



# MIRSAC Newsletter

Mizoram Remote Sensing Application Centre  
(An Autonomous Govt. Institution under Science & Technology, Planning Department, Govt. of Mizoram)

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Pu Lalmalsawma  
Chairman  
MIRSAC Gov. Body



Dr. C. Vanlalramsanga  
Vice Chairman  
MIRSAC Gov. Body

## Governing Body of MIRSAC

- Chairman** : Chief Secretary  
Govt. of Mizoram
- Vice Chairman** : Secretary  
Planning & Prog.  
Implementation Dept.  
Govt. of Mizoram
- Member Secretary** : Project Director,  
MIRSAC
- Members** : 16 members from various  
Depts. of the State, viz.,  
Science & Technology,  
State Planning Board,  
Finance Department,  
Environment & Forest,  
PWD, PHE, P&E,  
Minor Irrigation,  
Agriculture (Crop Husbandry),  
Horticulture,  
Soil & Water Conservation,  
Rural Development,  
Land Revenue & Settlement,  
DM&R, UD&PA, & Sericulture

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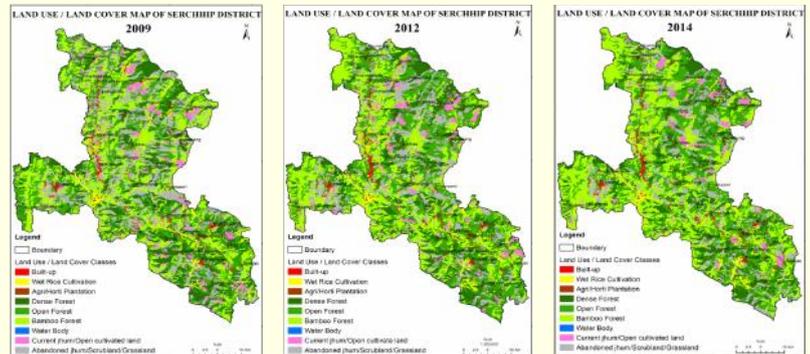
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## Changes in Land Use / Land Cover pattern of Serchhip District - A Reconnaissance study using R.S & GIS

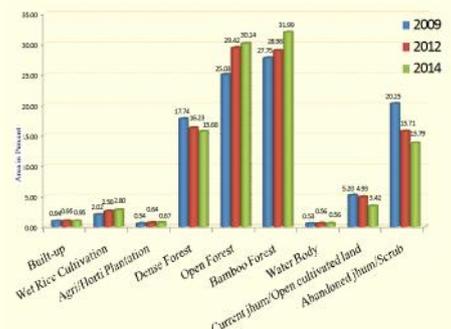
**Dr. R.K. Lallianthanga**  
Project Director



The land use / land cover of the state has undergone considerable changes during the past couple of years due to inherent land use practices of local people as well as the land development initiatives taken up by the Government in the form of various programmes and schemes. One of such is the flagship programme of the State Government - New Land Use Policy (NLUP) which aims at gradually changing the practice of jhumming with new pattern of land use, preservation of the environment, adoption of effective water harvesting measures and utilization of abundant domestic resources and planned marketing of agricultural products. Since its official launch on 14th January 2011 all over the state, it was expected to have an impact on the land resources and the way in which land is used during its subsequent implementations. In order to study this impact, the Centre has taken up a reconnaissance study in Serchhip district to get a broad perspective on the extent of the effect of NLUP on major land use / land cover in the district. The available datasets (2009 and 2012) as well as fresh interpreted data (2014) of the district was used in this study. Thus, the analysis of impact was based on comparison of three years remote sensing and GIS data at a scale considered to be effective for a reconnaissance impact assessment.



The results of this study has shown that NLUP does have a positive impact on the pattern of major land use / land cover of Serchhip district. These positive impacts have been observed in terms of an increase in open and bamboo forests, wet rice cultivation and agri/horti plantations. In addition, a consequent decrease in current



jhum/open cultivated lands and abandoned jhum/scrub was further observed during the course of the study. Although there has been a slight drop in dense forest coverage, it is expected that its deficiency will gradually be compensated by open forests in the near future. Overall, there is still a long way to go in order to achieve a balanced socio-economic growth for the current positive trend to continue, where sustained utilization and better management of land and water resources is required.



## From Editor's desk



MIRSAC, in all its capability and its multi-pronged thematic workforce has yet achieved and accomplished challenges in the field of remote sensing and GIS during the current year with dedication and hardwork. The recognition level and services rendered to all the user from Departments of the state to the private and public sector has gradually placed the Centre on a platform of much larger responsibilities and a need to evolve towards innovative techniques. Technology is evolving and with each passing year there are a number of innovations to imbibe and adapt to. A lag in this aspect would have serious consequences in the way technology is delivered to the users. This is where we, as individuals bound to technology-based-services have to update and re-invent ourselves, not just in thoughts but actions as well. As we embark on a new journey towards 2015, it is time to look back at our accomplishments in 2014 and evaluate our contributions to the services that was provided, making corrections where needed and a new year resolution to improve where we fell short.

## Felicitations



The Officers and staff of MIRSAC expresses their deepest gratitude to Pi L. Toichong, Former Chief Secretary, Govt. of Mizoram and Chairman, MIRSAC Governing body for her guidance and support which has placed MIRSAC at a well known position in the state. We wish her all the best in her future edeavous as she continues to serve the Government as the State Election Commissioner of Mizoram.

The Officers and staff further feel fortunate to have Pu Lalmalsawma, Chief Secretary, Govt. of Mizoram as the new Chairman of the MIRSAC Governing body. He had been the Chairman of MIRSAC from 2006 to 2011 while the Centre was at its nascent stage of development. It is with much awaited anticipation that under his guidance and chairmanship, the Centre will further progress towards the goals and objectives for which it was established.



## MIRSAC - Contributions & Retrospections

The use of Satellite Remote Sensing and GIS in the context of spatial feature mapping and creation of its repositories have been the initial stages where MIRSAC had invested time and energy, thereby providing valuable data and services to the end-users - be it the Government or private sector. Several nationwide projects as well as in-house projects have also facilitated in adding up and updating existing geospatial data at the Centre. These data have eventually been put to effective uses in many other allied projects, either directly or in some cases with slight modifications. The real value-addition is brought into picture when such data are exclusively made easy to understand and visualise. This can be in the form of maps or GIS driven user-interfaces. As development projects have started to concentrate more at grassroot level implementation, there is a need for quick and reliable source of detailed information. In order to provide such information, our work results have to focus on large scale mapping exercises and data collection. High spectral and spatial resolution satellite data have been sought after for getting the desired outputs and satisfactory results for the end-users. At the same time, development of automated system-oriented GIS is necessary to bring out better values from the compiled analysis of remote sensing and field data.

With the execution of the project - Mizoram Infrastructure Information & Monitoring System (MIIMS) which is built on a GIS backbone, the Centre has yet taken another step towards accurate spatial data acquisition. Realizing the importance of such systems in today's developing technology platform, it is the Centre's continued vision to explore the varied capabilities of GIS and its allied fields. The success of future projects that require accurate and updated data which are applicable at operational levels, depends on the extensive efforts taken in projects like MIIMS. The flexibility of these data and the extent to which it can be effectively used for current and future development activities in the state will also be a deciding factor for its importance and value-addition. The Centre in its effort to provide better services and expertise to the line Departments, has been reaching out and interacting with officials to ascertain the areas where remote sensing and GIS inputs are required and where this technology can be effectively used in their on-going and future projects. The feedbacks from these line Departments have been positive with a host of possibilities for application of space technology in their line of activities and execution of specific schemes.

The focus has always been on activities that would have larger impact on the development schemes of the state. Keeping this in mind, the Centre has recently taken up a project under NLUP Implementing Board, Govt. of Mizoram for preparation of land resources potential maps of two districts of the state. In addition to this, the on-going project of Desertification Status mapping for Mizoram and Tripura in collaboration with SAC, Ahmedabad and the recently initiated project on Remote Sensing based Rice crop acreage estimation in the state of Mizoram in collaboration with NESAC, Umiam, are some of the national level projects that will have valuable contributions on land based development schemes of the state.



## RECENT PROJECT INITIATED

### *Preparation of Land Resources potential map of Aizawl and Lunglei Districts using R.S and GIS*

A minor project for mapping the land resources potential of two district of the state has been initiated in collaboration with NLUP Implementing Board, Govt. of Mizoram and under funding of the UN Joint Initiative Project, UNO. The project was the outcome of the decisions made during subsequent meeting between the UN Joint Initiative project team and officials of Govt. of Mizoram on 21.10.2014 under the Chairmanship of Pu P.L.Thanga IAS(Rtd), Vice Chairman, NLUP Implementing Board and Member & Secretary, State Planning Board, where MIRSAC was requested to prepare land resources potential map of these two districts. The project proposal was submitted and a Memorandum of Understanding (MoU) was signed on the 5th December 2014 at the office chamber of Pu James Lalrinchhana, Secretary, NLUP Implementing Board, Govt. of Mizoram.

The main objectives of this project involves the preparation of base layers of the two districts including drainage, transport network & settlement and land use / land cover. The important focus will be on preparation of data pertaining to potential areas where land resources can be utilized for development of various land based activities. The pre-requisites of this projects at the initial stages are preparation of the base layers which will later assist in the identification and mapping of land resources potential areas. The data would be provided to the UN Joint Initiative project team for further implementation of their objectives at the grassroot stages. The entire work schedule of the project is estimated to be completed within 4 months of signing them MoU. The Centre expects that the data provided through this project will be of immense value addition to the implementation objectives of the UN project team as well as the NLUP Implementing Board.



*Signing of MoU between NLUP Implementing Board & MIRSAC*

## PROGRESS OF ON-GOING PROJECTS

### *1. Mizoram Infrastructure Information & Monitoring System (MIIMS)*

The NEC funded in-house project of the Centre is progressing towards compilation of data and composition of maps for the atlas. An extensive ground data collection for all local council areas in Aizawl city was carried out which was subsequently followed by collection of infrastructure data of all village council areas of the state. These collected data is being archived in the Centre's GIS server for map composition and incorporation into the Infrastructure Information and Monitoring Systems.

### *2. Space Based Information Support for Decentralized Planning (SIS-DP)*

External Quality Check (EQC) for the previously completed 6 northern districts of the state is completed and corrections suggested by NRSC EQC team has been incorporated and sent back to NRSC for final incorporation into national repository. The land use / land cover mapping of remaining 2 southern districts (Lawngtlai & Saiha) is also completed and sent for EQC at NRSC, Hyderabad and NESAC, Shillong.

### *3. Groundwater Quality Mapping under RGNDWM*

The groundwater prospect data generated for Mizoram under this project was subjected to seamless mosaicing with other northeastern states at a programme organised at NRSC, Hyderabad in July 2014. The next phase of the project on groundwater quality mapping which involves collection of data on wells and other surface water features has been completed and further procedures to be followed will be directed by the co-ordinating agency - NRSC.

## Employees Space

\* The Centre has recruited two Scientists through written test and personal interview conducted during August and September. Ms. Vanlalmuansangi and Mr. Lalramdina are the two new Scientists that have joined the Centre from October 2014.

\* Pi Rosy Vanlalzarzovi, Scientist is all set to say her 'vows' and tie the knot with her life-partner. The editors on behalf of the Centre conveys this message - "A marriage is a perfect union when two people become a team. Cherish your marriage and best wishes to you and your partner for your new life journey"

\* The Project Director, Officers and Staff of MIRSAC wishes all its readers a very Happy Christmas and a prosperous New Year - 2015.





## NEWS & ACTIVITIES

\* **Pu Z.D. Laltanpuia, Scientific** attended a meeting on Ground Water Prospect Mapping under RGNDWM project at NRSC, Hyderabad on 14th July 2014.

\* A short handover programme of GIS maps of Minor Irrigation project locations prepared for Minor Irrigation Department, Govt. of Mizoram was held at the Conference room of MIRSAC on 30th July 2014. **Er. Lalrotluanga, SE Planning & Monitoring, Minor Irrigation Department, Govt. of Mizoram** received the GIS maps (hard & soft copies) on behalf of the concerned Department.



*Handover programme of GIS Maps for Minor Irrigation Department, Govt. of Mizoram.*

\* A one week programme for data collection of infrastructure locations within Aizawl Municipality area under MIIMS project was organised at the Centre during mid August. Scientists of the Centre interacted with Local council members representing each locality within Aizawl city.

\* **Dr. Lalnunsiana Colney, Sr. Scientific Officer** presented a paper on 'Satellite Imagery and its Interpretation' at Mizoram University, Tanhril on 28th August 2014.



*Ground data collection for MIIMS project*

\* The Scientists and Field assistants of the Centre were detailed for ground data collection under MIIMS project during this year. Infrastructure data for every village of the state was collected at each district where Village council representatives were also participating in providing necessary information.

\* Interaction meetings on Application of Remote sensing & GIS with 8 line Departments of the state was held during 13th-24th October 2014. In this regard, **Pu Lalnunsiana Colney, Sr.S.O, Pu F. Lalramchuana, Sr. S.O, Pi Hmingthanpuii, Sr. Scientist and Pu Robert Lalchhanhima Sailo, Scientist** were detailed to have a close interaction with officials of the line Departments to find out specific R.S and GIS requirements of these Departments.



*Interaction meeting on Application of Remote Sensing and GIS with Agriculture Dept. (CH), Govt. of Mizoram.*

\* **Pu Robert Lalchhanhima Sailo and Pi Vanlalmuansangi, Scientists** attended a one week hands-on training for the project on 'Remote sensing based rice acreage estimation in the state of Mizoram' at NESAC, Umiam from 27th - 31st October 2014.

\* **Pu Edward Lalzuithanga, Sr. Scientist** attended a Review meeting of SIS-DP project at NRSC, Hyderabad from 12th - 13th November 2014.

\* An interaction meeting for upgradation of the stand-alone application designed by the centre under Disaster Management System project was held at the Conference room of MIRSAC on 3rd December 2014. Officers from Disaster Management & Rehabilitation Department, Govt. of Mizoram were present at the meeting.



*Presentation of paper on 'Role of GIS in Disaster Management planning' by Pu F. Lalramchuana, Sr.S.O at ATI, Aizawl.*

\* **Pu F.Lalramchuana, Sr.S.O** presented a paper on 'Role of GIS in City Disaster Management Plan' at ATI, Aizawl, at a programme organised by NIDM, New Delhi & Administrative Training Institute (ATI), Aizawl on 4th December 2014.