

Annual Activity Report

**MANIPUR SCIENCE & TECHNOLOGY COUNCIL
(MASTEC)**

for the year 2010-2011

Annual Report for the year 2010 - 2011

MANIPUR SCIENCE & TECHNOLOGY COUNCIL

1.0 Background

The Manipur Science & Technology Council (MASTEC) formerly, State Council of Science and 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 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(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 autonomous 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;

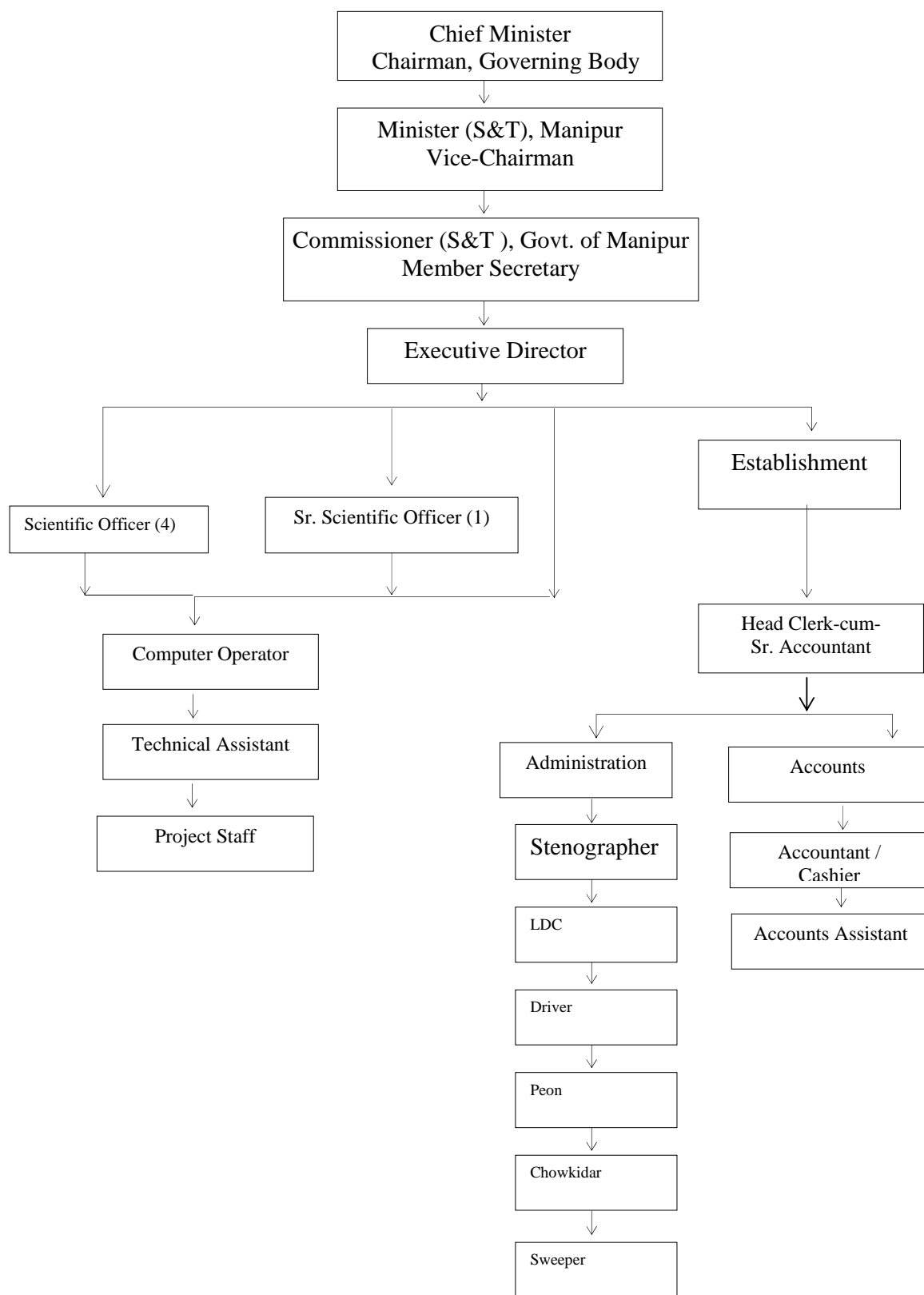
- To supplement and complement the ongoing technical efforts of the State Government;
- To interact with other State, National and International Science and Technology bodies having similar or related objectives;
- To identify priority areas of Science, Technology & Environmental need for long term development 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 27 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.

(See MASTEC Organisation Chart)

Organisation Chart



1.3 Existing Staff

Scientific Staff:

Sl.No	Name	Qualification	Designation
1.	Th. Surendranath Singh	M.Sc., PGDCA, LLB	Executive 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.	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.	Mrs R.K. Bhanisana Devi	B.Sc.	Accountant
12.	H. Thangthianmang	B.A	L.D.C.
13.	A. Tombi Devi	B.A.	Stenographer
14.	L. Ronald 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.	Mrs. Chingthanching	VIII Passed	Chowkidar
20.	Kh. Leidou Maring	VIII Passed	Sweeper

Project Staff :

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

1.4 Activities

The Manipur Science and Technology Council (MASTEC) organised various centrally sponsored projects / trainings relevant to the state including science popularisation to fulfil the objectives for establishment of the Council. The Council receives overwhelming response from all sectors of the scientific community in the state while organising S&T programmes and organised with a big success. The following were the programmes implemented by the Council during the year 2010- 2011

1.4.1 Science Popularisation

1.4.1.1 Training workshop on Disaster Preparedness

A 5-day Volunteer Training Workshop on Disaster Preparedness was organized under the sponsorship of Rashtriya Vigyan Evam Prodyogiki Sanchar Parishad (NCSTC), Department of Science & Technology, Govt. of India, New Delhi during April 17-21, 2010 at the Auditorium of Manipur Science Centre, Takyelpat, Imphal.

The Training workshop was inaugurated by the Commissioner (Science & Technology), Govt. of Manipur as the Chief Guest. Shri Uttam Chand Laishram, Director, Department of Science & Technology, Govt. of Manipur and Shri Th. Surendranath Singh, Executive Director, Manipur Science & Technology Council, Imphal were the Honoured Guest and President of the Inaugural Function respectively. The main objective of the workshop was to impart training on how to get ourselves prepared for pre-disaster, during the disaster and post-disaster activities to the young volunteers of the state. The target group of participants were volunteers from different schools/institutions/NGOs/Clubs/Organisations etc. Altogether 45 participants attended the 5-day Training Workshop.



Commissioner (S&T) Inaugurating the Workshop

The activities of the programme included lectures, demonstrations etc. The resource persons for the programme were drawn from the organizations such as . State Academy of Training,, PWD, Manipur Fire Service and Relief and Disaster Management Department, Manipur. Various aspects such as “Basic Concepts of Disaster Management”. Preparedness plans for major disasters such as earthquake, cyclone, floods, draughts, thunder and lightening, Earthquake Resistant Buildings , search and rescue operations, use of fire fighting equipment, ***First Aid to Disaster Victims*** etc. were covered during the workshop. A surprise disaster quiz competition was also conducted on the last day of the workshop to test the skill of the participants.



Demonstration on First Aid to Disaster Victims

1.4.1.2 Science Meet 2010

National Science Day is observed on February 28 throughout the country since the year 1987 and **National Technology Day** on May 11 since 1999. The objective is to focus attention of students, teachers, engineers, researchers, entrepreneurs on issues of technology development of the Nation.

Manipur Science & Technology Council in association with four science NGOs namely Science Teachers' Forum Manipur (STFM), Manipur Association for Promotion of Science (MAPS), Manipur Science Communicators' Association (MASCA) and Generation De New Image (GENIM) organised **Science Meet 2010** during May 11-15, 2010 at Iboyaima Shumang Leela Shanglen, 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.



Commissioner (S&T), Govt. of Manipur lighting the Inaugural Lamp of Science Meet 2010

The activities of the Science Meet 2010 included Competitions, Exhibitions, Popular Science Show, Folk Form of Communication, Popular Science Gallery & Science on Stamp, Scientific Demonstration-cum-Lecture 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 (Class IX–XII Science), Best Appreciation Award (Open) and Best Guide Teacher Award for Science Model. The Exhibitions included Science Model, Book, Posters, Photos, Information Technology.



Audience witnessing the activities of Science Meet 2010

The Popular Science Show covered Animated Scientific Films and Science Explaining Miracles. The Folk Form of Communication included Science Drama and Puppet Play etc.

Science Model Competition & Exhibition

The competition was organised for students reading in Class VIII – XII. Altogether sixty five models were exhibited by 124 students. Miss L. Jayalaxmi Devi and Malemnganbi Devi of Paradise English School, Thoubal were given the first prize on their model “Kero-

Water”. Leishungbam Anjuka and Th. Nilamkumari of Tiny Tot’s Unique School, Imphal got the second prize on their science model “ Reeling cum-Spinning Machine” and Y. Rebika Devi and. M. Anju devi of North Eastern English School, Imphal were given third prize on their science model “Solar Water Heater” respectively.

T. Robindro Singh, Science teacher of Paradise English School, Thoubal was given the **Best Guide Teacher Award** in recognition of his guidance extended to his students in developing and designing the model “**Kero-Water**” for science model competition.



Students exhibiting science models

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. Four teams were selected for the final round through a preliminary “Written Contest”. The following were the winners of the final round Science Quiz competition.

The team of G. Suman Kumar Sharma and Braille Khaidem of Don Bosco High School, Imphal stood the first position. Mr. L. Dhanakumar Singh and W. Rocky Singh of Sainik School, Imphal won the second prize and N. Sunny Meitei and Md. Feroz Ahmed of Millenium Institute of Sciences, Imphal was given the third prize.

Spot Painting Competition

The spot painting competition was organized in 3(three) groups viz., i) Sub-Junior Group, ii) Junior Group and iii) Senior Group. One hundred fourteen students from 26 schools, ninety students from 21 schools and forty one students from 21 schools participated in the competition of the Sub Junior, Junior and Senior Category respectively.

In the Sub-Junior Group, K. Chorjitkanta Sharma of Maria Montessori Sr. Sec. School, Th. Meghabarna of Maria Montessori Sr. Sec. School and Vilajeet Samom of Maria Montessori Sr. Sec. School were given first, second and third prizes respectively.

In the Junior Group, Sonia Thiyam of Maria Montessori Sr. Sec. School, B. Debajit Sharma of St. George School and Melinda Samom of Nirmalabas High School were given first, second and third prizes respectively. In the Senior Group, Kshetrimayum Rojesh Singh of Shantilata



Spot Painting Competition

Memorial School, T. Chittaranjan Singh of Kendriya Vidyalaya, Lamphel and I. Ghanendrajit Singh of Bal Vidya Mandir Higher Secondary School were given first, second and third prizes respectively.

Declamation Contest

The competition was opened to students reading in Class IX-XII Science. Forty six students from various institutions 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 such as Gender Equity with reference to Science, Scientific Temper and Biodiversity of Manipur and then, interacted with the judges.

Mr. Parikshit Thoudam of Sainik School, Imphal, Keisham Tampha Ibemba of Tiny Tot's Unique School, Imphal and N. Bomcha Singh of Sangai Hr. Sec. School, Imphal stood first, second and third positions of the competition respectively.

Best Appreciation Award

The **Best Appreciation Award** was given to a student who proves to have gained the maximum knowledge of science from the Meet as judged by questionnaire response and personal interview. One hundred fifty four participants of different standards contested for the Award. Mr. Parikshit Thoudam, Class X of Sainik School, Imphal won the **Best Appreciation Award for Science Meet 2010**.

Book Exhibition

A large number of students, teachers and parents paid visit at the book stalls and also bought books of their interests. The stalls gave 5-10% discount on all items during the meet. The local book stores/libraries such as Sangam Book Store, Imphal, Sharma Book Agency, Imphal and Job Centre Babupara, Imphal and MASCA displayed scientific books/journals in the exhibition.

Photo and Poster Exhibition

About 50 (fifty) scientific posters and many photographs of endangered flora and fauna of the state were displayed during this Meet. Posters and the photographs were contributed from different individuals and coordinating organizations.

Popular Science Gallery & Science on Stamp

Popular Science Gallery & Science on Stamp were organised successfully with visitors thronging the stall everyday to try their hands or to display their skills. Altogether 10(ten) interactive science models were exhibited during the Meet. Science on Stamp and many other wall posters relating to the science of Physics were also displayed.

IT Show

The revolution of Information Technology (IT) has been the most important development in the world during the last few decades. Internet has transformed the entire

perspective of communication. Science Meet is an occasion where IT is introduced to the students in a an effective way and also provide free internet connectivity to the students and visitors.

Four local computer firms namely Swift Infotech, AMT Computers, Endeavor computer centre and SRM Enterprises, Imphal displayed advanced technologies and interacted with the visitors, especially, students. Hundreds of students and visitors enjoyed with the internet facility.

1.4.1.3 Training Workshop on Science Writing / Journalism for Thoubal District

The four day long District Level Training Workshop on Science Writing / Journalism for Thoubal District catalysed and supported by National Council for Science & Technology Communication (NCSTC), DST, Govt. of India, New Delhi was organized during April 29-May 2, 2010 at the Training Hall of the Waikhom Mani Girls' College, Thoubal District, Thoubal, Manipur. The workshop aimed at imparting training to the budding science writers on writing techniques for various forms of media (print, electronic media etc.) for enhancement of science coverage in the state. The target participants were science teachers in schools and colleges, science reporters/journalists, representatives of science NGOs, interested individuals who posses a graduation in science and working or living in the district concerned.

Shri H. Imocha Singh, I.A.S., Commissioner (S&T), Govt. of Manipur inaugurated the training as the Chief Guest of the inaugural function. Dr. Manoj Patairiya, Director, NCSTC, Department of Science and Technology (DST), Govt. of India and Dr. O. Ibeton Devi, Principal, Waikhom Mani Girls' College, Thoubal were the Honoured Guests of the inaugural function respectively. Shri B.K.Sharma, Director, Transport, Govt. of Manipur attended the function as special invitee. Shri Th. Surendranath Singh, Executive Director, MASTEC presided over the inaugural function. Dr. C.M.Nautiyal, Scientist, BSIP, Lucknow who is a National Awardee in Science Popularisation, delivered key note address at the function. Altogether 35 participants participated in the training.



Inaugural function: From left: Dr. Ibeton Devi, Principal, WMGC, Dr. Manoj Patairiya, Director, NCSTC, H. Imocha, IAS, Commissioner (S&T), Govt. of Manipur, Th. Surendranath, E/D, MASTEC, Dr. C.M.Nautiyal, Scientist, BSIP, Lucknow

Dr. M. Patairiya highlighted the programmes of NCSTC, DST, Govt. of India and mentioned about the importance of organising the training workshop on Science writing. He further elaborated about the programmes being implemented all over the country. Dr. C.M.

Nautiyal while giving key note address mentioned in brief about the role of science communicator's in society. The activities of the programme included lectures delivered by invited resource persons and interaction with the participants, practical activity on script development for print, electronic media etc., visit to industrial unit, presentation of scripts developed by participants and evaluation process by experts.

Shri A. Gitchandra Sharma, Programme Executive, All India Radio, Imphal, Shri Y. Rupachandra, News Editor, ISTV Cable Network, Imphal, Shri Satyajit Usham, Senior Sub Editor, the Sangai Express, Shri L. Somorjit Singh, Secretary, MASCA, and Shri H. Devendro Singh, All India Radio, Imphal attended the programme as local resource persons and trained the participants.



Dr. Manoj K Patariya, NCSTC, DST delivering speech as Honoured Guest



Dr. C.M.Nautiyal giving lecture on techniques of science writing

Dr. C. M. Nautiyal, Scientist, BSIP delivered lectures on the topics “ i) Techniques of science writing & Identification of topics for writing and ii) Lives in the Universe”. Shri A. Gitchandra Sharma spoke on the topics “Writing for radio and role of radio in popularizing science & technology”. H. Debendro Singh, All India Radio, Imphal delivered lecture on the topic “Opportunities that All India Radio, Imphal

Centre offers to science writers”. Mr Satyajit Singh Usham spoke on “ Writing for News Papers and role of print media in popularisation of science”. During the interaction with the participants, the Editor, The Sangai Express Daily assured that he would do his best to keep space for inclusion of science articles in his Daily. Mr Rupachandra shared on the topic “Developing a script for TV programme”. In addition, interaction sessions with the resource persons were also organised.



Rupachandra, Editor, ISTV giving lecture on Writing for Television

During the course of the workshop, the participants prepared and presented scripts on various themes of importance for various forms of media such as print and electronic etc. .



Script development session in progress



Paper presentation by a lady participant

The panel of experts included representatives from local News Paper Agencies, All India Radio and some invited persons from other state.

The following scripts were developed for electronic and print by the participants during the course of the workshop and read out before the experts.

Sl. No.	Topic	Name of writer
i)	Vitamin Deficiency diseases	Mrs N. Bino Devi
ii)	Are there living beings on Mars Planet ?	Kh. Ibochouba Singh
iii)	Importance of taking balance diet	Ms H. Jenibala Devi
iv)	Role of science in the production of fertile seeds	Mr. H. Kulajit Singh
v)	Global Warming – its causes, consequences & remedies	Miss N. Romita Devi
vi)	Aloe Vera and its uses	Miss N. Lili Devi
vii)	Medicinal Plants in traditional healing in Manipur	S. Shyamkiran Singh
viii)	Be safe from Earthquake	Ak. Ranjitkumar Singh
ix)	Water Pollution on Thoubal River	A. Rameshwar Singh
x)	Importance of Vitamins	N. Sobhachandra Singh
xi)	Water crisis for Earth Problems and remedies	T. Robindro Singh
xii)	Communication & Radio wave propagation	Md. W. Rahman
xiii)	Health	N. Samananda Singh
xiv)	Air Pollution	H. Suresh Singh
xv)	Culture of Pengba – an endemic fish of Manipur	O. Bino Devi

TV (science serial)

i)	Story of Mr Invisible	Mr. M. Kiran Singh
ii)	Wish to live for them	Miss S. Ibemhal Devi

The Participants in group visited a successful NGO namely “WIGC” running an industrial unit where workers mainly lady labours of different communities such as Meitei Hindus, Tribal, Muslims etc worked together for production of handloom, handicraft, pottery and ceramic items. The Secretary of the Unit explained to the participant’s team in brief about the activities of the centre and showed the products in the display room. The participants interacted with the Secretary and also with workers of the industrial unit.



Industrial unit visited by participants where lady workers worked together

In the valedictory function, Shri Th. Surendranath Singh, Executive Director, Manipur Science & Technology Council as the Chief Guest distributed certificates to the participants.

1.4.1.4 Contact Programme for Talented School Students

The five day long Contact Programme for Talented School Students was organized during October 18-22, 2010 at the Training Hall of the Directorate of Art & Culture Building, Imphal. Dr. I.S. Khaidem, Former Vice Chancellor, Manipur University and Former, Chairman, Manipur Public Service Commission inaugurated the programme as the Chief Guest of the inaugural function. Dr. N. Iboton Singh, Dean, Central Agricultural University, Imphal and Dr L. Warjit Singh, Prof. & Head, Chemistry Department, Manipur University attended the function as the Honoured Guests. The programme was catalysed and supported by National Council for Science & Technology Communication (NCSTC), Department of Science and Technology (DST), Govt. of India, New Delhi.



Inaugural Function :
From left; Dr. L. Warjit, Head, Chemistry Deptt., M.U., Dr. I.S.Khaidem, Former V.C., M.U.(Chief Guest), Dr. N. Iboton Singh, Dean, CAU, Imphal

Altogether 40 participants from different schools in the state successfully attended the programme. The participating schools included 1) The Keishamthong Govt. High School, Imphal, 2) Sacred Heart School, Porompat, Imphal East, 3) Little Angel’s English School, Ukhrul district, 4) Don Bosco High School, Langjing, 5) Padma Ratna English School, Kakching, Thoubal district, 6) Halleey English School, Soibam Leikai, Imphal East, 7) Oriental English School, Keibi, 8) Eastern Star School, Khangabok, Thoubal district, 9)

HRD Academy Ghari, Imphal West, 10) Sangai Hr. Sec. School, Mantripukhri covering four different districts in the state.

In his inaugural address, Dr. I. S. Khaidem mentioned the need for creating awareness about the science subjects and its importance, be it medical, engineering, agriculture, physics, chemistry, earth sciences etc to the young minds so that they are motivated to opt any subject of science as future career.

On the first day, Shri Ch. Rajendro Singh, Selection Grade Lecturer in Physics, Imphal College presented a talk on the topic “ Why do we require science ?”. Dr. Ch. Sivaji delivered a lecture on the topic “ Computer world” and interacted with the students and this was followed by the visit to the laboratory of DOEAAC Centre, Govt. of India, Akampat, Imphal and meet the working scientists. They interacted with the team of scientists led by Er. Y. Subhash, Scientist D and Er. A. Buboo Singh, Scientist C of the centre. Each participant was provided each system in the laboratory of the centre and they carried out hands on practical on topics such as creation of e-mail ID, Emailing to others, Internet browsing etc. The scientists and technicians of the centre shared their knowledge and expertise in the area of computer sciences with the students while students were carrying out hands on practical. Each student could create their own e-mail IDs and learnt confidently by sending messages amongst themselves.



Students working on E-mail ID creation in the lab of DOEAAC Centre , Imphal

The participants visited various laboratories such as Soil Sciences, Tissue Culture, Animal Sciences, Agronomy, Pathology etc. of the Central Agricultural University, Imphal. The Dean of the University made special arrangement for interaction of the participants with the scientists of the University on the importance of Agricultural Sciences and contributions of agricultural scientists in the country. Faculties of the University namely Dr. R.K. Tombisana Devi, Associate Professor, Dr. N. Somorjit Singh, Associate Professor, Shri N. Brojen Singh, Asst. Professor, Dr. A. Herojit Singh, Associate Professor, Professor M. Dhaneshwar Singh, Dr. N. Iboton Singh took part in the interaction session. Besides demonstrations by agriculture scientists, the students performed some experiments such as p^H value determination, Nitrogen estimation etc. at the laboratory of



Students performing soil testing experiments

Soil Sciences Department of the University. Dr. A. Herojit Singh guided the students in performing experiments.

The participating team also visited the North Eastern Institute of Science and Technology (NEIST) formerly, Regional Research Laboratory, Imphal Sub Station. Dr. H. Birkumar Singh, Scientist in charge, NEIST highlighted about the research activities of the institute. Considering the importance of medicinal plants, while speaking to the students, he emphasized on the need for research on medicinal plants as these plants are grown in plenty in the state. He mentioned to the students that many species which are grown in the state are yet to be explored. He took all the students to the laboratories of the centre and also performed demonstrations on how oil has been extracted from plant leaves. The students also performed the experiment of oil extraction using the facility available at the centre.



Demonstration of extraction of oil from aromatic plants at NEIST lab.

The participants visited the Seismic Observatory of the Earth Sciences Department of Manipur University. Dr. S. Ibotombi Singh of Earth Sciences Department delivered a science talk on the topic “Earth Sciences” and interacted with the students. The students interacted with the research scientists working in the Remote Sensing and GIS laboratory of the Department. Dr. S. Manichandra Singh, Seismologist explained to the students about earthquake processes and also demonstrated monitoring of seismic waves at the Observatory and explained on identification of epicenter as well as focus of earthquakes in the region.



Students visiting Remote Sensing & GIS Lab

The students visited laboratory of Physics and Chemistry Department of Manipur University. Professor S. Dorendra Singh of Physics Department guided the students in physics laboratory. He also



Students visiting laboratories of Physics

highlighted about the importance of Physics in the society. Dr R.K.Bhubon Singh, Associate Professor in Chemistry, Manipur University delivered a lecture on “Fundamentals of Chemistry as a basic science and its importance in the society” and interacted with the students. He further interacted on the need to minimize superstitious beliefs from the minds of the common people and role of Chemists in this regard. The students could also interact with Dr. N. Rajmuhon Singh, Professor in Chemistry - a science popularization activist.

The students visited the laboratories of the Manipur Institute of Technology (MIT), Imphal on 21st October 2010 and learnt the fundamentals of engineering sciences by interacting with the scientists/ engineers of the institute. The participants were taken to the Institute of Bioresources and Sustainable Development (IBSD), DBT, Govt. of India at Takyelpat, Imphal. Dr. Talukdar, Director, IBSD welcome the students and teacher participants. Dr. Jayram, Scientist of the institute highlighted in brief about Bioresources of the state and also about the research activities of the Institute. The students visited all the divisions of the institute where R&D projects were being carried out and interacted with the scientists.



Dr. Jayram, Scientist, IBSD, DBT Govt delivering a lecture on Bio-resources and interacting with the students

Dr. Meghachandra Singh, Lecturer (a science popularization worker in the area of medical sciences), Directorate of Health Sciences, Govt. of Manipur interacted with the students on the topic “Health and Sanitation” and Shri L. Somorjit Singh, Lecturer (SG) delivered a science talk on Eco- Water literacy campaign. Dr. O. Joychandra Singh, Asst. Professor, Jawaharlal Nehru Institute of Medical Sciences, Imphal delivered a popular talk on Medical Sciences in the 21st Century and interacted with the students.

An elocution competition on science topics was arranged for the participants for which some science topics were already given to them well in advance. In the competition, a group /team of two or three students from each school made presentation on a science topic of their choice and jury members asked some questions to test their knowledge in the subject. The students team represented by Rs. Ngamthing, Sangyir Luikham and Z. Mashungmi from Little Angels English School, Ukhrul (a hill district inhabited by tribal communities) stood first and the second



Science elocution competition in progress

position went to the Team from Halleey English School represented by Ruhish Tabasum, Ruhana Sahida and Ch. Jenifer Devi. The third position went to two teams comprising of i) Twicy Mutum, Okensana Kom and Kh. Khedabarth of Don Bosco High School, Langjing and ii) Sacred Heart School, Porompat represented by Th. Sonia Devi, Th. Udayini and Ch. Bisanta respectively.

A Face to face programme was also arranged on the last day. The experts of various disciplines such as Physics, Chemistry, Earth Science, Soil Science, Life Sciences, Medical Sciences, Information Technology etc. were invited for the programme. It was about two and half hours session. Shri Th. Surendranath Singh, Executive Director, MASTEC conducted the session. About 60 questions were put by the students and experts answered and shared their knowledge with the participants.



Face to face with distinguished scientists

Post Programme Activities

As part of popularizing the Contact programme for talented students, a science serial of five episodes was developed on the basis of the five days activities. The duration for each episode was about 45 minutes. All the five episodes in regional language were telecast repeatedly in the Information Service Television (ISTV) network.

1.4.1.5 Vigyan Prasar EduSat Network:

Vigyan Prasar(VP), 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 Manipur, the facilities of SIT were installed at MASTEC Complex, Takyelpat, 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 to distant and far-away places in the country.



Satellite Interactive terminal - Edusat

The main target groups for the SIT programme included 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 being conducted on various topics from time to time round the year and benefited students, teachers, science activists etc. of the state.



Edusat programme in progress

However, the whole set of the network has very recently, been shifted to the Campus of the Manipur Science Aquarium, D.M.College Campus, Imphal. The new venue was inaugurated on 31st March, 2011 by Shri K Moses Chalai, Commissioner (University & Higher Education), Govt. of Manipur.

1.4.1.6 Contact Programme for Talented SC & ST Girls School Students of Manipur

The residential type Contact Programme for Talented SC & ST Girls School Students of Manipur was organized by Manipur Science & Technology Council (MASTEC) during March 1-10, 2011 at the Training Hall of the Art & Culture Building, Palace Compound, Imphal. The programme was catalysed and supported by National Council for Science & Technology Communication (NCSTC), Department of Science and Technology (DST), Govt. of India, New Delhi.



Inaugural address being given by Executive Director, MASTEC

The programme was inaugurated by Shri Th. Surendranath Singh, Executive Director, Manipur Science & Technology Council (MASTEC), Imphal. Prof. N. Rajmuhon Singh, Former Head, Department of Chemistry, Manipur University, Imphal, Dr. S. Dorendrajit Singh, Head, Physics Department, Manipur University and Shri L. Somorjit Singh, Secretary, Manipur Science Communicator's Association were the honored guests of the function respectively.

The activities of the programme included visiting various laboratories and meet the scientists, science popular lecture cum demonstration, face to face with distinguished scientists, science elocution, hands on project etc. Altogether thirty ST & SC girl students including six guide teachers from Senapati district, Ukhrul district, Thoubal district and Imphal West district etc. attended the programme. The participating schools included H.M. Higher Secondary School, Senapati District(ST), Chil Chil Asian Mission School (ST), L.A.

English School (ST), Don Bosco High School, Phayeng (SC), Victory High School, Kakching (SC), Vale Academy (ST), Ghari. Etc.

Dr. Rajmuhon Singh while giving his views on the inaugural day exhorted the girl students to concentrate on science studies as advancement in science is being accorded top priority by the Govt. as an important component of women's empowerment. He said that earlier trend of girl students reluctant to sustain interest in science studies have tremendously changed. Dr Dorendrajit said that science has been instrumental for producing new materials and devices for use by the human being for comfortable survival. Every one has to have at least some concept of science for living in the scientific society he further said.

On the first day, just after inaugural function was over, the student participants visited the laboratory of DOEAAC Centre, Govt. of India, Akampat, Imphal and studied Internet browsing, creation of e-mail ID and emailing to others, IT security etc. using the facilities available at DOEACC centre and interacted with the scientists of DOEACC Centre. Er. A. Buboo Singh, Scientist C and his colleagues helped the students handle the computers. The SC /ST girl students who come from hill districts and far flung rural areas were



A section of the ST & SC girl participants

observed to have poor knowledge of computer applications which could be perhaps, due to lack of Computer facility in their schools. However, it was observed that they could improve efficiencies in handling computers and could create their own e-mail IDs and start communicating with others with confidence. Since one session was not enough for them, two afternoons i.e. two sessions were provided to them to work and learn some IT related lessons.

The participants visited various laboratories including Tissue culture laboratory of Central Agricultural University, Imphal. Dr. Joykumar Laishram, Professor of Central Agricultural University (CAU) highlighted in brief about agriculture sciences and interacted with the students. Dr. U. Chaoba Singh, Professor of Horticulture and Dr. R.K.Tombisana Devi, Associate Professor of Plant Pathology Department of CAU demonstrated on Rose budding and mushroom cultivation respectively and interacted with the participants. Students observed it and some students also performed the same demonstration with the help of Dr. Chaoba Singh.



Interaction of SC & ST school girls with Horticulture scientists of Central Agricultural University (CAU)

Dr. R.K.Bhubon Singh, Associate Professor of Chemistry, Manipur University made

a presentation in brief on the topic entitled “Chemistry in our lives” which was a National theme of the year 2011 and answered the questions raised by the students. Dr. Bhubon and his team performed some experiments and then explained the scientific concept behind it to the students in the form of explaining science behind miracles. The experiments included Hot Ice preparation, Water to Wine – Red demonstration, Burning money, Fire writing, Chemical fire, Egg in a bottle, Magic writing etc.



Experiments performed by a team of Scholars of chemistry during the Contact Programme for SC & ST girl students

The student participants visited laboratories of Physics, Chemistry and Seismological Observatory of Earth Sciences Department, Manipur University and interacted with the scientists of the fields concerned. Dr. S. Brajamani Singh, Associate Professor of Physics, Manipur University highlighted on the Importance of Physics and its contributions to the society and further interacted with the students. Dr. S. Dorendrajit Singh, Head of the Physics Department, Manipur University then, took them to the sophisticated laboratories including XRD, XRF, electronics labs. etc. of the department and also highlighted about the facilities as well as research activities carried out in the laboratory. The students also met some research scholars working in the laboratory. He further advised the students to pursue higher studies in any branch of basic sciences. Dr. Dorendrajit highlighted about the schemes / facilities including INSPIRE of DST, Govt of India which girl students could avail of for higher study. Dr. Manichandra made a presentation on the topic “Earth Sciences with special reference to Earth quakes. He explained about plate tectonics and causes of earthquakes. He further explained about the seismic zonation as well as location of north east India in the earthquake map of the world. Taking the students to the observatory, he showed the data of recent earth quakes which took place in the state. Considering Manipur as a seismically active zone, he explained to the students on Dos and Don'ts to be remembered before, during and post earthquakes .



Students interaction on Physics in the Physics Department, M.U. during Contact Programme for SC & ST girl students



Girl Students working in the TASAR Research Laboratory, Imphal

The participants visited the laboratory of the Regional TASAR Research Station, Govt. of India, Mantripukhri, Imphal and met the working scientists of the station. Dr. K. Chaoba Singh, Director in Charge of the station highlighted the research activities being carried out by the Zoologists (Entomologists) of the station. He also showed the Silk, Eri products produced at the centre. Then, the students for a few hours, worked together with the research team of the station. The students were then, taken to Manipur Institute of Technology (State Engineering College), Takyelpat, Imphal West and interacted with the Engineering faculties on the topic “Engineering Science”. The students visited the Manipur Science Centre at Takyelpat and watched the scientific equipments/ models of the centre.



Students interacting with engineers/scientists of Manipur Institute of Technology

A face to face with some scientists was arranged on 6th March 2011. The invited scientists for the face to face programme included i) Prof. M. Mahendra Singh, Jawaharlal Nehru Institute of Medical Sciences, Imphal, ii) Professor N. Rajmuhon Singh, Chemistry Department, Manipur University, iii) Dr. L. Sumarjit Singh, Associate Professor, Central Agricultural University, iv) Dr. S. Brajamani Singh, Associate Professor of Physics and Dr. Sanoujam Manichandra Singh, Seismologist of Seismological Observatory of Earth



Face to Face with scientists during Contact Programme for SC & ST Girl students

Sciences Department, Manipur University. About 65 science questions were asked by the students and the experts answered and also shared their knowledge with the students. Students asked a good number of questions in the area of Medical science and Agricultural sciences which were accompanied by some questions in Physics, Earth Science, Chemistry.

Dr. Jaydev Kar, experienced Senior Engineer, Pathani Samanta Planetarium, Bhubaneswar, Orissa who came down to Imphal to conduct a Training programme on Model Rocketry was invited to interact with the students. He delivered a lecture on 8th March 2011 at 6 p.m. on the topic “ A History of Rockets & advancement in space sciences in the country” and interacted with the participants.

The students worked on a project entitled “ Multiplication of fruit plants by conventional techniques: Grafting techniques of mango – A Case Study ” under the guidance of Dr. R.K.Dilip Singh, Associate Professor, CAU, Imphal. While working, he monitored the performance as well as the enthusiasm of the students. It was observed that the students improve their skills very fast and learnt grafting process in reality in a short time. The project guide tested each and every student’s skill by allowing them to work separately in front of him.



Student’s project in progress

On 9th March, 2011, the students had a science elocution competition in which each team comprising of two students made presentations on a science topic of their choice for a duration of six minutes each. Jury members asked some questions and students answered. The objective was to encourage them by giving an opportunity to speak on a science topic with confidence before an audience without fear. The following students team made presentations on the science topics shown against their names.



Science Elocution in progress

Sl.No.	Name of students / team	Topic
1.	Nengneihoi Lhouvum & Betschy L Kipgen (ST)	The Earth
2.	Chongngaikim L & H Chongloi (ST)	Soil
3.	Ringchanphy Shokwungnao & Ng Bridgit (ST)	Nano Science
4.	Soniya N & N. Jolly Devi (SC)	Vitamins
5.	Chinggriwon Ahaonao & Mayorin Luikham(ST)	Balance Diet
6	Lalita Manjhi & As Philayung (ST)	Respiratory system

7	Y. Anamika Devi & N Sunanda Devi (SC)	C.V.Raman
8	Ksh Kabita Devi & Bidyapati Devi (SC)	Kalpana Chawla
9	Grace Nengneichin & Monica Dangmei (ST)	Global Warming
10.	Wichamloliu M & Naomi Ringkangmai (ST)	Solar Energy
11.	Nenghoilhing L & Nengminchong Hangshing (ST)	National Technology Day
12.	Miss Roslyn A & Mandeshori Angom (SC)	Global Warming

Post Activities for popularization of Contact Programme :

The activities of the programme was well documented and an attempt was made to produce a science serial under the banner “Let us Understand Science” for telecast in the local TV channel. DDK Imphal Station also made documentation of some of the activities during the programme. The documentation was telecast by DDK, Imphal on 13th April 2011.

1.4.1.7 Science for Sanitation Month : Celebration – 2009 & 2010

Under the initiative of National Council for Science and Technology Communication, Department of Science and Technology, Government of India, every year the month “October” was considered for celebration of **Science for Sanitation Month** all over the country with variety of activities addressing to issues of health and sanitation. Large part of urban slums, rural areas and old parts of towns have unacceptable sanitation facilities. This is because of many overlapping factors, the most important being lack of awareness about the benefits of good sanitation practices. Therefore, awareness about the practice of good sanitation was very important.

Manipur Science and Technology Council, under the sponsorship of National Council for Science and Technology Communication, Department of Science and Technology, Govt. of India and Department of Science and Technology, Government of Manipur in the matching share of 75:25, has been celebrating Science for Sanitation Month since the year 2007 by organizing lecture cum



Lecture programme at Emmanuel School, Chandel District



Lecture programme at Border town, Moreh

demonstrations addressing to various issues of Health and Sanitation. The main objective of

the lecture programme was to make people aware about the benefits of good sanitation practices.

Science for Sanitation Month – 2009 was organized through out the state during September 13 – October 31, 2010. Lecture programmes were organized in different schools/colleges/local communities etc. of the state with the resource persons from Jawaharlal Nehru Institute of Medical Sciences, Govt. of Manipur and Directorate of Family Welfare Services, Government of Manipur. The resource persons involved were Dr. O. Joychandra Singh, Asst. Professor, Jawaharlal Nehru Institute of Medical Sciences, Imphal and Dr. Y. Meghachandra Singh, Lecturer, Regional Health and Family Welfare Training Centre, Government of Manipur, Porompat. Both valley and hill districts of the state were covered in the Science for Sanitation Month – 2009 programme and villages in the periphery were also covered and they took full advantage of the programme . Altogether, 40 lecture programmes were organized in different schools/Colleges /local communities etc. of the state.



*Lecture Programme at Chil Chil Assian
Mission School, Kanglatombi*

The Science for Sanitation Month – 2010 was organized during March 7 - 30, 2011 in different schools and local communities with the resource persons from Jawaharlal Nehru Institute of Medical Sciences, Imphal and Regional Health and Family Welfare Training Institute, Directorate of Family Welfare Services, Govt. of Manipur were the Key resource persons of the lecture programmes. Altogether, 11 lecture programmes were organized in different schools, colleges, local communities of the state.



*Programme at Workers Union Manipur,
Rup Mahal Tank, Imphal*

1.4.1.8 Training Workshop on Model Rocketry:

A 5-day State Level Training Workshop on Model Rocketry was organized by Manipur Science & Technology Council, Central Jail Road, Imphal under the sponsorship of Rashtriya Vigyan Evam Prodyogiki Sanchar Parishad, Department of Science & Technology, Govt. of India, New Delhi during March 7-11, 2010 at the premises of Manipur Science Aquarium, D.M. College Complex, Imphal.

The main objective of the workshop was to impart training on design, construction and testing of various model rockets to the participants. The target group of participants were schools students of X-XII(Sc) standard and Science Teacher Guides. Altogether 45 participants from 15 schools in Manipur attended the programme. The training workshop was inaugurated by Shri H. Imocha Singh, Commissioner (Science & Technology), Govt. of Manipur. Dr. Jayadev Kar, Senior Engineer, Pathani Samanta Planetarium, Shri Ravi Narayan, Bhubaneswar were the resource persons for the training workshop.



Resource Person demonstrating Making of Model Rockets

Dr. Jayadev Kar, Senior Engineer, Pathani Samanta Planetarium said that Rocket was first invented in China in 1000 AD. At that time Rockets were used for entertainment at the time of festivals and also as war weapon, he further added. He said that various forms of Rockets with varied uses and capabilities were later developed by different countries. He highlighted a power point presentation on various parts of Rockets and materials used in the development of a rocket. He mentioned that the rocketry kits prepared for the programme are very low cost but highly useful. He appealed to all the participants to make judicious use of the kit and materials provided during the workshop in enabling the other students of their school to develop model rockets and make fun in test firing of the rockets in their schools.

Dr. Jaydev Kar, Senior Engineer, Pathani Samanta Planetarium delivered a detailed lecture on theory of rockets and mathematical science behind construction and development of various model rockets. Model Rocketry kits were also distributed to the participants on the first day of the workshop. Demonstrations on some hands on experiment related to physical science were also conducted by Shri Rabi Narayan Swain, Senior Teacher (PGT), Chimanpara Higher Secondary School, Bhubaneswar.

The Resource Persons conducted practical sessions on construction and development of a flying rocket. All the participants constructed the rockets under the guidance of the two Resource Persons. A lecture on Construction of a Balloon Rocket was followed by practical session. Some of the model rockets developed by the participants were test fired. Dr. Kar conducted practical session on construction of model rockets applying soft landing principle. The principle of weightlessness of an object was also explained on the 4th day followed by a practical session. Some model rockets were also test fired in the evening of the 4th day of the Training Workshop. A quiz competition was organized to test the skill/knowledge gained by the participants during the Training Workshop.



Launching of Model Rockets developed by Participants

1.4.1.9 Eco-Water Literacy Campaign

Water and Sanitation become significant factors for keeping a society in good health and hygienic condition. Every one of us has a role to play and responsibility towards maintaining water quantity, quality, and preventing pollution to ensure a safe and secure supply. The urban and rural areas of the state have poor sanitary facilities which may be perhaps, due to lack of awareness of the benefits of good sanitation practices. Besides, there are inadequate supply of safe water for drinking and domestic purposes.



Lecture on Eco-Water in progress

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 has been celebrating Eco-Water Literacy Campaign since the year 2008 by organizing lectures at different schools for creating awareness addressing to various issues on water treatment, conservation, management etc. in the state.

The Council launched the Eco-Water Literacy Campaign in the state during September-October, 2010 through lecture-cum-demonstration to make aware of ground water recharge, maintenance of water bodies, waste water treatment, monitoring of water quality, prevention of pollution and safe drinking water etc. to the students and general public. The key resource persons were 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. All the districts (4-valley and 5-hill) of the state were covered in the campaign. Altogether, 50 lecture-cum-demo programmes were organized in different schools/Colleges/local communities etc. The lecture covered the areas such as Characteristics of water, Sources of Surface and Ground Water Pollution, Dumping of Waste near Water Bodies, Detrimental Effects of Water Pollution, Water Pollution Related Diseases, Purification of Water, Waste Water Treatment, Conservation and Maintenance of Water Bodies, Important Rivers, Lakes & Ponds of Manipur, Access of Safe Drinking Water, Rain Water Harvesting, Tapping of Ground Water, Renovation and Conservation of Ponds, Sewage Treatment Plant, Softening of Water etc.



Interaction session on Eco water

About 15,000 students and general people of the state had been benefited by the campaign. During interaction session, participants put many interesting questions related to

water treatment, management and conservation and satisfactory answers were given by the resource persons. In fact, the programme received good response from the participants. The resource persons during the interaction session appealed to the people to use water judiciously and to consume only boiled/ treated water etc. Most of the participants / people felt about the importance of the lecture programmes for a safe and healthy living. Authorities of schools / colleges /clubs / organizations welcomed the next year's campaign.

Apart from the lecture programmes, under this campaign, information about treatment and conservation of water etc. were also gathered from the local people. It was observed that in most parts of the rural and hill areas, due to the unavailability of tap water, people used water from the streams and ponds with the traditional method of filtration.

1.4.2 Projects :

1.4.2.1 Patent Information Centre (PIC), Manipur

Considering the importance of Intellectual Property Rights (IPR), the Patent Information Centre (PIC), Manipur was set up on 25th March, 1998 at the Directorate of Science & Technology and Information Technology, Govt. of Manipur, Imphal under the supervision of PFC-TIFAC, DST, New Delhi with the following objectives:

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

The PIC Manipur was transferred to Manipur Science & Technology Council (MASTEC), Imphal from the Department of Science & Technology, Govt. of Manipur on 26th November, 2007. The PIC, Manipur is now fully equipped and operational providing services on IPR related issues in the State.



PIC Manipur unit

Achievement :

- i) **Patent Applications** : In the year 2010-2011, the following Patent applications have been submitted through PIC to PFC-TIFAC, New Delhi
 - a) **Dry Fish Fermentation Technology** and allotted Patent Application No. 1274/KOL/2010 dated 11/11/2010.

- b) **Kum (*Strobilanthus flaccidifolius* Nees.) as Hair dye** by Dr. L. Warjit Singh and Wangkheirakpam Sujata of Chemistry Department, Manipur University.

Besides, documentation of **Poireiton Chak-hao** (Black Scented Rice) of Manipur has been in progress for registration under Geographical Indication. The Black Scented Rice gets scented smell unlike other black rice found in other part of the globe.



**Poireiton Chakhao
(Black scented Rice)**

ii) Observation of World Intellectual Property Day:

The PIC observed World Intellectual Property Day on 26th April 2010 in association with Indian Medical Association (IMA), Manipur State Branch at IMA House, Imphal. The main objective of the workshop was to create awareness about IPRs, especially Patents, among the individuals, researchers of colleges, universities and R&D institutions etc. . Dr. Kh. Palin, Managing Director, Shija Hospital & Research Institute, Imphal and Prof. N. Rajmuhon Singh, Department of Chemistry, Manipur University, Imphal delivered lectures on IPR related issues and interacted with the participants. About fifty participants including Medical students and Practitioners attended the programme.



**Resource person delivering lecture
on IPR issues**

iii) Short term training programme on IPR

A short term training programme on IPR was organised by Academic Staff College, Manipur University, Canchipur in association with **PIC, Manipur** during July 27 to August 2, 2010. About 70 (seventy) participants mainly Research Scholars, Lecturers etc. from different colleges participated in the training programme.

1.4.2.2 Intellectual Property Facilitating Centre (IPFC), Manipur

Intellectual Property Facilitating Centre (IPFC), Manipur centre was set up with the support from Ministry of Micro, Small and Medium Enterprises (MSME), Govt. of India, New Delhi. The main objectives of **Setting up of IPFC** included

- i) co-locating IPR facilitation centre in PIC
- b) determining IPR needs of selected clusters of MSME in the state and evolve solutions and

- c) extending legal, financial and technical support to them for protecting intellectual property of the industries such as patents, trademarks, design, copyrights etc.

With the start of implementation of activities of IPFC, a Steering Committee has been constituted with the following members to monitor activities as well as advise on implementation of **IPFC** programmes;

Sl. No.	Name	Designation
1.	Member Secretary Manipur Science & Technology Council, Imphal	Chairman
2.	Director, Patent Facilitating Centre (PFC), Technology Information Forecasting & Assessment Council, DST, New Delhi	Member
3.	Representative of Ministry of Micro, Small & Medium Enterprises (MSME), New Delhi	Member
4.	Representative of Micro, Small & Medium Enterprises – Development Institute (MSME-DI), Manipur	Member
5.	Representative of Department of Commerce & Industries, Government of Manipur	Member
6.	Representative of Department of Science & Technology Government of Manipur	Member
7.	Representative of Manipur Handloom & Handicraft Development Corporation Ltd., Imphal	Member
8.	Nodal Officer, PIC, Manipur & Executive Director, Manipur Science & Technology Council, Imphal	Member Secretary

One day sensitization programme on **Intellectual Property Right** was organised by IPFC, Manipur jointly with MSME-DI, Takyelpat, Imphal at Classic Hotel, Imphal on 24th March, 2011. The programme aimed at creating awareness on the needs and importance of IPR as business tools to the entrepreneurs and other technical and higher institutions. Shri O. Nabakishore Singh, IAS, Principal Secretary, Commerce & Industries, Govt. of Manipur inaugurated the programme.



Dr. B.K. Sahu delivering lecture

Dr. B.K. Sahu Scientist, National Research Development Corporation (NRDC), New Delhi delivered a lecture on the topic “Overview of IPR spectrum and patent filling procedure in India” and interacted with the participants. Dr. Ch. Ibohal Meetei, Director, Manipur Institute of Management Studies (MIMS), Manipur University spoke on the topic “Importance of IPR in Industrial Sector”. About 60 participants including entrepreneurs, scholars, researchers and Post Graduate students participated in the programme.

1.4.2.3 Manipur Science Aquarium

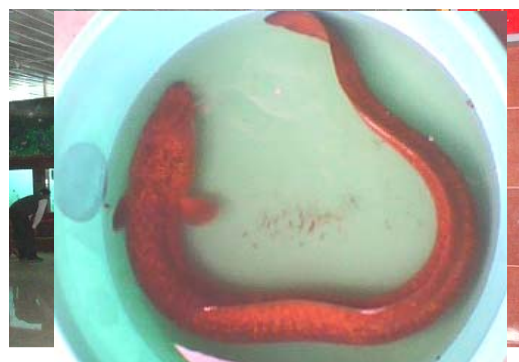
Manipur Science and Technology Council, Imphal with the support of Department of University and Higher Education, Government of Manipur, Imphal constructed Manipur Science Aquarium at D.M. College Complex, Imphal with the main objectives of studying the behavior of different types of fishes and conserve 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.



Inaugural function of Manipur Aquarium

The Aquarium was inaugurated by Shri K Moses Chalai, Commissioner, University & Higher Education, Govt. of Manipur on 31st March, 2011. Dr. R.K. Yaishkul Singh, Additional Director, University & Higher Education, Govt. of Manipur, Shri Ng. Brajakumar Singh, Principal, D.M. College of Commerce, Dr. P. Ranabir Singh, Principal, D.M. College of Science, Shri U C Laishram, Director, Science & Technology, Govt. of Manipur and Shri Th. Surendranath Singh, Executive Director, Manipur Science & Technology Council attended the inaugural function. From the day of inauguration, visitors started viewing the science aquarium.

Altogether 50 varieties of local and other aquarium fishes were kept in the tanks for viewers. These local fishes are collected from different parts of the valley as well as hill areas of the state. Interested visitors even donate fishes to the aquarium. Shri Ratan Waikhom, S/o Umakanta Waikhom of Loklaobung, Imphal contributed one Ngarin Leina measuring 3'10" in length and about 6 kg weight and Ngawa. Shri R. K. Mohensana Singh, Kodompokpi Mamang Leikai, master Mahesh Loitongbam, a class VII student of Don Bosco School, Langjing and Sadananda Loitongbam, Class V student of St. Joseph School, Imphal contributed some local fishes for display. Twenty nine local fishes such as Pengba, Meitei Ngamu, Ngamu Bogra, Ngashang, Nylon-nga, Lanmeithanbi, Muka-nga, Phabou-nga, Ngakha Meingangbi, Nga-tunghanbi, Ngaton, Silver Carp, Japan Puthi, Puklaobi, Ngapemma, Phetin, Rou, Ngaril, Ngakrijou, Ngatup, Khajing, Ukabi, Kandala, Ngaprum, Ngashep, Ngamha, Ngawa, NgarinLeina have so far been collected and kept in the aquarium. 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. It is planned to keep more varieties of fishes in the aquarium and also planned to have R&D provision in the near future.



Ngarin Leina – a local fish

1.4.2.4 Dailong Micro Hydel Project (2 x 50 kW):

The project was supported by Department of Science & Technology, Govt. of India for implementation by the Council. The project was commissioned with a formal inaugural function on 20th September, 2010 by Shri L.P. Gonmei, Principal Secretary (Power) to Govt. of Manipur as Chief Guest. Shri H. Imocha Singh, Commissioner (Science & Technology), Govt. of Manipur presided over the inaugural function. Shri K.

Panmei, Deputy Commissioner, Tamenglong District attended the function as the Honoured Guest. Government Officials from Tamenglong District Headquarter and State Power Department and Inhabitants of Dailong village including Village Chief also attended the Inaugural Function. The 2x50 kW capacity hydel project provided electricity to 100 households in Dailong village, Tamenglong District, Manipur. The villagers made warm welcome of the project inauguration with a traditional tribal cultural show.



Principal Secretary (Power), Govt. of Manipur inaugurating the



Operation of Dailong Micro-hydel Project

1.4.2.5 Hydel Project at Senam Village, Senapati District

Under this project a locally developed turbine known as Wheel Type Turbine System has been installed to generate 5 kW of Power to electrify Senam Village at Senapati District,



Wheel Type Turbine System



Operation of Wheel Type Turbine System

Manipur. The village is non electrified and has about thirty house holds. This locally developed Turbine System was launched for the first time in Manipur. The project was found eco-friendly and suitable for small villages in the hills. The project was inaugurated on the 5th

November, 2010 by Shri H. Imocha Singh, Commissioner (Science & Technology), Govt. of Manipur in presence of the Village Chief and villagers.

1.5 Meetings/Trainings attended by Officers

Name of official with designation	Meetings / Trainings	Sponsoring agency	Venue	Period
Th. Surendranath Singh Executive Director	13 th All India PIC Interactive Meet - 2010	PFC-TIFAC, DST, Gol	Guwahati	December 21 – 22, 2010
	Training programme on IPR and WTO Issues	DST, Gol	TERI , Gurgaon	December 27-31, 2010
	Workshop for the Officials of IPFCs	Ministry of MSME, New Delhi	FICCI Tansen Marg, New Delhi	February 17, 2011
Dr. L. Dinachandra Singh, Sr. Scientific Officer	Meeting on S&T oriented demonstration projects	DST, Gol	INSA, New Delhi	May 5, 2010
	Review Meeting of NRDMS, DST sponsored projects	DST, Gol	IIT, New Delhi	June 7-8, 2010
	Trainer's Training on rain water harvesting & GW recharging	DST, New Delhi	NIAS, I.I.Sc. Bangalore	March 14-18, 2011
Dr. L. Minaketan Singh, Scientific Officer	Scientific Delegation group of India for Exposure visit to S&T institutions	DST, GoI., New Delhi	Taipei, Taichung in Taiwan (Republic of China) & Bangkok (Thailand)	May 28 -June 3, 2010
	Meeting on DST, INSPIRE programme	DST, New Delhi	IISER, Pune	September 2010
	Training on rain water harvesting & GW recharge	DST, New Delhi	NIAS, I.I.Sc. Bangalore	March 14-18, 2011

Er. Ch. Sarat Singh	Project Review Meeting	DST, New Delhi	INSA, New Delhi	July 21, 2010
Dr. R.K.Pritamjit Singh	13 th All India PIC Interactive Meet - 2010	PFC-TIFAC, DST, Gol	Gauhati	December 21 – 22, 2010
	Training programme on IPR and WTO Issues	DST, Gol	TERI, Gurgaon	December 27-31, 2010
	Workshop for the Officials of IPFCs	Ministry of MSME, New Delhi	FICCI Tansen Marg, New Delhi	February 17, 2011

1.6 Visiting Scientists to MASTEC

The following scientists made official visits to MASTEC in connection with the programmes shown below.

Sl. No	Name & Address	Date of Visit	Purpose of visit
1	Dr. Manoj Patariya Scientist F/ Director, NCSTC, DST, New Delhi	April 29 –May 2, 2010	Attending Training Workshop on Science Writing for Thoubal District, Manipur as DST Official cum expert
2	Dr. C.M.Nautiyal Scientist, BSIP, Lucknow	April 29 –May 2, 2010	Attending Training Workshop on Science Writing for Thoubal District, Manipur as a resource person
3	Dr. Jaydev Kar Senior Engineer Pathani Samanta Planetarium Bhubaneswar	March 7-11, 2011	Attending Training Workshop on Model Rocketry as Master Resource Persons
4	Shri Ravi Narayan Swain PGT, Bhubaneswar	March 7-11, 2011	Attending Training Workshop on Model Rocketry as Resource Persons
5	Dr. B.K.Sahu Scientist, NRDC, New Delhi	March 24, 2011	Attending one day Sensitisation Workshop on Intellectual Property Right as an Expert

1.7 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.