

Annual Report 2012



Manipur Science & Technology Council
Central Jail Road, Imphal-795001

Annual Report

2011-2012



Manipur Science & Technology Council (MASTEC)
Central Jail Road, Imphal – 795001

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MANIPUR SCIENCE & TECHNOLOGY COUNCIL

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 (DST), Government of Manipur. The Chief Minister, Manipur and the Minister in charge (S&T), Manipur are the Chairman and the Vice Chairman of the Governing Body of the Council. The Secretary (S&T), Government of Manipur is the Member Secretary of the Council. 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 subsequent to a decision of the state cabinet.

The autonomous Council is served by its own Secretariat of twenty manpowers supported by the Department of Science and Technology, 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 autonomous Council works in co-ordination with the State Directorate of Science & Technology in various areas of activities.

1.1 Objectives of the Council

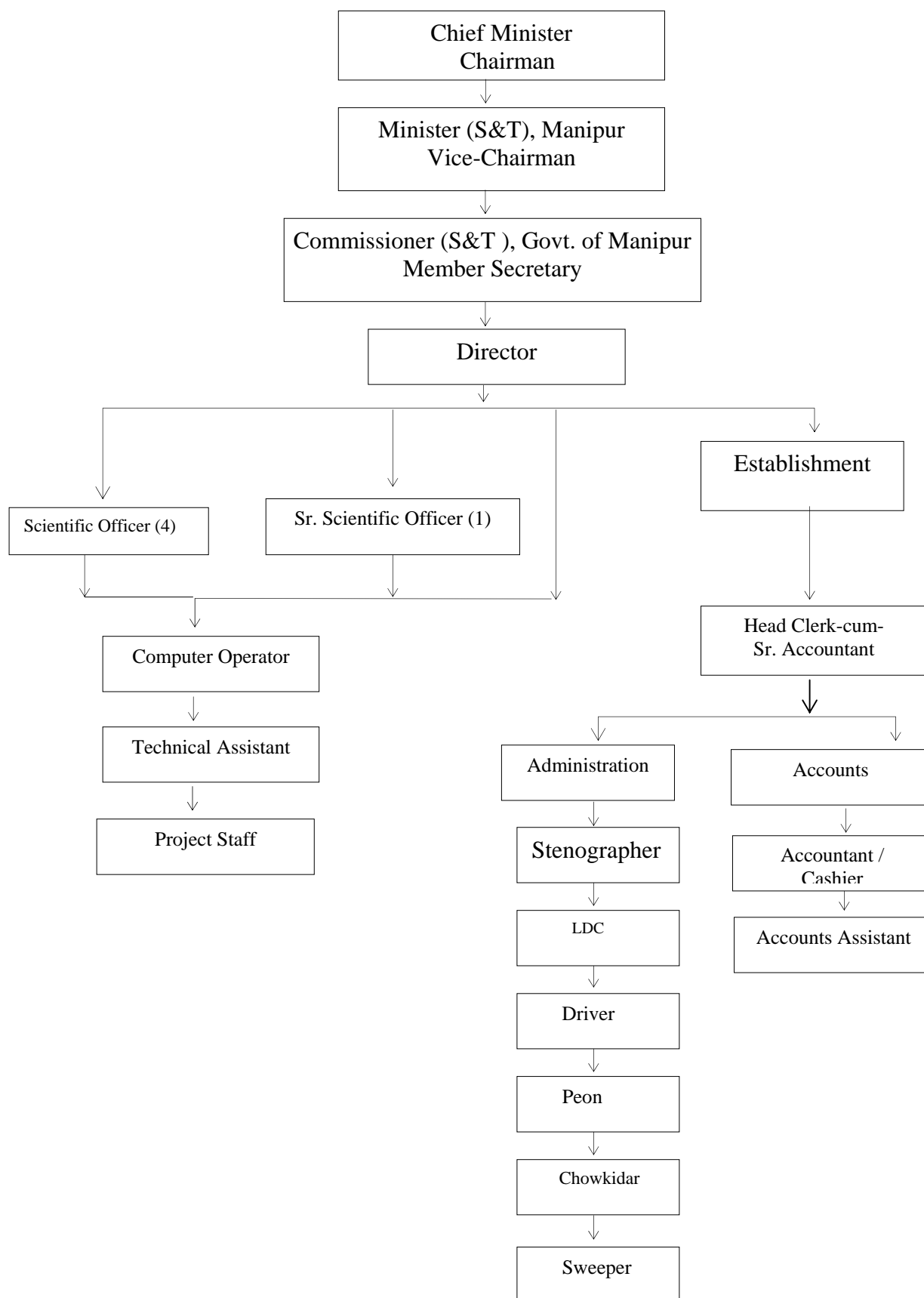
- To identify areas in which Science, Technology and Environment can be utilised for the achievement of the Socio-economic objectives of the State and in particular, tackling the problems of backwardness and underprivileged sections of Society;
- To advise on policies and measures necessary to promote 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 Science and Technology bodies having similar or related objectives;
- To identify priority areas of Science, Technology & Environmental needs for long term development of the State;
- To safeguard and promote the ecology and environment in the State of Manipur;
- To utilise Remote Sensing Techniques for planning, implementation and monitoring of development 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, raise subscriptions and receive grants, loans and subsidies from Government of India, Government of Manipur and other supportive agencies in India and abroad 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 members (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 (S&T), Government of Manipur is the Member Secretary of the Council. The Member Secretary is the Chief Executive of the Council Secretariat.

1.2.1 Organisation Chart:



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., PG Dip. in Remote Sensing Application, Ph.D	Scientific Officer
4.	Kh. Rakesh	M.Sc.	Scientific Officer
5.	Er. Ch. Sarat Singh	B.Tech, M.Tech.	Scientific Officer
6.	Dr. R.K. Pritamjit Singh	M.Sc., Ph.D.	Scientific Officer

Technical Staff :

7.	Ch. Shivaji	M.Sc., PGDCA, Ph.D.	Computer Operator
8.	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. Deben Singh	X Passed	Peon
18.	Jamkhanmuan	VIII Passed	Peon (Dak Runner)
19.	Mrs. Chingthanching	VIII Passed	Chowkidar
20.	Kh. Leidou Maring	VIII Passed	Sweeper

Project Staff :

21.	L. Surjit Singh	M.Sc.	J.R.F.
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

1.6 Activities

The Council implements various programmes on popularization of science in the state. In addition, time bound R&D as well as demonstration based projects on technology transfer were also implemented by the Council to fulfill the objectives of establishment of the Council.

1.6.1 Science Popularisation

The Science Popularisation activities implemented during 2011-2012 included Science Meet 2012, Vigyan Prasar EduSat programme, Satellite Based Distance Learning Programme, Observation of National Science Day 2012, Millennium Science Lecture and Eco-Water Literacy Campaign.

1.4.1.1 Science Meet 2011

The Science Meet 2012 (SM-2012) was organized in association with four leading science NGOs namely, Science Teachers' Forum Manipur (STFM), Manipur Association for the Promotion of Science (MAPS), Manipur Science Communicators' Association (MASCA) and Generation De New Image (GENIM) during May 11-15, 2011 at Iboyaima Shumang Leela Shanglen, Palace Compound, Imphal. The programme was catalysed and supported by **National Council for Science & Technology Communication (NCSTC)**, Department of Science & Technology, Government of India, New Delhi and Department of Science & Technology, Government of Manipur.



Secretary to His Excellency, the Governor of Manipur Lighting the Inaugural Lamp of Science Meet 2011

Science Meet is organized as a regular feature every year and forms the biggest science festival in the state. Science Meet aimed at creating a common platform for students to interact with teachers, scientists, science lovers and exchange scientific views among themselves.

The activities of Science Meet 2011 included Competitions, Exhibitions, Popular Science Show, Folk Form of Communication, Scientific Demonstration-cum-Lecture, Tara Mandal show etc. The competitions included Science Model, Science Quiz, Spot Painting, Declamation, Best Appreciation Award (Open) and Best Guide Teacher Award for Science Model. The exhibitions included Science Model, Book, Information Technology, Innovative Technologies Exhibition etc. The Popular Science Show covered Animated

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

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 fifty three models were exhibited by 104 students from different schools of the State. Miss Jashalaya Devi Arambam and Miss Irengbam Victoria of Little Flower School, Imphal got the first prize for their model “Modern Multi-fuel Chulha”. Mr Thongam Raghunath Singh of C C Hr. Secondary School, Imphal was placed in second position for his model “Low Cost Multipurpose Seed Sowing-cum-fertilizing Machine”. Mr Geetchandra Loukrakpam and Gulshan Yambem of North Eastern English School got the third prize for their model “Carbon Dioxide Capture & Storage”. About thousands of visitors including students, parents, teachers, science lovers etc paid visits to the science exhibition.



Students' Science Model Exhibition

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 Y. Somen Singh, Assistant Teacher, Sainik School, Imphal

Science Quiz Competition

The competition was organised for students reading in Class IX-XII Science. Forty six teams from 21 schools and colleges registered for the competition. Each team comprised of two students from the same school/college. Through a preliminary round - written contest, four teams were selected for the final round. K. Miraj Shah and Fredosh Bharot of Fancier Abhiram Hr. Secondary. School got the first position. The second position went to Sadokpam Shreekant and Soram Ajoykumar Singh of Herbert School, Changangei, Airport Road, Imphal and Sairem Mexico & Maibam Narajit Singh of Johnston Higher Secondary School, Imphal were given the third prizes respectively.



Students' 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 46 students from 26 schools, 65 students from 28 schools and 28 students from 20 schools participated in the competition of the Sub Junior, Junior and Senior category respectively. In the **Sub-Junior Group**, Vilajeet Samom of Maria Montessori Sr. Sec. School, Koirengi, Miss Kangjam Jeena Devi of KID's Foundation and Miss Ayekpam



Spot Painting Competition of SM-2011

Tanubala Devi of Little Flower School, Imphal were conferred the first, second and third prizes respectively. In the **Junior Group**, Jackson Akoijam of New Era English School, Imphal was given the first prize. The second prize went to Mr. Nganba Laishram of Mega Manipur School, Imphal and the third position went to Tanushree Koijam of Mega Manipur School, Imphal. Takhellambam Bonish of Mega Manipur School, Imphal and Khwairakpam Martina of Maria Montessori Senior Secondary School, Imphal were given the consolation prizes.

In the **Senior Group**, Mr Kshetrimayum Rojesh of Model Hr. Sec. School, Imphal was given the first prize. Mr. Naoroibam Anand Singh of Eagle High School, Imphal and Chingakham Barun Singh of Jawahar Navodaya Vidyalaya, Bishnupur were given the second and the third prizes respectively. Yumnam Bony Singh of Don Bosco School, Imphal and Lanchenba Sagolsem of Jawahar Navodaya Vidyalaya, Khumbong got the consolation prizes respectively.

Declamation Contest

The competition was opened to students reading in Class IX-XII Science. Twenty four students from various institutions / schools participated in the competition. Five contestants were selected for the final round through a written test. In the Final Round, students gave an oral presentation for 7 minutes either in English or Manipuri on any of the given three topics and then interacted with the judges of the competition. The topics for the contest were i) Chemistry in Our Lives ii) Radio Active Hazards iii) Environmental Pollution in Manipur and iv) NANO Materials. The competition was held on May 13, 2011 at 12.00 noon.



Students' Declamation Contest

Mr Parikshit Thoudam of Sainik School, Imphal won the first prize. Miss Miranda Thoudam of Sainik School, Imphal and Dayalaxmi Sagolsem of Little Flower School, Imphal were given the second and the third prizes respectively.

Best Appreciation Award

The most prestigious award of Science Meet was **Best Appreciation Award**. It was kept on the last day of SM-2011. The 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 Best Appreciation Award for SM-2011 was selected from 122 participants of different standards. The award was given to Miss N. Asharani Devi, Class XII of Herbert School, Imphal.



Best Appreciation Award competition for Science Meet 2011

Book Exhibition

Scientific Book Exhibition was one of the activities of the 5 (five) day long Science Meet 2011. A good number of students, teachers and parents paid visit at the book stalls and also bought many books of their interests. The leading local book stores including Sucheta Book & Publishers, Imphal, Sangam Book Store, Imphal, took part in the book exhibition. Job Centre, Babupara, Imphal and MASCA also exhibited and displayed its own collections

Innovative Technologies Exhibition:

As a special feature of Science Meet 2011, Innovators/Technologists in Manipur State have been invited for participation and displaying their technologies/products in the 5-day Meet. Altogether 7 (seven) Innovators namely, i) Salam Rajeshwor Meitei c/o M/s Ruhini Surgical Bandage Industry, ii) Ngangom Nabakumar Singh of M/s N.G. Mecola Furniture. Leingang Mangjing, Bishupur District, iii) Jina Khumujam c/o. M/s Our Rest House, Khurai Thoidingjam Leikai, Imphal East, iv) M. Manihar Sharma C/o MAK. Industry, Nongmeibung, v) Maibam Devan Singh of Singjamei Chingamakha, Irom Leirak, Nambol Mapal, Imphal, vi) Meisnam Maimu Singh of Nambol Thangtek, vii) S. Mangi Singh of Thangmeiband Sinam Leikai, Imphal took part in the exhibition. The models such as Electrical Device, Salam Handloom, Selima Tareng, Panthoibi Eyong (loom) double shuttle.



Innovative Technologies Exhibition

Khangjeng Drum , Herbal Soap, Varieties product made from wasted cement bag, Organic fertilizer, Muti Muga Reelling cum Spinning Machine, Agarbati sticks making machine, Anti Thief Magnetic Locks, Fish Dryer, Room Heater and Emoinu Leirang, Manual Washing Machine, Paddy Showing Device, Mulberry double Cocoon reeling-cum-re-reeling Machine were displayed in the science meet.

IT Show

The revolution of Information Technology (IT) has been the most important development in the world during the last few decades. Events in any part of the world can directly influence the events in the remotest areas. Internet has transformed the entire perspective of communication. Science Meet is an occasion where we introduced IT to our students in a very effective way and also provide free internet connectivity to the students and visitors. Four local computer institutions/firms participated and displayed many advanced technologies and interacted with the visitors, especially, students. Hundreds of students enjoyed the display and internet facility and many people appreciated this activity. The computer institutes/firms that took part in the IT shows included i) Advance Multi-technologies Pvt. Ltd., Babupara, Imphal, ii) Mangall's Infotech Endeavor, Pologround, Imphal and iii) Emoinu Computer Enterprises, Governor Road, Imphal.



IT stall providing Internet services to the student visitors during Science Meet 2012

Explaining Science Behind Miracles

Scientifically Explaining Miracle was one of the most popular scientific shows of the Meet. Miracles or magic are age-old human activities, which make people wonder or confuse and mislead the general public. The expert members of GENIM demonstrated many items behind miracles during Science Meet 2011 and the scientific backgrounds of the shows were also explained on the forth day of the meet. During the 5-day programme of the Science Meet 2011, Science Behind Miracles was kept for 3 (three) days of 2(two) hours duration each day and every day hundreds of students & general public had witnessed the show and many of them could learn how science is related with miracles.



Explaining Science Behind Miracles

Scientific Film Shows

There was scientific film show for one hour duration on all 5 days of Science Meet-2011. These scientific films were the collections of MASTEC and Vigyan Prashar, New Delhi. A few scientific films screened during the Meet were X-ray, Radio,

Relativity E, Quantum Era ENG, Waterworks of India, Oyster Mushroom Cultivation, Orchids of Manipur, Medicinal Plants of Manipur

Puppet Play

Today, the art of puppetry is very much effective for communicating science to our people. Members of MASCA presented 2(two) puppet shows based on importance of water to the mankind and Chemistry in our day to life during the Science Meet 2011. The titles of the plays are : 1) *Nongee Eshing (Rain Water)* and 2) *Changyeng (Experiment)*. These puppet plays were much impressive and visitors could realize how puppetry can take key role as a medium of S&T communication in the society.



Puppet play being shown during Science Meet 2011

Science Drama

The artists of Manipur Science Communicators Association presented a science Drama based on the focal theme "**Chemistry in Our Lives**". The title of the play was "**Wakat (complain)**". This science drama tried to clear the relationship between mankind and environment.

Tara Mandal Show

MASTEC in association with Manipur Science Centre, Imphal organised the Tara Mandal Show/Planetarium Show during the 5-day Science Meet 2011. Two technical staff of Manipur Science Centre, Imphal conducted the Planetarium Show in different batches of students comprising of 25 students per batch and explained in detail about the stars and planets in the sky using the portable Planetarium.

Scientific Demonstration-cum-Lecture

In Science Meet 2011, scientific demonstration-cum-lecture was jointly participated by three coordinating organisations namely STFM, MAPS and GENIM. Prof. N. Rajmuhon Singh, Dr. R.K. Bhubon Singh and his Team from Dept. of Chemistry, M.U. made Demonstration on Basic Chemical Reactions and interacted with students. Dr. Kh Shamungou Singh and K. Jugeshore Singh delivered and made demonstrations on the topic "Biological Diversity of Manipur with reference to birds/ animals. Shri Nanjesh Thongbam of Dept. of Earth Sciences, Manipur College made demonstrations on the topic "Preservation & Conservation of Forest in Manipur".



Resource Persons conducting Lecture-cum-demonstration on the theme "Chemistry in our lives"

Prize Distribution & Valedictory Function

The 5-day long Science Meet concluded with a Valedictory and Prize distribution function. Shri Th. Surendranath Singh, Director, MASTEC, Shri H. Nandiram Sharma, President STFM, Dr. R.K. Bhubon Singh, Executive Member, MAPS, Shri L. Somorjit Singh, Secretary, MASCA and Shri R.K. Nabakumar Singh, Secretary, GENIM were on the Dias of the valedictory function. The representatives of the four Science NGOs presented the activity report of their organisations in the valedictory function. Cash prizes with citations for various competitions were also distributed to the prize-winning students by the dignitaries on the dais.



Distribution of Prizes to Winners of Various Competitions of SM-2011

Shri Th. Surendranath Singh, Director, MASTEC, while giving the concluding remarks, expressed that Science Meet could help in the promotion and popularization of science & technology in the state. Thus ended the 5-day long Science Meet 2011 organised as a continuing programme of **National Science Day 2011** and in commemoration of **National Technology Day 2011**.

Local Cable TV Programme

The various activities of Science Meet 2011 were compiled and developed in the form of a documentary Science Serial. Ten episodes of the Serial were telecast in the Local Cable i.e. ISTV Network for viewers who could not join the Science Festival at the programme spot. The programme was telecast at 8.00 p.m. every Tuesday and repeat telecast on the next day i.e. Wednesday at 2.00 p.m.

1.4.1.2 Vigyan Prasar EduSat Network:

Vigyan Prasar, an autonomous organisation of Department of Science & Technology, Government of India, New Delhi in association with Development and Educational Communication Unit (DECU) of Indian Space Research Organisation (ISRO) established some Satellite Interactive Terminals (SITs) in the country. SIT is a two way audio-video interactive network for science & technology communication using the satellite for education (EduSat). For



Satellite Interactive terminal - Edusat

Manipur, the facilities of SIT were installed at MASTEC Complex, Imphal. The main objectives of setting up of SIT included i) Experience sharing – amongst the SITs in the

Country, ii) Training – using distance education mode, iii) Access to quality interaction with the experts/scientists at one end and teachers, students etc. on the other end in various fields .

The main target groups for the SIT programme included representatives of science clubs, teachers, school students & children (college students and higher/technical /university students), interested general public etc. Programmes such as quiz, trainings, lectures etc. were conducted on various topics from time to time round the year and students, teachers, science activists etc. were benefited from the programme.

1.4.1.3 Satellite Based Distance Learning Programme

The applications of space sciences for mankind has increased manifold. The country has gone quiet at an advanced stage in the area of space sciences contributing tremendous benefits to various areas of societal developments including capacity building.

Indian Space Research Organisation (ISRO), Govt. of India conducts training courses on “ Basics of Remote Sensing (RS), Geographic Information System (GIS) and Global Positioning System (GPS)” as its Outreach Edusat Based Distance Learning programme at classrooms spread across India with UGCCEC/CIET National Beam Network.

With an arrangement with IIRS, ISRO, Dehradun, Manipur Science & Technology Council at its classroom of the Edusat centre received transmissions of the lectures and demonstrations of the 7th batch training of IIRS which was transmitted live from its studio at Dehradun. The programme started on 1st August 2011.

The course consisted of four modules (lectures and demonstrations) and was divided into 50 sessions.

Module 1: Remote Sensing (RS) and
Digital Image Processing

Module 2: Geographical Information
System (GIS)

Module 3: Global Positioning
System (GPS)

Module 4: Applications of RS, GIS
and GPS



Trainees attending Edusat programme

After every lecture, there were sessions during which students / participants could also ask questions and interact with the ISRO scientists delivering lectures. This was a certificate course for a duration of three months.

Nineteen students from different colleges got benefited from the training.

1.4.1.4 Millennium Science Lecture 2011

The Council organized the Millennium Science Lecture 2011 on December 10, 2011 at the Conference Hall of the Standard Robarth Higher Secondary School, Kanchipur in honour of the Nobel Laureates of the year 2011. Dr. M. Mahendra Singh, Former Head of Physiology Department, Regional Institute of Medical Sciences, Imphal who also works as the President of Manipur Science Communicators Association inaugurated the programme as the Chief Guest. The activities included delivering lectures and interactions on the Nobel Prizes in the area of Physics, Chemistry and Physiology. About 200 students including teachers attended the programme.

Dr. O. Joykumar Singh, Assistant Professor, Jawaharlal Nehru Institute of Medical Sciences, Imphal delivered on the topic “Nobel Prize in Medical Physiology”. Professor N. Rajmuhon Singh of Chemistry Department, Manipur University spoke on the topic “Nobel Prize in Chemistry for 2011” and Shri Ch. Rajendro Singh, Selection Grade Lecturer, Imphal College delivered on the topic “Nobel Prize in Physics” respectively and interacted with the participants.

1.4.1.5 Observation of National Science Day 2012 :

Manipur Science & Technology Council in association with NSS Unit Oriental College, Imphal organised a one day programme on Observation of National Science Day 2012 on February 29, 2012 at Oriental College, Imphal. The theme of National Science Day 2012 was “**Clean Energy Options and Nuclear Safety**”. The main feature of the programme was deliberation of lecture on the focal theme.



Dignitaries on the Dias

The programme was inaugurated by Shri Th. Surendranath Singh, Director, Manipur Science & Technology Council, Imphal. Dr. B. Lalhari Sharma, Officer on Special Duty, Relief & Disaster Management Department, Govt. of Manipur and Dr. Th. Biren Singh, Principal, Oriental College, Imphal were the Guest of Honour and President respectively of the programme. In his Inaugural speech, the Director, Manipur Science & Technology Council, Imphal mentioned about why National Science Day was celebrated. He also explained the history of discovery of Raman Effect. Dr. Th. Biren Singh while giving presidential remark highlighted about the benefits of organising such programmes. He mentioned that the programme will motivate the young mines to think about scientific ideas for discovery/inventions. He further appealed to the programme

coordinators to include some student's items such as science quiz or declamation contests etc while observing the National Science Day in the near future.

A lecture on the topic **“Clean Energy Options : Nuclear Safety”** was delivered by Prof. S. Dorendrajit Singh, Head, Dept. of Physics, Manipur University, Imphal. He explained in depth about various renewable sources of energy such as Biogas for decentralized cooking and electricity, Small Hydro Power for local electricity, Small Wind Power for water pumping and local electricity, Solar Photovoltaic for local electricity, Solar Collectors for water and space heating, Ethanol and Biodiesel for agriculture and transportation, Large Hydro Power for grid electricity, Large Wind Power for grid electricity, Geothermal Energy for heat and grid electricity etc. He also explained that a tremendous amount of energy is liberated during nuclear fission or fusion. Clean nuclear energy is meant only for peaceful use. Nuclear bomb explosion is dangerous to humanity & existence of the planet earth. He added that the world today is against the piling of nuclear weapons. He also mentioned that nuclear option should be retained, precisely because it is an important carbon-free source of power. He concluded that nuclear energy is competitive, safer, and more secure source of power.



Resource Person delivering Lecture

1.4.1.6 Eco-Water Literacy Campaign

With the support of National Council for Science and Technology Communication, Department of Science and Technology, Government of India and Department of Science and Technology, Government of Manipur, Manipur Science and Technology Council organised



A section of student participants attending lecture & interaction session



Students interacting with experts during Eco-Water literacy campaign

Eco-Water Literacy Campaign during April -June 2011 by organizing lecture cum demonstrations at different schools covering all the 9 districts (4-valley and 5-hill) of the state for creating awareness addressing to various issues such as ground water recharge, maintenance of water bodies, waste water treatment, monitoring of water quality, prevention of pollution and safe drinking water etc.. The key resource persons included Shri L. Somarjit Singh, Head, Department of Botany, Imphal College and Dr. L. Sanjoy Singh, Lecturer, Department of Environmental Science, D.M. College of Science, Imphal.

Altogether, 50 lecture-cum-demo programmes were organized in different schools/Colleges/local communities etc. of the state. About 20,000 students /people of the state had been benefited out of this campaign. During each interaction session, participants put many interesting questions related to water treatment, management and conservation. As a part of the lecture programmes, information about treatment and conservation of water were also gathered from the local people of the places covered under this campaign.

The resource persons during the interaction session appealed to the people to use water judiciously and to consume only boiled/ treated water etc. Authorities of schools / colleges /clubs / organizations welcomed the next year's campaign.

1.4.1.7 Engineering Programme :

The Council nominated two students from Manipur for undergoing Engineering degree courses in Computer Science at R.K.Goel Institute of Technology Ghaziabad, U.P. for 2011 academic session. The nomination was made under a mutual understanding with the Institute. The number of seats has been increased to ten seats from the 2012 session onwards for study in various engineering disciplines such as Computer Science, Electronics & Communication, Mechanical, IT, Applied Electronics & Instrumentation, Electrical & Electronics etc.

1.4.2 Projects :

1.4.2.1 Patent Information Centre (PIC), Manipur

The Patent Information Centre (PIC) was set up in Manipur and was transferred to Manipur Science & Technology Council (MASTEC), Imphal from the Department of Science & Technology , Govt. of Manipur on 26th November, 2007. under the supervision of PFC-TIFAC, DST, New Delhi.

The PIC, Manipur is now fully equipped and operational providing services on IPR related issues in the State. The Centre works on creating awareness about IPRs, especially patents, in the state of Manipur and neighboring region of this centre and enable patent searches for the universities, industry, government departments and R&D institutions in the State and around. It also analyzes the patent information on a regular basis and suggest new programmes for R&D



PIC Manipur unit

based on such information. Further, it guides the inventors in respect of patenting their inventions.

Applications Submitted to PFC-TIFAC, New Delhi

Patents:

- i) Application on Kum (*Strobilanthes flaccidifolius* Nees.) as Hair dye.
- ii) Application on “A new method of separation and isolation of Indirubin from KUM (*strobilanthes flaccidifolious.nees*) leaves”.
- iii) Application on Rapid quantitative separation with high purity open column chromatography, technique with concept of slicing the column in a cost effective, energy saving, solvent saving green technique with disposable column to get more pure isolated compounds.

Geographical Indication (GI) Registration:

- i) Manipuri Potloi/Kumin

Besides, patent searches is being conducted and documentation for GI Registration on the items such as i) Manipuri Pakora, ii) Poireiton Chakhao (Black Scented Rice) and iii) Kouna etc. is going on.

Workshop/Seminar:

i) One day IPR workshop on Bamboo and its product

One day IPR workshop on Bamboo and its products was organised by Patent Information Centre - Manipur Science & Technology Council, Imphal jointly with Social Upliftment Organisation, Top Leikai Singjamei Imphal on 20th September 2011 in connection with World Bamboo Day at Singjamei, Imphal. About 60 participants comprising entrepreneurs and individuals attended the workshop. Three invited resource persons delivered lectures about IPR & its perspective on bamboo and its products.



Resource person delivering lecture

ii) One day Seminar cum Workshop on Geographical Indications & Registration of GI Authorised Users:

One day Seminar cum Workshop on Geographical Indications for Awareness & Registration of GI Authorised Users was organized in association with Registrar of Geographical Indication, Chennai on 11th November, 2011 at Hotel Classic, Imphal. About 50 participants from government organisations, entrepreneurs, scholars and interested individuals attended the programme. Shri B. K. Verma, Deputy Registrar, G.I. Office, Chennai and Dr. R.K. Barmanscientist, Science & Technology and Environment Council, Assam delivered lectures as resource persons and interacted with the participants.



B.K. Verma, Deputy Registrar, GI Office Chennai delivering lecture

iii) Three days National Conference on the Importance of IPR in Scientific Research and Development:

Three days National Conference on the Importance of IPR in Scientific Research and Development was organized jointly by Patent Information Centre - Manipur and Department of Botany, Imphal College Imphal from 24th to 26th February, 2012 at Imphal College, Imphal. D. K. Rahut, Deputy Controller of Patents & Designs, Patent Office, Kolkata and Dr. S. Banerjee, Patent Attorney L.S.DAVAR & CO.



Dignitaries on the Dias

Kolkata/New Delhi delivered lectures on the topic Design - Concept, Definition & Kinds and Patent Filling respectively during the conference. Prof. N. Rajmuhon Singh, Department of Chemistry, Manipur University and Dr. N. C. Talukdar, Director IBSD, Takyelpat also delivered lectures. About 70 participants including college lectures, scholars and interested individuals participated in the conference.

1.4.2.2 Intellectual Property Facilitating Centre (IPFC)

Intellectual Property Facilitating Centre (IPFC) for MSMEs of Manipur was set up at Manipur Science & Technology Council under the support of Ministry of Micro, Small and Medium Enterprises, Govt. of India, New Delhi. The main objectives included i) Co-locating IPR facilitation centre in PIC, ii) determining IPR needs of selected clusters of MSME in the state and evolve solutions and iii) extending legal, financial and technical support to them for protecting intellectual property of the industries such as patents, trademarks, design, copyrights etc. The centre is equipped with Questel Orbit Online Database for Patent searches, Desktop with Printer, Projector, Digital Camera etc.

Activities ;

i) Trade Mark Registration

One application from M/s Kangla Food Products, Imphal has been received and Trade Mark Registration for their products Namkeen, Rice Flake (sweet & plain), Mixture (Garlic, Masur, Onion etc.), Chanadal, Kabali Chana, Badam Bora etc. is in progress.



ii) Design Registration

Design Registration for Badge depicting the Salai Taret (7 Clans) of Manipur is in progress.



iii) **Observation of World Intellectual Property Day (2011):**

The Council, in association with Manipur Industrialists Association observed World Intellectual Property Day 2011 on 26th April 2011 under the theme “Designing the Future” at Conference hall of MSME – DI, Imphal. The main objective of the workshop was to create awareness about IPRs, especially Patents, among the entrepreneurs, individuals etc. Prof. N. Rajmuhon Singh, Department of Chemistry, Manipur University, Imphal delivered a lecture. About 70 participants mostly entrepreneurs and individuals attended the programme.



Resource person delivering lecture on IPR issues

iv) **One day Awareness/Sensitisation Programme on Intellectual Property Rights (IPR) related to Handloom & Handicrafts:**

One day Awareness/Sensitisation Programme on Intellectual Property Rights (IPR) related to Handloom & Handicrafts was organized by Intellectual Property Facilitating Centre (IPFC) of the Council in association with MSME-DI, Imphal, Department of Commerce & Industries, Govt. of Manipur and All Manipur Entrepreneurs Association, Imphal on 22nd March, 2012 at Hotel Classic, Imphal. About 80 participants from government organisations, handloom entrepreneurs & scholars attended the programme. Shri Madhurjya Thakur, Assistant Controller of Patents & Designs, Patent Office, Kolkata delivered lecture on the topic “Introduction to Intellectual Property Rights” and Shri Th. Surendranath Singh, Director MASTEC also delivered a lecture on the topic “Overview of IPR in India”.



Madhurjya Thakur, Patent Office, Kolkata delivering lecture

1.4.2.3 Manipur Science Aquarium

Manipur Science and Technology Council, Imphal with the support of Department of University and Higher Education, Government of Manipur, Imphal constructed Manipur Science Aquarium at D.M. College Complex, Imphal with the main objectives of studying the behavior of different types of fishes and conserve the fish fauna as well as creating awareness about the available local fishes to the public and create a place for recreation of the public.

Fifty varieties of local fishes including Pengba, Meitei Ngamu, Ngamu Bogra, Ngashang, Nylon-nga, Lanmeithanbi, Muka-nga, Phabou-nga, Ngakha Meingangbi, Ngatunghanbi, Ngaton, Silver Carp, Japan Puthi, Puklaobi, Ngapemma, Phetin, Rou, Ngaril, Ngakrijou, Ngatup, Khajing, Ukabi, Kandala, Ngaprum, Ngashep, Ngamha, Ngawa, Ngarin Leina and other aquarium fishes were kept in the tanks for viewers.



Visitors to the Manipur Science Aquarium

These local fishes were collected from different parts of the valley as well as hills in the state. The fishes procured from outside the state included Gold Fish, Fan Tail, Telescopium, Fighter Fish, Pearl Angel, Marble Angel, Black Vale, Angel, Albino Gourami, Pearl Gourami, Crocodile Fish, Albino Red Cap, Tetras, Tiger Shark, Albino Shark, Sword Tail, Yellow Parrot Fish, Red Parrot Fish, Zebra Fish, Black Molli, Red Molli, Marble Molli, Guppies. Interested visitors even donated fishes to the aquarium. Shri Ratan Waikhom, S/o Umakanta Waikhom of Loklaobung, Imphal contributed one Ngarin Leina measuring 3'10" in length and 6 kg in weight. It has been planned to keep more varieties of fishes in the aquarium. Visitors including children, students, scholars and general public made attendance to the centre on all working days except on Friday which has been kept as holiday and enjoyed by observing the variety of fishes in the tanks.

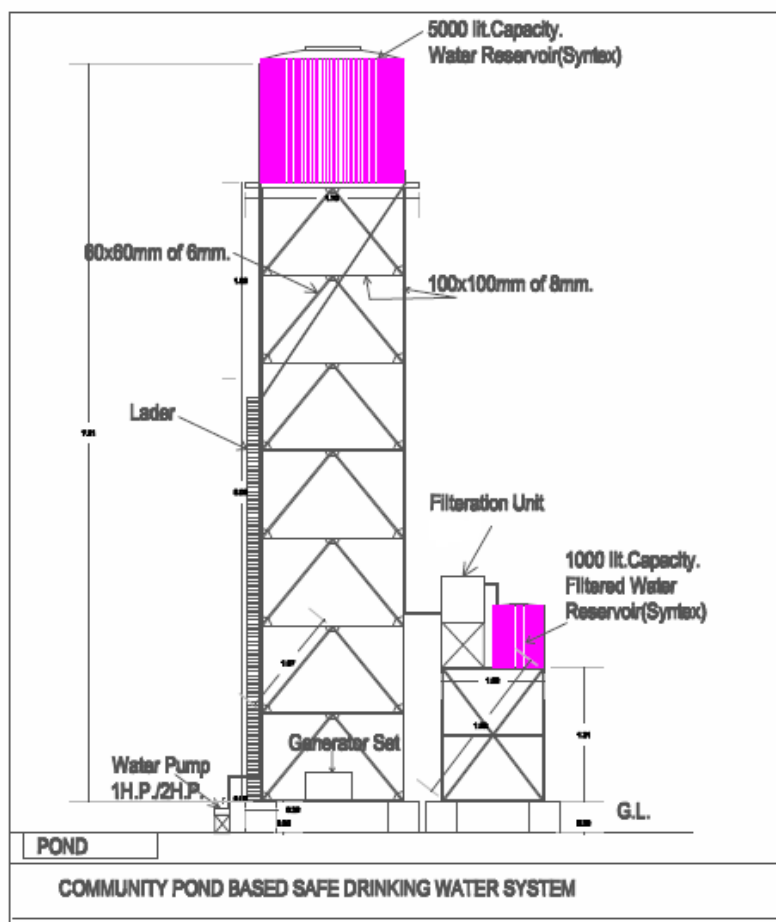
As part of the R&D activity, the Centre has successfully breed the Jewel fish (Jewel cichlid). The fry were fed with newly hatch artemia cultured in the Centre. Other fishes like gold fish, parrot fish etc. were also presently attempted for breeding. The Centre has studied the behaviors of both the exotic and indigenous fishes available in the Centre and also planned to propagate them in near future.

1.4.2.4 Community Pond Based Safe Drinking Water System

The project entitled **Community Pond Based Safe Drinking Water System** is supported by Department of Science & Technology, Govt. of India, New Delhi. The project duration is 2(two) years.

The project aims at supplying safe drinking water using ultra-filtration technology developed by Bhabha Atomic Research Centre (BARC), Mumbai. The main source of water is village community pond. The project started in December 2011. Three units of the system

will be installed at 3(three) selected villages in the state where no tap water facilities are available. The capacity of each unit is 2000 lpd. After successful installation of the units, the technology will be popularized in the state of Manipur. Out of the 3(three) units, fabrication of iron tubular structure of 1(one) unit has been completed and procurement of the Ultra-filtration system with the BARC licensee firm is under process.



1.7 Meetings/Trainings attended by Officers

Dr. L. Dinachandra Singh, Sr. Scientific Officer	Project Advisory Committee meeting on Water Technology Initiative	DST, GoI	INSA, New Delhi	18 th May 2011
	Expert Advisory Committee meeting of DST's Instrumentation Development Programme on food processing	DST, GoI	Tezpur University, Assam	13-14 October 2011-
Dr. L. Minaketan Singh, Scientific Officer	All India State S&T Councils/Departments meeting	DST, GoI., New Delhi	INSA, New Delhi	July 2011

Kh Rakesh Scientific Officer	Regional Orientation/Training programme on EduSat Network	Vigyan Prasar, New Delhi	Itanagar Science Centre, Arunachal Pradesh	April 18-19, 2011
	TAC Meeting for Eco-Wash Programme	DST, GoI	KIIT, Bhubaneswar	November 1, 2011
	National Orientation/Training programme on EduSat Network	Vigyan Prasar, New Delhi	Madhya Pradesh Council, Bhopal	March 20-22, 2012
Er. Ch. Sarat Singh	National Workshop on CSIR -800 Programme & CSIR Technologies for Drinking Water and Sanitation	CGCRI, CSIR	Kolkata	August 18-19, 2011,
	Meeting of the Core Group on State S&T Oriented Demonstration Projects	DST, GoI., New Delhi	INSA, New Delhi	March 14, 2012
Dr. R.K.Pritamjit Singh	Regional Orientation/Training programme on EduSat Network	Vigyan Prasar, New Delhi	Itanagar Science Centre, Arunachal Pradesh	April 18-19, 2011
	TAC Meeting for Eco-Wash Programme	DST, GoI	KIIT, Bhubaneswar	November 1, 2011
	National Orientation/Training programme on EduSat Network	Vigyan Prasar, New Delhi	Madhya Pradesh Council, Bhopal	March 20-22, 2012

1.6 Visiting Scientists to MASTEC

The following scientists made official visits to MASTEC during 2011-2012.

Sl. No.	Name of the visiting Scientist with designation	Organization	Period
1.	B. K. Verma, Deputy Registrar	G.I. Office, Chennai	11 th November, 2011

2.	Dr. R. K. Burman Sr. Scientist	Science & Technology and Environment Council, Assam	11 th November, 2011
3.	D. K. Rahut Deputy Controller of Patents & Designs	Patent Office, Kolkata	24 th to 26 th February, 2012
4	Mrs. Dr. S. Banerjee Patent Attorney	L.S. DAVAR & CO. Kolkata	24 th to 26 th February, 2012
5	Shri Madhurjya Thakur Assistant Controller of Patents & Designs	Patent Office, Kolkata	22 nd March, 2012

1.9 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, news letters, bulletins, local papers, science publications etc. are received regularly. MASTEC aims at strengthening the library of the Council.

1.10 List of Programmes already sanctioned & to be implemented next year

- i) State Level Science Meet 2012 to be organized during May 11-15, 2012
- ii) Contact Programme for Girls School Students of Manipur
- iii) Contact Programme for Boys School Students of Manipur
- iv) Training Workshop Science Writing/Journalism for two districts of Manipur
- v) Brain Storming on Water & related issues of Manipur
- vi) Science for Sanitation Month
- vii) Training Workshop on Hands on Experiment
- viii) Observing Year of Mathematics
- ix) Transit of Venus
- x) Eco Water Literacy Campaign
- xi) Nature Orientation Camps

1.11 Projects in Pipeline

- i) MASTEC – ICAR Joint Venture Project on Pisciculture and its allied activities for Socio-economic Development in Manipur
 - ii) Micro Hydel Project Using Wheel Type Turbine System for Generation of Power at Tuima and Mulam Villages in Manipur
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