

Annual Report 2016 - 2017



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MANIPUR SCIENCE & TECHNOLOGY COUNCIL

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1.0 Background

The Manipur Science & Technology Council (MASTEC) formerly, State Council of Science, Technology and Environment, Manipur was set up in the year 1985 with the 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.

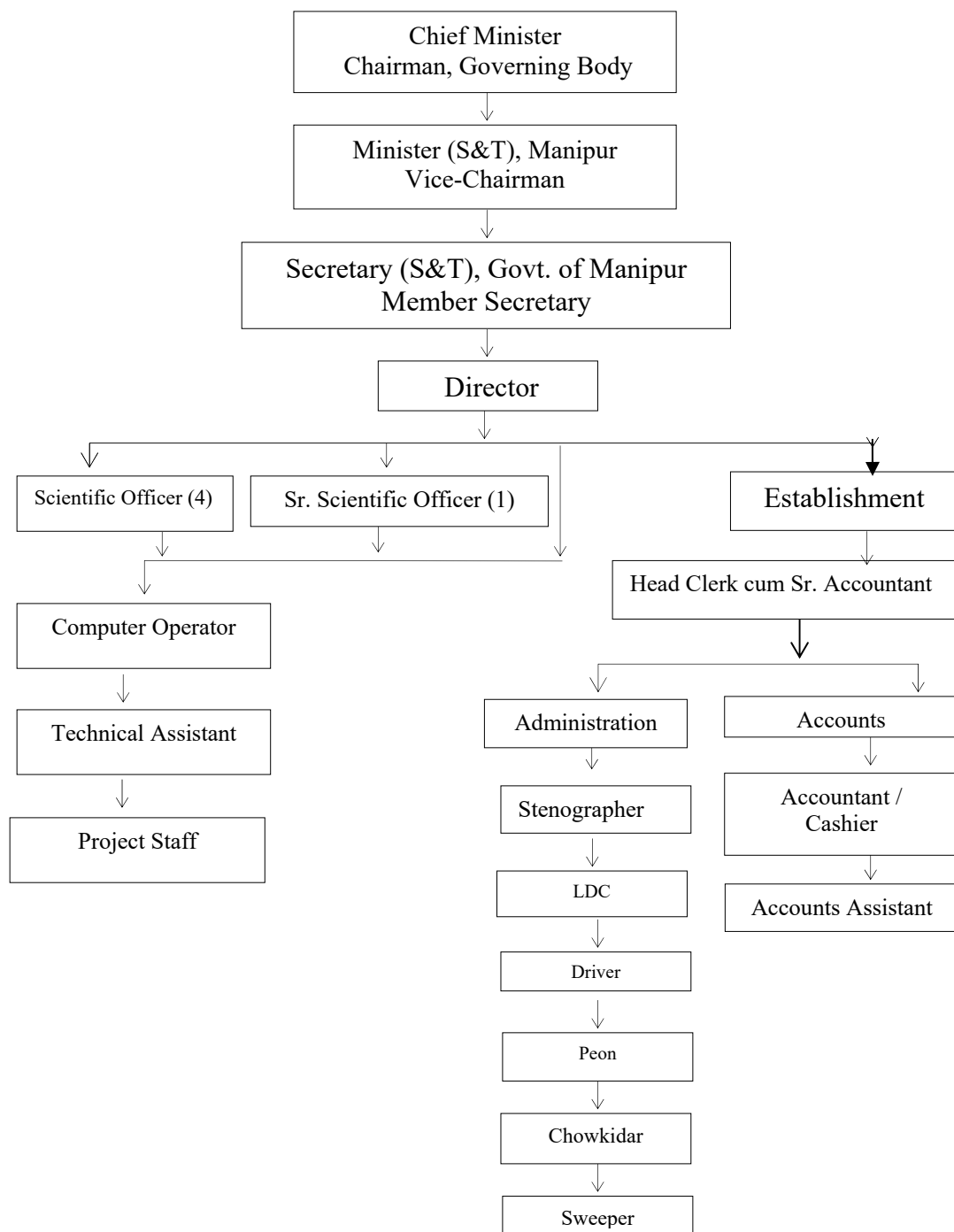
The autonomous Council is served by its own Secretariat of twenty man powers supported by the Department of Science and Technology(DST), Government of India. The Council Secretariat operates with the grants received from DST, Government of India, DST, Government of Manipur and the funds received from various agencies through projects and programmes. The Council works in co-ordination with the State Directorate of S&T in various areas 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 co-ordinate 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 utilise Remote Sensing Techniques for planning and implementation of programmes with S&T inputs and to promote and support the activities of the Remote Sensing Centre;
- 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 membership having expertise in various fields, with the Chief Minister as the Chairman, and the Minister in charge, S&T, Manipur as the Vice Chairman. At present there are 25 employees (including project staff) in the Council. 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

Scientific Staff:

Sl. No	Name	Qualification	Designation
1.	Th. Surendranath Singh	M.Sc., PGDCA, LLB	Director
2.	Dr. L. Dinachandra Singh	M.Sc., PGDRS, Ph.D.	Sr. Scientific Officer
3.	Dr. L. Minaketan Singh	M.Sc., PGDRS, Ph.D., Foundation Training of Scientists/Technologists (DST, GoI. Sponsored)	Scientific Officer
4.	Dr. Kh. Rakesh	M.Sc. Ph.D.	Scientific Officer
5.	Er. Ch. Sarat Singh	B.Tech, M.Tech.(Civil)	Scientific Officer
6.	Dr. R.K. Pritamjit Singh	M.Sc., Ph.D.	Scientific Officer

Technical Staff :

7.	Dr. Ch. Shivaji	M.Sc., PGDCA, Ph.D.	Computer Operator
8.	Mrs H. Binodini Devi	B.Sc.	Technical Assistant
9.	Y. Shyamsunder Singh	B.Sc., LLB	Technical Assistant

Ministerial Staff:

10.	K. Nara Singh	B.A.	Sr. Accountant cum Head clerk
11.	R.K. Bhanisana Devi	B.Sc.	Accountant
12.	H. Thangthianmang	B.A.	L.D.C.
13.	A. Tombi Devi	B.A.	Stenographer
14.	L. Ronel Singh	M.Com.	Accounts Assistant
15.	L. Boyai Singh	VIII Passed	Driver
16.	L. Open Singh	X Passed	Peon
17.	S. Deven Singh	X Passed	Peon
18.	Jamkhanmuan	VIII Passed	Peon (Dak Runner)
19.	Chingthanching	VIII Passed	Chowkidar
20.	Kh. Leidou Maring	VIII Passed	Sweeper

Project Staff :

21.	L. Surjit Singh	M.Sc. PGDCA	J.R.F. (PIC)
22.	L.Nilkumar Singh	B.Sc. (Fishery)	Fishery Officer
23.	S. Sanjay Singh	XII -Sc.	Attendant cum watchman
24.	H. Sanjay Singh	X	Attendant cum watchman
25.	T. Siampu	VIII	Attendant cum watchman

2.0 Short-term Activities including Science Popularisation

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

2.1 Observation of World Intellectual Property Day 2016

World Intellectual Property Day 2016 was observed on 26th April 2016 under the theme “**Digital Creativity: Culture Reimagined**” at the lecture hall of National Institute of Electronics and Information Technology (NIELIT), Akampat, Imphal. The objective of the workshop was to create awareness about IPRs among the intellectuals, entrepreneurs, individuals etc. Th. Surendranath Singh, Director MASTEC, Imphal, delivered a lecture on the topic - Intellectual Property Rights. About 200 students of the institute including teachers attended the programme.



World Intellectual Property Day 2016 observation

2.2 Continuing Programme of Celebration of National Mathematics Day

As continuing activity of Observation of National Mathematics Day 2015, the celebration of National Mathematics Day was organised during April 16-19, 2016 at the Indoor Hall of Oriental College, Imphal. The programme was inaugurated by Shri Th. Surendranath Singh, Director, Manipur Science & Technology Council, Imphal. Shri O. Nongyai Singh, Head, Dept. of Political Science and Shri H. Jayantakumar Singh, Former Head of the Dept. of Mathematics, D.M. College of Science, Imphal attended the Inaugural Function.



Inauguration of Celebration of National Mathematics Day

The activities included Competitions, Exhibitions, Popular Mathematics Show, Mathematics Lecture-cum-Demonstration etc. The competitions included Mathematics Model (Class VIII–XII), Mathematics Quiz (Class IX–X), Mathematics Competition for Classes VI, VII and VIII. The Exhibitions included Mathematics Model, Hands on Experiment. The Popular Mathematics Show covered Mathematics Puzzle (Miracle), Scientific Films etc.

Mathematics Model Competition & Exhibition

A single student or a team of two students from the same school were allowed to participate in the model competition cum exhibition. The competition was organised for students reading in Class VIII – XII Altogether sixty models were exhibited by 110 students from different schools. Nikita Ahongshangbam & Elangbam Serena of Maria Montessori Sr. Sec. School, Koirengei got the first prize on their model “A right angle is an obtuse angle”. Natasha Konjengbam &



Student Exhibitors displaying their Mathematics Model

Bonishkumar Laishram of Pritambara English School, Kwakeithel received the second prize on their model “Irrational number on the wooden frame”. Velory Kojiam of Mega Manipur School, Yaratpat got the third prize in her model “Enlarge any shapes using scale”. Marynah Khulem of Brighter Academy, Khumbong won the fourth prize on her model “Tangram”. A.S. Wonshin & Reinai Sorowon of Ukhrul Higher Secondary School, on their model “Hyperbolic Paraboloid” received the 5th position.

Mathematics Quiz Competition

The competition was organised for Class IX-X. Out of 150 teams from 110 schools registered for the competition, three finalist teams each team consisting of two students from the same school were selected for the final round through a preliminary round - Written Contest. In the final round competition, Khushi Khumallambam and Kakchingtabam Henna of Nirmalabas High School, Imphal got the first prize. The team of Priyanka Moirangthem and Hodam Sneha of Nirmalabas High School, Imphal was the second winner. Konjengbam Atlanta Khangamba and Md. Riyajuddin Pusham of JNV, Khumbong got the third prize.



Final Round of the Quiz Competitions

Mathematics Competition

The Mathematics Competition was organized for students of three different classes viz., Class VI, Class VII and Class VIII. Altogether 300 students from 260 schools, 240 students from 198 schools and 210 students from 195 schools participated in the Mathematics competition for Class V, Class VII and Class VIII categories respectively.

In the Class VI category, Elia Nepram of Standard Robarth Hr. Sec. School and Jennifer Heisnam of Little Flower School, Imphal got the first prize and second prizes respectively. Lingjel Lairenlakpam of Nirmalabas High School, Imphal, Justin Wahengbam of Shishu Nishtha Niketan and Nikita Potshangbam of Nirmalabas High School, Imphal got the third, fourth and fifth positions respectively and received the prizes



Mathematics Competition in progress

In the Class VII category, Detex Wangkhem of St. Joseph’s School, Imphal and Babyna Thounaojam of Smart Universal Academy, Sekmaijin Khunou got the first and second prizes respectively. Thingbaijam Renshi of Unacco School, Khongman, Konjengbam Bikash Singh and Arjun Mairembam both from New Model Public School, Moirang received the third, fourth and fifth prizes respectively.

In the Class VIII category, Eureka Nepram of Regular English High School, Imphal and Gambhir Shanoujam of Jawahar Navodaya Vidyalaya, Khumbong got the first and second prizes respectively. Yumkhaibam Taibanganba Luwang of Emanuel English Academy, Yaingangpokpi, Lairenjam Clinton of Pari Imom Sindam Sang, Langjing and Prithviraj Khundrakpam of Lee Faith School, Imphal were the third, fourth and fifth position holders respectively and received the prizes.

Science Film Shows & Mathematics Puzzle

Science films which were the collections of MASTEC and Vigyan Prasar, New Delhi were shown for one hour duration on all 4 days of the Mathematics Day celebration. These science films included Time Travels, Animal Kingdom, Medicinal Plants of Manipur, X-ray, Waterworks, Oyster Mushroom, Earthquake Disaster & its Management, Rain Water Harvesting and Transit of Venus.

Invited teachers performed Mathematics puzzle items and explained the reason behind every Mathematics puzzle. Mathematics Puzzle was performed for 4 (four) days of 2(two) hours duration each.

Mathematics Lecture-cum-Demonstration

Shri H. Jayenta Kumar Singh, Former Head of Dept. of Mathematics, D.M. College of Science, Imphal delivered a lecture on the topic “Contribution of Mathematics in the Society”. Shri Kh. Vikram Singh of Dept. of Mathematics, Oriental College, Imphal delivered a lecture on Horizons of Mathematics and Dr. Y. Rohen Singh of Dept. of Mathematics of NIT, Imphal delivered on Mathematics in day to day life and interacted with students.

Hands on Experiments (Origami)

Two Resource Persons namely, Shri .Ak. Tolendro Singh and Shri Shyamkishore Singh of Science Teachers Forum, Manipur demonstrated 80 items on learning Mathematics through origami and interacted with the students.

2.3 Science Meet 2016

As a continuing programme of Observation of National Science Day 2016 and Observation of National Technology Day 2016 Manipur Science & Technology Council in association with National Institute of Electronics & Information Technology (NIELIT), Imphal, Science Teachers' Forum Manipur (STFM), Manipur Association for the Promotion of Science (MAPS), Manipur Science Communicators' Association (MASCA) and Generation De New Image (GENIM) organised a 5-day long State Level Science Festival under the banner of **Science Meet 2016** during May 11-15, 2016 at National Institute of Electronics & Information Technology (NIELIT), Imphal.



Minister (S&T), Manipur during the Inaugural function of the Science Meet

The activities of Science Meet 2016 included Competitions, Exhibitions, Popular Science Show, Folk Form of Communication, Scientific Lecture-cum-Demonstration etc.

The competitions included Science Model (Class VIII–XII Science), Science Quiz (Class IX–XII Science), Spot Painting (Class III-V, Class VI-VIII & Class IX-XII Science), Declamation Contest (Class IX–XII Science), Best Appreciation Award (Open) and Best Guide Teacher Award for Science Model, etc. The **Exhibitions** included Science Model, Book, Information Technology, Poster Exhibition etc.

The Popular Science Show covered Science Films, Science Explaining Miracles. The Folk Form of Communication included Science Drama and Puppet Plays.

Science Short Play Competition

The competition was organised for the teams of students not more than 8 students per team from the same institution for the students reading in Class VI-XII

Science. The Science Short Plays were played on some given Science themes such as Health and Hygiene, Environment Conservation, Life & Works of a Scientist etc. The duration for a Play was limited to 30 minutes. Altogether 6 (six) teams from 5 (five) Schools participated in the competition. Kalpana Konthoujam & party of Brighter Academy, Khumbong got the first prize. Moirangthem Panganba Meitei & party of SCM Boarding English School, Imphal and Sobhajit Okram & party of Ananda Purna School, Thoubal received the second and third positions respectively.

Science Model Competition & Exhibition

The competition was organised for students reading in Class VIII – XII. A single student or a team of two students from the same school participated model exhibition. Altogether fifty eight models were exhibited by 108 students from different schools in the State. In the competition, Bonishkumar Laishram and Monikasana of Pitambara English School got the first position. Chingangbam Roshni Devi and Chingangbam Sharita Devi of Praja High School, Lamsang got the second position. Leishangthem Romesh and Khomdram Ranjan Singh of Bishnupur Public School, Bishnupur got the third position. Velory Koijam of Mega Manipur School was in the 4th position. Khundrakpam Taibangnganba Singh and Konjengbam Atlanta Khangnaba of Jawahar Navodaya Vidyalaya, Khumbong got the 5th position. Potsangbam Gaynary and Lourembam Lastrong Mangang of Pitambara English School was placed in the 6th position. H. Dhanaraj and Henison Loukrakpam of Maria Montessori Sr. Sec. School got the 7th position. Thokchom Jameson Singh and Waikhom Karnajit Singh of Ananda Purna School, Thoubal was in the 8th position.



Students displaying Science Models

The **Best Guide Teacher Award** in recognition of the guide teachers in developing and designing the science model for the competition was awarded to Shri Tourangbam Jameson of Pritambara English School, Imphal for guiding the model entitled “Water Pump Energy”

Science Quiz Competition

The competition was organised for students reading in Class IX-XII Science. Out of seventy teams registered for the competition, four teams were selected for the final round through a preliminary round - Written Contest. Wahengbam Rebicca Devi and Binoty Laishram of the Bishnupur Public School got the first prize. Geo thoudam and Gurumayum Dijen Sharma of Unacco School stood second position. Thiyam Meghachandra Singh and Nilakanta Chanambam of JNV Khumbong got the third prize.



Science Quiz Competition

Spot Painting Competition

The spot painting competition was organized in 3(three) groups viz., i) Sub-Junior Group (Class III—V), ii) Junior Group (Class VI-VIII) and iii) Senior Group (Class IX-X). Altogether 79 students from 40 schools, 90 students from 54 schools and 62 students from 38 schools participated in the competition of the Sub Junior, Junior and Senior Category respectively.

In the **Sub-Junior Group** Onia Konsam of Nongpok Maheikol, Gurjas Kaur of UNACCO School and Martin Tongbram of Pitambara English School got the first, second and third positions respectively. Moirangmayum Thoithoiba Singh of Regular English High School and Ashapriya Nongthombam of Christ Jyoti School, Mantripukhri were given the consolation prizes.

In the Junior Group, Telen Khaidem of D.A.V. Public School, Reynold Athokpam of St. George High School and Laiphrakpam Boshni of Regular English High School were the first, second and third winners. Yumlebam Udoynanda of Tiny Tot's Unique School and Yenkhom Muskan Chanu of Sangai Hr. Sec. School got the consolation prizes.

In the Senior Group, Malemnganba Waikhom of Shishu Nistha Niketan, Ak. Prasanta Meitei of Mother's Pride Academy were the first and second position holders. Keisham Yoihenbi Chanu of Mega Manipur School got the third prize. Yumnam Rahul Singh of Wangkhei High School and Sony Soram of Sri Krishnaveni School were given the consolation prizes.



Students participating Spot Painting Competition of Science Meet 2016

Declamation Contest

The competition was opened to students reading in Class IX-XII Science. Out of forty six students, eleven contestants were selected for the final contest through a written test. The students gave an oral presentation for 7 minutes either in English or Manipuri and then the judges asked questions related to the topic. The topics for the contest were (i) Make in India: S&T driven Innovations (ii) Genetically Modified Crops & Food Security (iii) Encouraging Scientific Awareness in Community. Miss Riddhi Puyam of Maria Montessori Senior Secondary School, Yoihenba Huidrom of Maria Montessori Senior Secondary School and Vishal Nair of Kendriya Vidyalaya, Loktak received the first, second and third positions respectively.



Students' Declamation Contest

Best Appreciation Award

The Best Appreciation Award was given to an individual student who proves to have gained the maximum knowledge of science from the Meet as judged by questionnaire response and personal interview. The Award for SM-2016 was selected from 90 participants of different standards and was given to Khomdram Ranjan Singh, Class X of Bishnupur Public School, Bishnupur

Book Exhibition

The local book stores namely Sangam Book House, Paona Bazar, Imphal, Job Centre, Babupara, Imphal, and Sharma Book Agency, Paona Bazar, Imphal displayed Scientific Books/Journals/publications in the book exhibition.

IT Show

Four Computer institutions/firms including NIELIT participated in the IT show. Visitors, especially, students interacted with the Firms and purchased computer related items on discounted prices. The computer institutes/firms namely NIELIT, Imphal, DEC Computers, Governor Road, Imphal, Mangal's Infotech Endeavor, Pologround, Imphal and Swift Infotech, Leima Shopping Plaza, Imphal participated in the IT shows.

Scientific Film Shows

A few scientific films screened during the Meet included Rain Water Harvesting, A brief History of Time, Black Hole, Mushroom Cultivation, Time Travel, The Theory of Everything, Hubble Amazing Universe, Orchids of Manipur etc.

Explaining Science Behind Miracles

Scientifically Explaining Miracle was one of the most popular scientific shows of Science Meet 2016. The expert members of GENIM demonstrated some items behind miracles during Science Meet 2016 and the scientific backgrounds of the shows were explained to the audience. Altogether 45 items on Science Behind Miracles were performed by magicians in three days



Science Behind Miracle Show

Puppet Play & Science Drama

Altogether 3 (three) puppet plays were shown during Science Meet 2016. The titles of the puppet plays were : 1) Make in India 2) Innovation in Science and 3) Science & Society. These puppet plays were much impressive and visitors could realize how puppetry can be used as a good medium for Science & Technology communication.



Science Drama being played during Science Meet 2016

One Science Drama entitled “Let's live with our Surroundings” was also played by a team of Drama and Film Artists of Manipur during the Science Meet 2016.

2.4 Dr. Ibeyaima Innovation Award 2016

Manipur Science and Technology Council (MASTEC) recently instituted an award in the name and style of **Dr. Ibeyaima Innovation Award**. The award has been donated by the Manipuri Association of Canada (MAC), based in Whitby, Ontario, Canada in memory of its member Late Dr. Hijam Ibeyaima Devi. The award is intended to enhance the scientific and technological activities in Manipur towards causing a technology-driven socio-economic progress by way of recognizing innovative products/processes developed in Manipur.



Innovator receiving certificate from the Secretary (S&T), Govt. of Manipur

Shri Maibam Deben Singh c/o Kangleipak Fish Drier, Singjamei, Imphal has been conferred the **Ibeyaima Innovation Award 2016**, in recognition of his innovative product “ Meital Leirang”, The award carries a cash prize of Rs 20,000.00, a memento and a citation.

2.5 North East Students’ Summer Training on Basic Sciences

Three students namely K. Leishemba Meitei of Johnstone Higher Secondary School, Imphal, Mahesh Loitongbam of COMET School, Imphal and B. Kundala Devi of Herbert School were nominated to participate in the 10th North East Students’ Summer Training on Basic Sciences (NESST-BASE 2015) organized during April 25-May 07, 2016 at Bose Institute, Darjeeling Campus. Dr. Ch. Indira Devi, Lecturer in Chemistry, Johnstone Higher Secondary School, Imphal escorted the students to Darjeeling as a guide teacher.

2.6 Nomination of Science Teachers to HBCSE, TIFR, Mumbai

The Council nominated a team of 3 (three) teachers of chemistry to participate in the Chemistry Olympiad Exposure camp held during November 21-24, 2016 and three Physics teachers for Physics Olympiad camp held during February 20-24, 2017 at Homi Bhabha Center for Science Education (HBCSE), TIFR Mumbai.

2.7 Entrepreneurship Skill Development for Women (Nov 2016)

Two Women Entrepreneurship Development Programmes on preservation and processing of fruits and vegetables for two valley districts viz. Imphal East and Imphal West were organised at Food Processing Training Centre, Directorate of Commerce & Industries, Porompat, Imphal East. The duration of each programme was 4(four) weeks. Twenty three women entrepreneurs from Imphal east district attended the programme held during October 17 – November 12, 2016 and Twenty eight women from Imphal West district attended the programme held during November 21 – December 17, 2016. The main objective of the programme was to impart training to the women on entrepreneurial skills relevant to fruits and vegetables for self employment generation. The programme was sponsored by Entrepreneurship Development Institute of India, Ahmedabad under DST-NIMAT Project.

Altogether 14 resource persons from various disciplines gave theory and practical classes during the programmes. The women trainees were trained for preparation of 28 items of fruits and vegetables products. These products were displayed on the last day during valedictory function. From amongst the participants, two best women entrepreneurs were selected, in recognition of their skill and interest during the WEDP. Kumari Thokchom Purnima Devi of Ningomthong



Participants & Resource persons of the Entrepreneurship Development Programmes



Food items prepared during the training

Kitna Panung was the winner of Imphal East WEDP and Smt. Heikrujam Sandarani Devi of Uripok Bachaspati Maning Leikai was the winner of Imphal West WEDP.

2.8 One day Sensitisation programme on Intellectual Property Rights

One day Sensitisation programme on Intellectual Property Rights was organized by Intellectual Property Facilitation Centre (IPFC), Manipur Science & Technology Council, Imphal on December 2, 2016 at Hotel Classic, Imphal. Thirty two participants comprising of entrepreneurs, government employees, scholars and interested individuals were attended in the seminar. Dr. Yashawant Dev Panwar, Director, Patent Facilitating Centre (PFC) of TIFAC, New Delhi and Th. Surendranath Singh, Director, Manipur Science & Technology Council delivered lectures on some issues on IPR.



Dr. Yashawant Dev Panwar, TIFAC delivering lecture on IPR

2.9 Millennium Science Lecture

The Millennium Science Lecture was organized at C.C. Hr. Secondary School on December 10, 2012 in honour of the Nobel Laureates in the subjects Chemistry, Physiology and Physics of the year 2016.

Shri G. Tomba Sharma, Former Principal, D.M.College of Science, Imphal deliberated about Nobel prize in Chemistry. Prof. Sh. Dorendrajit Singh of Physics Department, Manipur University spoke on the Nobel prize in Physics. Dr. O. Joychandra Singh of Jawaharlal Nehru Institute of Medical Sciences delivered on Nobel Prize in Physiology/Medicine. About 300 delegates including students and teachers of the School attended the programme.

2.10 India International Science Expo

Three officers led by the Director of the Council participated in the India International Science Expo held during December 7-11, 2016 at National Physical



Scientists of DST., Govt. of India visiting MASTEC stall at India Science Expo.



Visitors to MASTEC Stall at Science Expo

Laboratory (NPL), CSIR, New Delhi. The activities of the Council was displayed in its stall in the form of information bulletin, flex, projections. The officers interacted with a number of visitors including Govt. of India officials who visited the stall.

2.11 Observation of One day National Mathematics Day 2016

The National Mathematics day was observed on December 22, 2016 at Oinam Public School, Oinam, Bishnupur District. The main feature of the 1-day programme was Lecture-cum-demonstration by Resource Person. Shri H. Jayentakumar Singh, Former Head, Mathematics Department, DMC of Science, Imphal delivered lecture on the Role of Mathematics in Society and interacted with the students. Two hundred students including faculty of the school attended the programme. The programme was catalysed and supported by National Council for Science & Technology Communication (NCSTC), Department of Science & Technology, Government of India, New Delhi



Resource Person delivering Mathematics Lecture

2.12 Observation of National Science Day

The National Science Day was observed on February 27, 2017 at Manipur Science Aquarium, D.M. College of Complex, 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 2017 was “**Science & Technology for specially abled persons**”. About 500 participants consisting of students and teachers from various schools and colleges in Manipur attended the programme.



Participants of Celebration of National Science Day 2017

3. Projects :

3.1 DAE Technologies Display and Dissemination Facility (DTDDF)

MASTEC has made MOU with BARC, Mumbai for setting up DAE Technologies Display and Dissemination Facility (DTDDF) at MASTEC, Imphal. As a part of it, two officers of this Council made an exposure visit to the Department of Atomic Energy Technologies Outreach Center (DAE, GoI outreach center) at Pandharpur in Solapur District, Maharashtra State during March 9-10, 2017 to see the technologies available in the center and had interaction with the Co-ordinator/ scientists of the center by way of demonstrations of the technologies.

3.2 MASTEC – ICAR joint venture project on pisciculture and its allied activities for socio-economic development in Manipur supported by DST, Govt. of India

Renovation of ponds such as strengthening of the embankment, deepening of the shallow ponds, fixing of siphoning pipes, and eradication of weeds, insects and weed fishes had been taken up in the demonstration farms during the month of May and June 2016. Insects were eradicated by soap oil emulsion method (1:3) and weed fishes by

frequent netting. Liming of the ponds at the rate of 300 kg per hectare and manuring using raw cow dung at the rate of 2000 kg per hectare was done.

Rearing of short term fish was taken up in the demonstration farms. Fish brooders of Indian major carps – *Labeo rohita*, *Cirrhinus mrigala*, and other exotic carps such as Grass carp (*Ctenopharyngodon idella*), Common carp (*Cyprinus carpio*) and *Catla catla* were collected and breeding of the above fishes were carried out during the month of June 2016 adopting induced breeding technique using Wova FH at the rate of 0.5 ml per kg body weight. Breeding operation was carried out at the demonstration farm at Nongren. Breeding operation was initiated in the evening and the hormone was found effective. After hatching, the fries were reared in the nursery pond till they attain fingerling size.



Hormone injection for induced breeding

One set of portable FRP hatchery of 6 lakh capacity was procured and installed at Manipur Science Aquarium. Breeding and production of fish spawn was also carried out at Manipur Science Aquarium, D, M, College Complex, Imphal.

Fingerlings of mixed carps comprising of fish species *Cyprinus carpio* (Common carp), *Ctenopharyngodon idella* (Grass carp), *Cirrhinus mrigala* (Mrigal), *Labeo rohita* (Rohu) and *Catla catla* were stocked at the farms of 11 beneficiaries.

With the objectives of covering more area under aquaculture, 2 (two) training programmes were organized for the farmers. Experts from State Fisheries Department, Government of Manipur, Institute of Bioresources and Sustainable Development, Government of India, ICAR, Government of India and Krishi Vigyan Kendra imparted indepth training to the trainees. The first training on “Sustainable Aquaculture in Manipur” was organised during October 25 – 27, 2016 and thirty farmers participated in the training. The course covered theory and practical classes on various topics such as site selection, pond design and construction, pond preparation and pond management for fish farming, fish breeding and hatchery operation, care and management of fish brooder, low cost feeding practices and their management, fish seed production and their economics, integrated fish farming techniques, networking and importance of linkages in fishery sector, fish farming and their economics etc. Group discussion was also held and field visits to various farms were made. Critical inputs such as fish fingerlings and feeds were distributed to the successful trainees.



Training on Sustainable Aquaculture



Distribution of Critical inputs

The second training on “Quality fish seed production in Manipur” was conducted during March 21 – 25, 2017 at ICAR complex, Imphal. Twenty five farmers participated

in the programme. Classes on various topics/practical which were conducted in the first training was adopted in the second training also. Critical inputs were also distributed to the successful trainees.

A cooking cum fish dryer run by charcoal which is of improved type has been designed and fabricated at M/s Kangleipak Fish Dryer, Imphal. The Dryer was of 15 kg. capacity and it took about 2 hours to completely process the fish with 450 gm of charcoal.

Local and exotic ornamental fishes are reared in Manipur Science Aquarium. Some local ornamental fishes collected from various water bodies such as lakes, ponds, rivers, canals etc. are reared at Aquarium. About 32 local sp. and 25 exotic fish sp. are now in the centre for display.

Natural breeding of Kenyi cichlid (*Pseudotropheus lombardoi*) was tried with the available facilities at the Aquarium. One matured male and one gravid female of Kenyi cichlid were isolated from the rearing tank and kept in the breeding tank. They were minutely observed with maximum care. Eggs of about 200 – 250 were laid out of which around 120 eggs were fertilised. After fertilization, about 70 eggs were hatchd. Survival rate of the fry was 60%.



Breeding of Parrot fish

Breeding of Parrot fish (*Copora nicaraguense*) was tried by selecting one pair from the display tank. About 300 eggs were laid on the earthen pot pieces kept at the bottom of the breeding tank, however the eggs were not fertilised. Probable reason might be due to infertility of the male.

3.3 Patent Information Centre supported by DST, Govt. of India

The Patent Information Centre (PIC) of the Council worked to fulfill the following objectives

- to create awareness about IPRs, especially patents, in the state and also facilitate universities, industries, government departments and R&D institutions for patent filling and searches
- to create Intellectual Property Cells in the Universities specially in Govt. Universities/Institute of Higher Educations
- to analyze the patent information on a regular basis and suggest new programmes for R&D based on such information.
- to carry out the patent searches using software to guide the inventors in respect of patenting their inventions.
- ICT enabled networking of PICs and Intellectual Property Cell in University (IPCU) and development of e-platform for query and solutions among PICs/IPCUs/stakeholders.
- training and capacity building in post patent filling activities i.e. technology valuation & audit, technology licensing and technology transfer & commercialization.
- to create awareness on sharing of IPRs in terms of knowledge and economic wealth through awareness programs among school children, rural innovators, block level officers etc. of state government
- proper documentation with greater cohesion with State Biodiversity Boards through strengthening of Peoples' Biodiversity Registers

Patent Filing under process:

Improved Manipuri Mridanga (Meitei Pung) has been submitted to Patent Attorney for patent filing.

Patent searches

Patent search has been made for the following

- i) Improved Manipuri Mridanga (Meitei Pung),
- ii) Weavers power spinning machine,
- iii) Electric Spinning machine
& Lakadong Turmeric

Trade Mark & Design Registration

- LYS
- Ching - Choom



3.3 Intellectual Property Facilitating Centre (IPFC) for MSMEs, Manipur

The Intellectual Property Facilitating Centre (IPFC) was set up at Patent Information Centre, Manipur under the support of Ministry of Micro, Small and Medium Enterprises (MSMEs), Govt. of India with the objectives of determining IPR needs of selected clusters of MSME in the state and extend legal, financial and technical support to them for protecting intellectual property of the industries such as patents, trademarks, design, copyrights etc.

The documentation on the items such as Kouna Products, Potloi, Nungbi Pottery has been in progress for GI registration

3.4 Manipur Science Aquarium supported by DST, Govt. of Manipur

The Manipur Science Aquarium has been keeping indigenous fish species collected from different locations in the state. Attempts have been made to study the biology, food and feeding habit etc. of the indigenous fishes.

Aquarium Exhibition

The 4th State Level Aquarium Exhibition-cum- Flower Show was organized during March 31 – April 6, 2016 at the Centre in association with Fish World, Keisampat Keisam Leikai, Happy Fins, Singjamei Waikhom Leikai, Aqua Design, Khongnang Ani Karak, Hijam Kullajit Singh, Sagolband, Lei-Yum, Nagamapal Paonam Leirak, King City Evergreen Nursery & Tony Plants Care, Pisumthong, G.N. Bio Plants under Gaminash Nursery, Bamon Leikai, Eriema Dry Flowers & Toys, Pisum Oinam Leikai, L. Ibopishak, Sega Road Khwairakpam Leikai and Nilguni, Uripok Haobam Dewan Leikai. The programme is catalysed and supported by National Council for Science & Technology Communication (NCSTC), Department of Science & Technology, Government of India, New Delhi.



Visitors to the Aquarium

Significant displays were made by entrepreneurs namely Santosh Keisham of Fish World - three numbers of marine aquarium with fish and live corals and Naorem Robertson, Happy Fins - two new designs of centre table cum aquarium tank of rectangular and triangular shape and various design of aquarium cover made of synthetic materials.

During the exhibition, the Spot Painting and Quiz Competitions for school students and Lecture-cum-Demonstration were organised.

Spot Painting Competitions

The Spot Painting Competitions in three categories Sub-Junior (Class III-V), Junior (Class VI-VIII) and Senior (Class IX-X) were organised on the themes - Fishes in Your Pond, Flowers in Your Garden and Importance of Flora and Fauna respectively.

In the Sub-Junior Category, Kristina Khaidem of Kiddies Corner begged the first prize. Martin Tongbram of Pitambara English School got the second prize. Khaidem Diyashori of Kiddies Corner was in the third position. Sunny Soibam of St. Joseph School, Thoudam Helendro of Sacred Heart Hr. Sec School, Porompat, Moirangthem Lanchenba of Sacred Heart Hr. Sec School, Porompat and L. Veenita of Pitambara English School were in the fourth, fifth, sixth and seventh positions respectively. L. Karleish of Pitambara English School, Khaidem Paresh Singh of Sacred Heart Hr. Sec School, Porompat and S. Taibangnganba of Kids' Foundation, Ghari were in the 8th, 9th and 10th positions of the competition respectively.

In the Junior Category, Telen Khaidem of D A V Public School got the first position. Malemnganba Waikhom of Shishu Nistha Niketan and Moirangthem Bronson Singh of Sacred Heart Hr. Sec. School, Porompat were in the second and third position respectively. Phurailatpam Zilandia Devi of St. John English High School, Nambol, Kathing Yurshimwon of Royal Academy of Science, Longjam Devson Singh of Pitambara English School, Yumkhaibam Menjlish Devi of UNACO School, Imphal East, Ningombam Riturani Chanu of UNACO School, Imphal East, Oinam Arina Devi of St. John English High School, Nambol and Britney Toijam of Royal Academy of Science were in the 4th, 5th, 6th, 7th, 8th, 9th and 10th positions respectively.

In the Senior Category, Velory Kojiam of Mega Manipur, L. Heiya of UNACCO School and Tourangbam Rina Devi of R K Sanatombi Devi Vidyalaya got the first, second and third positions respectively. Chandiraj Pechimayum of Loyola Public School, Guntur and Ningthoujam Athoi Singh of Sacred Heart School, Porompat were in the 4th and 5th positions respectively.

Quiz Competition

The Quiz competition for the students of Class XI-XII science was conducted on the subjects - Botany and Zoology, especially, plants and fishes. Nongalleima Laishram Lambamayum Yaiphaba Meitei of Mega Manipur Sangai Higher Secondary School got the first place. Wahengbam Jokiyo Meitei of MECI Explorer Academy, Imphal and KishanYumnam of Sangai Higher Secondary School recieved the second and third prizes respectively.

Lecture-cum-Demonstration

Shri A. Kullachandra Singh, Retd. Senior Research Assistant, Dept. of Fisheries, Govt. of Manipur delivered on the topic Common Ornamental fish diseases and its remedies. Shri L. Somarjit Singh, Associate Prof. Botany Department, Imphal College spoke on the Language of Flower. Shri L. Nilkumar Singh, Fishery Officer, Manipur Science Aquarium, D.M. College Campus shared his knowledge on Prospect of Ornamental Fishes of Manipur. Shri L. Ranjit Singh, Proprietor, Panthoibi Bio Tech Plant, Langthabal Kunja, Canchipur delivered on the topic "How to become a floriculturist". Shri K. Santosh Singh, Proprietor, Fish World, KeishampatKeisam Leikai interacted with audience on Construction and maintenance of home Aquaria.

Altogether 78 species, 140 flower/plant species and 20 bonsai were displayed. During.

3.5 Generation of Pony Based Animal Energy for utilisation in Agricultural Development of Manipur State" supported by DST, Govt. of India

The project was a joint venture project of the Council, Imphal and Dept. of Animal Sciences, Central Agricultural University (CAU), Imphal. Major activities with R&D part were being carried out at Central Agricultural University and the Council took care of some extension activities.

3.6 Installation and Evaluation of Water Filtration Units at Public Ponds in SC/ST Areas in Imphal West District of Manipur

The project was taken up with the objectives of harvesting rain water in Public Ponds and supply of filtered drinking water by installing BARC Ultra Filtration Units and make the people aware of drinking filtered pond water.

Under this project altogether 5 (five) Water Filtration Units are to be installed of which 2 (two) are at Schedule Caste areas and 3 (three) are at Schedule Tribe areas in the Imphal West District of Manipur. Civil construction works such as construction of Desilting Tank, Structure for supporting overhead Raw water Tank and platform for installation of Filtration System, Platform for Filtered Water Tank etc. have been completed. Purchase Order has been issued to one of the Licensees of BARC, M/s Sonadka, Pune for procurement of the Filtration Systems.

4.0 Meetings/Trainings attended by Officers

Name of official with designation	Meetings / Trainings	Sponsoring agency	Venue	Period
Th. Surendranath Singh, Director	State S & T Conclave – 2016	DST, GoI	Guwahati	September 6-7, 2016
	India International Science Expo.	DST, Govt. of India	NPL, Delhi	December 7-11, 2016
	Signing of MOU for setting up an extension unit of BARC Technologies	BARC, Govt. of India	BARC, Mumbai	December 15, 2016
Dr. L. Dinachandra Sr. Scientific Officer	State S & T Conclave – 2016	DST, GoI	Guwahat	September 6 -7, 2016
Dr. L. Minaketan Scientific Officer	Interaction meeting on Sci- Connect of North East students	Vigyan Prasar, DST, Govt. of India	Guwahati	October 2016
	India International Science Expo.	DST, Govt. of India	NPL, Delhi	December 2016
	Exposure visit to DAE outreach Center,	BARC, Govt. of India	Pandhrapur Maharastra	March 8-9, 2017
Dr. Kh. Rakesh	Meeting of the PEG on State S&T Programme	DST, Govt. of India	Raipur, Chatisgarh.	June 7-8, 2016
Er. Ch. Sarat Singh	Meeting of NCSTC,DST, Govt. of India	DST, Govt. of India	Shillong	September 8, 2016
	Interaction meeting on Sci- Connect of North East students	Vigyan Prasar, DST, Govt. of India	Guwahati	October 2016
	Workshop in Rural Electrification and Micro Hydropower in Meghalaya.	Maghalaya S&T Council	Shillong	November 16-18, 2016

	India International Science Expo.	DST, Govt. of India	NPL, Delhi	December 2016
	Exposure visit to DAE outreach Center,	BARC, Govt. of India	Pandhrapur Maharastra	March 8-9, 2017
Dr. R.K. Pritamjit Singh	One day National Workshop of IPFCs	DC-MSME, GoI	MSME-DI, New Delhi	September 6, 2016
	Advanced Workshop on IPR	TIFAC, New Delhi	NASC Complex, ICAR Pusa Road, New Delhi	January 12-14, 2017

5.0 Visiting Scientists to MASTEC

The following scientists made official visits to MASTEC in connection with the programmes shown against their names.

Sl. No	Name of official with designation	Organisation	Meetings/ programme	Date of visit
1	Dr. Yashawant Dev Panwar	Director, Patent Facilitating Centre (PFC) of TIFAC, New Delhi	Sensitisation workshop on IPR	December 6, 2016

6.0 Library

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