prescribed under GST Law. Similarly, Input tax credit under GST is also availed as prescribed under GST Law in the following manner:-

- i) No credit is being availed on the expenditure incurred exclusively for effecting exempt supplies (As per Notification no. 32/2017 – Central Tax (Rate) & 35/2017 – Central Tax (Rate) w.e.f. 13.10.2017).
- ii) For other services, credit is being availed as per provisions of GST law.

Auditor's Report

in terms of our report of even date
M/s H.S. Rustagi & Co.
Chartered Accountants
Firm Reg. No. 1890N

For and on behalf of ERNET India

Narendra Kumar Rustagi
Chartered Accountant
Partner

(Vipin Aggrawal)
Director (Finance)

(Arun Kumar Singh)
Registrar & Director

(Geeta Kathpalia)
Director General

Place : Kaushambhi
Date:

Place : New Delhi
Date:

SCHEDULE 20 : NOTES ON ACCOUNTS FORMING PART OF FINANCIAL STATEMENTS FOR FY 2019-20

1) Undertakings/Guarantees

Figure in Rupees in `000

As on 31.03.2020, four bank Guarantees were outstanding as under:

- i) Two BGs issued in favour of DoT for performance/observance of various conditions of ISP license agreement.
- ii) One BG issued in favour of Ministry of Health and Family Welfare (MoHFW) for executing the Project titled "E-classroom Infrastructure in 50 medical colleges of MoHFW". For any liability arising on this BG we have a corresponding BG which has been received from M/s Yash Technologies Pvt. Ltd. as a consortium partner for this project.
- iii) One BG issued in favour of M/s Antrix Corporation Ltd. for transponder of 22 MHZ C-band capacity in the GSAT-18 Satellite.

2019-20	2018-19
21,000.00	21,000.00
37,966.85	37,966.85
10,276.00	-

2) Contingent Liabilities (to the extent not provided for)

Claims against the Society not acknowledged as debts*

- (i) A Court case filed by Permanent Employee, Ms. Meenakshi Rai Bhatia is with Hon'ble Hight Court of Delhi is related to service matter and there is no financial implications as of today
- (ii) One case of filed by Alliance Business School and Alliance University, Bangalore in Delhi High court and four court case filed by Santosh Kawari, Vivek Srivastav, Madhukar C Angur and S.K.Angur in District and Sessions Court for ownership of Domain registration. There is no financial implications as of today.
- (iii) Contractual Employee related Case filed by Shri Devender Singh, Shri Nikhil Kumar and Shri Sunil Kumar before Hon'ble CGIT, New Delhi regarding position as permanent employee. There is no financial implication as of today.

3) Physical Verification of Assets

Exercise towards physical verification and reconciliation of assets was done for the F.Y. 2018-19 and was completed in the current year F.Y. 2019-20.

Exercise towards physical verification and reconciliation of assets was done for F.Y. 2019-20 and was completed in the current F.Y. 2019-20.

4) Fixed Assets Acquired from the Grant In Aid

As per the terms and conditions contained in the sanction and release of the Grant in Aid received by the society, assets acquired solely or mainly out of the DIT grant shall be property of the DIT and should not without prior sanction of DIT, be disposed off or encumbered or utilized and DIT will be free to sell or otherwise dispose off assets. Accordingly, these assets acquired solely or mainly out of the DIT have been shown as "Fixed Assets Acquired from Grant In Aid" in the financial Statement of the society and corresponding depreciation amount on these assets has also been charged to the respective capital fund accounts.

Figure in Rupees in `000

WDV value as on 31.03.2020	WDV value as on 31.03.2019
95586.63	103616.62

5) Income Tax

Income Tax Department had raised following demands by denying the claim of exemption of being a charitable institution registered u/s 12AA:

Figures in Rupees in '000

AY	Assessment Order date	Income Tax Demands	Amount deposited against demand	Refund including interest claimed u/s 244A and additional interest	Refund Adjusted by Department against Demand	Total amount deposited and refund adjusted	Current Status
2009-10	21.12.2011	1,48,889.03	59,555.61	983.45	Rs. 8486.09 (Refund Adjusted of Rs. 2633.99 of AY 2011-12 and Rs. 5852.11 of AY 2012-13)	68,041.70	Decision of CIT (A), ITAT and Hon'ble Delhi High Court is in the favour of ERNET India. Revenue has preferred SLP before the Hon'ble Supreme Court for the AY 2009-10, 2010-11 and 2011-12.
2010-11	28.03.2013	80,314.30	40,157.16	264.86	Rs. 31,260.80 (Refund Adjusted Rs. 31,260.80 of AY 2013-14)	71,417.96	
2011-12	24.03.2014	61,115.15	Nil	2,633.99		Refund Adjusted against the demand of AY 2009-10	
2012-13	10.03.2015	37,454.69	Nil	5,991.04			

2013-14	30.03.2016	96,647.21	Nil	31,260.80		Refund Adjusted against the demand of AY 2010-11	
2014-15	25.11.2016	1,37,906.43	Nil	8,878.96	Rs. 4598.10 (Refund Adjusted Rs. 4598.10 of AY 2015-16)	4,598.10	
2015-16	11.12.2017	2,38,388.43	Nil	5,149.87		27.59 and Refund Adjusted against the demand of AY 2014-15	
2016-17	28.12.2018	2,26,382.67	Nil	23,578.03	54352.04/- (Refund Adjusted of Rs. 15,800.17/- of AY 2017-18, interest of Rs. 18,09.74/ of AY 2017-18- and Rs. 21,631.22/- of AY 2016-17 and adjusted Rs. 15110.90 /- of AY 2018-19)	54,352.04	Appeal has been filed with CIT(A) against the order of Assessing officer
2017-18	27.12.2019	1,44,362.31	Nil	17,696.19	17,421.57/- (Refund adjusted of Rs. 8693.26/- of AY 2014-15 , Rs. 4598.10/- of AY 2015-16 , Interest of Rs. 551.77 of AY 14-15 and total interest of Rs. 3578.43/- of AY 2014-15 and 15-16)	17,421.57	
2018-19	-	-	-	15,110.90		Refund Adjusted against the demand of AY 2016-17	
TOTAL		11,71,460.22	99,712.77	1,11,548.09		2,11,260.86	

- i) Further, department had raised demand for interest u/s 234D amounting to Rs.19.02 thousand and Rs. 39.66 thousand for the AY 2011-12 and 2012-13 respectively. The same shall be dealt with once the refund is processed by the department.
- ii) The provision amounting to Rs. 3,56,000 thousand created in the FY 2012-13 towards tax liability for the AY 2009-10 to AY 2013-14 has not been reversed since revenue has preferred SLP before Apex Court against the orders of Hon'ble High Court of Delhi for AY 2009-10 & AY 2010-11. Further in view of current status of litigation no further provisions has been created for the demand raised by the department.

7) Foreign Currency Transactions

Figures in Rupees in '000

i) Value of Imports	2019-20	2018-19
Capital goods	84239.20	0.00

ii) Expenditure in Foreign Currency	2019-20	2018-19
Membership Fees	947.76	1052.31
Foreign Travel	716.44	1004.29

8) Remuneration to Auditors	2019-20	2018-19
Statutory Audit Fee	150.00	150.00
Certification Fees ((Pertaining of ISP License)	96.30	85.00

Note: The above fees are exclusive of out-of-pocket reimbursement and GST for which input credit has been taken.

9) Interest Income

Interest income appearing in Income & Expenditure account is on net basis after adjusting interest credited to the projects.

10) Balances outstanding under closed Projects (GIA)

Balances outstanding under closed Projects(GIA) account represent the amount receivable/ payable from the sponsoring Ministry/authority in respect of completed projects. ERNET India is neither providing any interest on payable nor booking any interest on receivable from the sponsoring Ministry/authority. The same are been shown on net basis.

11) Land at Bangalore

In the year 2012, a plot of land admeasuring 5 acres was allotted to ERNET India in Bangalore by Karnataka Industrial Area Development Board (KIADB). As per the allotment letter, ERNET India is liable to pay lease rent at Rs. 1/- thousand per acre per annum and maintenance charges of Rs.10/- thousand per acre per annum. The Stamp duty of Rs. 5403.30 thousand has been deposited with registrar office in connection with the execution of lease cum sale agreement in the month of March 2020. Therefore, Rs. 95,485.20 thousand appearing in the fixed assets as "Land" under Capital Work in Progress is booked as Land on the balance sheet date. However, the lease cum sale agreement is signed on 20th August 2020 ,due to the pandemic caused by Corona.

12) DOT License Fee

As at the close of current financial year outstanding demands raised by the DOT in respect of license fees towards ISP license were the tune of Rs. 4708.77 thousand. Vide communication dated 17.07.2020, the department has withdrawn the above said provisional demands.

No provision for recognition of such fee has been made as no further communication, in form of a demand notice or any other form, for such fee has been received from the department and the Society is of the view that no such liability will arise in foreseeable future.

13) Miscellaneous

i) Direct expenditure and salary of regular staff pertaining to all such projects which are appearing in schedule 2, are directly booked under respective projects, upto a maximum ceiling as specified under respective expenditure head in the Project outlay. Other direct expenditure which are not part of projects outlay and are met out of ERNET overhead/ Professional Charges recovered under these projects; is shown under ERNET project expenditure.

ii) Revenue from VSAT projects which are based on fixed price agreement and in which GST compliant invoicing is done towards revenue booking have been shown under the head "Subscription Charges" in Income & Expenditure A/c.

Projects (other than VSAT) which are based on fixed price agreement and in which GST compliant invoicing is done for booking the revenue, have not been shown in schedule 2 and have been shown as Revenue from Projects under Income & Expenditure A/c. All direct expenditure pertaining to these projects have been shown as ERNET Project Expenses under Income & Expenditure A/c.

iii) Operating expenses include Transponder lease charges, WPC License Fee, Hub Management & Repair and maintenance charges etc. pertaining to VSAT as project and VSAT as services to regular users. Out of the total expenses pertaining to these items, those that are specifically attributable to VSAT as a project has been shown separately as ERNET Project Expenses under Schedule 16 of Income and Expenditure account.

14) The figures for the previous year have been re-grouped/re-arranged wherever necessary to make them comparable with the current period's figures.

Auditor's Report

In terms of our report of even date
M/s H.S. Rustagi & Co.
Chartered Accountants
FIRM Reg. No. 1890N

For and on behalf of ERNET India

Narendra Kumar Rustagi
Chartered Accountant
Partner
Membership No. 085676

(Vipin Aggarwal)
Director (Finance)

(Arun Kumar Singh)
Registrar & Director

(Geeta Kathpalia)
Director General

Place : Kaushambi
Date :

Place : New Delhi
Date :