



**Government of Mizoram  
Directorate of Science & Technology**

# **ANNUAL REPORT 2016-2017**

**Science & Technology for Sustainable Development**

Directorate of Science & Technology  
Mizoram Science, Technology & Innovation Council  
Mizoram Remote Sensing Application Centre  
Mizoram Science Centre



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## **FOREWORD**

The inception of Science & Technology as a catalyst for socio-economic development in the country and the state has proved to be an inevitable sector for advancement and growth. Its intervention in the government's plans and policy making process has also seen commendable improvements in the way such plans and policies are strategically formulated. The technological inputs have also contributed a lot in easing the way government schemes are implemented and monitored.

With the establishment of the Directorate of Science & Technology in Mizoram, the State has seen various improvements in technology inputs and contributions towards successful planning and implementation of schemes and projects. It is also yet another milestone for the Government of Mizoram to have tangible benefits reaped from inception of science & technology activities in various developmental programmes of the state. I also hope that the future initiatives will go a long way in bringing out fruitful results in areas prioritized by the state government under the NEDP programme.

I am happy to know that the second edition of this Annual Report of Science & Technology is being prepared and equally appreciate the valuable activities and contributions made by the Directorate of Science & Technology towards socio-economic development in the state. I wish and hope that the activities highlighted in this elaborate report would serve as an important document for the requirements in policy making and analyze challenges faced in science & technology.

Dated Aizawl  
the 4<sup>th</sup> July 2017

  
(Dr. C. VANLALRAMSANGA)



**Chief Scientific Officer  
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## **PREFACE**

In recent years, Science & Technology as a whole has faced many challenges for the economic & social development of the State. Even though commendable strides in technological developments have been made, this sector still faces constraints as much of the emphasis has to be initiated from grassroot level technology innovations and promotion. The Central Government being aware of this has been taking measures in aspects for growth and development of Science & Technology sector. This has percolated at the State Government level under the aegis of Directorate of Science & Technology.

The Annual Report of Directorate of Science & Technology 2016-17 seeks to present a comprehensive report on the recent activities of science & technology in the state and also to highlight major emerging challenges. I must acknowledge that the second edition of this valuable report became possible due to the farsightedness of the Government of Mizoram and enthusiasm extended to the sector. This report has been enriched with developments taken up by the Directorate of Science & Technology, Govt. of Mizoram as well as strategies adopted for innovative growth of the sector.

I would like to compliment all the Government Department and partner institutions in science & technology sector for cooperating with us in our various activities during the reporting year. I also extend a sincere thanks to officers and staff of the Directorate & the Autonomous organizations under its umbrella in their endeavor for bringing out this voluminous work. I am sure a wide range of Government officials, policy makers, researchers and academicians in science & technology will find this report useful.

Dated Aizawl  
the 4<sup>th</sup> July 2017

  
(Dr. R.K. LALLIANTHANGA)

# CONTENT PAGE

1. Foreward	
2. Preface	
3. Overview	1 – 2
4. Direction and Administration	3 – 6
5. Activities during 2016 – 2017	7 – 26
<ul style="list-style-type: none"><li>• Creation and development of natural resources database for planning and development</li><li>• Popularization of Science, Technology and spread of scientific temperament among the people</li><li>• Promotion of applied research and development project and innovation</li><li>• Promotion of Intellectual Property Rights</li><li>• Generation and dissemination of meteorological data</li><li>• Climate Change study</li></ul>	
6. Highlights of various programmes	28 – 50
<ul style="list-style-type: none"><li>• Inauguration of Science &amp; Technology Building</li><li>• Mizoram Science Congress 2016</li><li>• Foundation Laying of Mizoram Bio-resource Development Centre</li><li>• 1<sup>st</sup> Cherry Blossom Avenue in Mizoram</li><li>• High level discussion &amp; brainstorming session on Biotechnology initiatives in Mizoram</li><li>• National Technology Day 2016 Celebration</li><li>• National Mathematics Day 2016 Celebration</li><li>• National Science Day 2017 Celebration</li><li>• Essay Competition on Science &amp; Technology</li><li>• Preliminary study for scouting of indigenous grassroot innovators and technologies of Mizoram &amp; IGTI Competition</li><li>• Development of Indigenous Technological Innovations in Mizoram (DITIM)</li><li>• Capacity building workshop for SIS-DP</li><li>• Workshop on Hazard Risk Vulnerability Analysis (HRVA)</li><li>• Workshop on Empowering Panchayati Raj Institutions Spatially</li><li>• Workshops on Astronomy &amp; Study of Stars</li></ul>	
7. Publications	51

## OVERVIEW

### 1.1 INTRODUCTION

The Directorate of Science & Technology, Govt. of Mizoram is the main administrative office of Science and Technology in Mizoram. It was created as a Cell in the year 1986 with a view to utilise Science & Technology inputs for various developmental activities and to take up scientific projects and schemes pertaining to frontier areas of Science. Its status as a Wing under the Planning & Programme Implementation Department was upgraded to the Directorate on 30<sup>th</sup> August, 2011.

At present, there are three autonomous bodies functioning under the aegis of the Directorate of Science & Technology viz., Mizoram Science, Technology and Innovation Council (MISTIC), Mizoram Remote Sensing Application Centre (MIRSAC) and Mizoram Science Centre. The Directorate also houses several centres which play specific role for science and technology promotion and popularisation in various fields such as the State Meteorological Centre, Patent Information Centre and State Climate Change Cell. Besides these Centre, the Directorate also acts as a nodal department for the National Informatics Centre (NIC).

### 1.2 VISION

Science & Technology for sustainable development.

### 1.3 MISSION

- (1) Harnessing potential of science & technology for sustainable development.
- (2) Create knowledge based society through innovation and application of science and technology.

### 1.4 OBJECTIVES

- (1) To create and develop natural resources' database for planning and development.
- (2) To promote applied R&D through universities, R&D institutions and other state, national science & technology bodies.

- (3) To identify, demonstrate, replicate and promote technologies relevant to the developmental needs of the state.
- (4) To popularize science and spread of a scientific temper and attitude among the people of the state.
- (5) To promote innovation and facilitate filing of IPR.
- (6) To generate and disseminate meteorological data.
- (7) To enhance the capacity of utilizing bio-resources and harnessing the advanced techniques of biotechnology for socio-economic growth.

## **1.5 FUNCTIONS**

- (1) Application of Space Technology viz. Remote Sensing & Geographic Information System for natural resource management, planning and development.
- (2) Technology development and demonstration.
- (3) Popularisation of science and technology.
- (4) Promotion of innovation and facilitation of filing Intellectual Property Right (IPR).
- (5) Generation and dissemination of meteorological data.
- (6) Scientific study on climate change.

## **1.6 ALLOCATION OF BUSINESS**

As per the Government of Mizoram Allocation of Business Rules, this new Directorate has many responsibilities for the development of the state.

The business allotted to Directorate of Science & Technology are:-

- (1) Promotion and Popularization of Science & Technology.
- (2) Remote Sensing, GIS and Space Applications.
- (3) Matters relating to Intellectual Property Rights including Copyright Act, 1957; Patent Act, 1970 involving establishment of Patent Information Centre; Design Act, 1999; Trademarks Act, 1999; and all Rules/Regulation thereunder.
- (4) Meteorology.
- (5) Bioresources and Biotechnology.



## **DIRECTION AND ADMINISTRATION**

### **2.1 DIRECTORATE OF SCIENCE & TECHNOLOGY**

The Directorate of Science & Technology is functioning under the Planning & Programme Implementation Department. It has its own building at Mizoram Secretariat Complex which was inaugurated by Pu Lal Thanhawla, Hon'ble Chief Minister of the state of Mizoram on 19<sup>th</sup> October, 2016. At present, Directorate of Science & Technology is functioning with the Chief Scientific Officer as the head. Other scientific/technical officers include Principal Scientific Officer, Senior Scientific Officers and Scientific Officers.

Under the Directorate of Science & Technology, there are three autonomous body viz. Mizoram Science, Technology & Innovation Council (MISTIC) and Mizoram Remote Sensing Application Centre (MIRSAC) and Mizoram Science Centre (MSC). These bodies act as implementing agencies for various projects under the umbrella of the Directorate. The Directorate is functioning as the administrative office with the Chief Scientific Officer functioning as the Member Secretary in these bodies.

### **2.2 MIZORAM SCIENCE, TECHNOLOGY & INNOVATION COUNCIL**

The Mizoram Science, Technology & Innovation Council is an autonomous Government body working under the aegis of Directorate of Science and Technology, Govt. of Mizoram. It is the oldest S&T body in the state formed on 12<sup>th</sup> February, 1985 under the name Mizoram Council on Science, Technology & Environment. It plays an advisory role as well as implementing body for science and technology promotion in the state. In order to make it more effective, it is also registered under the Mizoram Society Registration Act 2005 (Reg. No. MSR-630 of 1.5.2015). The Governing Board constituted by the State Government is the apex body having sole authority over the council. The Governing Board is chaired by the Chief Minister, Government of Mizoram, while the Executive Committee is chaired by the Secretary, Planning & Programme Implementation Department, Government of Mizoram.

The Council is administering four cells presently, viz. Patent Information Centre, State Climate Change Cell, Research & Development Cell and Innovation Cell. It is undertaking various works like science popularization, innovation, facilitation of intellectual property rights and its management, technology demonstration, replication,

and other research & development works and programmes through these centres/cells. The Council also acts as a partner as well as a nodal body of the Department of Science & Technology (DST), Government of India in the state and it receives yearly Grant-in-aid from DST for salary of limited scientific/technical employees as Secretarial support as well as fund for implementing various projects. The State Government also supports the council for salary of administrative staff and for non-salary in the form of GIA for its effective functioning.

### **2.3 MIZORAM REMOTE SENSING APPLICATION CENTRE**

Mizoram Remote Sensing Application Centre (MIRSAC) was initially established in the year 1988 under Science, Technology & Environment Cell, Planning Department, Government of Mizoram. It now functions as an autonomous Government institution under Directorate of Science & Technology, Planning Department, with registration under the Mizoram Society Registration Act 2005 (Reg. No. MSR-30 of 19.1.2007).

The Centre is the nodal agency and apex organization for Remote Sensing and GIS applications in the state. The Centre is administered by Governing Body constituting of member from 16 line Departments under the Chairmanship of the Chief Secretary, Govt. of Mizoram. It is equipped with RS & GIS labs, library and hardware/software for executing remote sensing and GIS related works.

The State Govt. supports MIRSAC by providing Grant-in-aid for administration (salary and non-salary).

### **2.4 MIZORAM SCIENCE CENTRE**

Mizoram Science Centre is a non-formal science and technology institution which was inaugurated on 26<sup>th</sup> July, 2003. It helps to develop scientific temper amongst the general public, particularly school children by inculcating a spirit of inquiry and fostering creative talent through activity-based learning process incorporating method of science. It promotes creative activities in school to supplement formal science education. It also develops scientific exhibits, temporary exhibitions, kits and aids for use in the Centre in order to portray the development in science and technology.

The Centre now functions as an autonomous Government institution under Directorate of Science & Technology, Planning Department. It was also registered



under the Mizoram Society Registration Act 2005 (Reg. No. MSR-819 of 30.3.2017). The Centre is administered by an Executive committee chaired by Secretary, Planning & Programme Implementation Department, Govt. of Mizoram and the Governing Body having 9 members, under the Chairmanship of the Chief Secretary, Govt. of Mizoram.

At present, construction work for Innovation Hub & Space Science Exposition theatre is carried out which would further provide scientific exposure to the current generation and inculcate innovative mindsets and better knowledge in space science to the scientific community and the public at large.

## OTHER CENTRES/CELLS

### 3.1 STATE METEOROLOGICAL CENTRE



The Directorate of Science & Technology established a State Meteorological Centre. At present, the State Meteorological Centre is stationed at the top floor of Directorate of Science & Technology office building, Mizoram Secretariat Complex, Khatla. Recording of various meteorological data has been started since the year 1997 with the technical help from Indian Meteorological Department. Besides Aizawl, Automatic Weather Stations have also been installed at Lunglei. The data generated are utilized by various Government Department and agencies, research scholars, journalists, etc.

### **3.2 PATENT INFORMATION CENTRE**

Intellectual Property Rights being an important issue, Patent Information Centre (PIC) has been established with the financial support from Department of Science & Technology, Government of India during the financial year 2010-2011. Among the IPR, Copyright Act, 1957; Patent Act, 1970 involving establishment of Patent Information Centre; Design Act, 1999; Trademarks Act, 1999 are allotted to Directorate of Science & Technology. In doing so, it provides awareness on Intellectual Property Rights through seminars, lectures, workshops, etc. It provides assistance for filing of Patent, Trade Mark, Designs, Geographical Indications, etc. Patent and Trade Mark searches for universities, Government institutions, R&D bodies, educational institutions and individuals are also conducted.

### **3.3 STATE CLIMATE CHANGE CELL**

The Mizoram State Climate Change Cell was created on 3<sup>rd</sup> March, 2015 with the financial support of Department of Science & Technology, Govt. of India under the National Mission for Sustaining the Himalayan Ecosystem (NMSHE) programme of National Action Plan on Climate Change (NAPCC). It is functioning under the aegis of Mizoram Science, Technology & Innovation Council (MISTIC), Directorate of Science & Technology, Govt. of Mizoram. The Cell concentrates in works mainly related to the National Mission for Sustaining the Himalayan Ecosystem and Strategic Knowledge Mission.

It conducts scientific study of Climate Change and related activities including simulation of climate modelling and prediction of future scenario change in different sectors. It also conducts research on climate change issues for database/information generation for the state. It conducts capacity building and training programmes for different stakeholders especially for adaptation strategies in response to climate change for integration into developmental activities by including policy makers, concerned departments, Government officials, NGOs and the local mass.

### **3.4 NATIONAL INFORMATICS CENTRE**

Since inception, Science & Technology is the nodal Department in the state to coordinate and support the establishment of the NIC by providing accommodation and assisting in implementing their programmes and schemes at the state and district level. The NIC's Video Conferencing Centre plays a vital role for conferencing various central and state government departments. The fast internet broadband facility which they provide freely to the government departments is without doubt one of the best in the state.

## ACTIVITIES DURING 2016-2017

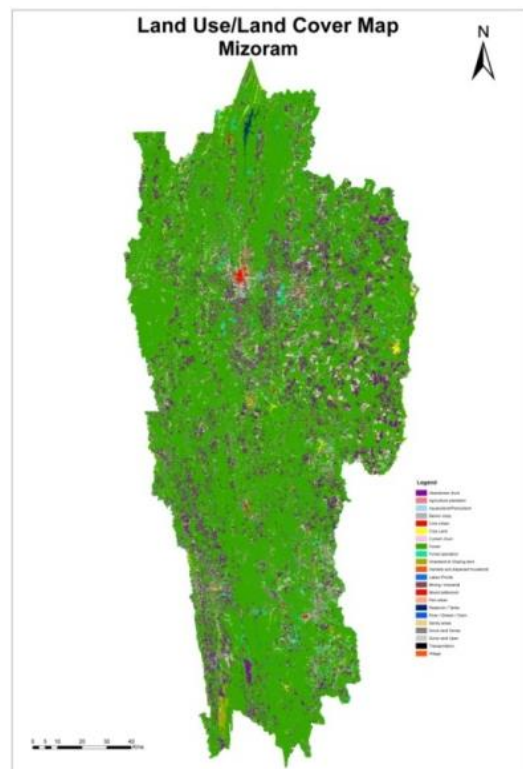
### 4.1 CREATION AND DEVELOPMENT OF NATURAL RESOURCES DATABASE FOR PLANNING AND DEVELOPMENT

The Directorate of Science and Technology is actively involved in state and national level projects where space technology inputs are required. For creation and development of natural resource database, it is executing various projects through Mizoram Remote Sensing Application Centre (MIRSAC). The data and services extended by the Centre to user Departments and public/private organizations has covered various themes of space technology inputs which have provided value-addition to schemes and projects for the development of the state. At present, MIRSAC is engaged in various levels of mappings and intends to expand its area of activities to cover wider applications of space technology for the benefit of the state.

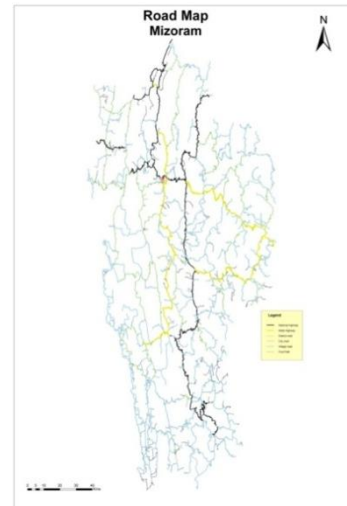
Brief details of projects undertaken during 2016-2017 are shown in the subsequent sub-heads.

#### 4.1.1 Space based Information Support for De-centralized Planning (SIS-DP)

The project embodies the preparation of space technology information that would be essential during decision and implementation schemes under the Government perspectives and bringing these information on a unified platform for de-centralized planning. The project also aims at generating GIS layers on large scale on natural resources (land cover, settlements, soil, slope, water prospect, etc), creating inventory of resources (water, road, public utilities, communication network, health care, etc) and disseminating them to the people at grassroot level using web enabled information system. The project is funded by National Remote Sensing Centre, Dept. of Space, Hyderabad and covers the entire state of Mizoram. At the forefront, the project in its initial phase had objectives of Spatial geo-database creation and capacity building.



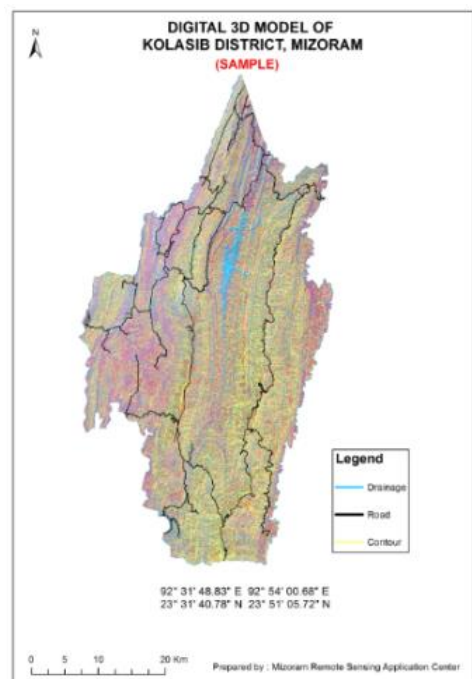
During 2016-2017, the project has generated spatial data at large scale (1:10,000) for incorporation into the national repository of Bhuvan Panchayat. The statistic and maps prepared from this project submitted to NESAC. Various state line departments have used the data in their respective line of work. Capacity building for utilizing the data was also organized by MIRSAC for State line departments.



*SIS-DP Capacity Building for Line departments*

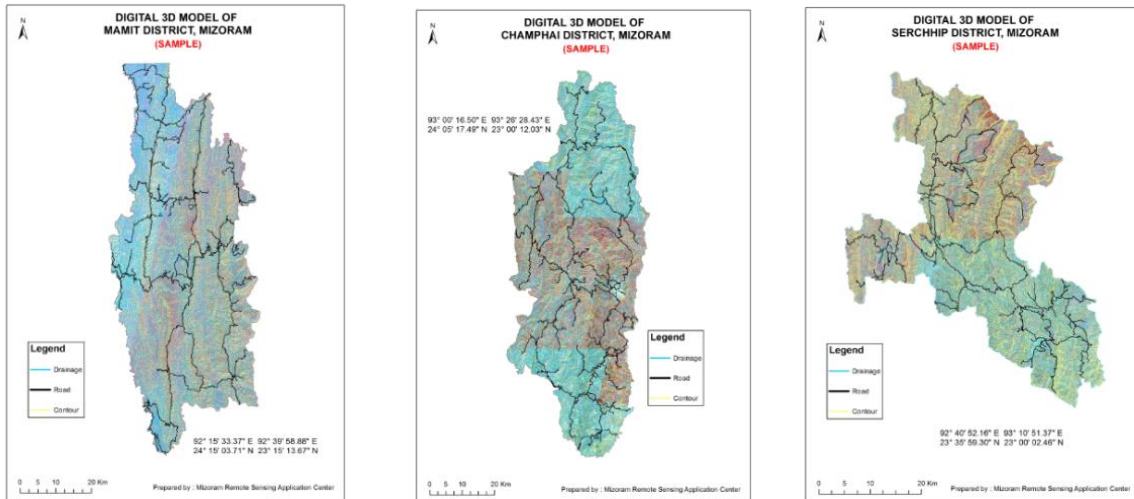
#### 4.1.2 Digital 3D Terrain Mapping & Modelling of Eight Districts of Mizoram

The project on 'Digital 3D Mapping and Modeling of Mizoram' is an important initiative to conduct a detailed digital survey and generation of 3D terrain for eight districts of the state which is applicable for operational level mapping. The project is funded by North Eastern Council (NEC), Shillong. The data and 3D terrain models generated through this project will be beneficial as an important core data for other allied projects where its inclusion is required. The updated spatial data generated through this project will provide valuable information for the concerned Departments of eight districts for planning, management and formulating developmental programmes. The digital database generated through this project would also form a platform for evolving effective implementation strategies in the district headquarters of Mizoram. The main deliverables



of this project maps prepared through this project will consist of contours, 3D models and other topographical layers like drainages, rivers, roads, settlements, etc.

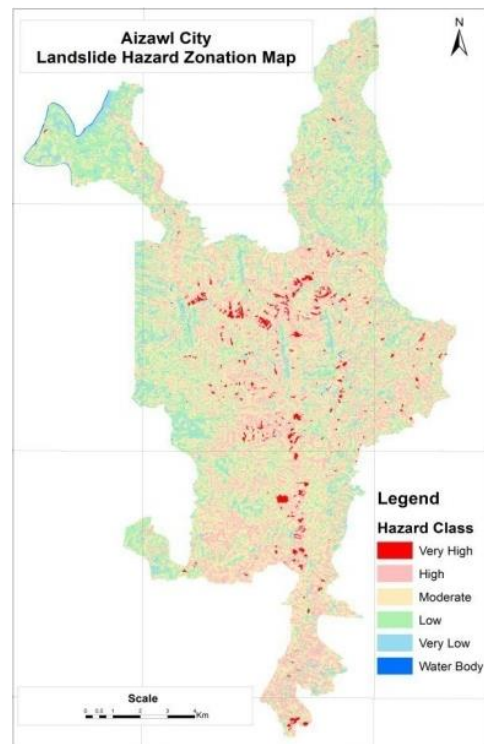
During 2016-2017, 3D terrain maps for four (4) districts were prepared, namely –Kolasib, Mamit, Champhai & Serchhip.



### 4.1.3 Hazard, Risk & Vulnerability Analysis for Eight District Headquarters of Mizoram

The project is funded by NEC, Shillong. The objectives of the project are – to map hazard prone areas at district headquarters at 1:5000 scale, covering geological and climatic hazards; assessing the extent of vulnerability, the exposure of people, infrastructure and economic activities to these hazards, assess the degree of risk of all the habitations and to prepare user friendly database in GIS environment and publish hard copy in the form of atlas.

During 2016-2017, hardware & satellite required for the project was procured. Base map data preparation and mapping for HRVA was done for Aizawl city area. A workshop on HRVA was also conducted at Directorate of Science & Technology on 13<sup>th</sup> January 2017 which was attended by concerned Departments,



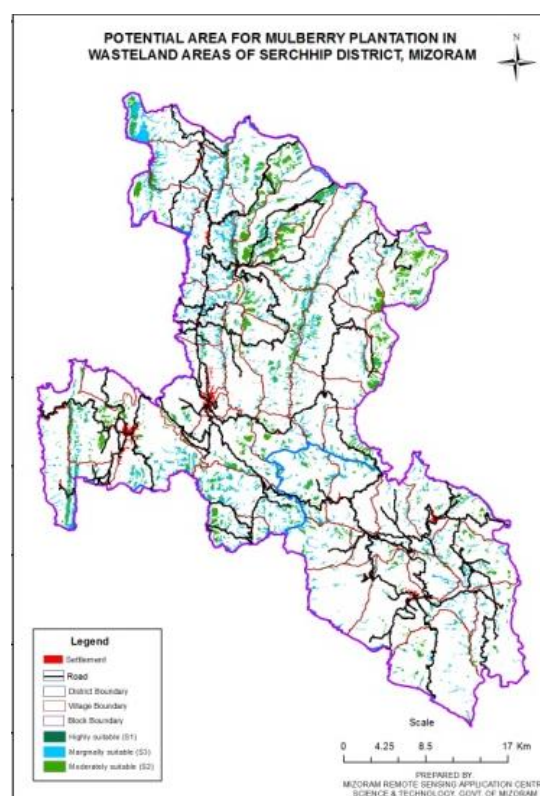
science NGOs, scholars and scientists. Mapping and ground data collection will be continued for the remaining district headquarters during 2017 – 2018.



HRVA Workshop at Directorate of Science & Technology

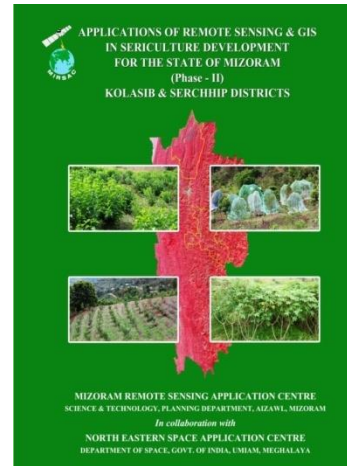
#### 4.1.4 Sericulture Development Project - 2<sup>nd</sup> Phase (Kolasib & Serchhip Districts)

The Sericulture Development project is a collaborative project funded and coordinated by North Eastern Space Application Centre (NESAC), Dept. of Space, Umiam. The first phase of the project had covered 6 districts of Mizoram and in continuation of this phase, the remaining 2 districts viz., Kolasib & Serchhip were covered in this 2<sup>nd</sup> phase. The objectives of this project is to map potential areas for sericulture based activities, suitable areas for rearing silk worms & its food plants in two districts – Kolasib & Serchhip, and incorporate it into a user friendly system (portal) called SILKS (Sericulture Information Linkages and Knowledge System) for dissemination of sericulture related information.



During 2016-2017, reports containing maps & statistics of potential areas for rearing silk worms & its food plants in Kolasib & Serchhip districts were prepared and submitted to NESAC. The same was also handed over to the Sericulture Department, Govt. of Mizoram at an official function organized at MIRSAC.





Sericulture Development - 2<sup>nd</sup> Phase project reports handed over to Secretary, Department of Sericulture, Govt. of Mizoram

#### 4.1.4 Empowering Panchayati Raj Institutions Spatially (EPRIS)

The EPRIS project is initiated and funded by Indian Space Research Organization (ISRO), Dept. of Space with a goal to empower Panchayati raj institutions with space-based inputs for resource based and integrated spatial development planning of rural areas in a user-friendly technological environment. In this backdrop, the Centre has collaborated with ISRO to provide capacity building of concerned rural development departments and village level workers in mapping & geo-locating existing & on-going development activities in rural areas.

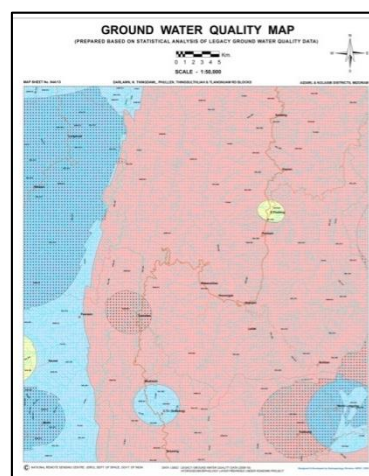
During 2016-2017, a State level Workshop and hands-on training programme for achieving the goals of the project was organised on 17th November 2016 at I&PR Auditorium, Aizawl.



EPRIS Workshop & Training programme for VLAs t I&PR Auditorium, Aizawl

#### 4.1.6 Ground water quality mapping under National Drinking Water Mission (NDWM)

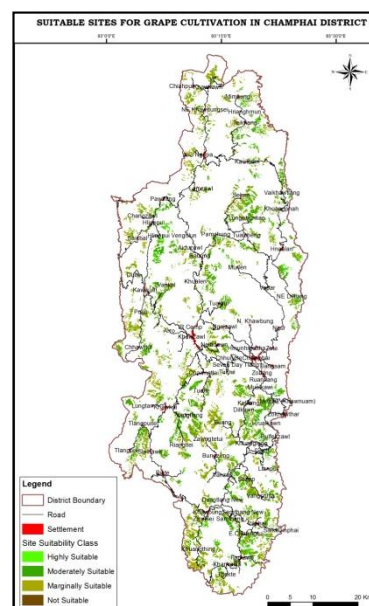
The Ground water quality mapping project is funded and coordinated by National Remote Sensing Centre, Dept. of Space, Hyderabad under the nationwide initiatives of National Drinking Water Mission. It aims to map and assess the quality of drinking water sources by delineating and categorizing ground water that is potable for consumption purposes. The project uses GIS technology to generate maps and statistics of spatial distribution of ground water based on the quality assessment at 1:50,000 scale for use by line departments. This project is carried out as a continuation of the *Ground water prospect mapping under Rajiv Gandhi National Drinking Water Mission (RGNDWM)* project that was completed in 2014.



During 2016-2017, ground water quality spatial data for the state was submitted to NRSC, Hyderabad.

#### 4.1.7 Coordinated programme on Horticulture Assessment & Management using Geoinformatics (CHAMAN)

The CHAMAN project envisages a holistic and coordinated approach to find potential and suitable land resources and sites for cultivation of selected horticulture crops by integrating space technology inputs with ground observations and existing informations from stakeholders/concerned state departments. This project is funded by Space Application Centre, Ahmedabad and coordinated by Mahalanobis National Crop Forecast Centre (MNCFC), New Delhi & North Eastern Space Applications Centre (NESAC), Dept. of Space, Umiam. The current project objective involves the use of GIS based tools for generating base data and site suitability analysis of selected horticultural crops. The selected crop for Mizoram is Grape and its site suitability analysis for Champhai district was done using GIS based multi-criteria decision approach.



During 2016-2017, site suitability analysis for grape crop in Champhai district was done. GIS layers, maps and statistics of the suitability analysis upto village level was prepared and submitted to sponsoring agency.

## 4.2. POPULARIZATION OF SCIENCE, TECHNOLOGY AND SPREAD OF SCIENTIFIC TEMPERAMENT AMONG THE PEOPLE

### 4.2.1 Popularizing science through Mizoram Science Centre

The Mizoram Science Centre at Berawtlang, Aizawl is equipped to attract various types of visitors from students to layman. Since its inception, it has been serving the people by communicating science and technology through its exhibits and activities in enjoyable ways with the primary objectives of developing scientific temper in the society and promote creative learning of science in schools and colleges. The various units inside the centre are forest gallery, auditorium, fun science gallery and 3D theatre. Beyond the four walls, there is a sprawling lush green science park where young children can come to nature, enjoy and play with specially designed outdoor exhibits and water fountain.

As the main road linking the Centre is damaged due to huge landslide, the number of visitors is dwindling in this current year. The total number of visitors during 2016-2017 is 12007 and the month-wise visitor statistics is shown below:-

Months	No. of visitors				No. of 3D Show Spectators	
	General	Student	Teacher	Total	General	Student
April	581	286	15	882	207	208
May	473	22	2	497	132	24
June	778	75	-	853	310	51
July	464	72	4	540	163	69
August	673	67	3	743	270	14
September	403	117	5	525	121	171
October	412	379	40	831	111	409
November	346	962	91	1399	75	964
December	502	654	62	1218	172	605
January	517	68	7	592	138	69
February	2319	641	73	3033	215	550
March	617	255	22	894	126	107
<b>Total</b>	<b>8085</b>	<b>3598</b>	<b>324</b>	<b>12007</b>	<b>2040</b>	<b>3241</b>

#### 4.2.2 Organizing of seminars / trainings / camps / workshops / meetings / symposia / campaigns / lecture / demonstration

Every year different programmes are organized for science promotion and popularization. Annual observation of important days relating to science & technology like National Science Day, National Technology Day, National Mathematics Day are organized in collaboration with Science NGOs, institutions, line Department, etc. Most of these programmes are organized with the assistance of Department of Science & Technology, Govt. of India.

List of various programmes/events organized during 2016-2017 is given in the table below:-

Sl. No.	Name of Programme	Date	Venue
1.	Observation of World Intellectual Property Day at Aizawl	26.4.2016	Science & Technology Office, Aizawl
2.	Celebration of National Technology Day 2016	11.5.2016	I&PR Auditorium, Aizawl
3.	Workshop on Impact of Climate Change in Mizoram	7.6.2016	Conference Room, Aijal Club
4.	High Level Discussion and Brainstorming-cum-Interactive Session on Biotechnology Initiatives in Mizoram	13&14.6.2016	Secretariat Conference Hall, Aizawl
5.	State Level Essay Writing Competition on Science & Technology – Mizoram hmasawnnan Prize Distribution	22.6.2016	I&PR Conference Hall, Aizawl
6.	Foundation stone laying of 1 <sup>st</sup> Cherry Blossom Avenue in Mizoram	26.7.2016	Mizoram Secretariat Complex, Aizawl
7.	Mizoram Science Congress 2016	13&14.10.2016	Mizoram University
8.	Inauguration of new Science & Technology Building cum Local Innovation Exhibition	19.10.2016	Mizoram Secretariat Complex, Aizawl
9.	Workshop and Training on EPRIS	10.11.2016	I&PR Auditorium, Aizawl
10.	Indigenous Grassroot Technology & Innovation (IGTI) Competition – Prize Distribution	16.11.2016	S&T Conference Hall, Aizawl
11.	Arsi Chanchin zirna – Workshop on Astronomy	24.11.2016	Mizoram Science Centre
12.	Observation of National Mathematics Day 2016 & Prize Distribution of 8 <sup>th</sup> State Level Mathematics Competition	22.12.2016	Synod Conference Centre, Aizawl

	2016 (With Mizoram Mathematics Society)		
13.	Workshop on HRVA	13.1.2017	S&T Conference Hall, Aizawl
14.	Photography competition on Climate Change – Prize Distribution	27.1.2017	S&T Conference Hall, Aizawl
15.	Training on Basic Astronomy with M/S Science Teachers	2.2.2017	Mizoram Science Centre
16.	Mizoram Bioresource Development Centre – Foundation Stone Laying programme by Union Minister for Science & Technology and Earth Sciences	14.2.2017	Mizoram University
17.	National Science Day 2017 main Celebration at Aizawl cum Exhibition	28.2.2017	I&PR Auditorium, Aizawl
18.	National Science Day 2017 Celebration in Serchhip District	28.2.2017	Govt. Serchhip College, Serchhip
19.	National Science Day 2017 Celebration in Kolasib District	28.2.2017	Govt. Kolasib College, Kolasib
20.	National Science Day 2017 Celebration in Lunglei District	28.2.2017	Lunglei Govt. College, Lunglei
21.	National Science Day 2017 Celebration in Champhai District	28.2.2017	Govt. Champhai College, Champhai
22.	National Science Day 2017 Celebration in Lawngtlai District	28.2.2017	Govt. Southern Public High School, Lawngtlai
23.	National Science Day 2017 Celebration at Saiha District	28.2.2017	Govt. Saiha High School, Siaha
24.	National Science Day 2017 Celebration at Mamit District	28.2.2017	Govt. Mamit High School, Mamit
25.	National Science Day 2017 Celebration at Pachhunga University College	28.2.2017	Pachhunga University College, Aizawl
26.	National Science Day 2017 Celebration at Govt. Zirtiri Residential Science College	28.2.2017	Govt. Zirtiri Residential Science College, Aizawl
27.	Seminar on Climate Change and its impact on Herpetofauna cum Book Release – Mizoram Rul Chanchin	10.3.2017	I&PR Conference Hall, Aizawl
28.	Mathematics Summer Camp (With Mizoram Mathematics Society)	20-24.3.2017	Pachhunga University College, Aizawl
29.	Sci-Connect of North East Programme – Screening Examination	31.3.2017	Various districts within Mizoram

There is a good linkage developed with various institutions and science-based NGOs in the state as well as outside the state which serves to be a good catalyst for organizing of many programmes. Of these, the Mizoram Science Society, Mizo Academy of Sciences, Science Teachers' Association Mizoram, Mizoram University, Pachhunga University College from the state and other agencies/bodies such as Vigyan Prasara and NCSTC of DST, Govt. of India are worth mentioning their names who have contributed very much in this success story.

### 4.2.3 Science Popularization through Printed Scientific Journals

Three regular Scientific Journals have been published various Scientific organisations. The magazines are *Meithallawn* (with Mizoram Science Society), *Science Vision* with Mizo Academy of Sciences) and *Mizoram Science Journal* (with Science Teachers Association Mizoram). The journals are widely circulated in educational institutions from Primary level to University students all over the state and it also reaches the general masses. The toils, hard work and sincerity of the three Science NGOs paid off as can be seen from the rising demands for these science magazines.

The number of issues of Scientific Journals published during the year 2016-2017 is 20. (MSJ – 10 issues, MTL – 6 issues, SV – 4 issues)



Mizoram Science Journal is mainly intended for young scholars and school children and it mainly focus on fun science, career and nature aspect. With ISSN, Science Vision is mainly research oriented and it includes original research papers and valuable scientific articles. Meithallawn magazine focus mostly on science popularization, simple and fun science with applied aspects and its contents fits for all sections of people.

### 4.3. PROMOTION OF APPLIED RESEARCH AND DEVELOPMENT PROJECT AND INNOVATION

Research and development are the backbone of economy. The main R&D work at the Directorate of Science & Technology is accomplished mainly through the Mizoram Science, Technology & Innovation Council and Mizoram Remote Sensing Application Centre. Much R&D efforts needs to be taken up in various sectors like

health, energy, water, agriculture, education and other streams. Owing to the rapid growth in recent years, Science and Technology in the state is now in a better position to do more research and look out for more avenue in this field.

#### 4.3.1 Preparation and submission of DPR/proposals for R&D projects

During 2016-2017, following DPRs/Project Proposals were prepared and submitted to the relevant department/agencies for seeking financial support, viz.

Sl. No.	Name of DPR/Project Proposal	Submitted to
1.	Science & Technology Mass Awareness Programme in rural/tribal areas in the two districts (Aizawl and Lunglei) of Mizoram	NCSTC Division, Department of Science & Technology, GOI
2.	Strengthening observation of key climate variables and creation of public awareness for decentralized actions in coping with climate change vulnerabilities – Project Concept	Environment, Forests & Climate Change Department, GOM
3.	Development of State Spatial Data Infrastructure – Revised Proposal	NSDI Division, Department of Science & Technology, GOI
4.	Development and demonstration of hydropowered pump	SSTP, Department of Science & Technology, GOI
5.	Development of Portable agarbati round stick producing machine	SSTP, Department of Science & Technology, GOI
6.	Development of Indigenous Technological Innovations in Mizoram through establishment of Innovation Facility Centre and Enhanced Protection of Ownership	Core Committee, NEDP, State Government
7.	Celebration of Mathematics Day 2016 and National Science Day 2017	NCSTC Division, Department of Science & Technology, GOI
8.	Establishment of Mizoram Bioresource Development Centre (Revised)	Department of Biotechnology, DST, GOI
9.	Establishment of Digital Planetarium at Lunglei, Mizoram (Revised)	North Eastern Council
10.	Transport network mapping, analysis and planning of Aizawl city and Lunglei town using satellite remote sensing and GIS	North Eastern Council
11.	Mizoram Science Congress	North Eastern Council and SERB, DST

### 4.3.2 Promotion/assistance of scientific research/innovation

During the FY 2016-2017, following scientific research / innovation have been assisted :-

1. Hand-pressing phone charger
2. La hlumna (Multiple spindle)
3. Power hammer
4. Rolling shutter controller machine
5. Torsion machine
6. Tui tha chakna hmanga hmun sang zawka tui lakna

Besides these, other projects such as ‘Establishment of Mizoram Bioresource Development Centre’ and ‘Development of Indigenous Technological Innovation in Mizoram’ were formulated for promotion of research and development in their respective sector. The project ‘Preliminary study for scouting of indigenous grass root innovators and technologies of Mizoram’ was also finished.

### 4.3.3 Construction of Innovation Hub

Construction of Innovation Hub and 8.0M Diameter Dome Planetarium at Mizoram Science Centre, Aizawl funded by National Council of Science Museums (NCSM) started during 2015-2016 was continued. The building foundation was laid by Shri Lalsawta, Hon“ble Minister, Planning (Science & Technology) on 11<sup>th</sup> May, 2015. The Hub is constructed under the Scheme for Promoting Innovation, Creativity and Engagement in Science (SPICES), Ministry of Culture, Govt. of India. During 2017-2018, the percentage of construction completed is 90% and is nearly ready for commissioning. Installation of equipment and other required kits will follow.



The hub will engage youth in innovative and creative activities. These would serve as springboards for new ideas and innovation and thus helping the society and economy to face future challenges and meet rising aspirations of the growing population. Specifically, embedding such creative pedagogies in science education through Innovation ‘Hubs’ would have potential to retain talent in modern science.



#### 4.4. PROMOTION OF INTELLECTUAL PROPERTY RIGHTS

The Department of Science & Technology, New Delhi and Mizoram Science, Technology & Innovation Council under the Directorate of Science & Technology, Govt. of Mizoram has set up Patent Information Centre (PIC) in Mizoram during 2010-2011. More than 20 such centres have also been established in other states. The Patent Information Centre activities are looked after by Scientific Officer in-charge and Project Scientist under the supervision of Senior Scientific Officer. The main objectives of PIC are:-

1. To create awareness about IPRs, especially patents, in the state & neighbouring region of the centre and enable patent searches for the universities, industry, government departments and R&D institutions in the State and around.
2. To analyze the patent information on a regular basis and suggest new programmes for R&D based on such information.
3. Guide the inventors in respect of patenting their inventions.

The PICs have contributed a great deal in the planning process of the states in the area of intellectual property rights and have been responsible for creating awareness about IPR all over the country. The work at the Patent Information Centre, Mizoram involves the various types of Intellectual Property Rights viz. Patent, Trade Mark, Design, Geographical Indication, Copyright, IC Layout, Trade Secret as well as Plant variety protection and farmer's rights. More emphasis is given on Patents, Trade Mark, Design and GI. Since its inception various scholars, innovators, Govt. Departments, etc. have approached the Centre for IPR assistance.

##### 4.4.1 Assistance on IPR knowhow and its filing

During FY 2016-2017 a number of clients were given assistance for promotion of innovation and facilitation of rights of Intellectual Property Rights. Besides these, patent specification was written for one inventor. Also, research was done on five Mizo Puan for Geographical Indication filing with Art & Culture Department, Govt. of Mizoram, to safeguard their design and quality, and to prove their origin from the state of Mizoram. The cloths are – Mizo Puanchei, Tawlhlohpuan, Hmaram, Pawndum and Ngotekherh. Detailed specifications were written for these cloths and were made ready for filing under Geographical Indication registry at Chennai.

The following items were successfully filed under their respective registries:-

Sl. No.	Type of IPR	Particulars	Nature of assistance	Application No / Date of Filing / Class
1.	Patent	A novel device automatically switching off or on the water pump motor by Mr. Zoramchhana, Chhungte Champhai	Patent Specification writing and Patent Filing	201631029263 29.8.2016
2.	Trade Mark	Folkland (Black font, white background)	Trade Mark Filing	3457940 16.1.2017 Class-41
3.	Trade Mark	Folkland (White font, black background)	Trade Mark Filing	3457941 16.1.2017 Class-41
4.	Trade Mark	Symbol/Logo for Folkland	Trade Mark Filing	3457942 16.1.2017 Class-41

#### 4.4.2 Creation of IPR Cells/Clubs

To enhance the cause and objectives of the PIC, the Department of Science & Technology, New Delhi has made provisions for setting up Intellectual Property Right Cell (IPR Cell) in Universities/Colleges through the state PICs. This cell have the same mandate as PIC in the state, but their operation area will mainly be within their parent organization i.e. the university or college and will cater the IPR issues of the university/college. Moreover, it acts as a channel between the university/college and PIC of the state.

The IPR Cells that have been created at various universities/colleges are:-

1. Mizoram University IPR Cell  
Coordinator : Dr. John Zothanzama  
Asst. Professor, Dept. of Environmental Science
2. Pachhunga University College IPR Cell  
Coordinator : Mr. Lalhriatzuala  
Asst. Professor, Dept. of Physics
3. Govt. Lunglei College IPR Cell  
Coordinator : Mr. Lalthangliana  
Associate Professor, Dept. of Zoology
4. Govt. Zirtiri Residential Science College IPR Cell  
Coordinator : Prof. B. Zoliana  
Professor, Dept. of Electronics

5. National Institute of Electronics and Information Technology (NIELIT)  
IPR Cell  
Coordinator : Mr. C. Zoremsanga Scientist C,  
NIELIT Aizawl Centre, Zuangtui
6. ICFAI University Mizoram IPR Cell  
Coordinator : Mr. C. Lalruatsanga  
Asst. Professor, Deptt. Of Management  
ICFAI University Mizoram

National Institute of Electronics and Information Technology (NIELIT) and ICFAI University, Mizoram IPR Cells were created during FY 2016-2017.

#### **4.4.3 Organising of workshop/lecture/seminars etc. on IPR**

Since the inception of Patent Information Centre in Mizoram under Mizoram Science, Technology & Innovation Council, Directorate of Science & Technology, 19 number of workshops or awareness programs on Intellectual Property Rights have been conducted with various institutions. The programs organized during 2016-2017 are :-

1. IPR Day was observed on April 26, 2017. A workshop was held on this day at Directorate of Science & Technology Office. It was attended by officers and staff of Directorate of Science & Technology, Mizoram remote Sensing Application Centre and Mizoram Science, Technology & Innovation Council.
2. IPR Awareness Workshop for local innovators was organized at the Conference Room of Directorate of Science & Technology, Govt. of Mizoram on 16<sup>th</sup> November, 2016. It was attended by local innovators from across the state.
3. Workshop on Intellectual Property Rights and Grass-root Innovation was organized at Govt. Kolasib College, Kolasib District on 17<sup>th</sup> February, 2017. Mr. B.S. Thapa, Principal, Govt. Kolasib College was the Chief Guest. It was attended by about 100 participants comprising of students from Govt. Kolasib College and local innovators from the district.
4. Workshop on Intellectual Property Rights and Grass-root Innovation was organized at Govt. Champhai College, Champhai District on 22<sup>nd</sup> February, 2017.
5. Workshop on Intellectual Property Rights and Grass-root Innovation was organized at Thenzawl YMA Hall, Serchhip District on 9<sup>th</sup> March, 2017.
6. Workshop on Intellectual Property Rights and Grass-root Innovation was organized at Lunglei Govt. College, Lunglei District on 10<sup>th</sup> March, 2017.

7. Workshop on Intellectual Property Rights and Grass-root Innovation was organized at Govt. Lawngtlai College, Lawngtlai District on 13<sup>th</sup> March, 2017.
8. Workshop on Intellectual Property Rights and Grass-root Innovation was organized at Govt. Saiha College, Siaha District on 14<sup>th</sup> March, 2017.
9. Workshop on Intellectual Property Rights and Grass-root Innovation was organized at Pachhunga University College, Aizawl District on 17<sup>th</sup> March, 2017 in collaboration with IPR Cell of the college.
10. Workshop on Intellectual Property Rights and Grass-root Innovation was organized at Govt. Zirtiri Residential Science College, Aizawl District on 24<sup>th</sup> March, 2017 in collaboration with IPR Cell of the college.

#### 4.5. GENERATION AND DISSEMINATION OF METEOROLOGICAL DATA

Meteorological data of Aizawl City is recorded and generated on a daily basis by the State Meteorological Centre located at the top floor of Directorate of Science and Technology building. During FY 2016-2017, 365 number of daily met data was generated. The data along with weather conditions are disseminated daily to Policy makers, Governor' office, various Govt. Departments, researchers, journalist etc. It is also highlighted in daily newspapers.

MONTH	RELATIVE HUMIDITY (%)		TEMPERATURE (°C)		RAINFALL (mm)	
	MIN	MAX	MIN	MAX	AVG	TOTAL
APR'16	89.2	93.5	12.7	29.3	4.1	124.3
MAY'16	87.9	93.7	13.1	28.1	11.3	351.7
JUNE'16	90.4	95.2	14.1	27.8	13.2	396.3
JULY'16	93.2	96.7	12.2	27.2	9.4	290.5
AUG'16	90	95	12.8	28.5	10.6	328.4
SEPT'16	92.9	97.1	12.3	28	12.7	380.6
OCT'16	89.2	96.2	12	28.4	3.4	106
NOV'16	85.3	94.2	8.2	25.7	3	89.9
DEC'16	81.4	91	7	24.9	0	0
JAN'17	79.6	89.3	5.7	26.3	0	0
FEB'17	79.9	89.1	8.2	28.4	0.7	18.7
MAR'17	82	90.7	8.5	27.1	3.1	95.9

The Centre has close links with Regional Meteorological Centre at Guwahati and it takes responsibility for disseminating weather warnings too.

## 4.6 CLIMATE CHANGE STUDY

The Mizoram State Climate Change Cell was created during the year 2014-2015 with the financial support of Department of Science & Technology, Govt. of India under the National Mission for Sustaining Himalayan Eco-System (NMSHE) programme of National Action Plan on Climate Change. It is functioning under the aegis of Mizoram Science, Technology & Innovation Council, Directorate of Science and Technology, Govt. of Mizoram. The State Climate Change Cell concentrates in the **National Mission for Sustaining the Himalayan Ecosystem and Strategic Knowledge Mission**.

Various activities which the Cell has accomplished are as under :-

- ❖ State Climate Change Action Plan (SAPCC) was prepared. The document approved by National Steering Committee on Climate Change was handed over to the State Forest & Climate Change Department and is now under implementation.
- ❖ The Mizoram State Climate Change Cell is now well equipped to enable it to work smoothly. Two Project Scientists are working under this cell.
- ❖ A booklet on Climate Change Programme in Mizoram is prepared and published. The objective is to build capacity and spread awareness amongst the policy makers, line departments and the masses.
- ❖ Data on climate variables such as rainfall, temperature, humidity has been collected from in-house, other local sources (BRTF and Agriculture Department) and India Meteorological Department (IMD). Rainfall, temperature and humidity of Aizawl city for a period of 30 years (1986-2015) were analyzed.
- ❖ Assessment of vulnerability due to climate change has been started. Four different sectors viz. Water, Forest, Agriculture and Health were selected for the initial study. District level was chosen for the unit of measurement.
- ❖ A booklet of “Meteorological Data of Mizoram 1986 – 2015” was compiled in the month of June, 2016 consisting of district wise temperature, rainfall and relative humidity data in tables and figures.
- ❖ State Climate Change Cell, Mizoram has procured a Regional Circulation Model (RCM) software namely, SimCLIM 2013 from CLIMsystems, New Zealand with which climate exposure and future projection scenario has been generated.
- ❖ A one day state level workshop on “Impact of Climate Change in Mizoram” was conducted on 7<sup>th</sup> June 2016, to have a preliminary insight on the possible vulnerability in the state due to climate variation at Aizawl.



Workshop on Impact of Climate Change in Mizoram (Inaugural Programme)

- ❖ A photography competition on a theme of Climate Change in Mizoram was organized in collaboration with Mizo Photographer Society (MPS) during November 2016 to January 2017, as a means of creating awareness to general public. There were a total of 76 photographs entries from 26 different participants in the competition. The prize distribution function was held on 27<sup>th</sup> January, 2017 at Conference Room of Directorate of Science and Technology, Govt. of Mizoram. The 1<sup>st</sup> Prize was bagged by Mr. M.S. Dawngliana, and the 2<sup>nd</sup> Prize by Mr. H. Hmingchungnunga, while there was two 3<sup>rd</sup> Prize given to both Mr. Richard Zothankima Hrahsel and Malsawmtluanga respectively.



Group Photo of the participants of the Photography Competition - Prize distribution function

- ❖ Seminar on Effect of Climate Change on Herpetofauna along with "Mizoram Rul Chanchin" book release function was organized in collaboration with Biodiversity & Nature Conservation Network (BIOCON) on 10<sup>th</sup> March, 2017

at I&PR Conference Room. The programme was graced by the presence of Pu Lalsawta, Hon'ble Minister, Planning (Science & Technology), Govt. of Mizoram as Chief Guest and Dr. C. Vanlalramsanga, Secretary, Planning (Science & Technology), Govt. of Mizoram as the Guest of Honour. The programme started with an inaugural session in which the Book "Mizoram Rul Chanchin" was released by the Chief Guest. This book, written by various authors is jointly published by BIOCON and Mizoram Science, Technology & Innovation Council (MISTIC).

The second session was a seminar which consists of three topics viz., "Overview of Climate Change", "Effect of Climate Change on Amphibian Diversity - A case study in Mizoram" and "Effect of Climate Change on Reptilian Diversity - Potential Impact in Mizoram". The seminar aims to utilise the knowledge of prominent wildlife biologist from BIOCON, in the field of



herpetofauna in relation to climate change, and dissemination of the same to different stakeholders such as General Public, NGOs, institutions, and concerned government department to build their capacity and knowledge. A total of 75 participants attended the programme.

- ❖ The project - Preliminary Assessment of Vulnerability Associated with Climate Change on Water Resource Sector and Human Health in Mizoram was completed and published. Vulnerability of the water resources in eight districts of Mizoram were determined for both mid-century and end-century scenario by assessing the overall change in major five water balance components such as Precipitation, Evapo-transpiration, Ground Water Recharge, Surface Runoff and Base flow. Majority of Mizoram were classed as moderately vulnerable in Mid Century while few areas are classed as low vulnerability. The pattern is almost same at the

end century except for a few areas in the south eastern part where vulnerability are extremely high. The simulated data of DMC v 1.1 (Liverpool Malaria Model) predicts the ascending and spreading of malaria to new higher altitude areas for the state of Mizoram. The present study predicts high vulnerability of malaria prevalence in higher mountains of Mizoram such as Mt. Chalfih, Mt. Lengteng, Mt. Phawngpui, Mt. Mawma and other higher altitudes in the futures (2050 AD, 2100 AD).

- ❖ Sensitization workshop on Climate Change in Mizoram was organized at Lunglei Government College. The main objectives of the workshop was to sensitized the under-graduate students and the faculties on matters related to Climate Change and its potential impact on the environment and on humans. The workshop emphasizes on sectors like - Overview on Climate Change with reference to Mizoram, Climate Change and Water resources and, Climate Change and Human Health. It was attended by 107 participants (faculties and students) from various streams.



*Sensitization workshop on Climate Change at Lunglei*

- ❖ Another Sensitization workshop on Climate Change in Mizoram was organized at Government Kolasib College with the same objectives as above. It was attended by 109 participants (faculties and students) from various streams.



*Sensitization workshop on Climate Change at Kolasib*



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God bless the corners of this house and be the lintel blessed  
And bless the hearth and bless the board and bless each place of rest  
Bless each door that opens wide to strangers and to kin  
And bless each crystal windowpane that lets the sunshine in  
And bless the roof-tree overhead and every sturdy wall  
The peace of man, the peace of God, the peace of love to all

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## A new home for Science & Technology



## HIGHLIGHTS OF VARIOUS PROGRAMMES

### CHIEF MINISTER INAUGURATED SCIENCE & TECHNOLOGY BUILDING

**Date :** 19<sup>th</sup> October, 2016 **Venue :** Mizoram Secretariat Complex, Aizawl

The Hon'ble Chief Minister of Mizoram, Pu Lal Thanhawla inaugurated the Directorate of Science & Technology building at Mizoram Secretariat Complex, Khatla, Aizawl on 19<sup>th</sup> October, 2016. The event is a big milestone for science & technology development in the state as it is the first building of its own. Pu H. Liansailova, Hon'ble State Planning Board Vice Chairman was the Guest of Honour. Hon'ble Ministers - Pu P.C. Lalthanliana and Pu Ngunlianchunga, Hon'ble Parliamentary Secretaries – Pu K.S. Thanga, Pu K. Lalrinthanga and Pu H.Zothangliana, Prof. R. Lalthantluanga, Mizoram University Vice Chancellor and other dignitaries were present at the inaugural function. The function was chaired by Dr. C. Vanlalramsanga, Secretary, Planning (Science & Technology).



The Chief Minister, in his speech, elaborated on the importance of science and technology for development and mentioned that utilization of science and technology application is essential to catch up the pace of advanced nations. As a nation too, the significance of science and technology is realized and it is positioned in the forefront of





development and Article 51A of the constitution has laid fundamental duty for all the citizens to develop scientific temper and spirit of enquiry, he stated. He expressed the recent improvement in S&T human resource sector stating that there are many new and upcoming indigenous scholars in S&T field, especially in Science and Mathematics subjects. On mentioning the works of Science and Technology, he stated that Mizoram Science, Technology & Innovation Council (MISTIC) and Mizoram State Remote Sensing Application Centre (MIRSAC) are thriving well and are now very useful for the State Government as well as the people. He encouraged all the staff of Science & Technology to work relentlessly and with more conviction for development of the state.



## MIZORAM SCIENCE CONGRESS 2016

**Date :** 13<sup>th</sup> – 14<sup>th</sup> October, 2016 **Venue :** Mizoram University

The biggest ever Science Conference in the State, ‘Mizoram Science Congress 2016’ under the theme ‘*Science & Technology for shaping the future of Mizoram*’ was successfully organized by Mizoram Science, Technology and Innovation Council (MISTIC), Directorate of Science & Technology in association with different science NGOs in Mizoram such as Mizoram Science Society (MSS), Mizo Academy of Sciences (MAS), Geological Society of Mizoram (GSM), Science Teachers’ Association of Mizoram (STAM), Mizoram Mathematics Society (MMS), and Biodiversity and Nature Conservation Network (BIOCON) during 13<sup>th</sup> & 14<sup>th</sup> October, 2016 at Mizoram University Campus, Tanhril, Aizawl.



*Hon'ble Chief Minister of Mizoram, Pu Lal Thanhawla, inaugurating the Congress*

Under the Chairmanship of Dr. R.K. Lallianthanga, Chief Scientific Officer, DST Mizoram & Member Secretary MISTIC, and Secretaries - Dr. R. Lalfakzuala, President MAS & Dr. Laldinpuia, General Secretary GSM, Mizoram Science Congress 2016 Organizing Committee was formed with 3 representative members from different Science NGOs. The Organizing Committee established 9 Sub Committee, they are - Finance Committee, Information & Publicity Committee, Technical Committee, Transport & Accommodation Committee, Decoration & Ushering Committee,

Refreshment Committee, Proceedings Committee, Exhibition Committee and Children Science Congress Committee. For the success of this congress, NEC sanctioned Rs. 15 lakhs, MISTIC released Rs. 3.5 lakhs and DST (SERB) funded Rs. 1.5 lakhs. About Rs. 45,000/- was received from registration fee.



*Audience at Inauguration*

Mizoram Science Congress 2016 was inaugurated by Pu Lal Thanhawla, Chief Minister of Mizoram & Chairman, MISTIC on 13<sup>th</sup> October, 2016 at New Auditorium, Mizoram University. He also inaugurated *Science Exhibition*; 43 scientific models displayed by 41 participants from High School students, Higher Sec. School students, Graduate students and Indigenous innovators. Five (5) State Government Departments also displayed their projects and activities. 120 *Child Scientists* participants, also presented their works, and three teams were selected to perform in the National level Children Science Congress.



*Exhibition*

Five (5) eminent scientists are invited in this Congress. They are: 1) *Dr. Saurabh Baruah*, Sr. Principal Scientist & Head, Geoscience Div., CSIR- NEIST, Jorhat; 2) *Prof. S.K. Bahrik*, Professor & Head, Department of Botany, NEHU; 3) *Dr. A.K. Sahoo*, Director, Botanical Survey of India- Kolkata, Ministry of Environment, Forest and Climate Change, Govt. of India; 4) *Prof. Ganashyam Bez*, Professor, Department of Chemistry, NEHU; and 5) *Prof. Bosanta R. Baruah*, Professor, Department of Physics, IIT Guwahati. There are three parallel technical sessions, viz. i) *Physical Sciences*: Physics, Mathematics, Chemistry & Statistics; ii) *Life Sciences*: Botany, Zoology, Biotechnology, Biochemistry, Forestry & Microbiology; iii) *Earth Sciences & Applied Sciences*: Geology, Environmental Science, Medical Sciences Engineering & Technology, Agriculture & allied subjects. Best Oral and Poster Presenter for each broad subjects are awarded.



*Cultural Troupe at Closing Function*

## UNION MINISTER FOR SCIENCE & TECHNOLOGY LAID FOUNDATION FOR BIORESOURCE CENTRE

**Date :** 14<sup>th</sup> February, 2017 **Venue :** Mizoram University

In an effort to ensure conservation, propagation and sustainable utilization of bioresources in Mizoram, the foundation stone for the Mizoram Bioresources Development Centre was laid by Dr. Harsh Vardhan, Hon'ble Union Minister for Science & Technology and Earth Sciences at Mizoram University, Aizawl on 14<sup>th</sup> February, 2017. In conjunction with this, the Advanced State Level Biotech Hub at Mizoram University was also inaugurated by the Hon'ble Minister.



The Hon'ble Union Minister (Science & Technology and Earth Science), in his address mentioned the importance of biotechnology in today's era where the world is making use of this technology in various streams of biotechnology based and bioresource developments in society. He expressed his concerns for the future prospects of biotechnology development in Mizoram and wished that the initiative taken up today would bear fruitful results for the next generation and to the society as a whole. He also expressed that the setting up of the Mizoram Bioresources Development Centre and Advanced State Level Biotech Hub would bring in better and worthwhile advances in biotechnology initiatives in the state and ensured the support of Department of Biotechnology, Govt. of India. Further, he mentioned that financial assistance from Central Government for development of the Mizoram Bioresources Development Centre would not be a problem.



The official function for this event was organized at Mizoram University Guest house which was chaired by Dr. C. Vanlalramsanga, Secretary, Planning (Science & Technology) Dept., Govt. of Mizoram. The Chairman conveyed his gratitude towards the presence of the Union Minister for Science & Technology at the auspicious occasion where biotechnology in Mizoram start its venture and to all the imminent professors and invitees present at the function.

Pu Lalsawta, Minister, Planning (Science & Technology), Govt. of Mizoram expressed his sincere gratitude to the Hon'ble Union Minister for visiting the state and laying the foundation of Mizoram Bio-resources development Centre and inaugurating the Advanced State Level Biotech Hub. He mentioned that this endeavor is a big milestone and will surely boost the agricultural and other allied produce of the farmers. Prof. Lianzela, Vice Chancellor, Mizoram University welcomed all dignitaries and invitees at the function and expressing his thanks for having the Union Minister to inaugurate yet another important milestone for Mizoram University and the state.



Dr. R.K. Lallianthanga, Chief Scientific Officer & Member Secretary, Mizoram Science, Technology & Innovation Council (MISTIC), Directorate of Science & Technology, Govt. of Mizoram gave a brief report on the genesis and

initiatives taken for establishment of the Mizoram Bioresources Development Centre. This was followed by a report by Prof. Senthil Kumar, Dept. of Biotechnology, Mizoram University, on the setup of Advanced State Level Biotech Hub. The function ended with a vote of thanks proposed by Mr. Zothankhuma, Registrar, Mizoram University.

## 1<sup>st</sup> CHERRY BLOSSOM AVENUE IN MIZORAM

**Date :** 26<sup>th</sup> July, 2016 **Venue :** Mizoram Secretariat Complex, Khatla, Aizawl

On 26<sup>th</sup> July 2016, Pu Lal Thanhawla, Hon'ble Chief Minister of Mizoram laid the foundation stone of the **1<sup>st</sup> Cherry Blossom Avenue in Mizoram** at New Secretariat Complex, which was jointly developed by Directorate of Science & Technology, Planning Department and Institute of Bio-resource and Sustainable Development (IBSD), Imphal. The inaugural function was chaired by Pu Lalram Thanga, Principal Secretary to Chief Minister. Highlighting the importance of Bio-resources, the Chief Minister mentioned that Green Mizoram programme has been organized in the state for decades. Nowadays, the importance of bio-resource has been realized and there is a growing utilization of bio-resources in the state. This sector could be boosted by establishing a good collaboration between the bureaucrats and subject experts which could further serve as an important step to boost eco-tourism in Mizoram. Professor Dinabandhu Sahoo, Director of IBSD highlighted on the purpose of this program and mentioned that Cherry Blossom Avenues have also been established in Meghalaya and Manipur. He further stated that the good climatic condition of Mizoram which is suitable for growing many varieties of plants can be utilized for creating more jobs and for promoting eco-tourism.

After the function, the saplings of Cherry Blossom were planted in the specific reserved area by Pu Lal Thanhawla, Hon'ble Chief Minister, Pu Lalsawta, Hon'ble Minister, Planning Department (Science & Technology), Pu H. Liansailova, Hon'ble State Planning Board Vice Chairman, Pu Lalram Thanga, Principal Secretary, Prof. Dinabandhu Sahoo, IBSD Director and other dignitaries.



Hon'ble Chief Minister  
planting Cherry Blossom



## HIGH LEVEL DISCUSSION & BRAINSTORMING-CUM- INTERACTIVE SESSION ON BIOTECHNOLOGY INITIATIVES IN MIZORAM

**Date :** 13<sup>th</sup> & 14<sup>th</sup> June 2016    **Venue :** Secretariat Conference Hall, Aizawl  
**Organized by :** Department of Biotechnology (DBT), GOI & Science & Technology, GOM



The inaugural function was chaired by Dr. C. Vanlalramsanga, Secretary, Planning & Programme Implementation Department, Govt. of Mizoram. In his introductory speech, he welcomed all the dignitaries, officers and participants of the meeting and gave a brief insight on the purpose of organizing the meeting. Dr. Mohd. Aslam, Adviser, DBT, Govt. of India then gave the keynote address of the meeting. He expressed his heartfelt appreciation for the kind presence of Pu Lal Thanhawla, the Hon'ble Chief Minister, Pu H. Liansailova, Hon'ble Vice Chairman, State Planning Board, Pu K.S. Thanga, Hon'ble Parliamentary Secretary, Pu Ronald Sapa Tlau, Hon'ble MP (Rajya Sabha) and other dignitaries at the meeting where biotechnology initiatives for development of Mizoram would be discussed. He mentioned that Mizoram has vast scope for harnessing the technology capability of biotechnology and highlighted on the various research & development activities taken up by Department of Biotechnology, Govt. of India in the area of biotechnology especially in the agricultural sector. He further highlighted that the present Brainstorming session would focus on the technology needs in Mizoram and where biotechnology can give inputs in the field of agriculture, horticulture, forests, animal and human health, etc. To end his speech, he stressed on the huge scope of bioresources-based enterprises development in Mizoram, the need to identify priority areas where biotech initiatives can be taken up in the state and also requested the State Government to give maximum support and cooperation in the endeavors of biotechnology inception in the state.

The inaugural speech was given by Pu Lal Thanhawla, the Chief Guest, Hon'ble Chief Minister of Mizoram. He addressed on the vast challenges faced by universities and institutes for taking up biotech initiatives in the state, some of which was elaborated towards introduction of this technology in a variety of agricultural crops, bamboo and cane. He mentioned on the need of biotechnology for improving the production and

quality of the state's grown crops and also cited examples of a few specific species like banana, orchids and mushrooms. He further stated that there is a vast scope for doing biotechnology related research in the areas such as on sticky rice, sticky corn, sticky pumpkin, cucumbers, flowers, medicinal herbs, banana, orchids etc. of the state and that the State Government needs to take up programs in this area for the benefits of the farmers and for overall development of the state. He also mentioned that this meeting-cum-brainstorming on Biotechnology initiatives was the first of its kind to be organized for the state of Mizoram and wished the meeting a great success towards bringing practical benefits for the state.

The Guest of Honour, Hon'ble Vice Chairman, State Planning Board, Pu H. Liansailova was the next to address the meeting. He stressed on the importance of using advanced technologies like biotechnology for socio-economic development of the state and also its core role during planning and implementation of various development activities going on in the state. He further highlighted that biotechnology applications in the Mizoram context still requires a much systematic inception and a concrete effort is required to be taken up.

Guest of Honour, Hon'ble Parliamentary Secretary, Pu K.S. Thanga in his speech addressed the need for planned and scientific conservation and management of bio-resources of the state and that biotechnology can be a catalyst in the part. He further mentioned that technologies like biotechnology have scope and applications that can assist in this endeavor for prolonged and scientific management of our resources and at the same time yield economic benefits from bio-resources. In this aspect, economic growth may also be strongly related to the way we utilize and manage our natural resources to its full potential.

Guest of Honour, Hon'ble Member of Parliament (Rajya Sabha), Pu Ronald Sapa Tlau, after stating the day of this meeting as a historic day for the state of Mizoram, started off his speech with the importance of inculcating biotechnology and its associated sciences for the development of the state. He opined that rich bioresources of Mizoram have enormous potential for uplifting the economy of the state. He emphasized on using the vast natural resource of bamboo that the state has and how biotechnology interventions along with participation of industries can help in socio-economic development of farmers. He shared his views and concerns with examples of how biotechnology inputs can be facilitated from the implementers to the grass-root users. He also mentioned the various initiatives taken by the Government in this aspect and where more concrete steps have to be taken for yielding tangible benefits to the Mizo society at large. The inaugural function was closed with a vote of thanks proposed by Dr. R.K. Lallianthanga, Chief Scientific Officer, Directorate of Science & Technology, Govt. of Mizoram.

## NATIONAL TECHNOLOGY DAY 2016 CELEBRATION

Date : 11<sup>th</sup> May, 2016 Venue : I&PR Auditorium, Aizawl

Celebration of National Technology Day 2016 was held at I&PR Auditorium, Aizawl on 11<sup>th</sup> May, 2016. Pu Lalsawta, Hon'ble Minister, Planning (Science & Technology) was the Chief Guest. Pu Lalsawta, in his speech, elaborated on the importance of inventions and innovations emanating out of science and technology development and how they have solved problems as well as helps in development. Small gadgets are becoming a part and parcel of our lives and they are influencing us so much such that we cannot manage well our daily life without them.

The keynote address was given by Dr. C. Vanlalramsanga, Secretary, Planning (Science & Technology) who mentioned that the National Technology Day has been observed in India since 1998 in commemoration of the successful nuclear tests at Pokhran on 11<sup>th</sup> May, 1998 and also the first indigenous aircraft "Hansa-3" was test flown and India also performed successful test firing of the Trishul missile on this same day.



The programme was attended by students of various institutions such as Mizoram University, National Institute of Technology – Mizoram (NIT), National Institute of Electronics and Information Technology (NIELIT), Women Polytechnic who each presented special items. Prof. Lalit Kumar, Dean, School of Engineering, Mizoram University gave a presentation on the topic 'Technology – Vision for Mizoram.'



Special Item by NIELIT students

## NATIONAL MATHEMATICS DAY 2016 CELEBRATION

**Date :** 22<sup>nd</sup> December, 2016 **Venue :** Synod Conference Centre, Aizawl

National Mathematics Day 2016 was celebrated in collaboration with Mizoram Mathematics Society on 22<sup>nd</sup> December, 2016 at Synod Conference Centre, Aizawl. In this function State Level Mathematics Competition awards were also distributed to the merited students. Under the initiative of Mizoram Science, Technology and Innovation Council (MISTIC) with support from National Council for Science and Technology Communication (NCSTC), Department of Science and Technology (DST), Govt. of India, the celebration programme and other adjoining events such as a the Mathematics Competition, etc. were organized. The programme was chaired by Dr. R.K. Lallianthanga, Chief Scientific Officer. The Chief Guest, Dr. C. Vanlalramsanga, stated that Mathematics Subject has been one of the most important subject and its utility has been increased manifold by the advent of computers and information technology in recent years. In fact, it is almost impossible to spend a single day without utilizing Mathematics. He mentioned that, just like Shri S. Ramanujam who has excelled in the subject but has evolved from some remote part of the country, students of our state have the same opportunity to do very well too in the subject and that someday there might be a Mizo Mathematician well known all over the world.

Mr. L. Thangmawia, President, Mizoram Mathematics Society, stated that the celebration of the day was started in Mizoram in the year 2012 and further highlighted



on the research done by them regarding problems faced by Mizo students in learning Mathematics. As per this research, it is found that the number of student facing HSLC under Mizoram Board of School Education during 2008-2014 were 1,00,419 out of which 34,717 failed and among these failed students, only 1,596 (1.59%) failed in

Mathematics subject. This indicates that there are lots of improvement in learning Mathematics, he said.

The result of the 8<sup>th</sup> State Level Mathematics Competition which has been held earlier among Class-V, VIII, X and XII students of the state was then declared which was followed by prize distribution.

List of Top -10 Holders in 2016 State Level Mizoram Mathematics Competition			
<b>CLASS- V</b>			
Sl/No	Name	Father's Name	Name of School
1.	Fakzuala Chawngthu	C. Lalduhawma	BHSS (Junior Section)
2.	Lalramdina Ralte	Lalthakima	Mary Mount
3.	C. Lalhriathlua	C. Lalhmingmuana	Mantawni Memorial English School, Hnahthial
<b>CLASS- VIII</b>			
Sl/No	Name	Father's Name	Name of School
1.	Lalrinnunga Hmar	Lalhmunsiama	Gospel Centenary School
2.	Malsawmtluangi Fanai	Lalmuankima	Gospel Centenary School
3.	Vanlalmalsawmzuala	K.S.Thanga	Gospel Centenary School
<b>CLASS - X</b>			
Sl/No	Name	Father's Name	Name of School
1.	Akash Jyoti Sahoo	Uttam Kumar Sahoo	St. Paul's HSS
2.	Shailaja Dadhwal	Lt.Col. Ramneek Dadhwal	St. Paul's HSS
3.	Vanlalvenpuia	Vanlalzawnga	Holy Faith School
<b>CLASS - XII</b>			
Sl/No	Name	Father's Name	Name of School
1.	Lalbiakthuama	Lawmawma	St. Paul's HSS
2.	B. Lalrammawia	Thangchhuanmanga	Gov't G.M.H.S.S
3.	Lalmuanawma Khiangte	K. Ramdinzauva	St. Paul's HSS

## MATHEMATICS SUMMER CAMP

**20<sup>th</sup> March, 2017** : Mathematics Summer Camp was organized by Mizoram Mathematics Society and Mizoram Science, Technology & Innovation Council at Pachhunga University College as a part of celebration of National Mathematics Day during 20<sup>th</sup> – 24<sup>th</sup> March, 2017. There were 53 students from Class-X and 14 students from Class-XII who participated in the programme. The event was inaugurated by Dr. R.K. Lallianthanga, Chief Scientific Officer who stated that Mathematics subject is very important and always found to be in the integral part of almost every job recruitment and conveyed his best wishes to all the students participating in the programme.

## NATIONAL SCIENCE DAY 2017 CELEBRATION

**Date :** 28<sup>th</sup> February, 2017 **Venue :** Different districts in Mizoram

The National Science Day 2017 was celebrated in different parts of Mizoram on 28<sup>th</sup> February, 2017 in an effort to popularize the benefits of scientific knowledge and its practical application. Under the initiative of Mizoram Science, Technology and Innovation Council (MISTIC) with support from National Council for Science and Technology Communication (NCSTC), Department of Science and Technology(DST), Govt. of India, celebration events are organized at all eight districts within Mizoram, namely Aizawl, Lunglei, Siahia, Lawngtlai, Serchhip, Champhai, Mamit and Kolasib. All programmes and activities revolve around a theme selected by DST for the year 2017, which is "Science and Technology for Specially Abled Persons".



In Aizawl, the main celebration function was held at I & PR Auditorium. The Chief Guest was Pu H. Liansailova, Hon'ble Vice Chairman, State Planning Board. In his speech, he mentioned that job prospects are increasing in science and technology and further promotion of the sector is necessary especially in guiding grassroot innovators and persons working in this field, enabling them to tread on better roads. He further stated that Agriculture, Animal Husbandry, Sericulture and Pisciculture are the areas where more improvement and development are needed in the state. He conveyed the necessity to develop new technology to help the farmers produce a better yield which in turn will help in the growth of the economy of Mizoram. In Aizawl, the Day was also celebrated in Mizoram University, Pachhunga University College and Govt. Zirtiri Residential Science College.

The function was presided over by Dr. C. Vanlalramsanga, Secretary, Planning (Science & Technology) and Dr. R.K. Lallianthanga, Chief Scientific Officer gave the keynote address. Two presentations were delivered by resource persons as follows:-

- 1) Science & Technology - A Solution for Specially Abled Persons, by Pu P.C. Lalngilneia, Scientific Officer
- 2) Status of Persons With Disabilities in Mizoram, by Pu B. Kapliana



*Students of Women Polytechnic presented a song*

In this special occasion, Special Blind School, Durtlang and Women Polytechnic, Durtlang, Aizawl performed various special items such as group singing, solo, recitation which cheered up the audience with their melodious voice. The National Institute for the Locomotor Disabilities (RC-NILD) were also invited who displayed various aids and appliances for specially disabled persons through a brief exhibition. The celebration ended with a vote of thanks given by Pu H. Lalsawmliana, Principal Scientific Officer, Directorate of Science and Technology.



*Special Blind School presented Group Singing*



**Exhibition on Disability Equipments by NILD in National Science Day 2017**



## ESSAY COMPETITION ON SCIENCE & TECHNOLOGY

**Date :** 22<sup>nd</sup> June, 2016 **Venue :** Conference Hall, I & PR, Aizawl

A State Level Essay Competition on the topic “Science & Technology – Mizoram hmasawnnan” was organized and the prize distribution programme was held on 22<sup>nd</sup> June, 2016 at the Conference Hall of I & PR, Treasury Square, Aizawl. The function was graced by the presence of Chief Guest Pu H. Liansailova, Hon’ble Vice Chairman, State Planning Board who gave away the prizes. The programme was presided over by the chairman Dr. C. Vanlalramsanga, Secretary, Planning (Science & Technology). Dr. R. K. Lallianthanga, Chief Scientific Officer stated that the main objective of the competition is to get scientific inputs and information from different sources that could be utilized for improvement of science and technology in the state.

There were 75 participants in the competition and the result is as follows :-

### General Category

- 1-na : Dr. K. Lalnghinglova, Ramhlun South, Aizawl
- 2-na : C. Lalrochhuanga, Serchhip
- 3-na : V. Laltanzuala, S. Chawilung, Lunglei District

### Zirlai (College/University) Category

- 1-na : Lalthantluanga Chawngthu, Mizoram University
- 2-na : Vaninmawia Khawlhing, Govt. Mizoram Law College
- 3-na : Zoramawia, Mizoram University

### Zirlai (High School/Higher Secondary School) Category

- 1-na : Zodinthari Lungtau, Dawrpui School of Science & Technology
- 2-na : Lalliantluangi Chawngthu, St. Paul’s HSS
- 3-na : Remchhingpuii, Dawrpui School of Science & Technology

Five (5) Consolation prizes were given away in each category.



*Winners of Essay Competition with Officials*



## PRELIMINARY STUDY FOR SCOUTING OF INDIGENOUS GRASSROOT INNOVATORS AND TECHNOLOGIES OF MIZORAM & IGTI COMPETITION

FY : 2016-2017 Place : Entire Mizoram

From recorded history, stories and myths, it is known that the Mizo people are generally talented and hard working. They have successfully innovated their own tools and various crafts as per their needs. Even today, there are talented citizens and local innovators within the state who have innovated interesting machines or equipment useful for meeting local needs. However, a majority of them lies unknown or unexplored. This project sought to explore these special talents and provide them room for improvement as well as nurture their ideas. Improvement of technological innovation sector will have positive impact on the state's economy with inputs in industry, agriculture, horticulture, education, communication and the likes.

With this objective, scouting was performed for several months by team from Mizoram Science, Technology & Innovation Council and as much as 50 grassroots innovators were located from various districts of the state. As a part of this project, Indigenous Grassroot Technology & Innovation (IGTI) Competition was organized encompassing two whole months from September-October 2016.

### PRIZE DISTRIBUTION FUNCTION OF INDIGENOUS GRASSROOT TECHNOLOGY & INNOVATION (IGTI) COMPETITION 2016

November 16, 2016 : S&T Conference Room, Aizawl

Chief Guest : Pu Lalsawta, Hon'ble State Planning (Science & Technology) Minister

Guest of Honour : Dr. C. Vanlalramsanga, Secretary, Planning (Science & Technology)



The Prize Distribution function of the IGTI Competition was held on 16<sup>th</sup> November, 2016 at the Conference Hall, Directorate of Science & Technology. The programme was graced by the presence of Pu Lalsawta, Hon'ble Minister, Planning & Finance, Govt. of Mizoram who was the Chief Guest and Dr. C. Vanlalramsanga, Secretary, Planning (Science & Technology) Department who was the Guest of Honour. The function was chaired by Dr. R.K. Lallianthanga, Chief Scientific Officer & Member Secretary. The results of the competition are as follows :-

(i) **IDEA CATEGORY (District Level)**

**AIZAWL DISTRICT**

- 1st : Pu Lalbiakzuala Ralte, Ramhlun South
- 2nd : Pu Jonah L. Pachuau, Ramhlun North
- 3rd : Pu R. Ramhlun Edena, Bawngkawn South

**CHAMPHAI DISTRICT**

- 1st : Pu Zoramchhana, Chhungte
- 2nd : Pu Zoramchhana, Chhungte
- 3rd : Pu Darrothuama, Hnahlan Damveng

(ii) **PROTOTYPE CATEGORY (District Level)**

**AIZAWL DISTRICT**

- 1st : Pu Jonah L. Pachuau, Ramhlun North
- 2nd : Pu Lalbiakzuala Ralte, Ramhlun South
- 3rd : Pu Rinvela, Lily Veng & Pu Sangzuala, Zonuam

**CHAMPHAI DISTRICT**

- 1st : Pu C. Vanlalawmpuia, Vengthar, Champhai
- 2nd : Pu Darrothuama, Hnahlan Damveng
- 3rd : Pu TBC Lalrikhuma, Ruantlang

**LUNGLEI DISTRICT**

- 1st : Pu Chhuanmawia, Haulawng

(iii) **PROTOTYPE CATEGORY (Overall)**

- 1st : Pu Chhuanmawia, Haulawng
- 2nd : Pu C. Vanlalawmpuia, Vengthar, Champhai
- 3rd : Pu Jonah L. Pachuau, Ramhlun North

## DEVELOPMENT OF INDIGENOUS TECHNOLOGICAL INNOVATIONS IN MIZORAM (DITIM)

**Year of starting :** 2016-2017 **Venue :** Aizawl

The project 'Development of Indigenous Technological Innovations in Mizoram through establishment of Innovation Facility Centre and Enhanced Protection of Ownership' funded under the New Economic Development Policy (NEDP) was started during the FY 2016-2017 which will house an Innovation Facility Centre that will further be the hub of grassroots technological innovation activities in the state. Nurturing of indigenous innovation and creating an environment that encourage innovators from bringing their inventions into market is necessary for economic upliftment of the state. The state government desired that this project will be an effective tool in improving the indigenous technological innovation sector. The main objectives are :-

- 1) To provide better scientific assistance and technological intervention by harnessing the fruits of indigenous technological innovations and inventions for sustainable development of the state.
- 2) To foster and nurture the skills of indigenous innovators for inclusive growth.
- 3) To provide institutional support mechanism to innovators and helps in technology upgradation and promotion.
- 4) To deliver low cost and affordable machinery with improved quality.
- 5) To safeguard the tangible and intangible property of the innovators through IP mechanisms.



*3D Model of the Innovation Facility Centre*

## CAPACITY BUILDING WORKSHOP FOR SIS-DP

**Date :** 11<sup>th</sup> March, 2016 **Venue :** Conference Room, Planning Department, Aizawl

A Capacity Building workshop for potential users of the SIS-DP data was organized on 11<sup>th</sup> March 2016, at Planning & Programme Implementation Dept. Conference room at 11 am.

The programme was chaired by Pu Saihlira, Principal Adviser, Planning & Prog. Implementation Dept. Keynote address was given by Pu Lalnunsiam Colney, Principal Scientist & Senior Scientific Officer, MIRSAC. A brief introduction about the SIS-DP project and its concept towards effective utilization by line departments were highlighted in his speech. This was followed by a brief report on the SIS-DP project for Mizoram state, given by Pi Hmingthanpuui, Sr.Scientist, MIRSAC. Various aspects on how the project was initiated as well as key features on the mapping procedures and data generated were elaborated in her presentation. The next presentation on BHUVAN portal was given by Pu C. Vanlalengkima, Scientist, MIRSAC. The lecture highlighted on the working principles of BHUVAN with special reference to BHUVAN Panchayat. Important aspects and functionality of the portal was explained through online demonstration and the utility of data generated through the SIS-DP project was also explained in detail.

The Chairman elaborated on the need for reliable data during planning processes of the Government and the importance to space based data and inputs to achieve this necessity. He also urged all the line departments to effectively use the data generated through this project in their respective lines of work. The programme was then opened for discussions where representatives of line departments actively participated. The workshop closed with a vote of thanks from Pu ZD Laltanpuia, Scientist, MIRSAC.



*SIS-DP Capacity building workshop*

## WORKSHOP ON HAZARD RISK VULNERABILITY ANALYSIS (HRVA)

**Date :** 13<sup>th</sup> January, 2017 **Venue :** Conference Room, Dte. of S&T, Aizawl

The workshop programme for HRVA was chaired by Dr. R.K.Lalianthanga, Chief Scientific Officer & Member Secretary, MIRSAC. The Chairman welcomed all the participants at the Workshop and a brief introduction about the HRVA project and its concept towards effective utilization by line departments were highlighted in his speech. A presentation on the on-going NEC funded project of Hazard Risk & Vulnerability Analysis (HRVA) for district headquarters in Mizoram state, was given by Pu Z.D. Laltanpuia, Scientist, MIRSAC. Various aspects on how the project was initiated for Aizawl city area as well as key features on the mapping procedures/methodology and data so far generated were elaborated in his presentation. The workshop got positive feedback and the invitees actively participated during the discussion session. A number of valuable suggestions for effective execution of on-going HRVA project which were made considering the context of prevailing hazards occurring in the state. These were recorded by the Centre and would be further assessed for its practical inclusion in project methodology and execution of on-going analysis. Dr. Lalnunsiana Colney, Principal Scientist, MIRSAC in his concluding remarks thanked all the participants for their valuable suggestions and further invited their co-operation during the execution of the HRVA project as this would go a long way in bringing practical solutions to our impending problems on hazard mitigation & disaster management. The workshop was attended by officers, professors & scientists from various concerned line departments, university, institutes & science society.



*Pu Z.D.Laltanpuia, Scientist presenting the HRVA project initiatives*

## WORKSHOP ON EMPOWERING PANCHAYATI RAJ INSTITUTIONS SPATIALLY (EPRIS)

**Date :** 17<sup>th</sup> November, 2016 **Venue :** I & PR Auditorium, Aizawl

A State level Workshop and hands-on training programme for achieving the goals of the project was organised on 17<sup>th</sup> November 2016 at I&PR Auditorium, Aizawl.

The workshop was chaired by Dr. R.K.Lallianthanga, CSO & Member Secretary, MIRSAC at the inaugural function. The capacity building session was chaired by Dr. Lalnunsiana Colney, Principal Scientist and hands-on training was given by the project experts - Pu R.Lalfamkima, Scientist , Pu David Vanlalfela & Pu C.Lalzawngliana, Field Assistants from the Centre.

The workshop had two sessions and was attended by Block Development Officers & Village Level Assistants (VLAs) from Aizawl district, who were imparted practical knowledge on use of mobile applications for asset mapping for uploading on BHUVAN portal as well as its effective use in activity planning at village levels.



*Inaugural function of EPRIS Workshop & Hands-on Training programme*

## WORKSHOP ON ASTRONOMY (ARSI CHANCHIN ZIRHONA)

**Date :** 24<sup>th</sup> November, 2016 & 2<sup>nd</sup> February, 2017 **Venue :** Mizoram Science Centre

A Workshop on Astronomy (Arsi chanchin zirhona) was organised on 24<sup>th</sup> November, 2016 at Mizoram Science Centre, Berawtlang, Aizawl in collaboration with Mizoram Upa Pawl (MUP), General Headquarters, Aizawl.

Dr. R.K. Lallianthanga, Chief Scientific Officer highlighted that the Mizo ancestors possessed scientific knowledge on stellar movements and utilised them for their chronological purposes. They assign particular names on stars, cluster of stars and even on some galaxies. Even they created beautiful stories out of stars and interstellar objects. However, the young generations tend to forget the traditional names of the stars assigned by our ancestors. The Chief Scientific Officer also said that members of Mizo Elder's Association (Mizo Upa Pawl) may be the only surviving persons who had the detailed knowledge of endangered names of the stars. The CSO donated his authored books namely Van lam hun, Nova Lawng and Scientist hmingthangte to MUP Gen. Headquarters.

The opening session of the meeting is presided over by Er. H. Lalsawmliana, Principal Scientific Officer and Mr. RK Thanga, President, MUP also appreciated the meeting conducted by Science and Technology. Dr. Aldrin Malsawmtluanga, Scientific Officer, Directorate of Science and Technology and Mr. Lalrammawia, Education Assistant, Mizoram Science Centre gave power-point presentations regarding accounts



of various stars from scientific and traditional perspectives in the technical session which was chaired by Dr. Lalnunsiamia Colney, Senior Scientific Officer. After diurnal session is over, practical observations of stars was conducted at night.

## STUDY OF STARS AT MIZORAM SCIENCE CENTRE

A study on stars for middle school teachers, organized by Directorate of Science & Technology was held at Mizoram Science center on 2<sup>nd</sup> February 2017. The meeting was chaired by Dr Lalnunsiamia Colney, Senior Scientific Officer, Directorate of Science & Technology. The Chief Guest, Dr R.K Lallianthanga, Chief Scientific Officer, Directorate of Science & Technology, in his introductory remark talked about the origin of the Mizo names of the stars. In his speech, he mentioned that similar to the developed nations, our forefathers took keen interest in the stars. The movement and behaviours of the stars has greatly influenced our forefathers that they even used this knowledge in counting dates and noting of important events. Our forefathers have also given the stars Mizo names and until today many of our folk stories are based on the stars. He briefly highlighted the importance of the event and hopes that the training would be of great benefit for all the attendees. Dr Aldrin Malsawmtluanga, Scientific Officer, Directorate of Science & Technology, and Pu Lalrammawia, Education Assistant, Mizoram Science Centre were the two resource persons for the programme. The resource persons gave powerpoint presentations during the technical sessions about the science of stars as well as educating the audience on the history and origin of the Mizo names of the stars. The event was attended by a number of Middle School Teachers under the School education Department, Government of Mizoram.

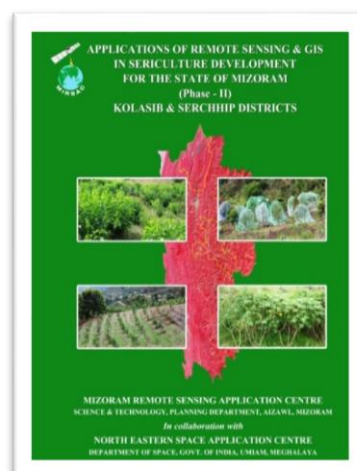
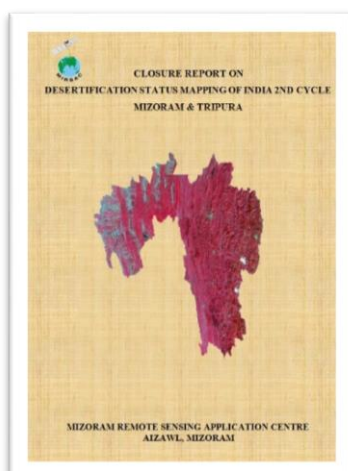
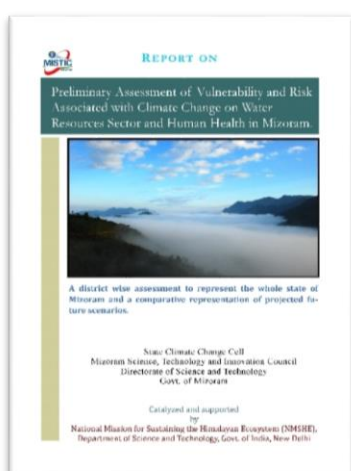
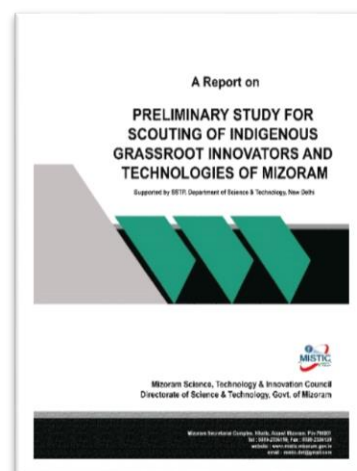
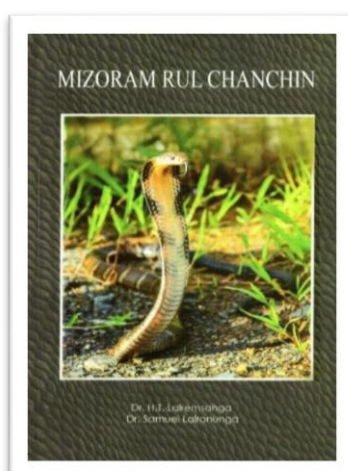
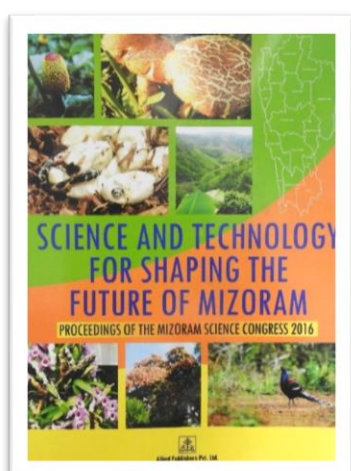




## VARIOUS PUBLICATIONS DURING 2016-2017

The following book/booklets were published during the FY 2016-2017, viz.

1. Science and Technology for shaping the future of Mizoram.
2. Mizoram Rul Chanchin (With BIOCON).
3. Preliminary assessment of vulnerability and risk associated with climate change on water resources sector and human health in Mizoram.
4. A report on preliminary study for scouting of indigenous grassroot innovators and technologies of Mizoram.
5. Closure Report on desertification Status Mapping of India 2<sup>nd</sup> Cycle Mizoram & Tripura.
6. Applications of Remote Sensing & GIS in Sericulture Development for the State of Mizoram (Phase-II) Kolasib & Serchhip Districts.





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