

Annual Report

2023 - 2024



MANIPUR SCIENCE & TECHNOLOGY COUNCIL

(An autonomous body of the Dept. of Science & Technology, Govt. of Manipur)

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1.0 Background

The Manipur Science & Technology Council (MASTEC), formerly the State Council of Science, Technology, and Environment, Manipur, was set up in 1985 with initiatives from the Department of Science and Technology, Government of Manipur. The Council got registered as an autonomous organisation of the Department of Science & Technology, Government of Manipur, in January 1996 under the Manipur Societies Registration Act, 1989.

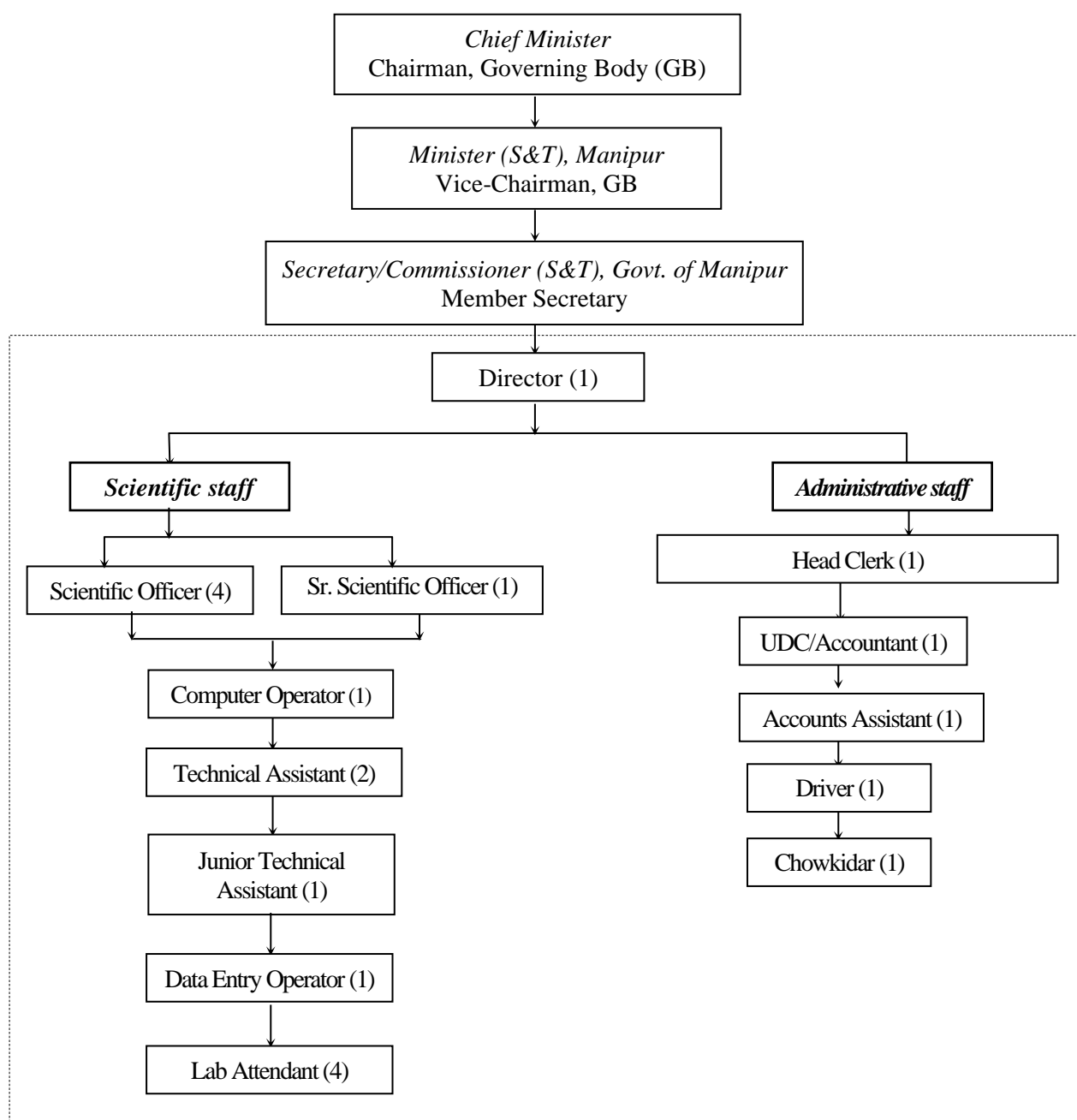
The autonomous Council is served by its own Secretariat of twenty man-power supported by the Department of Science and Technology (DST), Government of India. The Council Secretariat operates with the grants received from DST, Government of India, DST, Government of Manipur and the funds received from various agencies through projects and programmes. The Council works in co-ordination with the State Directorate of S&T in various area of activities.

1.1 Objectives of the Council

- To identify areas in which Science, Technology and Environment can be utilised for the achievement of the Socio-economic objectives of the State and in particular, tackling the problems of backwardness and underprivileged sections of Society;
- To advise on policies and measures necessary to promote Science, Technology and Environment and their utilisation for achievement of socio-economic objectives;
- To initiate, support, promote and coordinate Research Design and Development projects and programmes, including demonstration projects which are likely to be relevant to the problems, surveys and optimum utilisation of natural resources of the State;
- To promote and undertake activities for the popularisation of Science and Technology and the spread of a Scientific Temper and attitude among the people of the State;
- To supplement and complement the ongoing technical efforts of the State Government;
- To interact with other State, National and International S&T bodies having similar or related objectives;
- To identify priority areas of Science & Technology for long term development of the State;
- To promote, support and undertake the application of renewable sources of energy for the benefit of the people;
- To accept donations and receive grants, and subsidies from Government of India, Government of Manipur and other supportive agencies and to invest the resources towards the achievement of the objectives of the Council.

1.2 Organisation

The Council has a Governing Body which consists of a wide distribution of members with expertise in various fields, with the Chief Minister as the Chairman and the Minister in Charge of S&T, Manipur, as the Vice Chairman. The Council has an Executive Committee to assist the activities towards achieving the objectives of the Council. The Vice-Chairman of the Governing Body of the Council heads the Executive Committee as its Chairman. The Secretary/Commissioner (S&T), Government of Manipur, is the Member Secretary of the Council. The Member Secretary is the Chief Executive of the Council Secretariat. The organisation chart is shown below.



1.3 Existing Staff

Sl. No	Name	Qualification	Designation
1.	Dr. L. Minaketan Singh	M.Sc., PGDRS, Ph.D., Foundation Training of Scientists/Technologists (DST, GoI. Sponsored)	Director
2.	Dr. Kh. Rakesh	M.Sc., Ph.D.	Sr. Scientific Officer
3.	Er. Ch. Sarat Singh	B.Tech., M.Tech. (Civil)	Scientific Officer
4.	Dr. R.K. Pritamjit Singh	M.Sc., Ph.D.	Scientific Officer
5.	Dr. Ch. Shivaji	M.Sc., PGDCA, Ph.D.	Scientific Officer
6.	Mrs. H. Binodini Devi	B.Sc.	Technical Assistant
7.	Y. Shyamsunder Singh	B.Sc., LLB	Technical Assistant
8.	R.K. Bhanisana Devi	B.Sc.	Sr. Accountant cum Head Clerk
9.	H. Thangthianmang	B.A.	U.D.C./Accountant
10.	L. Ronel Singh	M.Com.	Accounts Assistant
11.	L. Boyai Singh	VIII	Driver
12.	L. Open Singh	X	Peon
13.	S. Devendra Singh	X	Peon
14.	Jamkhanmuan	VIII	Peon (Dak Runner)
15.	Chingthanching	VIII	Chowkidar
16.	Kh. Leidou Maring	VIII	Sweeper
17.	L. Surjit Singh	M.Sc. PGDCA	J.R.F. (PIC)
18.	S. Sanjay Singh	XII -Sc.	Attendant cum watchman
19.	H. Sanjay Singh	X	Attendant cum watchman
20.	T Siampu	VIII	Attendant cum watchman

2.0 Short-term Activities including Science Popularisation

The Manipur Science and Technology Council (MASTEC) organised various state and centrally sponsored workshops/trainings relevant to the state, including science popularisation to fulfil the objectives for the establishment of the Council. The following were the short-term programmes implemented during the year 2023–2024.

2.1 Celebration of National Mathematics Day 2023

Manipur Science & Technology Council (MASTEC), Imphal organised Celebration of National Mathematics Day 2023 on December 22, 2023 at Model Higher Secondary School, Imphal. The programme was catalysed and supported by National Council for Science & Technology Communication (NCSTC), Department of Science & Technology, Government of India, New Delhi.

The main feature of the 1-day programme was deliberation of lecture on Life and Works

of Srinivasa Ramanujan. Dr. L. Minaketan Singh, Director, MASTEC, Imphal, Shri S. Jugeshwor Singh, Sr. Assistant Professor, JCRE Global University, Babupara, Imphal and Smt. Y. Tombisana Devi, Vice Principal, Model Higher Secondary School, Imphal were the Chief Guest, Guest of Honour and President of the Celebration, respectively.

In his speech, Dr. L. Minaketan Singh, Director, MASTEC, Imphal highlighted the objectives of celebration of National Mathematics Day and mentioned that the programme will motivate the young minds to choose Mathematics as one of the important subjects of science. Shri S. Jugeshwor Singh, Sr. Assistant Professor, JCRE Global University, Babupara, Imphal delivered a lecture on Life and Works of the great Indian mathematician, Srinivasa Ramanujan. Smt. Y. Tombisana Devi, Vice Principal, Model Higher Secondary School, Imphal expressed the benefits of organising such programmes and mentioned that we need to motivate the students that Mathematics has applications in many fields and therefore, we may choose Mathematics as a career. About 300 students and teachers participated in the Celebration.



Director, MASTEC addressing the Audience



A section of Participants in NMD 2023

2.2 Celebration of National Science Day 2024

Manipur Science & Technology Council in association with National Institute for Electronics and Information Technology (NIELIT), Akampat, Imphal organised a 1-day Celebration of National Science Day 2024 on February 28, 2024 at NIELIT, Akampat, Imphal. The programme was catalysed and supported by National Council for Science & Technology Communication (NCSTC), Department of Science & Technology, Government of India, New Delhi. The theme for National Science Day 2024 was **“Indigenous Technologies for Viksit Bharat.”**

The main features of the celebration were deliberation of lectures on the focal theme of National Science Day 2024. About 200 students and Teachers participated in the celebration. Prof. Sh. Dorendrajit Singh, Former Professor, Physics Dept., Manipur University, Imphal delivered a lecture on the focal theme and interacted with the student participants. The participants also took part, virtually, in the celebration of National Science Day Celebration 2024 at Vigyan Bhavan, New Delhi which was inaugurated by Hon’ble Union Minister (Science & Technology), Dr. Jitendra Singh.

2.2.1 *Science Carnival (Festival of Science)*

With the initiative of NCSTC, DST, Govt. of India, Manipur Science & Technology

Council, Imphal organised a weeklong Science Carnival or Festival of Science as a part of celebration of National Science Day 2024 during February 26 to March 3, 2024 at different schools/colleges in Manipur. The weeklong programme was organised in the form of lectures, demonstrations, hands on activities, interaction etc. under different themes for each day.

2.2.2 *Science Carnival on the theme “Science for Fitness”*

A lecture-cum-demonstration on “Yoga and Science” was organised on February 26, 2024 at the Training Hall of Manipur Science & Technology Council, Takyelpat, Imphal West District. A team of 3 yoga practitioners led by Shri N. Ganga Singh, Secretary National Yoga Association, Manipur Chapter conducted a lecture-cum-demonstration on various forms of yoga and explained the effect of each of the forms in healthcare. About 100 participants consisting of students, teachers and the general public participated in the programme.

2.2.3 *Science Carnival on the theme “Girls in Science”*

A lecture on the theme “Girls in Science” was delivered by Dr. Ch. Indira Devi, Lecturer, Johnston Higher Secondary School, Imphal on February 27, 2024 at Waikhom Mani Girls’ College, Thoubal District. The programme was jointly organised by Manipur Science & Technology Council, Imphal and IPR Cell, Waikhom Mani Girls’ College, Thoubal. Dr. Indira highlighted the roles played by Girls in the development of Science & Technology in India in particular and in the world at large. She also mentioned various schemes of DST, Govt. of India for girls/women and appealed to the participants to take advantage of the schemes for promotion of science in the country. About 200 students and teachers participated in the programme and interacted with the Resource Person.

2.2.4 *Science Carnival on the theme “Basic Science”*

A low-cost hands-on activity on Physics and Chemistry was conducted under the theme “Basic Science” on February 29, 2024 at St. George High School, Wangkhei, Imphal East. The programme was organised jointly by Manipur Science & Technology Council, Imphal and St. George High School, Wangkhei. Shri N. Shyamkishore Singh, Former Science Graduate Teacher, St. George High School, Wangkhei conducted about 30 different experiments of Physics and Chemistry. About 250 students and teachers participated in the programme.

2.2.5 *Science Carnival on the theme “New & Emerging Technologies including AI and Machine Learning”*

Manipur Science & Technology Council, Imphal in association with IPR Cell, Manipur Technical University (MTU), Takyelpat, Imphal organised a Science Carnival on the theme “New & Emerging Technologies including AI and Machine Learning” on March 1, 2024 at Manipur Technical University, Takyelpat, Imphal West District. Faculties of various Department of MTU viz., i) Computer Science & Engineering, ii) Electronics & Communication Engineering, iii) Civil Engineering, iv) Electrical Engineering, and v) Mechanical Engineering conducted lecture-cum-interaction sessions on applications of AI in various fields of Engineering. About 300 Engineering students participated in the programme.

2.2.6 *Science Carnival on the theme “Science with Fun”*

A hands-on activity on various subjects of science was conducted under the theme “Science with Fun” on March 2, 2024 at Kakching Khunou College, Umathel by Manipur Science & Technology Council, Imphal in association with Kakching Khunou College, Umathel, Kakching District. Dr. O. Arunkumari Devi, Lecturer, Lilong Higher Secondary School, Lilong and Shri N. Shyamkishore Singh, Former Science Graduate Teacher, St. George High School, Wangkhei conducted about 40 activities on learning science with fun.

2.2.7 *Science Carnival on the theme “Mission LiFE”*

Manipur Science & Technology Council, Imphal in association with IPR Cell, Mangolnganbi College, Ningthoukhong organised a science lecture under the theme “Mission LiFE” on March 3, 2024 at Mangolnganbi College, Ningthoukhong, Bishnupur District. Shri S. Jugeshwor Singh, Sr. Assistant Professor, JCRE Global University, Imphal delivered a lecture on the focal theme “Mission LiFE ” and interacted with the participants. About 200 students and teachers participated in the programme.



Resource Person delivering lecture on Focal Theme of NSD 2024



Science Carnival: Science for Fitness at MASTEC Complex, Takyelpat, Imphal



Science Carnival: Girls in Science at Waikhom Mani Girls' College, Thoubal



Science Carnival: Basic Science at St. George High School, Wangkhei, Imphal East



Science Carnival: New & Emerging Technologies including AI and Machine Learning at Manipur Technical University (MTU), Imphal West



Science Carnival: Science with Fun at Kakching Khunou College, Umathel, Kakching District



Science Carnival: Mission LiFE at Mangolnganbi College, Ningthoukhong, Bishnupur District

2.3 Science Motivational programme for Talented School Students of Manipur

India has made remarkable progress in the field of Science & Technology since independence. Many advanced research institutions like engineering institutions, industrial institutes, etc. have been established in the country. However, it has been observed in the last few decades, as highlighted in several forums by researchers and scientists, that the interest of students in basic sciences has declined considerably in India. In the hills and far-flung rural areas, the majority of the students, even though they are talented, are ignorant of taking science at the college level. One of the factors at the grass-roots level is perhaps the school-level education without basic science facilities and a lack of specialized science faculties, due to which science study cannot be made charming. In order to create awareness about the importance of science and to motivate school students to choose science as a career, some programmes involving exposure of students to research laboratories/institutions are required.

A 3-day Science Motivational Programme for School students was organized for the students staying in the relief camp during October 18-20, 2023 at Ideal Girls' College, Akampat, Imphal East. The programme was Inaugurated by Shri M. Yaiskul Meitei, IAS, Commissioner (Science & Technology), Govt. of Manipur as Chief Guest. Dr. L. Minaketan Singh, Director, Manipur Science & Technology Council (MASTEC), Imphal and Prof. Sh. Dorendrajit Singh, Former Professor, Physics Dept., Manipur University were the President and Guest of Honour of the Inaugural Function. Altogether, 23 students from different schools staying in the relief camp participated in the programme. The main objectives of the programme were:

- i) To create awareness about the importance of science and generate curiosity among the students.

- ii) To motivate the students to choose science as a career.
- iii) To make students aware of different fields of science in order to enable them to choose his/her right field.

An invited lecture on Chandrayan–III was delivered by Prof. Sh. Dorendrajit Singh, Former Professor in Physics, Manipur University and interacted with the student participants. On the last Day of the programme a Hands-on Activity on Grafting of Fruit and Flower plants was conducted by Ms. Amrita Thokchom, Scientist, Dept. of Horticulture, Central Agricultural University (CAU), Iroisemba, Imphal. The participants could learn different grafting methods on Mango, lemon, Roses (different varieties) etc.

During the 3-day programme, the participants were taken to five institutions in Manipur, viz., (i) the Institute of Bioresources & Sustainable Development (IBSD), Takyelpat, Imphal, (ii) Manipur Institute of Technology (MIT), Manipur University Campus, Canchipur, Imphal, (iii) CSIR-North East Institute of Science & Technology (NEIST), Lamphelpat, Imphal, (iv) Shija Academy of Health Sciences, Langol, Imphal, and (v) Central Agricultural University, Iroisemba, Imphal. During the said visits, scientists highlighted the activities being carried out in their respective institutions and interacted with the students. Further, the participants were taken to the research laboratories of the institutions and Research/Extension farms.

A session on face-to-face interaction with Scientists/Experts was also arranged during the 3-day Science Motivational Programme for School Students. Altogether 6 (six) Scientists/Experts from various R&D and Scientific Institutions namely: (i) Prof. Sh. Dorendrajit Singh, Former Professor, Physics Dept. of Manipur University (Physics Scientist/Expert); (ii) Prof. L. Nabachandra Singh, Agronomy Dept., College of Agriculture, Central Agricultural University, Iroisemba, Imphal (Agricultural Scientists/Expert); (iii) Prof. R.K. Bhupon Singh, Dept. of Chemistry, Manipur University (Chemistry Scientist/Expert); (iv) Dr. O. Joychandra Singh, Senior Faculty, Shija Academy of Health Sciences, Langol (Medical Scientist/Expert); (v) Dr. H. Birkumar Singh, Chief Scientist, CSIR-North East Institute of Science & Technology (NEIST), Lamphelpat, Imphal (Life Sciences Scientist/Expert), and (vi) Ms. Lairenjam Ithoi Chanu, Scientist, National Institute of Electronics & Information Technology (NIELIT), Akampat, Imphal (IT Scientist/Expert) interacted with the students in the programme. Students asked various questions from their syllabus as well as from outside the syllabus, and the scientists gave answers and explanations to their questions.

The 3-day Science Motivational Programme for Talented School Students was concluded on the 20th October 2023 with a closing function in which Shri M. Yaikul Meitei, IAS, Commissioner (Science & Technology), Govt. of Manipur was the Chief Guest and Dr. L. Minaketan Singh, Director, Manipur Science & Technology Council (MASTEC), Imphal was the President and all the Scientists/Experts of the face-to-face Interaction programme were the Guest of Honours. In his concluding remarks, Commissioner (Science & Technology), Govt. of Manipur mentioned the need for organizing such programmes. He also mentioned that students must be given the chance of choosing their own field of study after they complete class XII and this will be possible only when they have the thorough knowledge of all the fields of Science & Technology. He appealed to the students to take part in such programmes in the future and explore the knowledge from various fields interacting with Scientists/Experts. Participation certificates were also distributed to the participants in the closing function.



Inaugural Function of Science Motivational Programme for School Students



Visit to Institute of Bioresources & Sustainable Development (IBSD), Takyelpat, Imphal



Visit to Manipur Institute of Technology (MIT), M.U. Campus during Science Motivational Programme



Visit to CSIR-North East Institute of Science & Technology (NEIST), Branch Lab., Lamphelpat, Imphal



Visit to Central Agricultural University (CAU), Iroisemba during Science Motivational Programme



Visit to Mushroom Cultivation Research Laboratory of Central Agricultural University (CAU), Iroisemba



Visit to Shija Academy of Health Sciences, Langol During Science Motivational Programme



Hands on activities on Fruit & Flower Plant Grafting



Invited lecture on Chandrayan III



Face to Face Interaction with Scientists



Feedbacks from student participants



Distribution of participation Certificates

2.4 Popularization-cum-Demonstration of NIF Technologies

Manipur Science & Technology Council (MASTEC), Imphal has some technologies in the Technology Demonstration Centre, MASTEC, Takyelpat obtained from National Innovation Foundation (NIF). Some of the technologies are (i) Solar Operated Rice Puffing Machine; (ii) Corn Shelling Machine; (iii) Potato Harvester; (iv) Mini Dal Mill, and (v) Organic Manure making Machine etc. A 2-day Popularisation-cum-Demonstration of the NIF Technologies in the Technology Demonstration Centre, MASTEC, Takyelpat was organized for local Entrepreneurs and NGOs during March 19-20, 2024. The main objectives of the programme were to popularise the available NIF technologies and demonstrate the operation/functioning of the same to the local Entrepreneurs and NGOs so that they may in turn train the local farmers in the future.

Two Scientists from National Innovation Foundation (NIF), Dr. Vivek Kumar, Scientists 'F' and Dr. Nitin Maurya, Scientists 'E' with four Innovators from different parts of the country conducted training on operation and functioning of the above 5 technologies. Altogether 15 (fifteen) participants consisting of 2 local NGOs (5 members each) and 5 Entrepreneurs took part in the training programme.

The 2-day Popularisation-cum-Demonstration of NIF Technologies in Technology Demonstration Centre, MASTEC was concluded on the 20th March 2024. Dr. L. Minaketan Singh, Director, Manipur Science & Technology Council (MASTEC), Imphal, Dr. Vivek Kumar, Scientists 'F' and Dr. Nitin Maurya, Scientists 'E' NIF distributed participation certificates to the Trainees. In his concluding remarks, Director, MASTEC mentioned that MASTEC will arrange a similar training programme for farmers of the state in particular very shortly with the help of the Ex-Trainees so that farmers can avail the utility of the technologies in the actual field.



Demonstration of Mini Dal Mill



Demonstration of Organic Manure Making Machine



Demonstration of Solar Operated Rice Puffing Machine



Distribution of Participation Certificates

2.5 Popularization-cum-Demonstration of Technologies in Technology Demonstration Centre, MASTEC

Manipur Science & Technology Council (MASTEC), Imphal, has some technologies in the Technology Demonstration Centre, MASTEC, Takyelpat, obtained from various Institutions/organisations such as Bhabha Atomic Research Centre (BARC), Mumbai, National Innovation Foundation (NIF), New Delhi, etc. Some of the technologies are: (i) Soil Organic Carbon Detection Kit (SOCDK); (ii) Fluoride Detection Kit (FDK) for water; (iii) Vibro Thermal Disinfester (VTD) for seed preservation; (iv) Foldable Solar Dryer (FSD) for drying fruits and vegetables; (v) Membrane-based Ultra Filtration (UF) Technology for Water Filtration; (vi) Potato Harvester; (vii) Corn Shelling Machine; (viii) Solar Operated Rice Puffing Machine; (ix) Soy Milk Machine; and (x) Stabilized Mud Block Machine, etc. MASTEC has already organised two demonstration programmes for popularisation of some of the above technologies among the farmers of the state. Recently, some more technologies have been installed in the Technology Demonstration Centre, MASTEC. To make the local farmers aware of the available technologies, more demonstration programmes are needed to be organised. Therefore, MASTEC is organising such programmes for the benefit of farmers.

A 2-day Popularisation-cum-Demonstration of Technologies in Technology Demonstration Centre, MASTEC, Takyelpat, was organized for the farmers during January 30-31, 2024. The programme was inaugurated by Shri M. Yaiskul Meitei, IAS, Commissioner (Science & Technology), Govt. of Manipur, as Chief Guest. Dr. L. Minaketan Singh, Director, Manipur

Science & Technology Council (MASTEC), Imphal, and Shri M. Tonjao Singh, Food Technologist, were the President and Guest of Honour of the Inaugural Function. Altogether, 30 (thirty) farmers from all over the state are targeted for the programme. During the 2-day programme the functioning/operation of the technologies in the Centre as well as their applications in farming will be explained and demonstrated to the participants, followed by hands-on activities and interaction. The main objectives of the programme were

- i) To make aware and popularise the available technologies in MASTEC to the local farmers.
- ii) To demonstrate the technologies to the farmers so that they may utilise the suitable technologies in consultation with MASTEC.

During the 2-day programme demonstrations on preparation of milk from soya bean using Soy Milk Machine was conducted by Shri M. Tonjao Singh, Food Technologist assisted by Shri Ch. Ingobi Singh, Ex-trainee. About 15 litres of soymilk was prepared from 3 kgs of soya bean during the demonstration. Preparation of Soy Paneer was also demonstrated to the farmers.

A lecture-cum-demonstration on Organic Carbon Content Test in soil was also conducted with the help of Soil Organic Carbon Detection Kit (SOCDK) of Bhabha Atomic Research Centre, Mumbai. About 10 soil samples from different fields/farms/kitchen gardens were tested using the Test Kit. A demonstration on the quantity of fluoride present in the drinking water was conducted using the Fluoride Detection Kit (FDK) of Bhabha Atomic Research Centre, Mumbai. About 15 water samples collected by the participating farmers were tested during the programme. Hands-on activities on Soil Organic Carbon Content Test and Fluoride Detection in Water were carried out by the participants of their own after the demonstration session.

Demonstrations on Foldable Solar Dryer (FSD), Vibro Thermal Disinfester (VTD), UF Water Filtration Unit, Stabilised Mud Block Machine, Potato Harvester, Corn Shelling Machine, Solar Operated Rice Puffing Machine etc. were also conducted during the 2-day programme. A lecture on Intellectual Property Rights was delivered by Shri L. Surjit Singh, Patent Information Centre, MASTEC and interacted with the participants.

The 2-day Popularisation-cum-Demonstration of Technologies in Technology Demonstration Centre, MASTEC was concluded on the 31st January 2024. Dr. L. Minaketan Singh, Director, Manipur Science & Technology Council (MASTEC), Imphal and Other Officers of MASTEC distributed participation certificates to the farmers. In his concluding remarks, Director, MASTEC mentioned that there are some more useful technologies arriving soon. Farmers can avail the utility of all the available technologies with nominal payment. A group of farmers may organize soil and water testing programmes through local clubs/organizations where MASTEC may depute Technical Persons with the testing Kits.



Inaugural Function



A Section of Participants



Demonstration of Soymilk Machine



Demonstration of Vibro Thermal Disinfester (VTD) for seed preservation



Demonstration of Stabilised Mud Block Machine



Lecture-cum-Interaction on Intellectual Property Rights (IPR)



Fluoride Detection test for Drinking Water





Soil Organic Carbon Content Test



Demonstration on drying fruits & vegetables in Foldable Solar Dryer (FSD)



Feedback from participants



Distribution of Participation Certificates

2.6 Residential Training Workshop on Hands-on-Physics for Science Teachers of Hill Districts of Manipur

Manipur Science & Technology Council (MASTEC), Imphal in association with Vigyan Prasar (VP), Department of Science & Technology, Govt. of India, New Delhi organised a 3-day Residential Training Workshop on Hands-on-Physics for Science Teachers of Hill Districts of Manipur during April 10-12, 2023 at Youth Hostel, Khuman Lampak, Imphal. The programme is a part of the Vigyan Prasar funded project “Science Communication through workshops/camps, book publication and rebroadcast of radio serial.” The main objective of the programme is to impart training to science teachers of hill districts in carrying out scientific experiments using readily available low-cost materials so that they may, in turn, conduct the same activities at their schools while teaching science to the students. The programme was inaugurated by Shri M. Yaiskul Meitei, IAS, Commissioner (S&T), Govt. of Manipur in the presence of Dr. B.K. Tyagi, Scientist-F, Vigyan Prasar, DST, GoI, Shri Manish Kumar, National Awardee Teacher, Auraiya, UP, Shri N. Shyamkishore Singh, State Science Communicators Awardee, Manipur and Dr. L. Minaketan Singh, Director, MASTEC.



Dr. B.K. Tyagi conducting experiments

There were 30(thirty) science teachers from high and higher secondary schools of the hill districts of Manipur nominated by the Directorate of Education (S), Govt. of Manipur. During the three-day programme, 111 experiments based on force, light, sound/wave, electricity, motion, heat etc. have been demonstrated by the resource persons. At the end of each day, participants conducted/demonstrated experiments by themselves. Dr. Tyagi interacted with the participants by giving exercises and analysed their observations and then explained the findings to the participants.



Teacher participants doing activities

Valedictory and certificate distribution function was held in the evening of April 12, 2023. Each group demonstrated one experiment in front of the Commissioner (S&T), Govt. of Manipur Shri Manish Kumar, National Awardee Teacher, Auraiya, UP; Shri N. Shyamkishore Singh, State Science Communicators Awardee, Manipur and Dr. R.K. Pritamjit Singh, Scientific Officer, MASTEC & Prog-in-Charge. The programme concluded with the distribution of certificates by the dignitaries on dais.

2.7 Training workshop cum nature camp on understanding dynamics of nature including climate change

Manipur Science and Technology Council (MASTEC), Imphal and Vigyan Prasas, New Delhi with an aim to educate the children about the nature under a specific module developed by Department of Science and Technology, Government of India which comprise of songs, plays, games, field visits, lectures, interactions, field experiments and activities for nature study organised a district level training workshop cum nature camp on understanding dynamics of nature including climate change for the children of Bishnupur district during April 10 - 12, 2023 at Modern Higher Secondary School, Bishnupur. The camp was inaugurated by Smt. Homila Hongrei, Director, Science and Technology, Government of Manipur in presence of Shri Thokchom Raghumani Singh, DI, Directorate of Education (S), Government of Manipur, Shri L. Somarjit Singh, Former Head, Department of Botany, Imphal College, Imphal and Dr. H. Ghanashyam Singh, Principal, Modern Higher Secondary School, Bishnupur.

Altogether, 34 school students from Class VII - X of various schools of Bishnupur district participated in the 3 days programme. Three key resource persons namely Shri L. Somarjit Singh, Shri Kh. Manigopal Singh and Shri I. Sushilkanta Singh along with other 2 resource persons viz. Dr. L. Sanjoy Meitei, Asst. Prof., Department of Environmental Science, D.M. University, Imphal and Dr. M. Ingobi Singh, Asst. Prof., Zoology Dept., Mangolnganbi College, Ningthoukhong conducted the training workshop cum nature camp. On the 2nd day i.e. April 11, 2023, Dr. B.K. Tyagi, Consultant, Vigyan Prasas, New Delhi attended the whole session of the 2nd day. He gave a lecture on the topic "Symmetry in Nature" and interacted with the participants.

The Camp was concluded on April 12, 2023 with Dr. L. Minaketan Singh, Director, MASTEC, Shri L. Somarjit Singh, former Head, Botany Department, Imphal College and Dr. H. Ghanashyam Singh, Principal, Modern Higher Secondary School, Bishnupur as dignitaries on the dais of the closing function. During the concluding remarks, Director, MASTEC appealed to all

the participants to start working for nurturing the nature. A pledge taking ceremony was also held for conservation of the nature.

Activities and topics covered during the 3 days camps were –

- Identification and classification of animals;
- Identification and classification of plants;
- Biodiversity with special reference to endangered species of Manipur;
- Environmental pollution and climate change in Manipur;
- Nature web game, game of communication, interactions;
- Rate of transpiration, plant growth rate, green house, Kitchen gardening;
- Nature walk/field trip, sample collection, wet and dry preservation of specimen (animals and plants), herbarium making;
- Studying the parts and process of plants and animals. Microscopic observation of flowers, seeds and micro-organisms, slide preparation;
- Looking at small animals;
- Trace detection (bio degradable and non-degradable);
- Making of Fermicarium, Terrarium, mini aquarium;
- Physical nature of soil and water.

Photographs of Nature Camp



*Inaugural Function
(Bishnupur District Nature camp)*



*Dr. M. Ingobi Singh, Resource person delivering
lecture (Bishnupur District Nature camp)*



*Dr. B.K. Tyagi, Scientist, Vigyan Prasar delivering
lecture (Bishnupur District Nature camp)*



*Dr. L. Minaketan Singh, Director, MASTEC
interacting with participants
(Bishnupur District Nature camp)*



Group activities with L. Somarjit Singh, Resource person (Bishnupur district Nature camp)



Group activities with Kh. Manigopal Singh, Resource person (Bishnupur district Nature camp)



Field study tour (Bishnupur district Nature camp)



Dr. L. Sanjoy Meitei delivering lecture (Bishnupur district Nature camp)



Oath taking ceremony (Bishnupur district Nature camp)



Distribution of certificates (Bishnupur district Nature camp)

2.8 Millennium Science Lecture-2023:

The Millennium Science Lecture organized by the Manipur Science Communicators' Association (MASCA), Manipur is a regular lecture programme conducted every year on the **10th December** and the programme has been continuing since December 10, 1999. Every year on this remarkable day the Swedish Nobel committee distributes the Nobel prizes to the Nobel laureates of the respective years in recognition of their works and achievements for the human community.

On this day, Manipur Science Communicators' Association (MASCA) has been organizing

a series of lectures on the life time achievements and works of Sir Alfred Nobel and about the Nobel laureates (Chemistry, Physics and Medicine/Physiology) every year. The main objective of this lecture programme is to encourage the future generation specially the students of our society in the field of science by appreciating the works and achievements of the great minds so that the idea could be developed in the minds of young generation of the society.

It may be mentioned that the Nobel prize is the highest international award bestowed by the Swedish Nobel committee to those living personalities who have significantly contributed in the field of science, medicine, literature, economics and peace irrespective of their caste, religion, culture, colour or community, etc. as a mark of respect to the will of Alfred Bernhard Nobel, the inventor of dynamite, which he signed on the 27th November 1895 in Paris. At first, the committee instituted the famous prizes in Physics, chemistry, physiology or medicine, literature and peace which started from the year 1901. However, the prize in economics, as it is referred to by the Nobel Foundation, was established and endowed by Sverige Riksbank, Sweden's Central Bank, during 1968 on the Bank's 300th anniversary, in memory of Alfred Nobel's 1895 will. Like the Nobel Laureates in Chemistry and Physics, laureates in Economics are selected by the Royal Swedish Academy of Sciences, and a Prize committee similar to the Nobel committees was organised. It was first awarded in 1969 to the Dutch and Norwegian economists Jan Tinbergen and Ragnar Frisch, "for having developed and applied dynamic models for the analysis of economic processes".

Acknowledging the importance of the development of science and technology, the Manipur Science Communicators' Association (MASCA) has been continuing to organize this lecture programme since 1999 at various Institutes of Manipur. For the year 2023, the Manipur Science Communicators' Association (MASCA), Imphal organized the "Millenium Science Lecture - 2023" on the 10th December 2023 at Ratankumar Memorial (RM) School, Kwakeithel Heinoukhongnambi, Imphal in connection with the award of Nobel Prize – 2023 on Physics, Chemistry and Physiology/Medicine under the sponsorship of Manipur Science and Technology Council (MASTEC), Imphal.

The main aim of this programme (Lecture Series) is to encourage the future generation specially the students of our society in the field of science by appreciating the works and achievements of the great minds so that the idea could be developed in the minds of young generation of the society. Altogether 300 students of Class IX and X participated in the programme.

Dr. Chungkham Indira Devi, Lecturer, Department of Chemistry, Johnstone Higher Secondary School, Imphal. Dr. Ibetombi Soibam, Associate Professor & HOD, Department of Physics, National Institute of Technology (NIT), Manipur and Dr. Joymati Oinam, Associate Professor, Community Medicine, Jawaharlal Nehru Institute of Medical Sciences (JNIMS), Imphal delivered lectures on Nobel Prize winning topics of 2023 for Chemistry, Physics and Medicine respectively and interacted with the student participants.



Secretary Manipur Science Communicators' Association addressing the Audience



Lecture on Nobel Prize on Physiology or Medicine



Lecture on Nobel Prize on Physics



Lecture on Nobel Prize on Chemistry



Interaction session



Distribution of Incentives to participants

3.0 Awards administration

MASTEC has instituted awards & incentives to recognize the best efforts in the challenging domain of science Communication, popularization and innovation. MASTEC administers three awards namely, Dr. Ibeyaima Innovation Award, State Science Communicator Award and Dr. Pravabati Science Popularisation Award donated by Manipur Association of Canada (MAC), MASTEC & Pravabati Peace Foundation, Imphal respectively.

3.1 Dr. Ibeyaima Innovation Award

“Dr. Ibeyaima Innovation Award” was donated by the Manipur Association of Canada (MAC), based in Ontario, Canada in memory of its member (Late) Dr. Ibeyaima Devi. The Award is given biennially and designed for the individual (Scientist or Technologist or Entrepreneur or the like) or any organisation (academic or R&D organisation) for outstanding contributions towards scientific and technological innovations provided the innovation originated from establishments within the state of Manipur. The Award carries a cash prize of ₹ 20,000/-, a Memento and Citation. The Award is administered by MASTEC under the direction of a Trust chaired by the Member Secretary, MASTEC.

Since, this Award is given biennially, there was no prize distribution for the year 2023.

3.2 State Science Communicator Award 2023

The State Science Communicator Award was instituted by MASTEC in the year 2015 to recognize outstanding efforts and achievements in communicating science & technology and promoting scientific attitude among the people. Individuals who have made extraordinary contributions in the following area over the last three years are eligible to apply for the Award.

- i) Science Communication through Print Media (Newspaper).
- ii) Science Communication through Books/Publications.
- iii) Science Communication through Lectures/Science Communication Programme.

For this award, outstanding work, efforts, and achievements in the last three calendar years are considered. The value of the award is ₹ 10,000/- + Citation + Memento. Altogether, the following 8 (eight) candidates applied for the State Science Communicator Award 2023.

Sl. No.	Name & Designation	Institute/Organisation
1	Moirangthem Nganbarei Meetei Reporter	Sanaleibak Daily
2	Huidrom Prem Kumar Singh Science Graduate Teacher	Toupokpi High School, Chandel
3	Dr. Chingakham Brajakishor Singh Scientist 'D'	IBSD, Takyelpat, Imphal
4	Meitankeisangbam Thoithoi Singh Former Subject Matter Specialist (Plant Protection)	Krishi Vigyan Kendra, Thoubal
5	Sanjenbam Jugeshwor Singh Sr. Assistant Professor	JCRE Global College, Babupara, Imphal
6	Kosygin Leishangthem Assistant Professor	Manipur Technical University, Takyelpat
7	Adhikarimayum Gitchandra Sharma Programme Executive	Akash Bani (All India Radio), Imphal
8	Khomdram Surajbabu Meitei Science Supervisor (ZEO Ukhrul)	Dept. of Education (S), Govt. of Manipur

The awardee was selected from among the applicants by a selection committee chaired by the Member Secretary, MASTEC. The winner of the State Science Communicator Award 2023 was Dr. Meitankeisangbam Thoithoi Singh, Former Subject Matter Specialist (Plant Protection), Krishi Vigyan Kendra, Thoubal. The Award will be distributed on May 24, 2024, in the Closing and Prize Distribution Function of the 5-day continuing programme of Celebration of National Science Day 2024 to be organised by MASTEC during May 20–24, 2024, under the sponsorship of NCSTC, DST, Govt. of India.

3.3 Dr. Pravabati Science Popularisation Award 2023

Manipur Science & Technology Council (MASTEC), Imphal confers Dr. Pravabati Science Popularization Award from the year 2022. The Award has been donated by Pravabati Peace Garden Trust (PBPGT), Changangei Uchekon, Imphal. The Award carries ₹ 10,000/- in cash + Citation + Memento.

The Award is given to any individual/Science Popularization Activist or organization domiciled in Manipur for outstanding contributions in Science Popularization in the following areas in the previous 3 years.

- i) Science Popularization through Electronic Media (TV & Radio).

- ii) Science Popularization through lectures/hands on activities etc.
- iii) Guiding Students in the preparation of Science Models/Projects

Altogether 5 (five) candidates have applied for the Dr. Pravabati Science Popularization Award 2023. The Awardee was selected from among the applicants by a selection committee chaired by the Member Secretary MASTEC. The joint winners of the Dr. Pravabati Science Popularization Award 2023 were Shri Huidrom Prem Kumar Singh, Toupokpi High School, Chandel, and Shri Oinam Ranjit Singh, Oinam Govt. Hr. Sec. School, Oinam. The Award will be distributed on May 24, 2024, in the Closing and Prize Distribution function of the 5-day continuing programme of Celebration of National Science Day 2024 to be organised by MASTEC during May 20–24, 2024, under the sponsorship of NCSTC, DST, Govt. of India.



*Selection Committee meeting for
Dr. Pravabati Science Popularization Award 2023*

4.0 Participation in Science Congress/Science & Technology Conclave

MASTEC took part in the National Science & Technology Conclave, Science Festivals such as Indian Science Congress (ISC) and India International Science Festival (IISF) to showcase its activities every year.

4.1 9th Edition of Indian International Science Festival (IISF)

The 9th Edition of India International Science Festival (IISF) an initiative of Ministry of Science and Technology, Ministry of Earth Science of Government of India, Department of Space, Department of Atomic Energy and Vijnana Bharati was organized during January 17 – 20, 2024 at DBT THSTI-RCB Campus, NCR Biotech Science Cluster, Faridabad, Haryana on the theme “Science & Technology Public Outreach in Amrit Kaal”. The main objective of IISF is to commemorate the world of science, making it accessible to all.

Students Science Village, Face to Face with New Frontiers of Science & Technology, Science through Games & Toys, Students Innovation Festival - Space Hackathon, Vigyanika - Science Literature Festival, State S&T Ministers and Center and States S&T Secretaries and Officials’ Conclave, IISF Challenge, Education for Aspiring India - National Science Teachers Workshop, Young Scientists Conference, New Age Technology Show, National Social Organisations and Institutions Meet, Science, Technology, and Innovation Exhibition, Science & Technology Media and Communicators Conclave, Start-Up, Technology, and Innovation B to B Meet, Women Scientists and Entrepreneurs Conclave and Cultural Program were the main activities of the event.



A view of the IISF



Stall of MASTEC

Two officials of the council participated in the Mega Science Exhibition showcasing the activities of MASTEC through audio-visual and posters presentation, published book and also displayed the 7 (seven) registered GI products of the State – Shaphi Lanphi, Wangkhei Phee, Moirang Phijin, Kachai Lemon, Tamenglong Orange, Hathei Chilly and Chak-Hao to the visitors.

5.0 Projects

MASTEC implemented projects/local specific programmes funded by central agencies/ departments and state governments for different target groups/beneficiaries. The following were the projects implemented during 2022-2023.

5.1 8 Days Residential Skill Development Training Programme on Food Processing

Manipur Science and Technology Council (MASTEC), Imphal, with the aim of providing employment opportunities to the displaced people of the ongoing ethnic conflict between two communities of the state, organized a skill development training programme on food processing for the women inmates of the Relief Camp at Ideal Girls' College, Akampat, Imphal East, with the support of the Department of Science and Technology, Government of Manipur. The training programme has been organized in two batches at the Relief Camp.

The 1st batch training programme was organised during August 22–25, 2023, at the Relief Camp at Ideal Girls' College, Akampat, Imphal East. It was inaugurated on August 22, 2023, with Shri M. Yaikul Meitei (IAS), Commissioner (S&T), Government of Manipur, as the Chief Guest, Dr. Th. Tylananda Singh, Co-ordinator, Akampat Relief Camp, and Shri M. Tonjao Singh, Food Technologist, as the Guests of Honour, and Dr. L. Minaketan Singh, Director, Manipur Science and Technology Council (MASTEC), presided over the inaugural function. Thirty (30) inmates (women) from Moreh and Churachandpur districts identified by the Coordinator of the Relief Camp took part in the 1st batch of training. The list of trainees is as follows:

List of Participants for the 1st Batch of the Skill Development Training Programme on Food Processing August 22 – 25, 2023

Sl. No.	Name	Address
1	Maibam Kamala Devi	Singjamei Wangma Kshetri Leikai, Imphal East
2.	Huiningshumbam Ibecha Devi	Moreh Ward No.8, Tengnoupal District
3.	Mayanglambam Mani Devi	Kakching Khunyai Leikai, Kakching District
4.	Ningthoujam Roni	Churachandpur, Churachandpur District

5.	Naorem Eliza Devi	Awang Sekmai, Imphal West District
6.	Naorem Sakila Devi	Moreh Ward No.7, Tengnoupal District
7	Sapam Sana Devi	Moreh Ward No.9, Tengnoupal District
8	Chandam Premilata Devi	Singjamei Wangma Kshetri Leikai, Imphal East
9	Ningombam Medona	Singjamei Wangma Kshetri Leikai, Imphal East
10	Kiyam Linthoi Chanu	Churachandpur, Churachandpur District
11	Kshetrimayum Priya	Singjamei Wangma Kshetri Leikai, Imphal East
12	Huidrom Romibala	Churachandpur, Churachandpur District
13	Thokchom Sanahanbi Devi	Moreh Ward No.9, Tengnoupal District
14	Sorokhaibam Sanahal Devi	Moreh Ward No.9, Tengnoupal District
15	Keisham Ongbi Thajamanbi	Churachandpur, Churachandpur District
16	Soibam Rangita Chanu	Moreh Ward No.7, Tengnoupal District
17	Kiyam Ngangcha Devi	Churachandpur, Churachandpur District
18	Ashem Mombika Leima	Moreh Ward No.9, Tengnoupal District
19	Laishram Ranjita Devi	Churachandpur, Churachandpur District
20	Yengkokpam Soniya Devi	Khekman Makha Leikai, Thoubal District
21	Thangjam Melody Devi	Moreh Ward No.6 Tali Road, Tengnoupal District
22	Ningthoujam Uirei Devi	Moreh Ward No.7, Tengnoupal District
23	Okram Premika Leima	Moreh Ward No.7, Tengnoupal District
24	Sarangthem Matouleibi Devi	Moreh Ward No.7, Tengnoupal District
25	Konsam Somoni	Moreh Ward No.7, Tengnoupal District
26	Kshetrimayum Pakpi	Moreh Ward No.7, Tengnoupal District
27	Mutum Piyanu Devi	Moreh Ward No.7, Tengnoupal District
28	Elangbam Abem	Hiyanglam, Kakching District
29	Oinam Thoinu	Moreh Ward No.7 Heinou Makhong, Tengnoupal District
30	S. Naobicha Devi	Moreh Ward No. 7, Tengnoupal District

The training programme covered both theory and practical classes on various aspects of food processing. Shri M. Tonjao Singh, Chief Instructor, took three theory classes on the topics: 1. food safety and their impacts on health, including food additives; 2. preparation of different types of food products; and 3. different methods of food preservation and processing. Dr. Nongalei Pebam, Food Safety Officer, State Health Services, Govt. of Manipur, also delivered a lecture on the topic “Licencing and Registration under the Food Safety and Standard Act 2006.”

Practical classes were conducted by the Chief Instructor and the Assistant Instructor, Shri M. Tonjao Singh and Miss T. Gyaneshwori Devi, respectively, and during the course, the preparation of various food items was demonstrated, and the trainees prepared 17 food items during the course of the training. The items prepared were:

- | | |
|---------------------------|---------------------|
| 1. Fish Pickle | 6. Ginger Candy |
| 2. Chicken Pickle | 7. Pineapple Squash |
| 3. Mixed Vegetable Pickle | 8. Chakhao Rasgula |
| 4. Bamboo shoot pickle | 9. White Rasgula |
| 5. Tuti Frutti | 10. Chakhao Cake |

11. White Cake
12. Vanilla flavoured
13. Doughnut
14. Amla Pickle

15. Paneer
16. Tomato Chutney
17. Fried Flake Rice

The 1st batch training programme was concluded on August 25, 2023, with a function attended by Dr. L. Minaketan Singh, Director, MASTEC.

The 2nd batch training programme was organised from August 29–September 1, 2023, at the Relief Camp at Ideal Girls' College, Akampat, Imphal East. It was inaugurated on August 29, 2023, with Shri M. Yaiskul Meitei (IAS), Commissioner (S&T), Government of Manipur, as the Chief Guest, and Dr. L. Minaketan Singh, Director, Manipur Science and Technology Council (MASTEC), presided over the inaugural function. Shri M. Tonjao Singh, Food Technologist, and Dr. Th. Tilananda Singh, Co-ordinator, Akampat Relief Camp, also shared the dais of the inaugural function. Thirty-three (33) women inmates from Moreh and Churachandpur districts identified by the Coordinator of the Relief Camp attended the 2nd batch of training. List of trainees is given below.

**List of the Participants for 2nd batch
the Skill development training programme on Food Processing
August 29 – September 1, 2023.**

Sl. No.	Name	Address
1	Reshma Elangbam	Moreh Ward No. 7, Tengnoupal District
2	Pinky Laishram	Moreh Ward No. 7, Tengnoupal District
3	Thangjam Naobi Leima	Moreh Ward No. 7, Tengnoupal District
4	Heirom Ritu Devi	Moreh Ward No. 8, Tengnoupal District
5	Ngangom Bishoshanti Devi	Moreh Ward No. 6, Tengnoupal District
6	Soibam Preety Leima	Moreh Ward No. 7, Tengnoupal District
7	Laishram Ranjita Leima	Moreh Ward No. 7, Tengnoupal District
8	Thangjam Renu Devi	Moreh Ward No. 6, Tengnoupal District
9	Thokchom Surmala	Moreh Ward No. 9, Tengnoupal District
10	Th. Bemcha Devi	Churachandpur, Churachandpur District
11	Naorem Memcha	Moreh Ward No. 9, Tengnoupal District
12	T. Tamubi Devi	Moreh Ward No. 7, Tengnoupal District
13	Sougaijam Tamphasana	Moreh Ward No. 3, Tengnoupal District
14	Moirangthem Abethoi Chanu	Moreh Heinoumakhong, Ward No. 7, Tengnoupal District
15	Moirangthem Manithoi Chanu	Moreh Heinoumakhong, Ward No. 7, Tengnoupal District
16	Khumanthem Thoibi Devi	Moreh Turel Wangma, Ward No. 7, Tengnoupal District
17	Seleibam Roshibina Devi	Moreh Turel Wangma, Ward No. 7, Tengnoupal District
18	Chingtham Amubi	Moreh Bazar, Ward No. 6, Tengnoupal District
19	Khumanthem Naobi	Churachandpur, Churachandpur District

Sl. No.	Name	Address
20	Ningthoujam Ashalata	Moreh Khunou, Ward No. 9, Tengnoupal District
21	Ph. Sonia Devi	Churachandpur, Churachandpur District
22	Laxmi Athokpam	Churachandpur, Churachandpur District
23	Yangambam Roshni	Churachandpur, Churachandpur District
24	Maibam Devika	Churachandpur, Churachandpur District
25	Kongbrailatpam Renu Devi	Singjamei Wangma Kshetri Leikai, Imphal East District
26	Khuraijam Shadhana	Singjamei Wangma Kshetri Leikai, Imphal East District
27	Laishram Bibika Devi	Singjamei Wangma Kshetri Leikai, Imphal East District
28	Maibam Kamala Devi	Singjamei Wangma Kshetri Leikai, Imphal East District
29	Chandam Premilata Devi	Singjamei Wangma Kshetri Leikai, Imphal East District
30	Ningombam Medona	Singjamei Wangma Kshetri Leikai, Imphal East District
31	Soram Ongbi Ashalata Devi	Singjamei Wangma Kshetri Leikai, Imphal East District
32	Ksh. Priya Leima	Singjamei Wangma Kshetri Leikai, Imphal East District
33	O. Urmila Devi	Singjamei Wangma Kshetri Leikai, Imphal East District

The training covered both theory and practical classes on various aspects of food processing. During the training course, Shri M. Tonjao Singh, Chief Instructor, and Miss T. Gyaneshwori Devi, Assistant Instructor, took practical classes on the preparation of various food items, and the trainees prepared 13 food items during the course of the training. The items prepared were:

- | | |
|---------------------|--------------------------|
| 1. Wild apple candy | 8. Mix Fruit Jam |
| 2. Amla Candy | 9. Fish Pickle |
| 3. Pineapple Candy | 10. Chicken Pickle |
| 4. Pineapple RTS | 11. Green Chilli Pickle |
| 5. Pineapple Squash | 12. Tomato Ketchup |
| 6. Mango Squash | 13. Passion Fruit Squash |
| 7. Mango RTS | |

The 2nd batch training programme was concluded on September 1, 2023, with Shri Th Biswajit Singh, Hon'ble Minister, Science and Technology, Manipur, as the Chief Guest, Shri M. Yaiskul Meitei, Commissioner, Science and Technology, Government of Manipur, as the Guest of Honour, and Dr. L. Minaketan Singh, Director, Manipur Science and Technology Council, as the President of the closing function.

In his concluding remarks, Shri Th. Biswajit Singh, Hon'ble Minister, said that the 2 (two) skill development training programmes were organised to improve the financial condition of the inmates at Ideal Girls' College relief camp. Terming the programme, a grand success, he said that

the 63 inmates who participated in the programmes are now able to produce varieties of food items, including fruit juice, fruit candy, cake, vegetable pickles, chicken pickles, fish pickles, juice, squash, etc. In order to support the inmates' economy, he asked people to attend the relief camp and purchase the food products they are selling. He also assured that a mobile repair programme will be launched very soon for the youth of the state under the Department of Science & Technology. The Hon'ble Minister (S&T) and Commissioner (S&T) were very happy to see the various food items displayed on the concluding day, which were prepared by the trainees of the training programmes.

5.2 Technology Demonstration Centre

Manipur Science & Technology Council (MASTEC), Imphal is attempting to set up a Technology Demonstration and Dissemination Centre at its office campus. With signing an MOU between MASTEC and Bhabha Atomic Research Centre (BARC), Mumbai, some DAE Technologies given below have been installed for display and demonstration to the local entrepreneurs, farmers and individuals.

- | | |
|--|--|
| i) Tissue Culture Facility | v) On-line Domestic Water Purifier based on ultrafiltration polysulfone membrane (DWP) |
| ii) Soil Organic carbon Detection Kit (SOC DK) | vi) Fluoride Detection Kit for Ground water (FDK) |
| iii) Foldable Solar Dryer (25 Kg capacity) | |
| iv) Vibro Thermal Disinfector (VTD) (5 Kg/hr capacity) | |

As part of collaboration and also to popularize NIF promoted technologies as well as to improve MASTEC's Technology Centre, we have received some technologies given below from by National Innovation Foundation (NIF), DST, GoI for display and dissemination to the local farmers in the state. Some installed NIF technologies, along with the names of their innovators, are on display for demonstration and are enumerated below:

- i) Multipurpose food processing machine: Shri Dharamveer Kamboj
- ii) Mini Dal Mill: Shri Bharat Chandra Raut
- iii) Organic Manure Machine: Shri Bharat Chandra Raut
- iv) Potato Harvester: Shri Suraj Kumar
- v) Corn Shelling Machine: Shri Vishwanath Vishwakarma
- vi) Solar Operated Rice Puffing Machine: Madhuri Das Adhikari

The Innovative products which have been recognized by giving the Dr. Ibeyaima Innovation Award have been kept in the centre.

5.3 Patent Information Centre

Today, Intellectual Property Rights (IPR) play a key role in gaining an advantageous position in the competitive technological game for economic growth. India enjoys a large asset of R&D personnel and infrastructural facilities. Scientists and policy makers need more information, orientation and facilities for protecting the products of intellectual prowess of Indian scientists. As a step in this direction, a single window Patent Facilitating Centre (PFC), was created by the Department of Science & Technology (DST) at the Technology Information, Forecasting and

Assessment Council (TIFAC), an autonomous body under DST in June 1995 with the following objectives:


1. Introduce patent information as a vital input in the process of promotion of R&D programmes.
2. Provide patenting facilities to scientists and technologists in the country for Indian and foreign patents on a sustained basis.
3. Keep a watch on developments in the area of IPR and make important issues known to policy makers, scientists, industry etc.
4. Create awareness and understanding relating to patents and the challenges and opportunities in this area including arranging of workshops, seminars, conferences etc.

5.3.1 *IP searches done: 05*

The IP search for the items were made for the following items:



- Banana Peel tea
- Centella Asiatica PERUK tea methodology thereof
- Development process of probiotic products
- Lemon tea methodology thereof
- Sidayai Nadayai

5.3.2 *Patent granted: 01*

SL. No.	Title	Representation	Patent No.	Date of grant
1	A percussion instrument		504286	29/01/2024

5.3.3 *Trade Mark Registration:*

The applications received for filing for Trade Mark registration, publication in journal and the status for registration process are furnished below:

Sl. No.	Name of TM	Application/Registration No.	Class	Status	Publication No.	Dated of Filed/Publication/Registration
1.	Sidayai Nadayai	6228010	30	Filed	--	20/12/2023
2.	Mukta Shoes	5767458	25	Journal Published	2106	29/05/2023
3.	Sidayai Nadayai	6228010	30	Journal Published	2137	01/01/2024
4.	DEVIC E 	5517885	3	Registered	--	06/07/2023
5.	NUJA 	5558436	32	Registered	--	01/08/2023
6.	MUKTA SHOES	5767458	25	Registered	--	14/10/2023

5.3.4 *Design Registration:*


Design Publication: 01

- i. Fragrance and flavours extractor

Application No.: 373068-001

Journal No. and Date: 37/2023 & 15/09/2023

Design Registered: 01

SL. No.	Name of Design	Design No	Date of Registration	Representation
1	Fragrance and flavours extractor	373068-001	12/09/2023	

5.3.5 *Workshops/Awareness programme*

1. World Intellectual Property Day 2023 was observed on 26th April 2023 under the theme “**Women and IP: Accelerating Innovation and Creativity**” organized by Patent Information Centre (PIC), Manipur Science & Technology Council, Imphal in association Ideal Girls College, Akampat Imphal. The main objective of the workshop was to create awareness about IPRs among the intellectuals, entrepreneurs, students and individuals etc. Dr. R. K. Pritamjit Singh, Scientific Officer, MASTEC and Dr. Binarani Devi, Principal, Ideal Girls College were attended the observation function as dignitaries. Shri. L. Surjit Singh of PIC, Manipur delivered lecture and interacting with the students about IPR as a resource person. About 60 participants including teachers, students from the Institute and interested individuals were attended.
2. IPR Cell, MTU organized a Poster Painting Competition on April 26, 2023 in connection with the celebration of World Intellectual Property Day – 2023 on the theme “Women and IP: Accelerating Innovation and Creativity.” 30 students of different departments of MTU participated the competition.



3. As a part of weeklong nationwide programme for celebration of National Science Day 2024, IPR-Cell, Manipur Technical University (MTU) in association with IIC-MTU and PIC-Manipur, Imphal, successfully organised a one-day lecture on “*IPR and AI/Machine Learning*” on March 1, 2024 at MTU, Imphal. About 50 students and

faculty members of the institute attended the programme. The details of speakers and topics delivered are:

Sl. No.	Name of the Speaker	Topic
1.	Dr. R. K. Pritamjit Singh, Scientific Officer, MASTEC	An overview of IPR in Engineering
2.	Hanjabam Saratchandra Sharma, HOD, Department of Computer Science and Engineering, MTU.	New and Emerging Technologies in AI and Machine Learning
3.	Dr. N. Dhanachandra Singh, Department of Electrical Engineering, MTU	Application of AI/ML in Electrical Engineering
4.	Th. Rajkumari Chanu, Department of Electronics and Communication Engineering, MTU	Application of AI/ML in Electronics and Communication Engineering
5.	Devasis Laishram, Department of Civil Engineering, MTU	Application of AI/ML in Civil Engineering
6.	Dr. Kh. Gopal Krishna Singh, Department of Mechanical Engineering, MTU	Application of AI/ML in Mechanical Engineering

4. As a part of weeklong nationwide programme for celebration of National Science Day 2024, IPR-Cell, Waikhom Mani Girls College, Thoubal in association with PIC-Manipur, Imphal organised a one-day lecture on “IPR and Girls in Science” on February 127, 2024 at Waikhom Mani Girls College, Thoubal, Imphal. About 60 students and faculty members of the institute attended the programme. The details of speakers and topics delivered are:

Sl. No.	Name of the Speaker	Topic
1.	Dr. R. K. Pritamjit Singh Scientific Officer, MASTEC	An overview of IPR
2.	Dr. Ch. Indira Devi Johnston Higher Secondary, School	Girls in Science

5. As a part of the weeklong nationwide programme for celebration of National Science Day 2024, IPR-Cell, Mangolnganbi College, Ningthoukhong in association with PIC-Manipur, Imphal organised a one-day lecture on “Mission LiFE” on 3rd March 2024 at Atal Tinkering Hall, Mangolnganbi College Campus. About 40 students and faculty members of the institute attended the programme. The details of speakers and topics delivered are:

Sl. No.	Name of the Speaker	Topic
1.	Dr. R. K. Pritamjit Singh Scientific Officer, MASTEC	An overview of IPR
2.	Sanjenbam Jugeshwor Singh JCRE Global College	Mission LiFE

6. IPRs disseminated and programme organised by PIC-Manipur and IPR Cells: 11

Sl. No.	Name of Awareness programme & Venue	Organised By	Date	Resource Person
1	One day IPR awareness programme at Kumbi College	PIC, Manipur & IQAC, Kumbi College	24-04-2023	Dr. R.K. Pritamjit Singh, Scientific Officer, MASTEC
2	Poster Painting Competition	IPR-Cell, MTU	26-04-2023	-
3	One day IPR awareness programme at Ideal Girls College, Akampat	PIC, Manipur & IQAC, Ideal College	26-04-2023	L. Surjit Singh PIC, Manipur
4	Two days Popularization cum Demonstration of Technology	MASTEC	31-01-2024	L. Surjit Singh PIC, Manipur
5	Two days National Seminar on IPR	School of Life Sciences, Manipur University	March 28 to 29, 2024	L. Surjit Singh PIC, Manipur
6	One day workshop on IPR and Girls in Science	IPR-Cell Waikhom Mani Girls College, Thoubal	27-02-2024	Dr. R.K. Pritamjit Singh, Scientific Officer, MASTEC
7	One day workshop on IPR and AI/Machine Learning	IPR-Cell MTU	01-03-2024	Dr. R.K. Pritamjit Singh, Scientific Officer, MASTEC
8	One day workshop on Mission Life	IPR-Cell Mangolnganbi College, Ningthoukhong	03-03-2024	Dr. R.K. Pritamjit Singh, Scientific Officer, MASTEC
9	Lecture Program on Intellectual Property Rights for the students of 4th year undergraduate	IPR-Cell Waikhom Mani Girls College, Thoubal	31-01-2024	Dr. H. Pushparani Devi IPR-Cell, Waikhom Manipur Girls College, Thoubal
10	Lecture Program on Intellectual Property Rights for the students of 4th year undergraduate	IPR-Cell Waikhom Mani Girls College, Thoubal	30-01-2024	Dr. H. Pushparani Devi IPR-Cell, Waikhom Manipur Girls College, Thoubal
11	An awareness program on “Intellectual Property Rights”	IPR-Cell Mangolnganbi College, Ningthoukhong	31-01-2024	Dr. Kh. Herojit Singh, IPR-Cell Mangolnganbi college

7. Meeting/Training Attended: 04

Sl. No.	Name of Training/Meeting	Organised By	Date	Official
1	Unlocking Intellectual Property Rights	Manipur Technical Innovation Hub	November 29, 2023	L. Surjit Singh PIC, Manipur
2	Advanced Training Course on IPR	TIFAC, DST, New Delhi	December 11 to 15, 2023	Dr. R.K. Pritamjit Singh Scientific Officer, MASTEC
3	Intellectual Property Awareness/Training Program under National Intellectual Property Awareness Mission	Indian Patent Office,	January 11, 2024	Dr. H. Pushparani Devi IPR-Cell, Waikhom Manipur Girls College, Thoubal
4	One Week Faculty Development Program on Intellectual Property Rights	Department of Biotechnology and IQAC, Kamakhya Pemton College, Hiyangthang	January 10 – 16, 2024	Dr. H. Pushparani Devi IPR-Cell, Waikhom Manipur Girls College, Thoubal

5.4 Manipur Science Aquarium

The first aquarium display was opened to the public in 1853 at Regent's Park in London and followed by Berlin, Naples, and Paris. Nowadays, hobbyists could keep fish as well as corals etc. in aquarium successfully. The Greek philosopher Aristotle (384-322 B.C.) started documenting the science of fish by studying their structure and other characteristics. He carefully recorded accurate information on 115 species of fish. Today, scientists have classified more than 20,000 species of fish around the world. The world's best aquarium is in San Francisco.

Manipur Science and Technology Council (MASTEC), Imphal with the support of Department of Higher Education, Govt. of Manipur established the one and only Centre of the state - Manipur Science Aquarium in the premises of D.M. College Campus, Imphal and it was inaugurated on 31st March 2011. But now this Centre is maintained by MASTEC with the support of Department of Science & Technology, Govt. of Manipur. The centre is open on all working days for the general public.



Study tour at Manipur Science Aquarium

Apart from the normal visitors, students and faculty members of various institutions of the state also visited the Centre for their academic purposes. Officials of the Centre

demonstrate and explain the scientific aspects - such as physio-chemical parameters, classification, food and feeding, breeding habits, diseases, behaviour, etc. of different fish species (exotic and indigenous) available in the centre.

5.4.1 *Organised Visits by Academic Institutions:*

Sl. No.	Name of Institution	Participants	Date of Visit
1	Moirang College, Moirang	Faculty members& Students	03/05/2023
2	Imphal College	Faculty members & Students	30/11/2023
3	D M College of Science	Faculty members& Students	14/12/2023
4	Kamakhya Pemton College	Faculty members & Students	15/01/2024
5	T S Paul Manipur Women's College	Faculty members & Students	20/03/2024
6	D M College of Science	Faculty members& Students	28/03/2024

5.4.2 *8th State Level Aquarium Exhibition-cum-Flower Show & Training Workshop on Fabrication of Aquarium and Floriculture for Individuals/Inmates of Relief Camps*

After the successful organizations in the year 2012, 2014, 2015, 2016, 2018, 2019 and 2022 the 8th State Level Aquarium Exhibition-cum-Flower Show & Training Workshop on Fabrication of Aquarium and Floriculture for Individuals/Inmates of Relief Camps were organized during November 21–27, 2023 at Manipur Science Aquarium, D. M. University Campus, Imphal in association with 9 aquarium and 7 floriculture entrepreneurs.

During the exhibition, Manipur Science Aquarium along with the 13 local entrepreneurs displayed around 20 local and 60 exotic fish species. The local indigenous fishes were collected from different water bodies of the state including hill streams. Many of these fishes are in the export list of fresh water ornamental fishes of India, published by the Marine Products Export Development Authority (MPEDA), under the Ministry of Commerce and Industry, Govt. of India.

There were 7 exhibitors for floriculture section. This year, 140 flower/plant species, 35 locally available indigenous plants, 65 bonsai plants of different styles and dry ornamental items made from used cocoons were exhibited/displayed. They also exhibited a wide range of design, size, made of different material flower pots, various design of garden tools, medicines, plant hormones, insecticides and both inorganic and organic fertilizers.



Shri Th. Biswajit Singh, Minister (S&T), Manipur Inaugurating the Exhibition



Stalls at the Exhibition



Training workshop on fabrication of aquarium

Handmade items made by the IDP (Internally Displaced People) staying at different relief camps were also exhibited for sale at 12 stalls. Different food items, detergents, chappals, cloths, mora (bamboo stool) etc. were the main items of the exhibition. Training workshop on fabrication of aquarium and floriculture for individuals/IDP in the relief camps were also conducted during November 21-24, 2024. During these 4 days, 121 individuals have been trained the making of aquarium tanks and its management and different techniques of floriculture such as grafting, budding, nursery preparation etc.

On an average 300 visitor per day - students and teachers of various schools, officials of different government departments, research scholars and general public were visited during the 7-day long exhibition.

5.4.3 Spot Painting Competitions

As a part of the exhibition, on November 26, 2023 Spot Painting Competitions in three categories - Sub-Junior (Class III-V), Junior (Class VI-VIII) and Senior (Class IX-X) students were organised at the programme venue. This year 180 students including students staying at the relief camps participated in the competitions. The themes of the three categories were – Draw your favourite Flower or Draw your favourite Fish; A benefit of Aquarium or A model of gardening and Role of Aquarium in modern living or Gardening using waste management respectively. The results are;

5.4.4 Sub-Junior Category (Class III-V)

Position	Name of the Student	Class	Name of the School
First	Sanahen Oinam	V	Pitambara English School
Second	Thiyam Roshita Devi	III	R. K. Sanatombi Devi Vidyalaya
Third	Yumnam Tomtheen Nganba	IV	St. Joshep's Hr. Sec. School
Fourth	Sagolsem Pural Mangang	III	St. George High School, Wangkhei
Fifth	Jairus Gurumayum	V	Assam Rifles Public School

5.4.5 Junior Category (Class VI-VIII)

Position	Name of the Student	Class	Name of the School
First	Seram Jairaj Meitei	VII	Nongpok Maheikol
Second	Angela Heikrujam	VIII	Kendriya Vidyalaya No. 1, Imphal
Third	Brikrama Lourembam	VII	The Comprehensive School, Oinam
Fourth	Nongmaithem Korounganba	VI	Heritage Convent

Fifth	Thiyam Jesina Devi	VIII	R. K. Sanatombi Devi Vidyalaya
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5.4.6 Senior Category (Class IX-X)

Position	Name of the Student	Class	Name of the School
First	Lanleiba Sinam	X	The Ramakrishna Mission School, Imphal
Second	Ningombam Priscilla	IX	Kendriya Vidyalaya No. 3, Leimakhong
Third	Julian Loitongbam	X	Kendriya Vidyalaya No. 2, Langjing
Fourth	Angom Tonish	IX	Jawaharlal Navodaya Vidyalaya, Khumbong
Fifth	Preetybala Laishram	IX	Paree Imom Sindam Sang, Langjing

6.0 Science & Technology conclave/Official visits/workshops/Meetings attended

1. **Dr. L. Minaketan Singh, Director**, attended the following meetings:

Sl. No.	Meetings/Trainings	Sponsored Organisation	Period
1.	Annual Meeting of State S&T Councils at IITB, Mumbai	Department of Science and Technology, GoI	September 12-13, 2023
2.	9 th India International Science Festival (IISF) at DBT THSTI-RCB Campus, NCR Biotech Science Cluster, Faridabad, Haryana	Ministry of Science and Technology and Ministry of Earth Sciences, GoI	January 17-20, 2024

2. **Dr. Kh. Rakesh, Senior Scientific Officer**, attended the Project evaluation Meeting of DBT, GOI on November 24, 2023 through video conferencing and presented the proposed MASTEC – IBSD joint venture project titled “Sustainable utilisation of bioresources towards bio-entrepreneurship and socio-economic development in Manipur.”

3. **Shri Ch. Sarat Singh, Scientific Officer**, attended the following meetings:

Date	Place of visit	Purpose
08/01/2024	Online	Meeting of NCSTC, DST, Govt. of India on Celebration of National Science Day 2024
31/01/2024	Online	Meeting of NCSTC, DST, Govt. of India on Launching of Theme for Celebration of National Science Day 2024
06/02/2024	Online	Launching of theme for Celebration of National Science Day 2024 by Hon’ble Union Minister (S&T) at National Media Centre, New Delhi.

4. **Dr. R.K. Pritamjit Singh, Scientific Officer**, attended the following meeting:

Sl. No.	Meetings/Trainings	Sponsored Organisation	Period
1.	Annual Meeting of State S&T Councils at IITB, Mumbai	Department of Science and Technology, GoI	September 12-13, 2023
2.	Advanced Training Course on Intellectual Property Rights at IIT, Delhi, New Delhi	TIFAC, DST, GoI and Sharda University, New Delhi	December 11-15, 2023
3.	9 th India International Science Festival (IISF) at DBT THSTI-RCB Campus, NCR Biotech Science Cluster, Faridabad, Haryana	Ministry of Science and Technology and Ministry of Earth Sciences, GoI	January 17-20, 2024

7.0 Scientists who visited MASTEC during 2023-24

Date	Name of Scientists	Purpose
31/10/2023	Dr. Nitin Maurya, Scientist & Head, Dissemination & Social Diffusion Dept., National Innovation Foundation India (NIF India), Dehradun Cell, Guwahati Cell and J&K Cell	Meeting with MASTEC Officers regarding dispatch and Installation of NIF supported Technologies at Tech Demo Centre, MASTEC, Takyelpat, Imphal.
19/03/2024 to 20/03/2024	Dr. Vivek Kumar, Scientist 'F', Senior Innovation Officer and Coordinator Eastern Region, National Innovation Foundation India	2-day popularisation-cum-demonstration of NIF supported technologies at Tech Demo Centre, MASTEC, Takyelpat, Imphal
April 10-12, 2023	Dr. B.K. Tyagi, Scientist-F, Vigyan Prasar, DST, GoI	Workshop on Hands-on-Physics for Science Teachers of Hill Districts of Manipur
April 10-12, 2023	Shri Manish Kumar, National Awardee, Auraiya, UP	Workshop on Hands-on-Physics for Science Teachers of Hill Districts of Manipur

8.0 Library

MASTEC has made a modest attempt to build up its own library. There is a collection of about five hundred volumes of various disciplines. In addition, a number of periodical journals, newsletters, bulletins, local papers, science publications etc. are received regularly. MASTEC aims at strengthening the library of the Council.

9.0 Audit Report