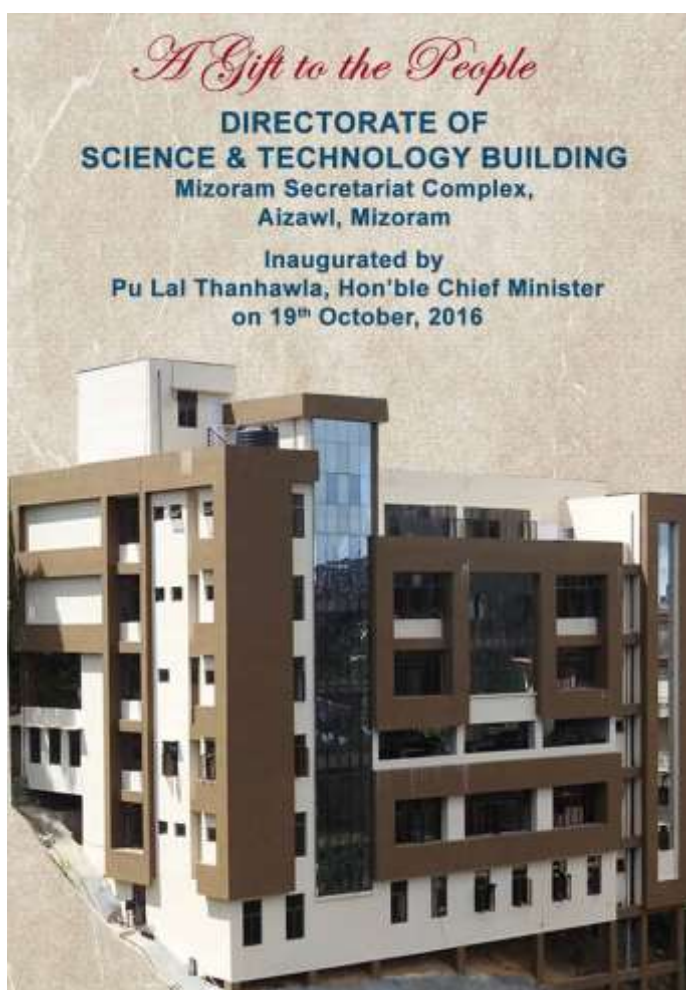


# REPORT ON THE ACHIEVEMENT OF DIRECTORATE OF SCIENCE & TECHNOLOGY GOVT. OF MIZORAM

**9.1 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 30th August, 2011.

There are two autonomous bodies working under the aegis of the Directorate of Science & Technology viz., Mizoram Science, Technology and Innovation Council (MISTIC) and Mizoram Remote Sensing Application Centre (MIRSAC) which act as implementing agencies for various scientific projects and schemes and as advisory body. The Directorate also houses several centres which play specific role for science and technology promotion and popularisation in various fields such as the Mizoram Science Centre, 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).



## VISION

Science & Technology for sustainable development

## MISSION

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

## 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 popularise 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.

## 9.2 Mizoram Science Centre

Mizoram Science Centre is a non-formal science and technology institution which was inaugurated on 26th 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.



Mizoram Science Centre at Berawtlang, Aizawl

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 to the scientific community and the public at large.

Year	NO. OF VISITOR			
	General	Student	Teacher	Total
2011-2012	13927	13220	1483	28630
2012-2013	18949	13194	1275	33418
2013-2014	14004	8329	917	23250
2014-2015	11121	4382	488	15991
2015-2016	11062	4565	584	16211



### 9.3 State Meteorological Centre :

Recording of Meteorological data was started in 1997 with the technical help from Indian Meteorological Department (IMD). Automatic Weather Station (AWS) were installed in Aizawl, Lunglei and Champhai. The data generated from these meteorological centres are utilized by various Government Department and agencies, research scholars, journalists etc.

Meteorological data such as rainfall, temperature and humidity are recorded daily totalling to 365 or 366 days in a year. Weather forecasting and warnings are also provided by the Centre with the help of IMD. A booklet of “Meteorological Data of Mizoram 1986 – 2015” was compiled consisting of district wise temperature, rainfall and relative humidity data in tables and figures.



### 9.4 Science Popularization through Printed Scientific Journals

Three regular Scientific Journals have been published in collaboration with 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.

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. It also covers life stories and achievements of renowned scientist.



## 9.5 S&T Promotion, Popularization and Communication Programmes

S&T Promotion, Popularisation and Communication (SPCCP) has been one of the main programme organised throughout the years. Every year, a series of programmes such as Workshop, Symposia, Celebration of various International Year, National Science Day and Mathematics Day, Talk Show, Nature study, campaigns, lectures, demobstration, etc. are organised to popularise science among the students and the masses.

1. National Science Day 2013 was observed with the theme ‘Genetically Modified Crops & Food security’ at four different places in Mizoram viz. Pachhunga University College, Aizawl, Govt. Zirtiri Residential Science College, Aizawl, Govt. Serchhip College, Serchhip and at Lunglei.



2. Exhibition on Science, Art & Culture was organised at Govt. Model Middle School, Darlawn, Aizawl district during 7th -8th February 2013. The exhibition was inaugurated by Pu R.L. Pianmawia, Govt. Dy. Chief Whip, Govt. of Mizoram. Various models on Science, Technology, art, craft etc. were displayed at the exhibition.



Exhibition on Science, Art & Culture at Govt. Model Middle School, Darlawn

3. Essay Writing Competition was organised in collaboration with Mizoram Science Society on the theme ‘Genetically Modified Crops and Food Security’. The prize distribution function cum Popular Lecture was held at I&PR Auditorium, Aizawl on 3rd December, 2013.

4. Science Exposure Tour was organised during 9th-13th September, 2013 for students and teachers of Mauchar High School.



Science Exposure Tour of Government Model Middle School, Darlawn

5. Science Exposure Tour was organised during 9th-12th December, 2013 for students and teachers of Government Model Middle School, Darlawn.

6. One Day State Level Seminar was organised on 23rd January, 2014 in collaboration with Mizo Academy of Sciences (MAS) at Govt. Zirtiri Residential Science College (GZRSC) on the topic ‘Genetically Modified Crops and Food Security’.

7. Science Awareness Campaign was organised in collaboration with Young Mizo

Association, North Serzawl Branch on 12th March, 2013 at Phunglui Run, North Serzawl during the 16th Chalfilh Group YMA Branch Conference.

8. Science Awareness Campaign was organized with Govt. Model Middle School, Darlawn at Mizoram Science Centre Auditorium on 10th December, 2013.

9. Science Awareness Campaign was organized with Tuikual Presbyterian English School at Mizoram Science Centre Auditorium on 22nd October, 2013.

10. Quiz Competitions was organised in collaboration with STAM for High School student during November 2013 - March 2014 as a part of Celebration of National Science Day 2013. The following are the list of school participated in the said quiz competitions - Govt. Hrangchhuana H/S, Aizawl, Govt. Central H/S , Aizawl, Govt. Chaltlang H/S, Aizawl, Govt. Republic H/S, Aizawl, Govt. R.M. H/S, Tuikual Aizawl, Rosebud School, Ramhlun Veng , Aizawl, Govt. Diakkawn H/S, Kolasib, Govt. H/S, Lunglei, Govt. H/S, Saiha, Govt. Regional H/S, Lawngtlai. Numbers of students involved in the competitions are 648 and 83 teachers are involved.

11. One Day State level Seminar on ‘Genetically Modified Crops and Food Security’ was organized at Aijal Club on 2nd Oct 2013.

12. State Level Workshop on ‘Astronomy and Comet ISON’ on 27th & 28th November 2013 in collaboration with Mizoram Amateur Astronomy Club & Paschimbanga Vigyan Manch, Kolkata.

13. State Level Science Seminar at Central YMA Hall, Aizawl on 3rd October, 2014 with Mizo Academy of Sciences (MAS). Theme - Fostering Scientific Temper.

14. Brainstorming Workshop at Aijal Club, Aizawl on 8th August, 2014 with Mizoram Science Society (MSS). Theme - Trend Analysis of Science & Technology Development.



State Level Seminar on 'Genetically Modified Crop and Food Security' at GZRSC



Science Awareness Campaign with Tuikual Presbyterian English School



State Level Seminar on 'Genetically Modified Crops and Food Security' at Aijal Club

15. Field Visit and Exposure Tour at the bank of River Tlawng, Reiek Kai on 29th November, 2014 with BIOCON. Studied the hazardous effects of improper waste management on flora and fauna at the surrounding environment.
16. Science Exposure Tour at Tuirial Hydro-Electricity Plant for student of North Serzawl during 8-9th January, 2015.
17. Science Awareness Campaign for Children Ministry, Tuikual, Aizawl on 19th October, 2014. Theme - Fostering Scientific Temper.
18. Science Awareness Campaign for student of New Age Academy, Vaivakawn, Aizawl on 13th February, 2015.
19. National Science Day Celebration on 27th February, 2015 at Office Chamber of Hon'ble Minister Pu Lalsawta's Office Chamber. Theme - Science for Nation Building.
20. National Science Day Celebration on 28th February, 2015 at Mizoram Science Centre. Theme - Science for Nation Building. Mizoram Science Centre remained open free for all visitors on this day.
21. National Science Day 2015 Celebration at other different places viz. Mizoram University, Aizawl; Pachhunga University College, Aizawl; Govt. Zirtiri Residential Science College, Aizawl; Govt. Serchhip College, Serchhip and Govt. Lunglei College, Lunglei.
22. National Mathematics Day was celebrated in collaboration with Mizoram Mathematics Society on 22nd December, 2014 at Synod Conference Centre, Aizawl.
23. State Level Mathematics Competition was held on 29th November, 2014 at four centres at Aizawl, Lunglei, Serchhip and Champhai. The competition was held in four levels i.e. V, VIII, X, XII standards.
24. Celebration of National Technology Day 2015 on 11.5.2015 at Mizoram Science Centre, Aizawl.
25. State Level Workshop on 'Science for Nation Building' on 19.5.2015 at Pachhunga University College, Aizawl with Mizoram Science Society.
26. 2nd Mizoram Mathematics Congress during 13-14.8.2015 at Pachhunga University College, Aizawl with Mizoram Mathematics Society & Dept. of Mathematics, PUC
27. State Level Seminar on Science for Nation Building on 1.10.2015 at Synod Conference Centre, Aizawl with Mizo Academy of Science.

28. Observation of International Year of Light 2015 on 13.11.2015 at Mizoram Science Centre, Aizawl.
29. Celebration of National Mathematics Day 2015 on 22.12.2015 at I&PR Auditorium, Aizawl with Mizoram Mathematics Society.
30. Sensitization Workshop on Basic Sciences for High School Teachers on 28.1.2016 at Mizoram Science Centre, Aizawl.
31. Sensitization Workshop on Basic Sciences for High School Teachers for Serchhip District on 2.2.2016 at YMA Hall, Serchhip Hmar Veng.
32. Sensitization Workshop on Basic Sciences for High School Teachers for Lunglei District on 4.2.2016 at SSA Recreation Hall, Lunglei.
33. Celebration of National Science Day 2016 at Aizawl on 27.2.2016 at Vanapa Hall, Aizawl.
34. Celebration of National Science Day 2016 at Lunglei on 29.2.2016 at Lunglei Govt. College with Lunglei Govt. College
35. Celebration of National Science Day 2016 at Serchhip on 29.2.2016 with Govt. Serchhip College.
36. Celebration of National Science Day 2016 at Champhai on 29.2.2016 with Govt. Champhai College.
37. Celebration of National Science Day 2016 at Kolasib on 1.3.2016 with Govt. Kolasib College.
38. Mathematics Summer Camp during 28.3.2016 to 1.4.2016 at Pachhunga University College, Aizawl, with Mizoram Mathematics Society.

# Glimpses of NATIONAL SCIENCE DAY 2016 CELEBRATION AT AIZAWL



Opening Song by Pachhunga University College Students



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



Address by Dr. C. Vanlalramsanga, Secretary, Planning



Audiences & Speakers of the Day



Keynote Address by Dr. R.K. Lallianthanga, Chief Scientific Officer

## NATIONAL SCIENCE DAY 2016 CELEBRATION AT OTHER DISTRICTS



CHAMPHAI



LUNGLEI



KOLASIB



SERCHHIP





## 9.6 Promotion of Innovation, Technologies and IP Protections

The role of technological innovation for the upliftment of nations is immeasurable. Developed nations have evolved out of a good system of innovation and technology race coupled with advanced IP protection system. Perhaps, one of the most twined words of the present era must be R&D backed up by innovation and IP. Our young and so-called remote state, backed up by one of the highest literates in the country, needs to run this race irrespective of our late entry, looking beyond hurdles. Only then will we be able to achieve a sustainable development goal.

The following programmes were organized for promotion of innovation and facilitation of Intellectual Property Rights.

1. Intellectual Property Rights (IPR) Awareness Workshop with Indian Intellectual Property Office (IPO) & Confederations of Indian Industries at I&PR Auditorium during 15<sup>th</sup>-16<sup>th</sup> October, 2014.
2. IPR & Innovation Workshop with RIPANS, Aizawl at Aijal Club, Aizawl on 24.3.2015.
3. IPR & Innovation Workshop with National Institute of Technology - Mizoram at State Guest House, Aizawl on 31.3.2015.
4. IPR & Innovation Workshop Mizoram Chamber of Industries at MUP Building, Aizawl on 27.3.2015.
5. IPR Awareness seminar at Pahunga University College with IPR Cell, Pahunga University College on 15.10.2015
6. Local Innovation Exhibition at Vanapa hall, Aizawl on 27.2.2016.
7. Innovators-Industry-Academics Interface at Vanapa Hall, Aizawl on 27.2.2016.
8. Sensitization Workshop on Protection of Mizo Indigenous Goods under Geographical Indication Act at Planning Conference Hall on 30.3.2016.



### Patent Information Centre

With financial support and guidance of DST, Govt. of India, Patent Information Centre, Mizoram was established during 2010-11. Patent Information Centre is taking care of the business of Intellectual Property Right (IPR) management in the state. The type of IPR includes Patent, Trade Marks, Design, Geographical Indication, Copyrights, Layout design of Integrated Circuit, Plant Variety Protection & Farmer's Rights and Trade Secrets.

## Patents filed

Inventions/Innovations of Pu H.V. Lalzuimawia, Aizawl (through NLUP Programme):

- (1) Fitting type chainless bicycle
- (2) Bamboo round stick producing machine
- (3) Bamboo chipping machine
- (4) Brush cutter and pit digging machine
- (5) Solar Sprayer
- (6) Turmeric and Ginger Slicing machine

Inventions/Innovations of Pu F. Lalmangaiha

- (1) Automatic water pump controller
- (2) Dispenser for Sacramental wine

\* One new patent was filed recently for one client

**Trade Mark filed** : Trade Mark was filed for Aizawl Thunders at Kolkata Trade Mark Office.

**Training Sponsorship** : Two faculties of Mizoram University had been sponsored for IPR Workshop outside the state.

**Participation in Innovation Festival** : Three local innovators from Mizoram, nominated by S&T participated in the Regional Innovation Festival held at Regional Science Centre, Khanapara, Guwahati during 6th-7th February, 2016. They were assisted by one Scientific Officer.



## 9.7 Promotion of R&D and Assistance to Scientific Research - Biotechnology Development

### 9.7.1 Formation of 20 numbers of DNA club with Department of Biotechnology

With the support of of Department of Biotechnology, Govt. of India, DNA Clubs had been formed in 20 schools across the state for creating awareness on National Resources among the School children. Teacher coordinators of the club from each school were trained at TERI Regional Centre, Guwahati, Assam. Laboratories were established in 20 High schools of Mizoram with facilities to provide computer education,



taxonomic studies, microbiological and Biotechnological experiment amongst the schools children.



### **9.7.2 Brainstorming Session-cum- Interactive Meeting on Biotech Initiatives in Mizoram**

A Brainstorming Session-cum- Interactive Meeting on Biotech Initiatives in Mizoram was organised on 13th June, 2016 at Secretariat Conference Hall, Aizawl in collaboration

with Department of Biotechnology, Govt. of India to discuss on various issues and problems and chalk out action points that could be addressed through



biotechnology intervention. The Inaugural programme was chaired by Dr. C. Vanlalramsanga, Secretary, Planning and it was graced by the Chief Guest, Pu Lal Thanhawla, Hon'ble Chief Minister along with Pu H. Liansailova, Hon'ble Vice Chairman, State Planning Board, Pu K.S. Thanga, Hon'ble Parliamentary Secretary and Pu Ronald Sapa Tlau, Hon'ble MP (Rajya Sabha).

### **9.7.3 1<sup>st</sup> Cherry Blossom Avenue in Mizoram**

The 1st Cherry Blossom Avenue in Mizoram was inaugurated by Pu Lal Thanhawla, Hon'ble Chief Minister of Mizoram on 26th July, 2016 at Mizoram Secretariat Complex, Khatla, Aizawl. Saplings of the tree was planted by dignitaries on the same day. The programme was initiated in collaboration with Institute of Bioresources & Sustainable development (IBSD), Imphal



and was chaired by Pu Lalramthanga, Principal Secretary. The presence of Pu Lalsawta, Minister, Planning (Science & Technology), Pu H. Liansailova, Vice Chairman, State Planning Board and Prof. Dinabandhu Sahoo, Director, IBSD added flavour to the success of the event.

#### **9.7.4 Road Map for Development of Medicinal Plants using Biotechnological tools in Mizoram**

A road map for development of medicinal plants using Biotechnological tool in Mizoram was prepared with the help of CSIR-North East Institute of Science & Technology (NEIST). Now, this is utilised and incorporated in the Bioresource development programmes.

#### **9.7.5 DPR for Establishment of Mizoram Bioresource Development Centre**

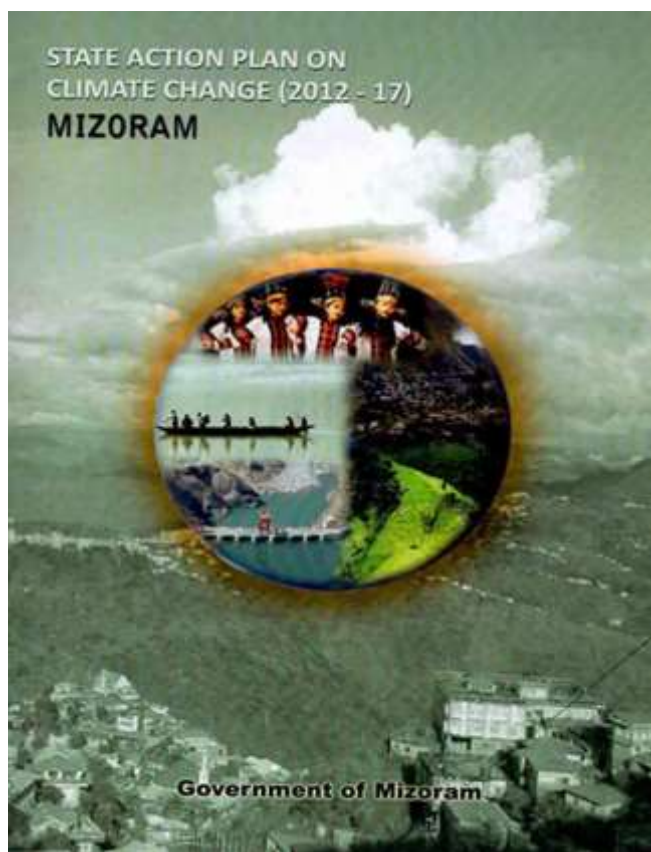
S&T prepared a Project Proposal for establishment of Mizoram Bioresource Centre in the state with an objective to conserve and multiply the rich bioresources of the state and further enhance it for economic goals. The proposal had been submitted to Department of Biotechnology, Govt. of India.

A Task Force Committee on the subject was formed under the Chairmanship of the Secretary, Planning (Science & Technology) who are now looking at all possibilities for establishment of the Centre.

### **9.8 Promotion of R&D and Assistance to Scientific Research - Climate Change & Allied**

#### **9.8.1 State Action Plan on Climate Change**

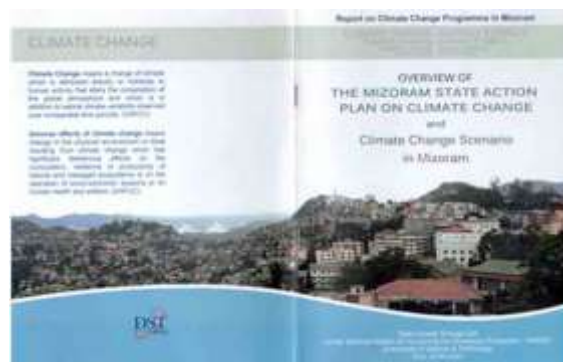
The State Action Plan on Climate Change for Mizoram is prepared in line with the National Action Plan on Climate Change inaugurated by the Prime Minister in 2009. The Plan was approved by the National Steering Committee on Climate Change and is being implemented now by the State Government.



## 9.8.2 Mizoram State Climate Change Cell

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. The Cell is now well equipped and is working smoothly. Some of the activities of the cell are:-

- Publication of booklet on ‘Overview of the Mizoram and State Action Plan on Climate Change and Climate Change Scenario in Mizoram’

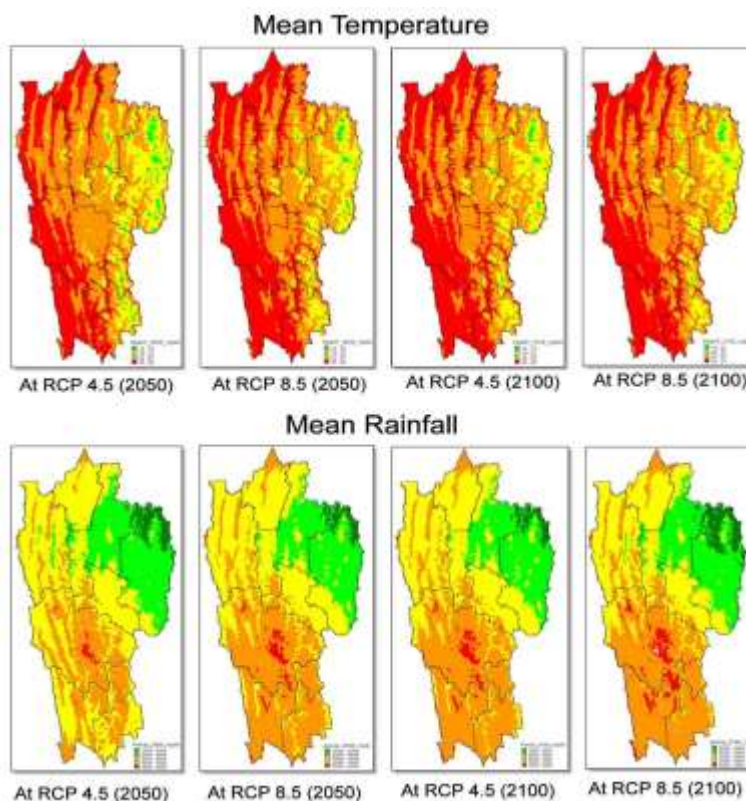


- Exposure on Climate Scenario using Regional Circulation Model (SimClim-2013)

- Analysis of Met data & Vulnerability analysis.

- Workshop on Impact of Climate Change in Mizoram has been conducted at the top official level to address the current and possible future vulnerability in the state.

- 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 26 years (1986-2015) were analyzed.



## 9.9 Promotion of R&D and Assistance to Scientific Research

### 9.9.1 Rainwater Harvesting Project

S&T implemented Rainwater Harvesting Project at Hmunpui Village, Mamit District under Rainwater Harvesting Scheme of Water Technology Initiative (WTI), Department of Science & Technology, Govt. of India with an objective to provide safe drinking water to the community, at the rate of 40 lpcd, complying to the Indian rural water supply requirement for individuals.



Overall construction of 12 water reservoir with a total capacity of 30,00,000 litres was finished during 2015-2016. The project was inaugurated by Pu John Rotluangliana, Hon'ble Minister, FCS&CA on 23rd April, 2016.

### 9.9.2 Environmental Impact Assessment of Aizawl Municipal Solid Waste Dumping ground at Tuirial

There were two main municipal solid waste dumpsites of the Aizawl Municipal Council which encompasses the capital city i.e. Aizawl viz. Tuirial Dumping Site and Sakawrhmutuai Dumping Site. In collaboration with the Mizo Post Graduate Science Society, Environmental Impact Assessment of the Municipal Solid waste dumping Site at Tuirial which is located at about 15 km away from the city was taken up. The objectives of the study includes (i) Assessment of Plant community and soil microorganisms (ii) Estimation of physico-chemical properties of soil and water (iii) Analysis of air quality of the dumpsite and (iv) Measurement of natural background radiation of the dumpsite.



### 9.9.3 Promotion of multilayer heat insulator made by ZEG Production Co. (Pvt.) Ltd.

ZEG Production Co. (Pvt.) Ltd., a company based in Aizawl has approached S&T mainly for patent search and technical assistance for their product. The invention i.e. a multilayer heat insulator had been applied for a patent in Kolkata Patent Office in 2012. Afterwards, technology assistance has been extended for the success and commercialization of the new invention under the brand name Transformer CPS.



### 9.9.4 Conservation of Bird population by organizing Nest Box Month Programme

Nest Box Month project was initiated in collaboration with Biodiversity & Nature Conservation Network (BIOCONE) in the year 2011. Since it received a good applause from the masses, it was implemented every year afterwards. The nest boxes constructed are placed at several locations in and around the capital, Aizawl and selected places all over Mizoram. Awareness programmes are also organized.



### 9.9.5 Assistance to Scientific Research

During 2015-2016, three indigenous innovations were given assistance for construction of working prototype. They are:-

- 1) Pu Ramdinthara Renthlei : Transformer Constant Power Supply
- 2) Ramhlun Edena : New type of wind blade for harnessing of wind power
- 3) K. Zoliana : Zo-Weight Electric Power

## 10.1 Creation and Development of Natural Resources' Database for Planning and Development

### Thrust areas of Remote Sensing & GIS applications

Space technology with reference to the application of Remote sensing and GIS has emerged as one of the mainstream pre-requisites in planning and implementation of many resource based schemes and projects taken up by the Government and private organizations. Since its inception, the contribution of MIRSAC in avenues of Space technology applications were management of natural resources, mapping of various land use/land covers, land & water resource development, potential area analysis, infrastructure mapping, disaster management, etc.

#### 10.1.1 National Land Use/ Land Cover Mapping using Multi Temporal Satellite Data - 2nd Cycle

This project is 100% funded by National Remote Sensing Centre, Hyderabad. The project was completed in the year 2013 – 2014.

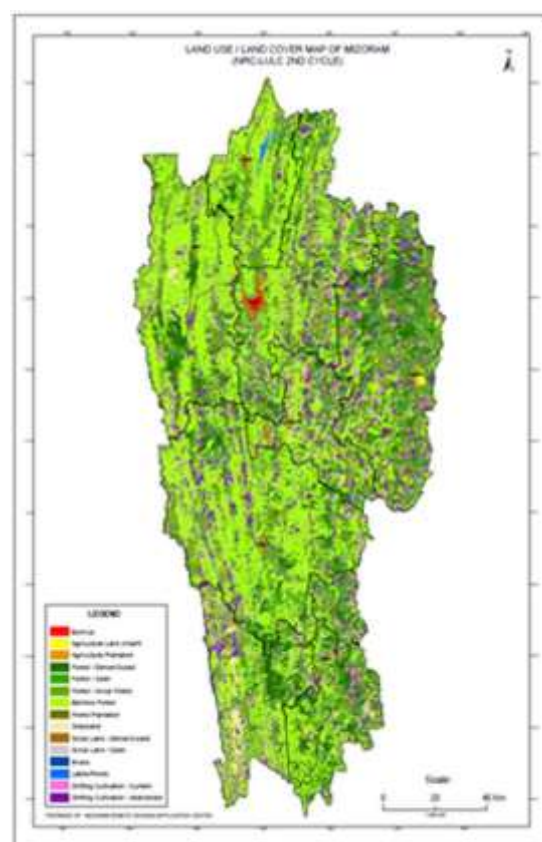
The project aims to generate LULC data base and map for the period 2011-2012 using three multi temporal IRS P6 LISS III satellite data; Creation of digital database on standard NRC-LULC50K codification and methodology; to generate seamless digital data at district/state level; to provide a land use report for the state and country as a whole and analyze the change pattern in LULC compared to the 1st cycle LULC mapping.

The data base has formed a core base data in most of the projects taken up by line departments of the state as it contains almost all land based spatial information.

#### 10.1.2 Mapping of Potential Areas for Rubber Plantation

This project was sponsored by Soil & Water Conservation Department, Govt. of Mizoram. It was completed in the year 2013 – 2014.

In this project, the potential areas for rubber plantation in Mizoram was mapped with two levels of considerations for



LULC Map of Mizoram (LULC-50k2nd cycle)





suitability (categorised as Class I & II), depending on the topography and other land features.

District wise maps showing these potential areas along with the statistics were handed over to the sponsoring Department. The data generated in this project was appreciated by the Dept. for carrying out their respective works.



Handover programme of maps under the project on 'Rubber plantation potential areas in Mizoram', prepared for Soil & Water Conservation Dept. was organized at the office chamber of Dr. Jerome Rokima, Director, Soil & Water Conservation Dept. on 27th September 2013.

### 10.1.3 Forest Working Plan Input of Mizoram State

This project was sponsored by Environment, Forest & Climate Change Dept., Govt. of Mizoram. The project was also executed in collaboration with NESAC, Dept. of Space. The project was completed in 2013 – 2014.

The project aims at providing base remote sensing & GIS data pertaining to forest resources, density, land use, and other ancillary data required for preparation of forest working plans for each forest divisions in Mizoram.

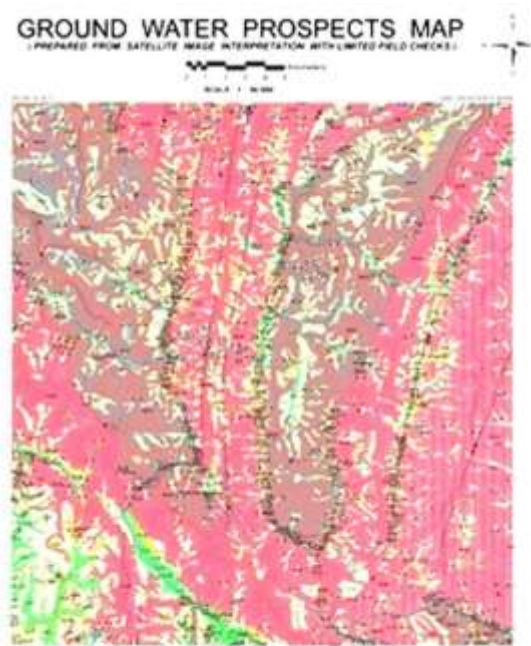


Forest working plan inputs for Mizoram state – spatial information division wise & within RFs & RRFs

### 10.1.4 Ground water Prospect & Quality Mapping under National Drinking Water Mission (formerly RGNDWM)

This project was 100% funded by National Remote Sensing Centre (NRSC), Hyderabad. Ground Water Prospect Mapping was completed in the year 2013 – 2014 while Quality Mapping is still going on.

The project aims to provide drinking water sources by delineating and categorizing ground water prospect zones along with augmenting the recharge conditions of the aquifer to assure the sustainability of the sources. To provide ground water prospect maps and statistical data at 1:50,000 scale for use by line departments.



Groundwater Prospect maps on Topo-wise grids

The maps and statistics generated from this project was provided to the state PHED for use in their project works.



**Handover programme of Groundwater prospect mapping in Mizoram to PHED**

### **10.1.5 Preparation of Geo-referenced based map for Aizawl city & Lunglei town under RAY**

This project was sponsored by Urban Development & Poverty Alleviation Dept., Govt. of Mizoram. The project was completed in 2013 – 2014. The project involves the preparation of urban land use and base data for Aizawl city and Lunglei town at 1:2000 scale. The mapping for Aizawl City and Lunglei town has been completed and data handed over to the funding Department.



Geo-referenced base maps for Lunglei town prepared under RAY project was handed over by Pu Lalsawta, Hon'ble Minister, Planning Dept. to Pu R. Lalhmulliana, Jt. Director, UD&PA Dept.

### **10.1.6 Desertification Status Mapping (Second Cycle)**

This is a collaborative project 100% funded by Space Application Centre, Ahmedabad, Govt. of India and was completed in 2013 – 2014. The aim of the project is mapping the status of desertification in two states i.e, Mizoram and Tripura. The first phase of mapping using AWIFS data at 1:500,000 scale is over for the two states and data has been completed and submitted to SAC, Ahmedabad where quality check and change matrix will be generated.



Handover of GIS maps (hard & soft copies) to Er. Lalrotluanga, SE Planning & Monitoring, MI Dept.



Signing of MoU for LRP Mapping between NLUP Implementing Board & MIRSAC

### 10.1.7 Creation of district-wise GIS Maps of MI projects

This project was sponsored by Minor Irrigation Dept., Govt. of Mizoram and was completed in 2013 – 2014. The project has utilized capabilities of GIS to map the identified MI projects within the state and representing them on a GIS environment as well as scaled maps.

### 10.1.8 Preparation of Land Resources Potential Atlas of Aizawl District & Lunglei District.

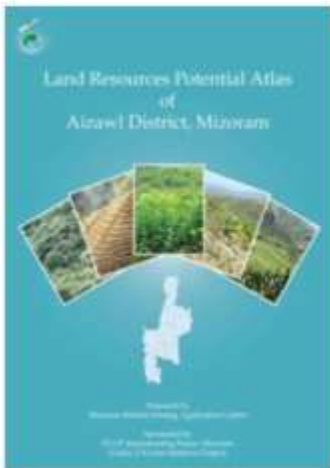
This project was taken up in collaboration with NLUP Implementing Board, Govt. of Mizoram and under funding of the UN Joint Initiative Project, UNO. Land Resource Potential Atlas of Aizawl District was completed in 2014 – 2015 and Land Resource Potential Atlas of Lunglei District was completed in 2015 – 2016. The main objective of this project involves the preparation of base layers of the two districts including drainage, transport network & settlement and land use / land cover. The maps are utilized for development of various land based activities. Further, the data provided through this project were of immense value addition to the implementation objectives of the UN project team as well as the NLUP Implementing Board.



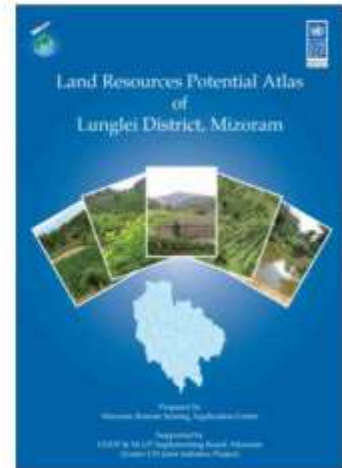
Release of Land Resources Potential Atlas of Aizawl District at NLUP conference room.



Official Release function of Land Resource Potential Mapping



Handing over of LRP Atlas to NLUP Implementing Board



### 10.1.9 Mizoram Infrastructure Information & Monitoring System (MIIMS)

This project is funded by NEC and Government of Mizoram at the sharing pattern of 90:10. The project was completed in 2015 – 2016. The objective of the project is to prepare Infrastructure Information & Monitoring System of Mizoram. Mapping of existing govt. infrastructures in the state was carried out and integrated in a GIS system for easy access, monitoring and visualization. The data and system prepared will serve as an important platform for various base map information and useful for different segment of users.



MIIMS Atlas released by Pu Lalsawta, Hon'ble Minister Planning Dept. (Science & Technology)

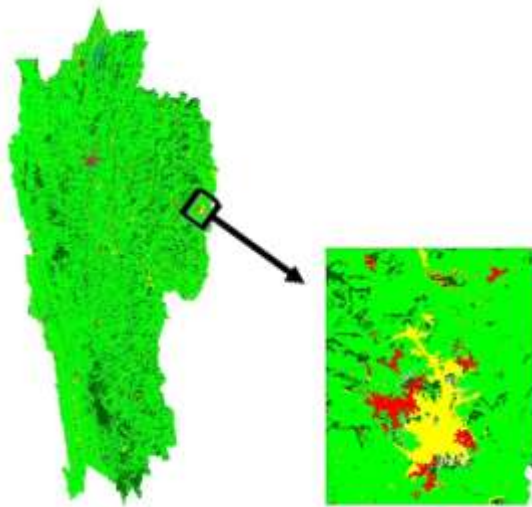


MIIMS System Demonstration by Pu C.Vanlalengkima, Scientist, MIRSAC



District-wise MIIMS Atlas

## 11.1 Rice Crop Acreage Estimation



This is a joint project with NESAC, under the nationwide project of FASAL (Forecasting Agricultural output using Space, Agrometeorology and Land based observations) sponsored by Ministry of Agriculture in collaboration with NESAC, Dept. of Space, Umiam. The project was completed in 2015 – 2016.

In this project, rice cultivation areas in the state are mapped using remote sensing techniques. The project has also focused on mapping of traditional paddy cultivation areas that fall within the mapable scale of the project. Interpretation and data generation for the state has been completed and sent to NESAC for final preparation of reports.

## 11.2 Tropic of Cancer Passing Site Identification & Laying of Demarcation Stone

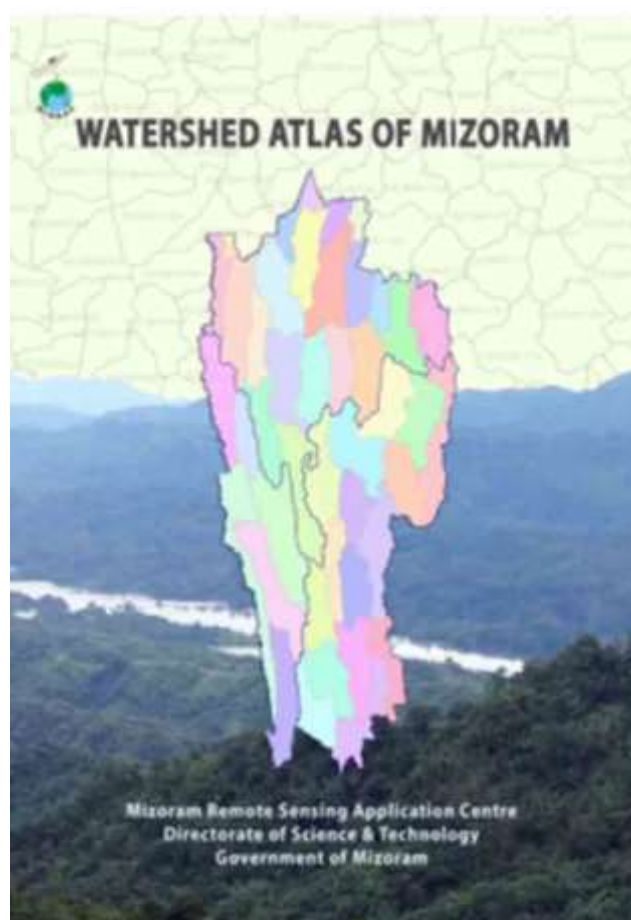
A joint activity for identification and demarcation of the site where Tropic of Cancer passes through one of the villages in Mizoram, i.e, Maubuang village was carried out jointly by the Centre and Geography Association of Mizoram (GAM). An official function to inaugurate this site was held on 19th July 2016 which was attended by village community representatives, scientists and scholars.

The identification of the passing site of tropic of cancer was done using ISRO's IRNSS receiver node of MIRSAC.



### 11.3 Watershed Atlas of Mizoram

The Watershed Atlas of Mizoram has been the outcome of an interaction meeting with Line departments, in particular with the Rural Development Department, Govt. of Mizoram, in which the concerned officers discussed the importance of having an elaborate and concise compilation of watershed data in Mizoram. As these watersheds represent conglomerate units of natural resources sustaining the natural processes of both biotic and socio-economic background, their importance in planning and implementation of development based projects have been recognised. The Central and State Governments have also taken steps towards land development through watershed based interventions /schemes (IWDP, DPAP, DDP and IWMP) and using watersheds as developmental units.



The importance of spatial data on watershed as developmental units and for its use in the above mentioned programmes of the Government has propelled the Centre to take up this initiative in preparing an atlas of watersheds in Mizoram which would not only assist in on-going activities of the State Government but also serve as an important resource for various management and implementation plans



of decision-makers and concerned line Departments. The data in this atlas has been prepared using techniques of Remote Sensing & GIS, scaled to accurate projections and boundaries delineated at 1:10,000 scale, enabling its effective use in operational levels of watershed development programmes. The atlas has also been prepared in reference with the Watershed Atlas of India published jointly by Indian Space Research Organisation (ISRO) and Central Water Commission (CWC). The Watershed atlas of Mizoram also embodies a work of systematic and scientific delineation of hydrological units, classification & codification of the watersheds in a hierarchical manner which is again analysed in a GIS environment. The Atlas contains reduced scale maps of 43 watersheds in Mizoram, along with area statistics.

#### **11.4 MIZORAM STATE MEET ON PROMOTING SPACE TECHNOLOGY BASED TOOLS & APPLICATION IN GOVERNANCE & DEVELOPMENT**

A state level meeting for promoting space technology based tools and applications in governance and development was organised on 8th March, 2016 at Secretariat Conference hall, Aizawl. The meeting has been the outcome of the suggestions and directives of the Hon'ble Prime Minister of India while addressing the 'National Meet on Promoting use of Space technology in Governance & Development' held on 7th September, 2015 at New Delhi. The State Meet was organised with the main objectives of sensitising decision makers/line departments for effective use of space technology to enhance functional effectiveness, facilitate better planning and decision making at operational levels. Another important agenda that it aims to address is to understand the space technology requirements of working line departments and to assist them in bridging the application and knowledge gap for adopting space technology based application in their respective lines of developmental activities. The State Meet had four sessions based on-Environment & Energy, Agriculture & Allied Depts., Infrastructure planning, and Health & Welfare. Each session was chaired by Secretaries of line departments and presentations delivered by representatives of each state line departments. A total of 22 presentations were deliberated from the line departments.

