

Annual Report in Brief

2019 - 2020



Manipur Science and Technology Council
Science & Technology Complex, Takyelpat, Imphal 795001
Website: <https://mastec.nic.in> email: mastec@nic.in

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**Annual Report in brief
of Manipur Science & Technology Council (MASTEC)
for the year 2019-2020**

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.

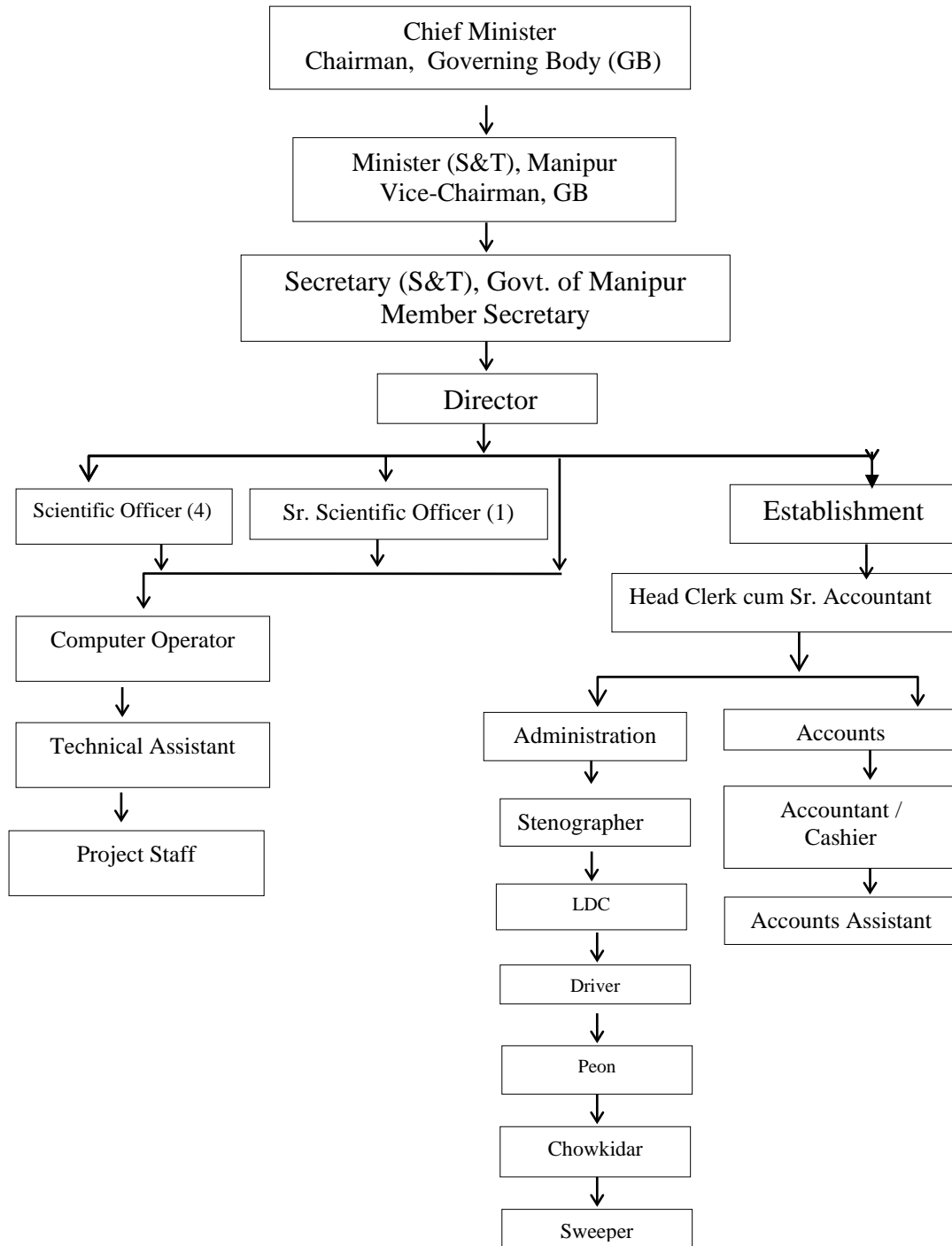
The autonomous Council is served by its own Secretariat of 20 (twenty) man powers supported by the Department of Science and Technology (DST), Government of India. The Council Secretariat operates with the grants received from DST, Government of India, DST, Government of Manipur and the funds received 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 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

Altogether 20 manpower (6 Officers including Director, 3 technical staff and 11 ministerial staff) supported by DST, Govt. of India are working in the Council. In addition, five project staff including one Junior Research Fellow (PIC) works in the Council

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 during 2019-2020 .

2.1 N-E Students' Summer Training on Basic Sciences at Bose Institute

Three students namely Khushi Singam Marcylin Tayenjam and Sujata Brainy Thounaojam of HRD Academy, Imphal were nominated to participate in the North East Students' Summer Training on Basic Sciences (NESST-BASE) organized during June 3-15, 2019 at Bose Institute, Darjeeling Campus. Jummi Rajkumari, Department of Physics, Human Resource Development Academy (HRDA), Imphal escorted the students to Darjeeling as a guide teacher.

2.2 Science Communicator's Award 2019

The State Science Communicator's Award 2019 was given to Shri Ak. Tolendro Singh, Sr. Science Graduate Teacher, The Praja Govt. High School, Govt. of Manipur, Lamsang, Imphal West. Shri Bobby Waikhom, Commissioner (S&T), Govt. of Manipur presented the Award to Ak. Tolendro Singh on 25th September 2019.

2.3 Science Meet 2019

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 2019** as a continuing programme of Celebration of National Science Day 2019 during September 21-25, 2019 at National Institute of Electronics & Information Technology (NIELIT), Imphal. Sri Y. Joykumar Singh, Hon'ble Deputy Chief Minister, Manipur, Shri Bobby Waikhom, IAS, Commissioner (S&T), Govt. of Manipur inaugurated the programme as Chief Guest and President respectively.



Deputy Chief Minister, Manipur lighting the Inaugural Candle

Activities

The main activities of the 5-day programme include Competitions, Exhibitions, Popular Science Show, Folk Form of Communication, Scientific Lecture-cum-Demonstration etc.

The competitions included Science Short Play (Class VI-XII), 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 included Science Films, Science Explaining Miracles. The Folk Form of Communication included Science Drama.

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. and the time duration for a Play was limited to 30 minutes. The first position holder team was selected for participation in the North East Zonal Level Science Drama Competition to be held sometime in October-November, 2019 at Regional Science Centre, Guwahati, Assam. Altogether 12 (twelve) teams from 9 (nine) Schools participated in the competition.



Science Short Play Competition

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 were allowed to participate and display an Exhibit Model. Altogether eighty models were exhibited by 140 students from different schools of the State.

The **Best Guide Teacher Award** for the Science Model Competition in recognition of the guide teachers in developing and designing the science model for the competition was awarded to S. Swaminath, Science Graduate Teacher, Ananda Purna School, Thoubal for guiding the model entitled “**Betel Nut Peeler (BNP)**”



Students' Science Models Exhibition

Science Quiz Competition

The competition was organised for students reading in Class IX-XII Science. Eight four teams comprising of two students from the same school from 68 schools were enrolled for the competition. Three teams were selected for the final round through a preliminary written test.

Spot Painting Competition

The spot painting competition was organized on the 2nd day of the 5-day programme. The competition was organised in 3 (three) categories/groups viz., i) Sub-Junior Group (Class III – V), ii) Junior Group (Class VI-VIII) and iii) Senior Group (Class IX-X). Altogether 120 students from 90 schools, 150 students from 120 schools and 82 students from 75 schools participated in the competition of the Sub Junior, Junior and Senior Category respectively.



Students participating Spot painting Competition

Declamation Contest

The competition was organised for students reading in Class IX-XII Science. Fifty-eight students from various institutions participated in the competition. Only 15 contestants were selected for the contest through a preliminary written test. The students gave an oral presentation for 7 minutes either in English or Manipuri with Slide/Power Point Presentation on

any of the given three topics and then the judges asked questions related to the topic. The topics for the contest were (i) Science & Technology for a sustainable future (ii) Organic Farming (iii) IT in Education.



Student's Declamation Contest in progress

Best Appreciation Award

Best Appreciation Award which is the most prestigious award of Science Meet was given to an individual student who proves to have gained the maximum knowledge of science and technology from Continuing Programme of Celebration of National Science Day 2019 as judged by questionnaire response and personal interview. The Award was selected from 150 participants of various classes from different schools. The award was given to **Wangkheimayum Tangjakhombi, Class X of Mega Manipur School, Yaralpat.**

Book Exhibition

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

IT Show

IT show was one of the Exhibition activities. Four Computer institutions/firms including NIELIT participated in the IT show.

Scientific Film Shows

Science films were shown for one hour duration on all 5 days. These scientific films were the collections of MASTEC and Vigyan Prasar, DST, Govt. of India, Noida, U.P. A few scientific films screened during the programme were Orchids of Manipur, Medicinal Plants of Manipur, Time Travel, Hubble Amazing Universe, Rain Water Harvesting, A brief History of Time, Black Hole, Mushroom Cultivation, The Theory of Everything, etc.

Explaining Science Behind Miracles

Scientifically Explaining Miracle was one of the most popular scientific shows of Continuing Programme of Celebration of National Science Day 2019. Miracles or magic are age-old human activities, which make people wonder or confuse and in mislead the general public. The expert members of GENIM demonstrated many items behind



Artist performing Science behind Miracles Show

miracles during Science Meet 2019 and the scientific backgrounds of the shows were also explained to the audience. During the 5-day Continuing Programme of Celebration of National Science Day 2019, about 50 (fifty) items on Science Behind Miracles were performed by magicians in three days and hundreds of students & general public had witnessed the show and many of them could learn how science is related with miracles.

Science Drama

Science Drama has been a very effective folk form of communicating science to the people particularly to the students. During the 5-day Continuing Programme of Celebration of National Science Day 2019 1 (one) Science Drama was played by popular Theatre Artiste of the State. The titles of the Science Dramas was “Angankpa Khudol (Wonderful Gift). The theme of the Science Drama was encouraging Scientific Activities and removing superstitions from the mind. Visitors could realize how Science Drama can be used as a good medium for Science & Technology communication.

Certificate distribution

The 5-day long Science Meet 2019 concluded on September 25, 2019. Shri E. Ibocha Singh, Director, Dept. of Science & Technology, Govt. of Manipur, Shri Th. Prameshwor Singh, Executive Director, NIELIT, Imphal and Shri Th. Surendranath Singh, Director, MASTEC, Imphal, were the Chief Guest, President and Guests of Honour respectively of the Closing Function. Cash



prizes with citations and memento and were distributed to the prize-winning students of various competitions.

Distribution of prizes for various competitions

2.4 Sci-Connect Level II:

The **one-day workshop on Hands on Science of Sci- connect Level –II** initiated and supported by Vigyan Prasar, DST, Govt. of India was organised on 16th October 2019 at the conference hall of the Solar passive Building, MASTEC, Takyelpat, Imphal. Altogether 17 remaining students from different schools who did not go to Gangtok and guide teachers attended the programme.

The one-day programme included sessions on Hands on Science and an invited lecture on Chandrayaan 2. Dr. Ch. Indira Devi, Lecturer in Chemistry, Johnstone Hr. Sec. School, Imphal and N. Shyamkishor Singh of Science Teachers Forum Manipur conducted activities on Hands on science. Prof. Sh. Dorendrajit Singh of Physics Deptt, Manipur University delivered a lecture on “Chandrayaan- 2” and interacted with the student participants.



2.5 India International Science Festival (IISF)

India International Science Festival (IISF) is organised every year by Ministry of Science & Technology, GoI and Ministry of Earth Sciences, GoI.

MASTEC's Stall at IISF, Kolkata

This year's IISF was held during November 5-8, 2019 at Kolkata. The IISF includes several sub activities such as Indian Scientists & Technocrats Meet, Young Scientist Conference, Students Science Village, Women Scientist Cobclave, Science Teachers Congress, Science Film Festival, Industry Academia Conclave, State Science & Technology Council, North east Students conclave, **Mega science & Technology Expo**, Agricultural Conclave, New Age Technology Show, Science Media Conclave, Outreach Programme, Engineering Model Competition Meet, National start up conclave, New Bharat Nirman, Overseas Ministers conclave etc.,

A pavilion/stall of **9 sq.m.** size was used for display of activities of the Council. Two officers Dr. L. Minaketan Singh, Scientific Officer & Er. Ch. Sarat Singh, Scientific Officer of the Council participated the IISF 2019.

2.6 National Mathematics Day 2019

The Observation of National Mathematics Day was organized on 22nd December 2019 at Free Progress Academy, Konthoujam, Imphal West.

About 200 participants consisting of students, teachers from various schools in Manipur 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

The main feature of the programme was invited lectures by Resource Persons. A lecture on "Life and Works of Srinivasa Ramanujan" was delivered by Prof. N. Rajmuhon Singh, Chemistry Dept., Manipur University, Imphal. The lecture was followed by interaction with the participants.



Participants attending lecture on National Mathematics Day 2019

2.7 Millennium Science Lecture

The 21st Millennium Science Lecture was organized on 24th December 2019 at Khuman Maheikol, Mayang Imphal, Imphal West. The main activity was to deliver lectures on the Nobel laureates for the year 2019 in the subjects Physiology or Medicine, Chemistry and Physics by invited resource persons and interaction with the students. . Dr. O. Joychandra Singh, Former Associate Professor of JNIMS, Imphal delivered a lecture on the topic "Nobel Prize in Physiology /Medicine". Prof. N. Rajmuhon Singh of Manipur University delivered a lecture on "Nobel prize in Chemistry". Prof. Sh. Dorendrajit Singh of Physics Department, Manipur University delivered a lecture on Nobel prize in Physics and interacted with the students.

2.8 State Level Awareness Programme on Natural Disaster with emphasis on Earthquake

The State Level Awareness Programme on Natural Disaster with emphasis on Earthquake was held during February 25-26, 2020 at MASTEC's Training Hall at Takyelpat, Imphal. Prof. J.R. Kayal, Former DDG, Geological Survey of India and Dr. Santanu Baruah, Scientist, NEIST, CSIR, Jorhat were the external resource persons delivering lectures on various issues on earthquake and interacted with the participants. Dr. Th. Somchand Singh of Civil Engineering Department, Manipur



Inauguration of Awareness Programme on Natural Disaster

Institute of Technology, Imphal and Dr. Manichandra S. Seismologist of Earth Sciences Department, Manipur University were the local resource persons of the awareness programme.

2.9 Observation of National Science Day on the theme “Women in Science”

The National Science Day was observed on February 28, 2020 on the theme “Women in Science” at the Training Hall of MASTEC. Prof. N. Rajmuhon Singh, Former Dean, Physical Sciences, Manipur University delivered invited lecture about National Science Day on the theme Women in Science. About 100 students and teachers attended the lecture and interacted with the resource persons.

2.10 Lecture series on Earthquake :

As a follow up activity of the State Level Awareness Programme on Natural Disaster with emphasis on Earthquake held at Imphal, a week long lecture series on Earthquake were organised in different schools in rural areas covering five districts namely Imphal West, Bishnupur, Chandel, Kakching and Thoubal districts in the month of March 2020. During the lecture programme, resource persons delivered lectures on earthquake and interacted with the students and teachers on dos and don'ts during and after an earthquake.



3.0 Projects :

MASTEC implements time bound research as well as technology transfer projects and entrepreneurship programmes funded by various organisations. The following projects are being carried out during the year 2019-2020.

- 3.1 Common Facility Cum Demonstration Centre for Food Processing supported by DST, Govt. of India
- 3.2 Mapping of S&T Needs in the State supported by DST, Govt. of India
- 3.3 Capacity building awareness programme on climate change issues and production/broadcast of Radio Serial on Traditional Knowledge System in three languages/dialects- A Joint Programme with Vigyan Prasar, DST, GoI,
- 3.4 Patent Information Centre supported by DST, Govt. of India
- 3.5 Manipur Science Aquarium supported by DST, Govt. of Manipur
- 3.6 Intellectual Property Facilitating Centre supported by MSME, Govt of India.
- 3.7 Development of three Integrated Model Villages in Manipur supported by DST, Govt. of India
- 3.8 DAE Technologies Display & Dissemination Facility Centre supported by BARC, Govt. of India

3.1 Common Facility cum Demonstration Centre for Food Processing

Manipur is an important grower of pineapple, passion fruit, plum, orange, lemon, kiwi fruit, guava, banana, peach, pear, bamboo shoot and mushroom. Besides the above fruits, minor fruits like amla, wild apple, black berry are also available in substantial quantity. In addition, spices like turmeric, ginger and king chilli (u-morok) are also grown in large quantities.

Despite the availability of number of fruits in the state, there exist no common facility cum demonstration centre on food processing where agri-entrepreneurs would undergo skill development training and take up activities through common facility centre.

A large number of educated unemployed youths are willing to take up food processing industries as self-employment avenues. But there is no facilitating centre in the state to impart specific and comprehensive training to the aspiring youths. Hence, a common facility cum demonstration centre for food processing with basic machinery for processing and packaging was felt necessary and accordingly a food processing centre has been set up at MASTEC office complex under a DST, GOI sponsored project. Various food processing equipments have been procured and installed at the centre. Objectives: The main objective of the project is to set up a common facility cum demonstration centre for food processing so as to enable the entrepreneurs/SHG members of the state to produce different food products either in common brand or individual brand in the centre.

Besides, the common facility centre will provide :

- Basic knowledge of management including technology and marketing
- Setting up of Soyamilk & Soy paneer processing unit, CIAE Bhopal technology
- Motivate entrepreneur/SHG to create self confidence in them to start and manage the venture
- Providing escort service and guide them in establishing marketing their products and possible risk factors in running the business.

Soyamilk and Soy Paneer (Tofu) Processing Unit:

Soy foods are nutritious, economical and provide many health benefits. The consumption of soy foods in the western world has been rising since past few decades. In the USA the Food and Drug Administration (FDA) approved a health- labelling in October 1999 for daily consumption of 25 gm of soy protein which may reduce the risk of heart diseases. One of the products of soybean processing unit is soymilk. Tofu (soy paneer) is made from soymilk and it is one of the popular nutritious and economical foods from soybean. Soymilk is a water extract of soybeans, closely resembling dairy milk in appearance and composition. A Soy Cow Machine SC-20 has been procured, installed and operational at MASTEC under the project. The capacity of the machine is 15 litres of soymilk per hour with 2 kg of soybean. These 15 litres of soymilk can produce 2.5 kg of soy paneer. The positive features of soymilk are its low cost, nutritive value and suitability to lactose intolerant children/people. Soymilk prepared by the improved technique is highly acceptable.



Soy Cow Machine SC-20



Soymilk

3.2 Mapping of S&T Needs in the State.

The Corona virus epidemic first broke out in Wuhan city of Hubei Province in China. The Chinese Govt. sealed off Wuhan, a city of 11 million people, in late January to stop the spread of the virus. It spread slowly to other countries and became pandemic. India is facing the difficulties due to Covid 19.

As part of the S&T Mapping project & as advised by DST, GoI, the Council took part in contributing some S&T inputs in the Covid 19 management to stop spread of the pandemic disease in the state. The Council, in association with the North East Institute of Science & Technology (NEIST), CSIR, Imphal Unit developed some Alcohol based Herbal Hand Sanitizer and distributed to members of various communities in the state *including the Hon'ble CM (S&T Minister)' Secretariat, office of Commissioner (S&T), Govt. of Manipur, Dy. Secretary (S&T), Govt. of Manipur, Staffs at S&T Section Officers Office at Secretariat, Director, DST, Govt. of Manipur & his staff, Manipur Science Centre, Manipur Remote Sensing Application Centre, IT, media workers (print & electronic), Home for blind, some interested individuals etc. In addition, the sanitizers were distributed to all the employees working at the Council.*

Altogether, so far, 30 litres (30,000 ml.) of MASTEC-CSIR, NEIST prepared hand sanitizers, have been distributed to different sections of the community. In addition, the Council is making an attempt to create a data base on the Covid-19 activities taken up by different agencies/organisations including CSOs/NGOs in the state. As works done by different organisations both Govt. & Private are still continuing, we are facing problems of collecting complete data at this stage. Data is incomplete. It will take some time to complete the work of data base creation.



MASTEC – CSIR, NEIST prepared Alcohol based Herbal Hand Sanitizer



Release of MASTEC - CSIR NEIST, prepared Alcohol based Herbal Hand Sanitizer by Secretary to Hon'ble C.M.

3.3 Capacity building awareness programme on climate change issues and production/broadcast of Radio Serial on Traditional Knowledge System in three languages/dialects

Under the Vigyan Prasar, Noida, Department of Science and Technology, Govt. of India sponsored project entitled “Capacity building awareness programme on climate change issues in Manipur State and production/broadcast of Radio Serial on Traditional Knowledge System in three languages/dialects”, Manipur Science and Technology Council, Imphal started producing and broadcasting Radio Serial on radio through All India Radio, Imphal in Manipuri language and Thadou/Kuki dialects. The Serial in Tangkhul dialect is not started and will launch when All India Radio, Imphal intimate us the date for the broadcast. The programme was taken up to sensitise people about the traditional knowledge and about the role of the government in taking up administrative

reforms/planning in validating the traditional knowledge and because of its vast coverage, radio has been chosen as medium for assimilating traditional knowledge.

The topics of the Radio Serial had been identified in the Brain Storming Session of experts held on November 19, 2018 at Imphal. Of the 29 topics identified, 26 synopsis/scripts had been developed. The total no. of episodes for the Radio serial on TKS in Manipuri language to be broadcasted on Radio is 26 episodes of 30 minutes each with repeat broadcast. In Kuki/Thadou and Tangkhul dialects, the no. of broadcasts will be 52 episodes of 15 minutes duration without repeat broadcast.

The 26 nos. Radio Serial on Traditional Knowledge System in Manipuri Language titled “Sida Yai Nada Yai” has been launched on November 12, 2019 and will continue on every Wednesday at 7.00 a.m. in both Kangla and Sangai Channel of AIR, Imphal and repeat broadcast on every Sunday at 9.00 p.m. in Kangla Channel. The 52 nos. Radio Serial on Traditional Knowledge System in Thadou/Kuki dialects titled “Damthei Phatthina” has been launched on February 5, 2020 and will continue on every Wednesday at 5.00 p.m. in both Kangla and Sangai Channel of AIR, Imphal. So far, 18 no. of episodes with repeat broadcast in Manipuri language and 10 no. of episodes in Thadou/Kuki dialects had been broadcasted. Because of the nationwide pandemic Covid – 19 lockdown, the broadcast of the serial is put on hold and will continue when AIR, Imphal intimates the dates and for the time being repeat broadcast is going on.

3.4 Patent Information Centre (PIC)

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

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

The Centre has worked on Patent Searches for interested people who visited the center. In addition, the PIC worked on Patent filing, Trade Mark searches & Registrations.

Patent Granted

- Novel method of separation and isolation of indirubin from *strobilanthes flaccidifolius* leaves. Patent no. 327026 on 09/12/2019
- An improved dry fish fermentation compressed apparatus and method thereof. Patent no. 329795 on 21/01/2020

Patent Filed

- Potential mono herbal formulations in Treatment of broader aspects of metabolic Syndrome features which can also be used for topical healing in parallel.

Patent Application No.: 201931028255 dated July 15, 2019

Trade Mark Registered:

- AYANGLEIMA : Trade Mark No. 4205684 on 10th March, 2020
- WILD URBAN : Trade Mark No. 4162770 On 7th November, 2019
- LYS : Trade Mark No. 3552796 on 21st August, 2019



Ten entrepreneurs who's Trade Marks and Designs are registered through Patent Information Centre, MASTEC took part in the Science Meet held at National Institute of Electronics and Information Technology (NEILIT), Akampat, Imphal and displayed their products.

A book entitled “Musical Instruments” based on Improved Meitei/Meetei Pung (Manipuri Mridanga) and Dholok & Dhulki published by PIC, Manipur was released on February 28, 2020.

A series of lectures on IPRs were arranged by PIC of the Council as shown below.

Sl .No.	Name of Awareness Programme	Date	Venue	Name of Resource Person
1	Celebration of 5 th National Handloom Day	07-08-19	Eastern Youth Constructive Association Kongal Imphal Community Hall	L Surjit Singh
2	Awareness Programme on IPR for MSME Cluster	24-09-19	Hotel Yaiphaba, Imphal	Dr.R.K. Pritamjit
3	Awareness Programme on IPR for MSME Cluster	24-09-19	Hotel Yaiphaba, Imphal	Th. Surendranath Singh

3.5 Manipur Science Aquarium

Manipur Science Aquarium in the premises of D.M. College Campus, Imphal 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.

Aquarium cum flower Exhibition

The 6th State Level Aquarium Exhibition-cum-Flower Show was organized during October 11 – 20, 2019 at Manipur Science Aquarium, D. M. College Campus Imphal in association with five local aquarium and ten floriculture entrepreneurs. The main objectives of the exhibition included i) popularisation of Aquarium and Floriculture in the state, ii) conservation of the indigenous fishes and plants of the state, iii) making aware of the available local fishes and plants to the public and to popularise Manipur Science Aquarium. Altogether 75 fish species (25-Indigeneous; 50-exotic) in 75 tanks, 150 flower/plant species and dry flowers – Nachom, Badges etc. exhibited/displayed during the exhibition.



Visitors to the Aquarium



Inaugural function of Aquarium cum flower exhibition

made from used cocoons were

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

Intellectual Property Facilitating Centre (IPFC) for MSMEs of Manipur was set up at Patent Information Centre, Manipur under the support of Ministry of Micro, Small and Medium Enterprises, Govt. of India, New Delhi with the objectives of

- Co-locating IPR facilitation centre in PIC
- Determine IPR needs of selected clusters of MSME in the state and evolve solutions
- Extend legal, financial and technical support to them for protecting intellectual property of the industries such as patents, trademarks, design, copyrights etc.

The Centre works on Patent searches & design registration.

3.7 Development of Integrated Model Villages (3 Nos.) in Manipur

Under this DST, Govt. of India sponsored project 3 (three) villages in the hills at high altitude, mid-altitude and low altitude have been identified and approved by DST, Govt. of India viz., i) Longa Koireng,



Site for Mushroom Hut at Longa Koireng



Site for Common Facility Centre at Jangmol (Koubru Leikha)

Kangpokpi District ii) Jangmol village (Koubru Leikha), Kangpokpi District and iii) Kotha village Tengnoupal District. These three villages are to be developed as Integrated Model Villages with the technologies developed by Himalayan Environmental Studies and Conservation Organisation (HESCO), Dehradun as well as Institutions of other states apart from local Institutions/universities.

Technologies for intervention:

Sl. No.	Resource/Technologies	Source of Technology
1.	Agriculture (Crops & vegetables)	CAU/ICAR (Imphal), VPKAS(Almora)
2.	Water Conservation and Application (water harvesting, micro irrigation/drip irrigation)	HESCO (Dehradun), VPKAS
3.	Energy (solar and bio-gas/fuel efficient chullah)	HESCO
4.	Bio Farming (piggery, poultry, vermi-composting, beekeeping)	CAU/ICAR (Imphal), VPKAS
5.	Fisheries (integrated fish farming using polytanks, ornamental fish farming)	College of Fisheries (Assam Agricultural University), Directorate of Cold Fisheries (Bhimal)
6.	Mushroom Cultivation (spawn preparation, cultivation, harvesting techniques, product	Bodoland University (Kokrajhar, Assam),

	development)	VPKAS
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Progress Achievements :

The following are the progress/achievements of the project :

- i) Identification and selection of location for construction of Mushroom Hut for the 3 (three) project sites have been completed.
- ii) Identification/selection of location for construction of Poly House for the 3 (three) project sites have been completed.
- iii) Identification/selection of location for the Common Facility Centre (CFC) for two sites viz., i) Longa Koireng and ii) Jangmol (Koubru Leikha) villages have been completed.
- iv) Construction of Mushroom Hut at Longa Koireng and Jangmol (Koubru Leikha) villages have been completed.
- v) Construction of Poly Houses at Longa Koireng and Jangmol (Koubru Leikhja) villages are under progress.

3.8 DAE Technologies Display & Dissemination Facility (DTDDF) Centre supported by BARC, Govt. of India

MASTEC set up the DTDDF Centre Imphal under the guidance of BARC, Mumbai by providing necessary infrastructures such as land, building, manpower etc. BARC sanctioned an amount of Rs 28.00 lakhs (Rupees twenty-eight lakhs) only for execution of the project. MASTEC procured and installed all the six DAE technologies under the guidance and supervision of BARC.

As an outcome of the project some of the DAE Technologies have been transferred to one of the local organisations, Green Foundation Kwakeithel, Imphal. The agreement for transferred of the DAE technologies to Green Foundation was signed on November 8, 2019. Further, MASTEC has also developed a 40m x 20m land in the MASTEC Complex itself for plantation of banana. The land has been developed by ploughing and putting moorum in order to make it suitable for banana plantation. Now about 300 (three hundred) banana plants have been transplanted in the land. Some of the banana plants are brought from the tissue culture Lab. of BARC and some are the Nurseries prepared in the Tissue Culture Lab. of the DTDDF Centre, Imphal. During rainy season, lots of weeds have grown up in the banana farm. Therefore, mulching with black plastic sheets have been carried out in order to control weed growth. For giving sufficient water to the banana plants during dry season, drip irrigation system has also been installed in the banana farm.



Banana Farm at MASTEC Complex