

Industry 4.0 is revolutionizing the way companies manufacture, improve and distribute their products. Manufacturers are integrating new technologies, including Internet of Things (IoT), 3D Printing, cloud computing and analytics, and Artificial Intelligence (AI) and Machine learning (ML) into their production facilities and throughout their operations. The Industry 4.0 is supported by low latency and other advantages of 5G enabled telecommunications. 3D Printing combined with Industry 4.0 is the apt technology (from amongst emerging tech) to promote “Make In India” with numerous applications. It shall allow us to compete in the 21st century global economy, which requires a strong workforce trained in modern manufacturing techniques. 3D Printing is the future of the manufacturing industry and has the potential to even replace conventional manufacturing sooner than later with some of the major usage verticals:

1 Tooling is one of the huge market segments for the 3D Printing Industry.

The focus areas would be MSME Tooling / Agri Tooling / Rural and Small Enterprises for industrial applications.

2 Healthcare / Medical Education

There is a significant growth opportunity for 3D Printing in the Medical segment, be it Medical Education (Anatomy, Forensics), Pre-Surgery Planning (GI/Cardiac/Nephrology, Neurology, Orthopedics etc.), Brachytherapy based Oral Cancer Treatment, TMJ Disorder Treatment, Digital Dentistry (Aligners, Crowns, Implants Etc.), Trauma Surgery and related treatments, Reconstructive Surgeries to name a few. Similarly, there is a bright future for customized medical implants and medical devices.

3 Disability Treatment / Rehabilitative Services.

4 Fashion & Industrial Design Prototyping

Fashion Goods and accessories, footwear designs, jewelry design, furniture design, personalized gifting etc.

5 Technical Education

Upgradation of skill sets of future ready manpower to work on industrial designing in Industry 4.0 through Industrial Training Institutes / Polytechnics, Engineering Colleges etc.

6 Reverse Engineering

Reverse Engineering of expensive spare parts, customized high end / high performance machine parts, replacement for those spares where OEM is no longer in production etc.

PROJECT OBJECTIVES

- Qualitative improvements in Technical Education by way of promotion, awareness, MOOC Courses, Use Case labs amongst youth of North Eastern Region on use cases of Digital Designing and 3D Printing through AMTRON supported Industry – Academia Partnerships.
- Provide structured platform to skill youth and re-skill those already working and need to acquire new skills to serve their existing industry vertical to cater to demands of the current and future Industry 4.0 landscape.
- Promote Make In India and innovation to reduce imports / strengthen export market for 3 D products especially Healthcare / Disability Treatment / Oil & Gas Industry.
- Contribute to Make NER The Growth Engine of Multi Trillion Dollar Indian **Economy India @ 2047 under Viksit Bharat Sanakalp** - Promote Industry 4.0. Ecosystem in North East to contribute to **India Vision @ 2047**.

Expected Impact on SDG 2030 Parameters for North East

1 SDG 3 - Good Health and Well Being

The planned applications shall promote Ease of Living / Ease of Doing Business:

- a. Healthcare - Reduce Out of Pocket Expenses, Reduce Overall Cost of Treatment, Improve Quality of Continuous Medical Education.
- b. Divyang - Ease of Doing Business and assist them to lead a normal life with better economic participation.

2 SDG 4 – Quality Education

High Quality Education To be Imparted to Youth / Professionals / Entrepreneurs from North East.

3 SDG 5 – Gender Equality

Women imparted training in 3D Printing Tech for entrepreneurship activities / address skill gaps in Industry 4.0.

4 SDG 9 – Industry, Innovation & Infrastructure

Promote R & D for new products and services and diversification from traditional agro / mining based industries in NER. Also supported MSME, Private Enterprises in the region which is very low as compared to other parts of India.

5 SDG 9 – Reduce Inequalities

The project shall reduce the gaps in unequal access to education, healthcare, entrepreneurship activities to people of NER on Digital Design and 3D Printing based use cases.

6 SDG 12 – Responsible Consumption & Production

Reduce waste generation in production process as compared to Substrative Manufacturing.

Workshop - Educational Institutions In NER

1

ASSAM



17. Digboi Collage, Tinsukia

Tinsukia



18. NIT Silchar, Assam
19. Assam University, Silchar
20. Department of ETC Engg. Silchar Polytechnic, Assam

Cachar

Nalbari

Barpeta

সৰ্বেৰাবী
ছোৱালী হাইস্কুল
শ্ৰী ডি প্ৰিটিঙৰ
কৰ্মশালা

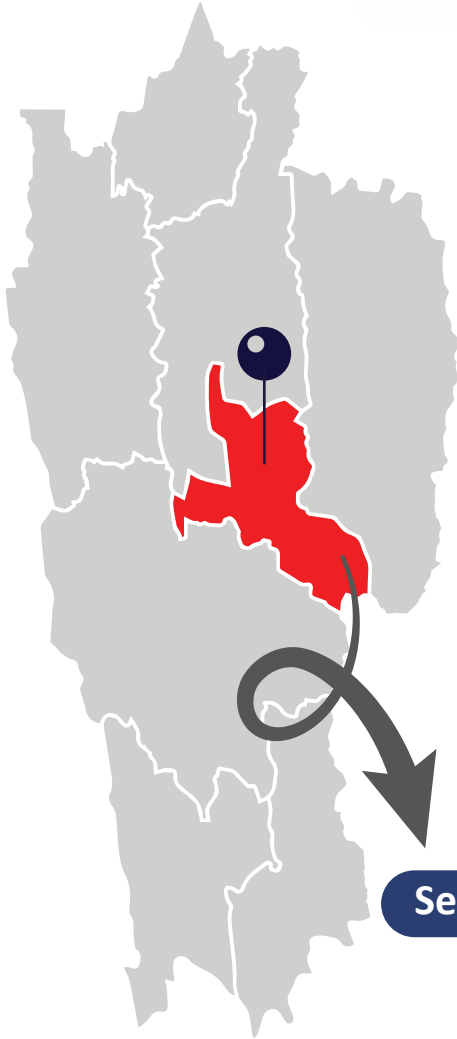
প্ৰতিদিন সোৱা, সৰ্বেৰাবী, ১৭ মাৰ্চ
। এমট্ৰনৰ উদ্যোগত আৰু
সৰ্বেৰাবী ছোৱালী হাইস্কুলৰ
সহযোগত ১৬ মাৰ্চত সৰ্বেৰাবী
ছোৱালী হাইস্কুলত শ্ৰী ডি প্ৰিটিঙৰ
এখন কৰ্মশালা অনুষ্ঠিত হয়।
কৰ্মশালাত সৰ্বেৰাবী ছোৱালী
হাইস্কুলকে ধৰি অঞ্চলটোৰ ১০ খন
স্কুলৰ ২৪৩ গৰাকী ছাত্ৰ-ছাত্ৰীয়ে
ভাগগ্ৰহণ কৰে। প্ৰযুক্তিবিদ্যা
পুৰিবিদ্যাৰ বিষয়ত আগবঢ়িছে ছাত্ৰ-
ছাত্ৰীসকলক ইয়াৰ এক অত্যন্ত
পোহৰ আৰু প্ৰযুক্তিবিদ্যাৰ প্ৰতি
ছাত্ৰ-ছাত্ৰীক আকৰ্ষিত কৰা
কৰ্মশালাখনৰ মূল উদ্দেশ্য।
কৰ্মশালাৰ ছাত্ৰ-ছাত্ৰীক শ্ৰী ডি
প্ৰিটিঙৰ প্ৰশিক্ষণ পত্ৰে এমট্ৰনৰ
স্বাগত হওক।

Kamrup Metro

11. Balabhavan Vidyapith High School, Sariahtali, Nalbari
12. Swami Paramanda Girl's High School, Sariahtali, Nalbari
13. ITI, Nalbari
14. Prabhati Bishnujyoti Self Help Group, Milanpur, Nalbari

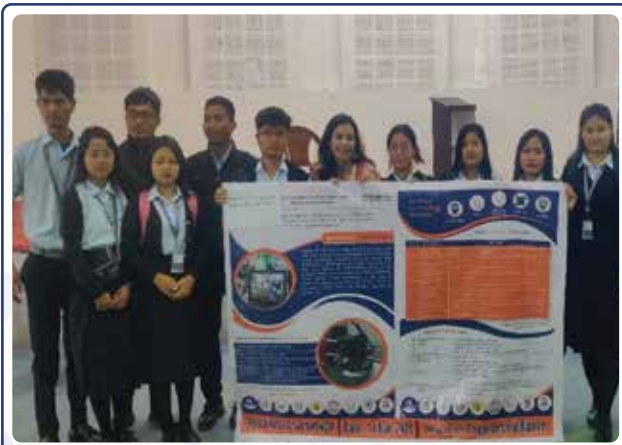
15. ITI Women College,
Kamrup Metro, Guwahati
16. Girijanand Chowdhury University,
Kamrup Metro, Guwahati





Serchhip District

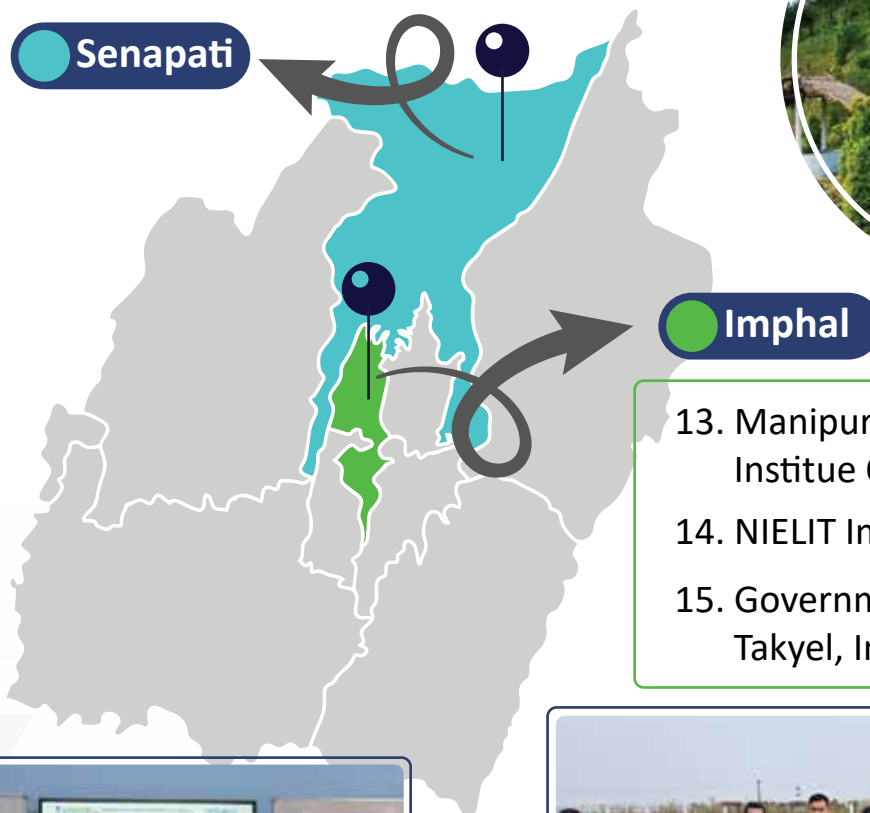
1. District Institute Of Education & Training, Serchhip
2. Government Serchhip College, Serchhip
3. Government Serchhip Higher Secondary School, Serchhip
4. Eklavya Model Residential School, Serchhip



3

MANIPUR

1. ISÜPHI Education Center, Chisari, Chowainamei, Senapati
2. Sardar Patel High School, Senapati
3. St. Xavier's School, Makhan, Senapati
4. ST Joseph's H.R School, Tadubi, Senapati
5. Mount Gibeon Higher Secondary School, Tadubi, Senapati
6. Nazareth Residential School, Mao Gate, Senapati
7. Okai Academy, Mao Gate, Senapati
8. St Joseph High School, Lower Shajouba, Tadubi, Senapati
9. Asumi Christian School, Punanamei, Mao Gate, Senapati
10. Don Bosco Hr. Sec. School, Mao Gate, Senapati
11. Sophia English School, Punanamei, Mao, Senapati
12. Asumi Christian Institute, Punanamei, Mao, Senapati



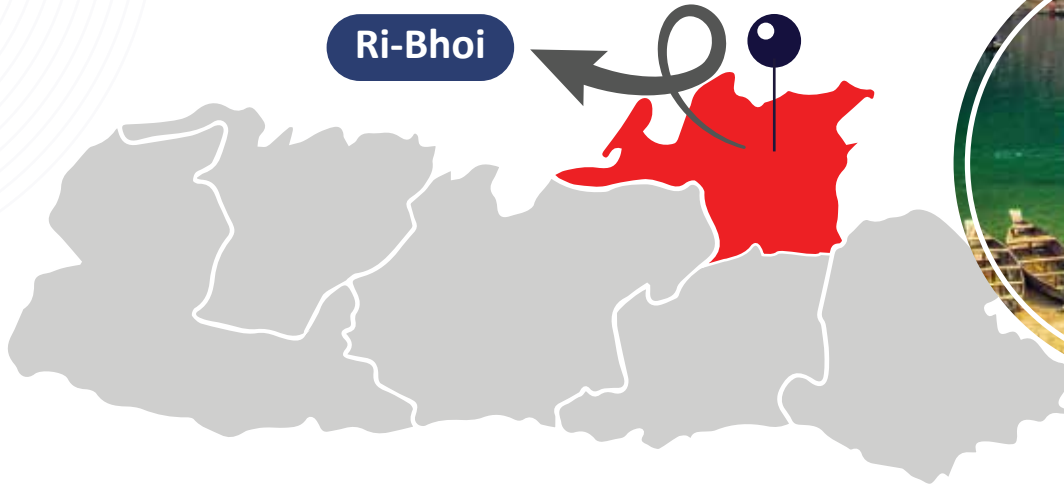
13. Manipur University and Manipur Institute Of Technology, Takyelpat
14. NIELIT Imphal, Akampat
15. Government Polytechnic, Takyel, Imphal



MEGHALAYA



Ri-Bhoi



1. Alpha English Higher Secondary School, Pahamsyiem, Nongpoh, Ri-Bhoi
2. Savio Secondary School, Nongpoh, Ri-Bhoi
3. Nomiwell Memorial Secondary School, Nongpoh, Ri-Bhoi
4. Saiden RMSA Secondary School, Saiden, Ri-Bhoi
5. Ri-Bhoi Presbyterian Synod English Secondary School, Pahamlapong, Nongpo, Ri-Bhoi
6. Umsning Presbyterian Higher Secondary School, Umsning, Ri-Bhoi
7. Nongthymmai Presbyterian Sec. School, Umsning, Ri-Bhoi
8. Gorkha Pathsala Secondary School, Umsning, Ri-Bhoi
9. Balawan College, Umsning, Ri-Bhoi
10. Sati Raja Memorial Sec. School, Umsning, Ri-Bhoi
11. Eden Academy Sec. School, Umsning, Ri-Bhoi
12. St. Michael Higher Sec. School, Umsning, Ri-Bhoi
13. Umsning Town Durvar Sec. School, Umsning, Ri-Bhoi

5

ARUNACHAL PRADESH

1. College Of Agriculture, Pasighat, East Siang
2. Arunachal Pradesh University, Pasighat, East Siang
3. Govt. HR. Sec. School, Borguli, East Siang
4. IGJ Govt. HR. Sec. School, East Siang
5. Pasighat Sigma Institute Pvt. Ltd., East Siang
6. Govt. HR. Sec. School MEBO, East Siang
7. D.E.M Govt. HR. Sec. School, Pasighat, East Siang
8. Government Polytechnic Pasighat, East Siang
9. Govt. HR. Sec. School, Ruksin, East Siang
10. College Of Horticulture / College Of Forestry, Pasighat, East Siang

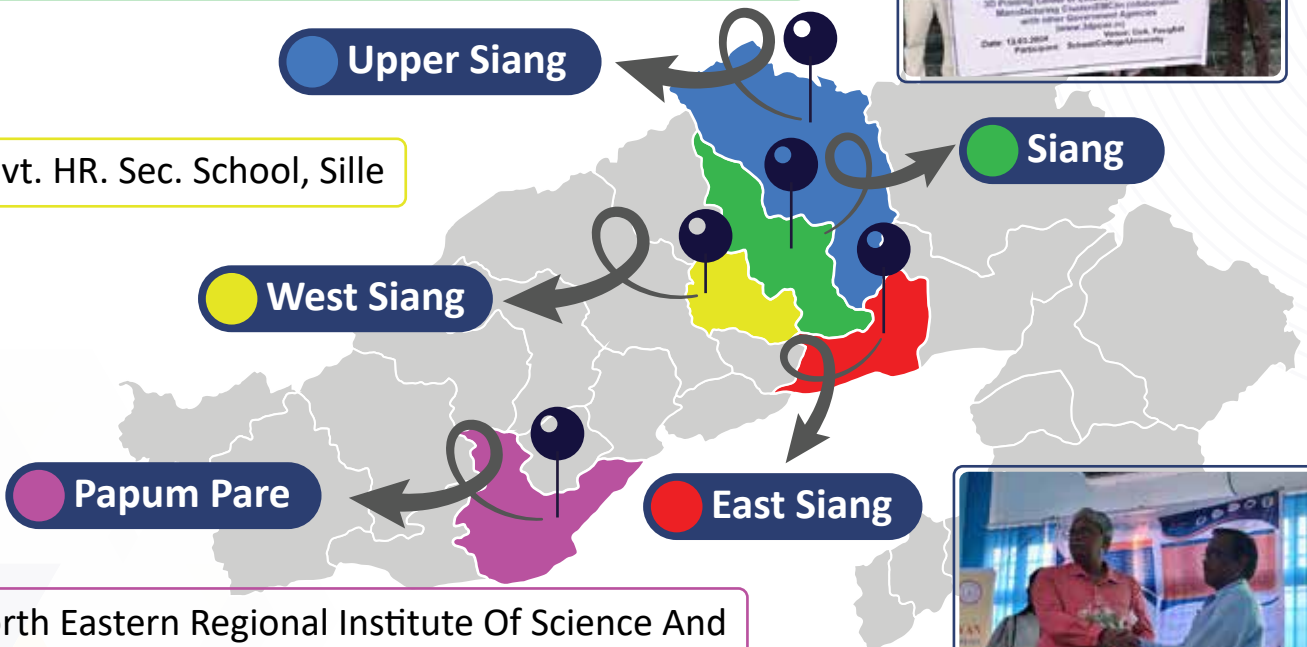


11. Govt. HR. Sec. School Marvang, Upper Siang
12. Govt. H.S. School, Yingkiong, Upper Siang



13. Govt. HR. Sec. School, BolengSiang

14. Govt. HR. Sec. School, Sille

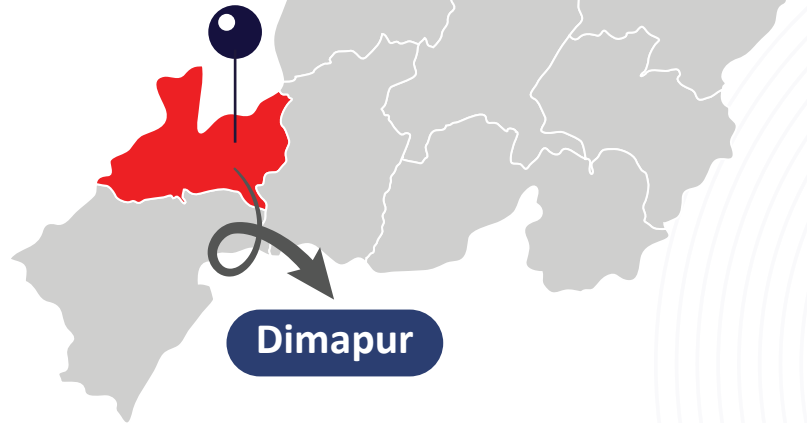


15. North Eastern Regional Institute Of Science And Technology (NERIST), Arunachal Pradesh



6

NAGALAND



Dimapur

EASTERN MIRROR
JOURNALISM FOR JUSTICE

Immanuel College hosts 3D printing workshop for Education

Dimapur - A one-day 3D printing (3DP) workshop for education was organized by the Asian Electronics Development Corporation Limited at Immanuel College, Dimapur, on March 13.

As stated, team lead of AEDC, JEE, Faculty University and Chair of Consultant Industry & Research Institute (Digital), was the resource person of the workshop on 3DP.

The workshop was attended by students of Holy Cross Hr. Sec. School, Clark High School, Nagaland Tool Room and Training Center, Nagaland Women's College, Immanuel College, and Central HS, New School.

The hosts stated that 3DP is a technology innovation intended to enhance and develop better engagement with new basic products in pre-manufacturing industries and provide more of things.

It is a form to integrate various educational institutions, hospitals and other small scale industries. 3DP is an additive manufacturing that enables the production of geometrically complex objects, shapes and structures, etc.

It offers users to material their traditional manufacturing methods and allows the production of items that were thought not possible to produce economically with traditional manufacturing. Its raw material can be anything from plastics to metal and even things such as wood to create the object in any desired shape. The commonly used materials are nylon, polymers and metal. The resource person said.

When also placed a short video which shows light on the function of 3DP including use of 3DP in aerospace industry to make parts of jet engines that are lighter and stronger to reduce engine maintenance and cost.

3D printed food has also entered into the kitchen arena with chefs experimenting with various dimensions and lengths to make new body parts to repair fractures and also make organs from cartilage, etc.

He further highlighted that the 3DP project is aligned with PM-DEPR objective and NEP 2020 goals.

1. Pranabananda Women's College, Dimapur
2. Nagaland Tool Room & Trg. Center, Dimapur
3. Holy Cross HR. Sec. School, Dimapur
4. Government High School Lengrijan, Dimapur
5. Immanuel Collage, Lengrijan, Dimapur
6. Christian Higher Sec. School

3D printing workshop for education held in Dimapur

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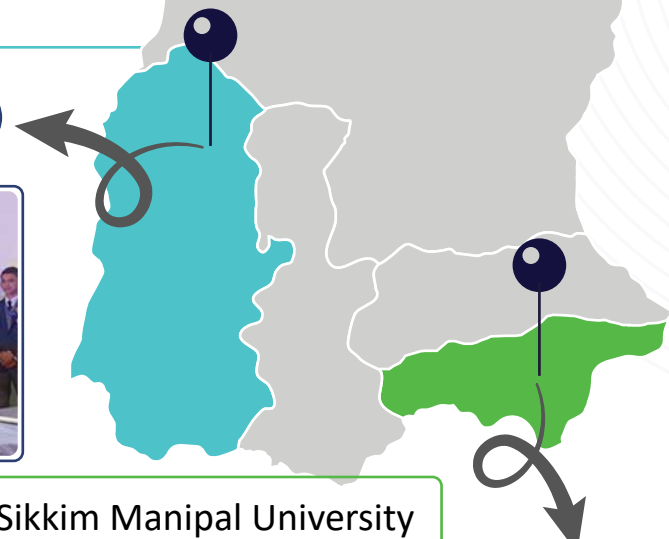
7

SIKKIM

1. Govt. Sec. School Melli Aching , Gyalshing, West Sikkim
2. Government Yuksam SR. Sec. School, Gyalshing, West Sikkim
3. Dentam SE. Sec. School
4. Khechupari Govt. SR. Sec. School
5. Vocational College Dentam
6. Govt. Junior High School Chingthang
7. P.R. Lama Govt. SR. Sec. Sec. School Yangsum, West Sikkim
8. Govt. SR. Sec. School Darap, Gyalshing
9. Govt. Sec. School Central Martam, Gyalshing
10. Govt. Junior High School, Onchung, Gyalshing
11. Govt. Sec. School Rinbik Gyakshing
12. Govt. SR. Sec. School Pelling, Gyalshing
13. District Institute Of Education And Training (DIET)
14. Govt. Sec. School Middel-Gyalshing
15. Govt. Girl's SR. Sec. School, Kyongsha, Gyalshing
16. Govt. SR. Sec. School Legship, Gyalshing
17. Industrial Training Institute, Gyalshing



West Sikkim



Pakyong

18. Sikkim Manipal Institute Of Technology, Sikkim Manipal University
19. Government SR. Sec. School, Uttarey, West Sikkim
20. Govt. Senior Secondary School Sakyong, Gyalshing



TRIPURA

1. Bir Bikram Memorial College, Agartala
2. Maharaja Bir Bikram College, Agartala
3. Women's Collage, Agartala
4. Bhavan's Tripura College Of Science & Technology, Anandnagar
5. Tripura University, Suryamaninagar
6. Techno College Of Engineering, Agartala
7. Bharat Pharmaceutical Technology, Amtali, Agartala
8. National Institue Of Electronics & Information Technology (NIELIT), Agartala
9. Ramthakur College, Agartala
10. TTAADC Poytechnic Institue, Khumulwng



Agartala



Workshop - Healthcare Institutions In NER

1

ASSAM

Assam Medical College, Dibrugarh along with Institute of Paramedical Sciences under AMC, Dibrugarh and BSC Nursing College, Dibrugarh



Dibrugarh



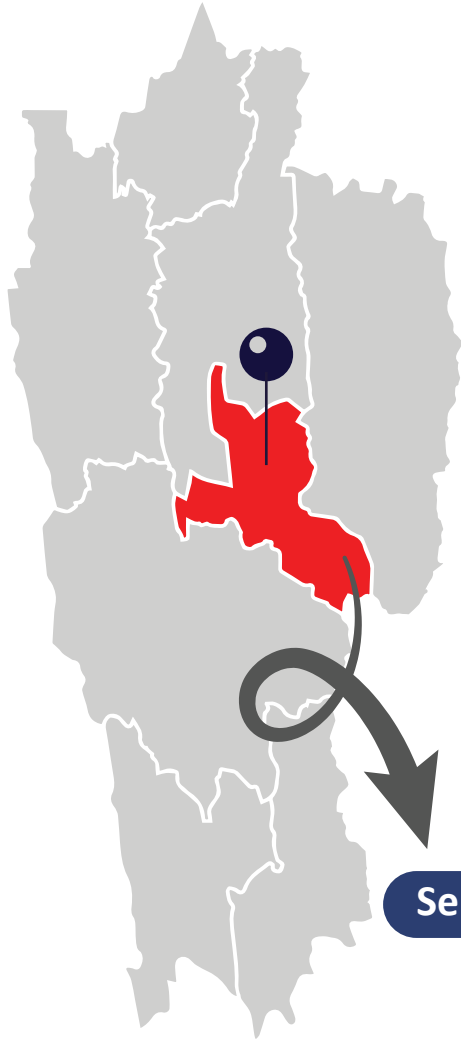
Kamrup Metro



Regional College of Nursing, Indrapur, Guwahati



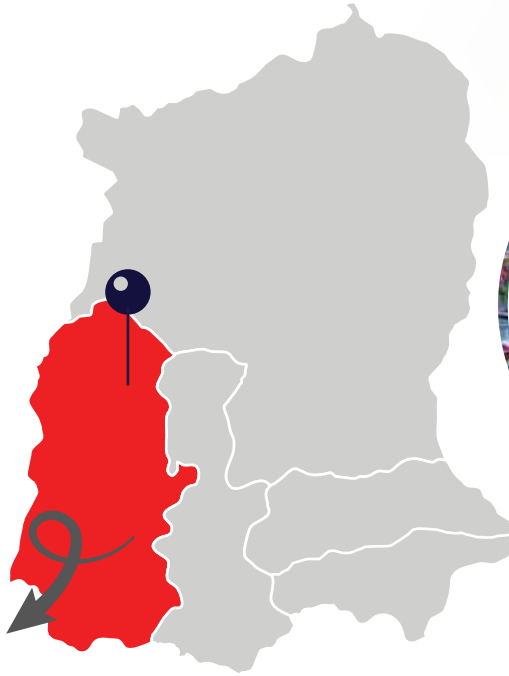
MIZORAM



Serchhip District

District Hospital, Serchhip





West Sikkim District

District Hospital, Gyalshing



NAGALAND



Kohima

Naga Hospital Authority, Kohima



5

ARUNACHAL PRADESH



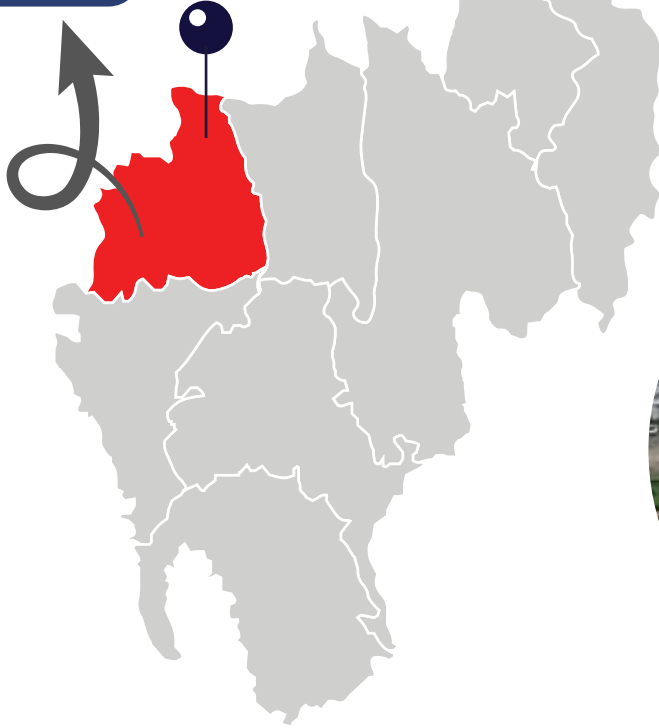
Papumpare District

Abotani Dental Clinic with members of Arunachal Pradesh State Dental Council, Itanagar



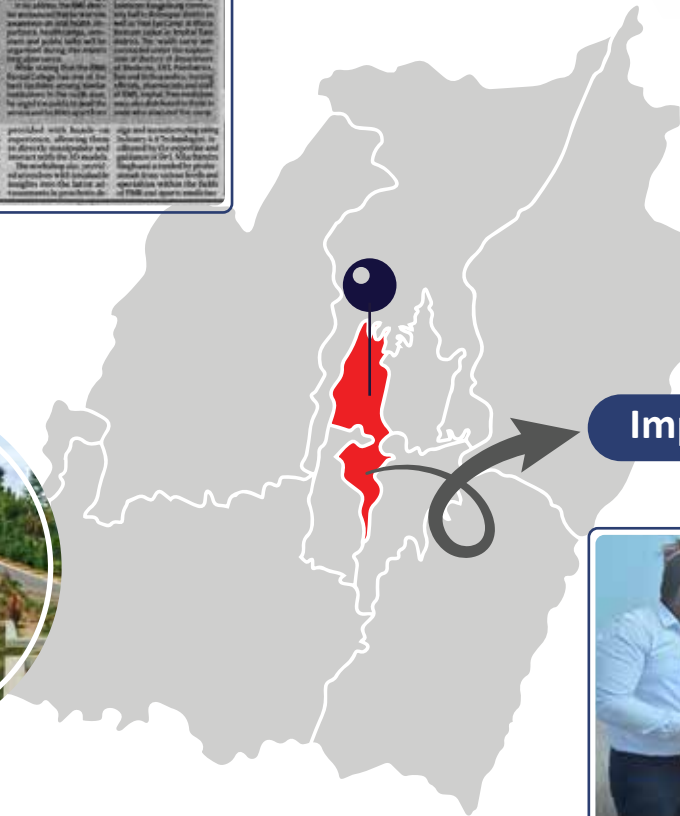
TRIPURA

Agartala



Tripura State Red Cross Society, Agartala





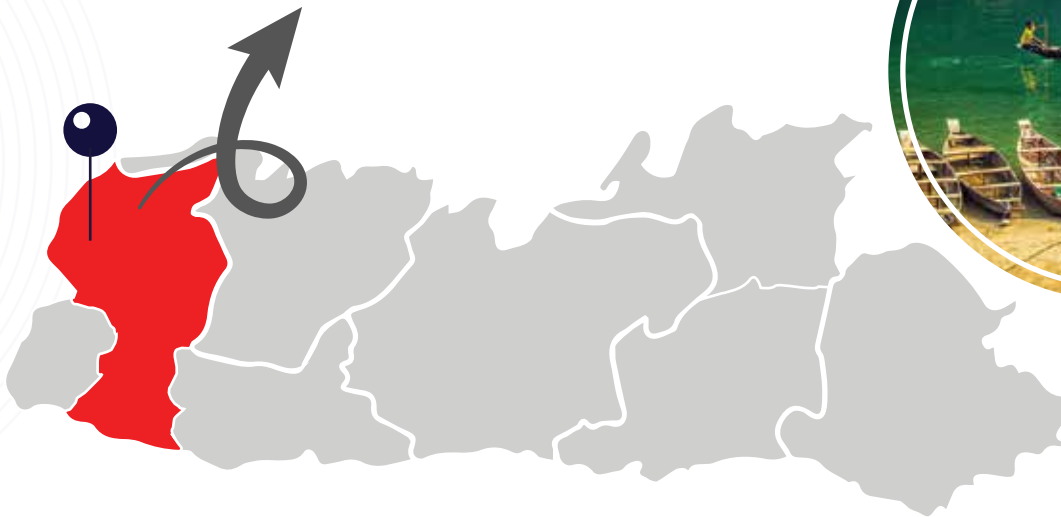
Imphal West District



Regional Institute Of Medical Sciences, Imphal



West Garo Hills District



District Hospital, Baghmara



**3D Printing Centre of Excellence,
Tech City,
Assam Electronics Development Corporation Limited (AMTRON),
Bongora, Near Lokpriya Gopinath Bordoloi International (LGBI) Airport,
District Kamrup - 781122, Assam, India
Email: 3dpcoener@gmail.com**