

Annual Activity Report
for the year 2002-2003

Manipur Science & Technology Council
(MASTEC)
Central Jail Road, Imphal - 795 001

Annual Report for the year 2002 - 2003

Manipur Science & Technology Council (MASTEC)

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 20 manpower supported by the Department of Science & Technology, GOI. 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.

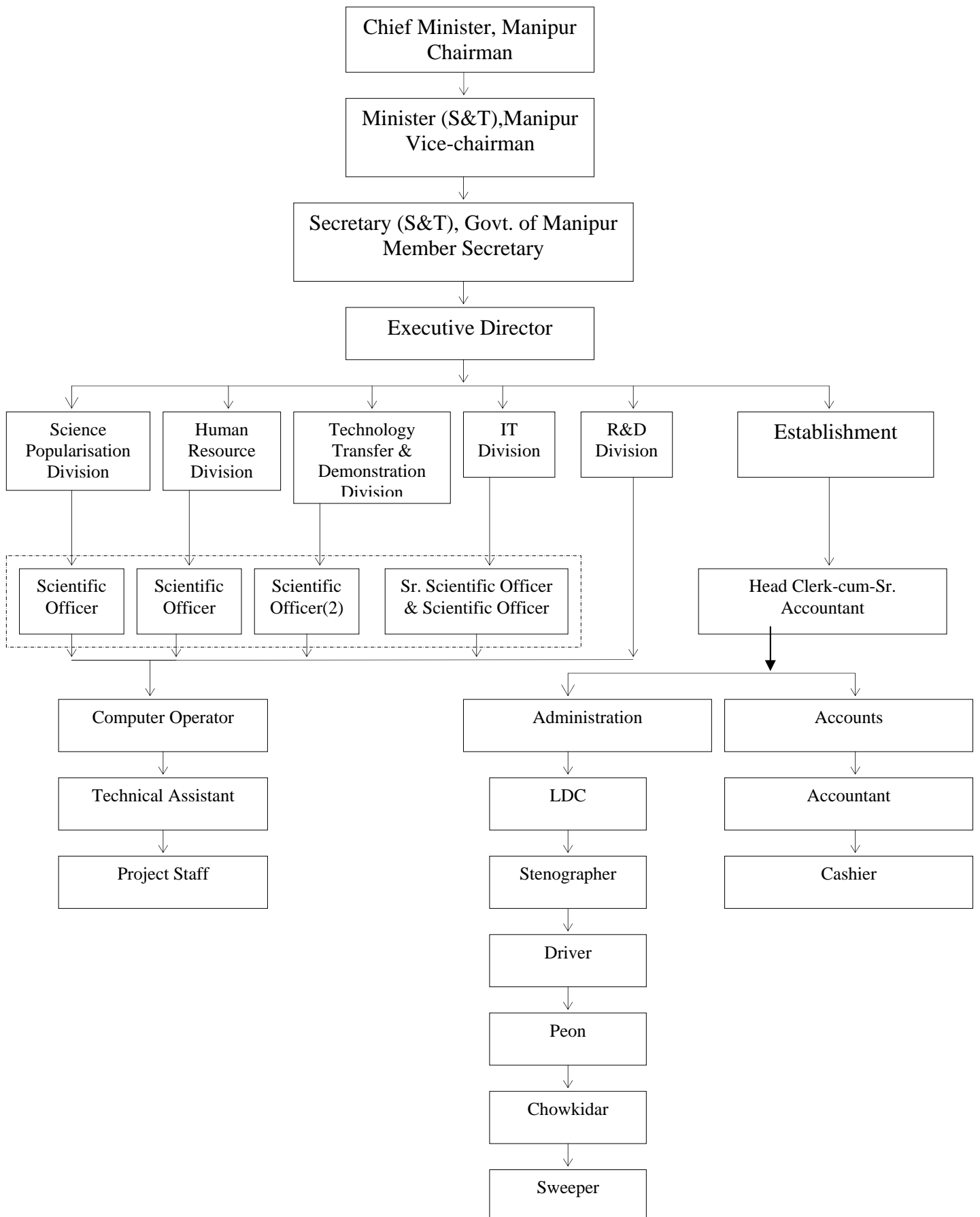
1.2 Organisation

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 22 members (including two 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.

Manipur Science and Technology Council (MASTEC) has at present five divisions viz. (see MASTEC Organisation chart)

- Research and Development Division(RDD)
- Information Technology Division (ITD)
- Science Popularisation Division (SPD)
- Human. Resource Division (HRD)
- Technology Demonstration and Transfer Division (TDTD)

Organisation Chart



1.3 Existing Staff

Sl. No.	Name	Qualification	Designation
1.	Dr. R.K. Shyamananda Singh	M.Sc., M.Phil, Ph. D.	Executive Director
2.	Th. Surendranath Singh	M. Sc., PGDCA, LLB	Sr. Scientific Officer
3.	Dr. L. Dinachandra Singh	M.Sc., PGDRS, Ph. D.	Scientific Officer
4.	Dr. L. Minaketan Singh	M.Sc., P.G.Diploma in Remote Sensing , Ph.D.	Scientific Officer
5.	Kh. Rakesh	M.Sc.	Scientific Officer
6.	Ch. Sarat Singh	B.Tech.(Civil), M.Tech.	Scientific Officer

Technical Staff :

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

Ministerial Staff :

10.	Y. Rajen Singh	B.A.	Head Clerk cum Sr. Accountant
11.	K. Nara Singh	B.A.	Accountant
12.	Mrs R.K. Bhanisana Devi	B.Sc.	L.D.C.
13.	H. Thangthianmang	B.A	L.D.C.
14.	A. Tombi Devi	B.A.	Stenographer
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.	O. Rabi Singh	MCA	Scientific Officer
22.	S. Premjit Singh	MBA	Junior Research Fellow

1.4 Activities

The Manipur Science and Technology Council (MASTEC) organised various centrally sponsored workshops / 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 are the programmes implemented by MASTEC during the year 2002- 2003.

1.4.1 Science Meet 2002

National Science Day is celebrated in the country on February 28, every year, since 1987. The decision to designate such a day was taken by the Government of India in December 1986 and the choice of the date is linked to the discovery of the Raman Effect.

The occasion is intended to instill and build in us the confidence in ourselves and in our own abilities to think of and do entirely new things on our own. Thus, efforts are made to popularize Science & Technology, estimate and nurture scientific attitudes and temperament among our people, as part of the National Science Day celebration. The national theme of the year 2002 was **Wealth from Wastes**.

India conducted 5 (five) successful underground nuclear tests on May 11 and 13, 1998 at Pokhran in Rajasthan. The country started celebrating May 11 as National Technology Day since 1999 in commemoration of the successful nuclear tests. The basic idea of the National Technology Day is to focus national attention specially on technology and technologists and also to stimulate and promote a technological temper among the people. Major milestones in the fields of nuclear science, defence research and aviation technology all achieved on May 11, 1998 made it easy to designate this as the National Technology Day. The objective is to focus attention of the nation – students, teachers, engineers, researchers, entrepreneurs, thinkers – on issues of technology. The national theme of the year was **“Developing the Spirit of Innovation”**.

Since the year 1997, Manipur Science & Technology Council (MASTEC) in coordination with the leading NGOs of the state has been continuously organising the state level festival named as Science Meet. Science Meet is a multi- activity state level science festival aiming at creating a common platform for science students, science lovers and scientists to further the cause of Science Popularisation. MASTEC in coordination with the leading science NGOs of the state like Science Teachers’ Forum, Manipur (STFM), Manipur Association for Science and Society (MASS), Manipur Association for Promotion of Science (MAPS) and Manipur Science Communicators’ Association (MASCA) organised the 5 day long Science Meet 2002 during May 11-15, 2002 at Manipur Kangshang, Khuman Lampak Stadium Complex Imphal. Science Meet 2002 was a combined celebration of the National Science Day 2002 and the National Technology Day 2002.

Inaugural function

The Science Meet 2002 was inaugurated by Shri O. Ibobi Singh, Chief Minister, Manipur at a function at Manipur Kangshang, Khuman Lampak Stadium Complex, Imphal and Shri S. Natum Singh, Minister (S&T), Manipur presided over the function. Dr. T. Meinya Singh, Member of Legislative Assembly, Manipur attended the inaugural function as the Guest of Honour.



Chief Minister delivering inaugural speech

In his inaugural speech, Shri O. Ibobi Singh mentioned that life in today’s world could be seriously handicapped without science. He appreciated the scientific talents of the students of the region and appealed that opportunities should be created for the young talents to opt science as career. He further said that the Science Meet 2002 would help to produce children scientists from this region. He appealed to the NGOs to help government to find out what could be done at the best for science popularization in the state.

In the address by the Guest of Honour, Dr. T. Meinya Singh said that India had shown its capability to the world in the field of science and technology by testing series of

nuclear bombs at Pokhran in Rajasthan on May 11 and 13, 1998. He further said that organising Science Meet every year would help to develop scientific temperament among the students and also help remove superstitious beliefs from the minds of the students.

In his presidential remarks, Shri S. Natum Singh lauded the role of MASTEC in the science popularization activities in the state. He thanked all the coordinating agencies for jointly organising the Science Meet 2002 and further appealed to other NGOs to join hands with MASTEC so that such Science Meet would be organised with more and more fan fare every year. About 1500 (one thousand five hundred) people from students community and other organisations gathered at the inaugural function of the Science Meet.

Activities of Science Meet 2002

The activities of the Science Meet 2002 were Competition (Science Quiz, Painting, Science Model and Declamation), Popular Science Gallery & Model Exhibition, Science Behind Miracles, Puppet Shows, Book & Poster Exhibitions, IT Shows, Face to Face with distinguished scientists, Scientific Film Shows, Science Street Play, Technopreneurship Exhibition etc.

Activities of Science Teachers' Forum, Manipur (STFM)

Popular Science Gallery

STFM under the theme **play and learn yourself** exhibited the following models: Monocular vision, Play with pulley, Play with lever, Illusions – all seeings are not believing – I, Illusion – II, Illusion – III, Studying scientific principle – Archemede's principle, Studying scientific principle – Isochromism, Study with Lissajo's figures, Working of transformer, I. Q. measuring model – tangram, Study of wave motion, Precession motion, Working of microscope, Study of transfer of energy etc.

The main objectives of the gallery were i). to arouse interest in playing with simple kits explaining scientific laws, principles etc. ii) to enable to transfer ideas in the head to the hand and vice versa and iii) to enable to identify the area of interest and iv) to enable to appreciate the beauty of Nature and Systems.

Science Model Competition

The competition was open to the students reading in class VIII – XII. Altogether 47 (forty seven) models were exhibited by 88 (eighty eight) students (55 boys and 33 girls) in the competition. The models were based on varied themes – Electronic gadgets – 8 models, Issues on Environment – 3 models, Technological application – 28 models and other themes of interest – 8 models.



Model exhibitors interacting with visitors

The following were the winners of the competition

Position	Exhibitor	School	Model
1 st Position	1. Heeteswar Th. 2. K. Tony	Maria Montessori School Imphal	Improved Chulah
2 nd Position	1. Pretty Mayengbam 2. Ronarichee L.	Shantilata Memorial School, Imphal	Crutch cum wheel chair/table
3 rd Position	K. Sanjitkumar	Ananda Singh Academy Hr. Sec. School, Imphal	Know plastics for Yes plastics
Consolation	1. Angom Suraj 2. M. Stalen	Little Rose Hr. Sec. School, Imphal	Sugar refined machine
	Ng. Sanju	Royal Academy, Heirok Thoubal district.	Manual of water pump

Activities of Manipur Association for Science & Society (MASS)

Manipur Association for Science & Society (MASS) in coordination with MASTEC took part in the two activities such as Science Behind Miracles and Science Street Play.

Science Behind Miracles

Miracles or magic are old human activities which make people wonder or confuse and in many cases mislead the general public. Many items of science behind miracles were demonstrated by the expert members of MASS during Science Meet 2002 and the scientific background of the shows were also explained. Some of



Explaining science behind miracles

the items were Playing with fire and fire eating, Holy ash, Rope tricks, Mysterious handkerchief, Fire with mental power, Vanishing and returning coin, Water from heaven, Change of roshgula to handkerchief, Trisul piercing in tongue, Needle piercing in skin, Reading by ear and Counting match sticks. Every day about 700 (seven hundred) people watched the show and many of them could learn how science is related with miracles.

A Science Street Play based on environmental issues was played by the members of MASS on May 14, 2002, the fourth day of the meet. The title of the play was **Deforestation**. The cutting of trees and its consequence to degradation of the ecology and environment was pointed out by the play and about 1000(one thousand) people witnessed the play.

Activities of Manipur Association for Promotion of Science (MAPS)

The activities like Science Quiz and Declamation contest were organised by Manipur Association for Promotion of Science (MAPS).

Science Quiz

The competition was open for students currently reading in class XI- Degree in Science/Technology. Eighteen (18) teams from schools and colleges registered for the preliminary written Quiz out of which four teams were selected for the final round. The Quiz was on the subjects pertaining to science and technology. The following were the winners of the Quiz competition.

1 st position	1. Kenish Ningthoujam 2. Ph. Surchandra Sharma	D. M. College of Science, Imphal
2 nd Position	1. A. Deepak Kumar 2. N. Padameshwar	Havard School, Imphal
3 rd Position	1. Kennedy N 2. R. K. Uttam	D. M. College of Science, Imphal
Consolation	1. R. K. Ranadeva Singh 2. N. Bopendra Singh	Sainik School, Imphal

Declamation Contest

The competition was open to students currently reading in class XI- Degree in Science/ Technology. The topics of the declamation were i) Recycling of wastes ii)Pollution free industries iii) Importance of indigenous technology iv) Information Technology v) Biotechnology today out of which each participant spoke on one topic of their choice. Fourteen students from various institutes participated in the competition Shri R. K. Ranadeva Singh of Sainik School, Imphal, M. Kiran Singh of Royal academy of Science, Imphal and Laishram Chanu Bilu of La Chatelaine Residential Jr. College, Chennai occupied the first, second and third position of the competition respectively.

Activities of MASCA

Manipur Science Communicators' Association (MASCA) in coordination with MASTEC took part in organization of the activities like spot painting, puppet show and book exhibition.

Spot Painting Competition

The competition consisted of 3(three) groups viz., i) Sub – Junior Group (class III-V) ii) Junior Group (class VI –VIII) and iii) Senior Group (class IX –X). The competition was held on May 13, 2002 at 10.00 a.m. at the Indoor Stadium, Khuman Lampak, Imphal

Sub-Junior Group

The theme of the Painting was “**Depict any common application of Science in your home or everyday life**” and fifty one (51) students participated in the competition of the group. The winners were as follows:

1 st Position	R. K. Anura Jha	Maria Montessori School, Imphal
2 nd position	Pebam Babita Devi	Maria Montessori School, Imphal
3 rd Position	Kh. Buster Meetei	Regular English School, Imphal
Consolation	N. Hensana Chanu	Regular English School, Imphal
Consolation	Md. Zia Aid Hussain	Shantilata Memorial School, Imphal

Junior Group

The theme of the painting of this group was **Show the role of science in revolutionizing our communication system** and 85 students participated in the competition. The result of the competition was as follows:

1 st Position	S. Talent Meetei	Maria Montessori School, Imphal
2 nd Position	W. Nadia	Maria Montessori School, Imphal
3 rd Position	Ksh. Johnson	Shantilata Memorial School, Imphal
Consolation	S. Rubash Singh	Maria Montessori School, Imphal
Consolation	Milan Laishram	Catholic School, Canchipur

Senior Group

The competition was for the students currently reading in class IX-X. The theme of the painting was **Man conquers space with the wonder of Science** and 30 students participated in the competition and the result of the competition was as follows:

1 st Position	Lingkojoy Oinam	Maria Montessori School, Imphal
2 nd Position	H. Bidiyasanti Devi	M. B. C. Hr. Sec. School, Imphal
3 rd Position	N. Deeparani Devi	Maria Montessori School, Imphal
Consolation	Ambika Sougajjam	Maria Montessori School, Imphal
Consolation	S. Ningthem Singh	Lilong Hr. Sec. School, Lilong

Puppet Show

The art of puppetry has been an effective tool for communicating science to the people. Members of MASCA presented 3(three) science based puppet shows on the themes i.) Leikai Wathok (Based on present sanitation system), ii) Chaokhatpa (Based on medical sciences) and iii) Shyamogi Mang (Based on Information Technology)

The puppet shows were highly impressive and visitors could realize how puppetry played a key role in S & T communication.

Book Exhibition

Scientific Book Exhibition was also one of the activities of the 5 (five) day long Science Meet. Hundreds of students and teachers paid visit daily at the book exhibition. Three local book store such as Sharma Book Agency, Paona Bazar, Imphal, Sangam Book Store, Paona Bazar, Imphal and Babupara, Imphal participated in the book exhibition.

Activities of Manipur Science & Technology Council (MASTEC)

Manipur Science & Technology Council (MASTEC) organised the activities like IT show, Face to Face, Poster exhibition, Scientific film show, Popular science talk and Technopreneurship exhibition during the Science Meet.

IT Show

The advancement of information technology (IT) has made the world a global village. Internet plays an important role in this regard. Science Meet was an occasion where we could introduce IT to the students in a very effective way. MASTEC could organize an IT show with the involvement of some local computer firms/institutions such as 1. Information Technology & Computer Training Centre (ITCTC) RIMS, Road, Imphal., 2. Arena Multimedia, Nongmeibung, Imphal, 3. S. S. Big Byte, Imphal and 4. TAAS Microsystems, Computer Education, Nagamapal, Imphal. Hundreds of students, teachers, guardians and science loving people visited to the IT stall and interacted with the computer professionals. It was one of the activities which was appreciated by the visitors.

Face to Face

A face to face interaction programme with distinguished scientists was organised. Six local scientists interacted with the students on the topic of their specialization. The programme was kept for three days for 1 (one) hour duration daily and students in hundreds took part in the interaction session Prof. H.N.K. Sarma, Physics Dept, Manipur University, Shri G. Tomba Sharma, Chemistry Dept, D.M. College of Science, Shri R.S. Longjam, President, MAPS, Dr. L.Rupachandra Singh, Biochemistry Dept, Manipur University, Dr. Kh. Shamungou Singh, Reader (Retd.) in Zoology, D.M. College of Science, Shri Ch. Rajendro Singh, Physics Dept, Imphal College, Imphal interacted with the students on the topics **Development of Science, Cosmetics, Genetics and Understanding of life, Challenges that lie before us in biological science, Waterfowls as Biological indicators and Digital Radio** respectively.

Popular Science Talk/Lecture Series

A series of lectures were delivered by invited resource persons. Prof. C. Amuba Singh, Physics Dept, Manipur University delivered lecture on the topic - Extra terrestrial intelligence and Dr. B. Manihar Sharma, Life Sciences Dept, Manipur University on the topic Creating environmental awareness among the youths, Dr. Kh. Shamungou Singh, Reader (Retd.) in Zoology, D.M.College of Science, Imphal on Waterfowls as biological indicators, and Shri Kh. Bobby Singh, Marketing Manager, SS. Big Byte, Imphal on the topic " Internet" respectively. Hundreds of students and teachers attended the programme

Poster Exhibition

A scientific poster exhibition was arranged. About 50 (fifty) scientific posters were exhibited. Many students were impressed to these posters and comments were also received.

Scientific Film Show

A scientific film show was screened on all 5 days of Science Meet. Altogether 10 (ten) scientific films viz., Physics of Thermo luminescence, Energy of Life, Insect Migration, Pieries - the Biting Butterfly, Tupis Nanas, Hang Gliding, Chaos-Kitchen & Chapati, Food Chain, Rafting Down the Barak, Geomorphological Wonder of Deccan were screened during the Meet-2002.

Technopreneurship Exhibition

Innovations and inventions do not necessarily remain confined to the already organised R&D institutions and Universities only. There are innumerable workers, craftsmen and mechanics with high degree of innovative ideas in workplaces unrecognized by the so called scientific or industrial communities.

Due to their failure to get appropriate assistances and supporters from the government or the society, their precious ideas and inventions simply die out. This is a big loss to the society. In order to ferret out these silent innovators and encourage them to venture further into more and more innovations, some effort like exhibitions and workshops are required. Hence, in tune with the national theme **Developing the spirit of Innovation** of the National



Chief Minister seeing model exhibitors

Technology Day 2002 MASTEC organised a **technopreneurship exhibition** on Traditional Innovation Tools and Contrivances of Manipur. The following local entrepreneurs participated in the exhibition

Sl. No.	Name of the manufacturer	Name of the product
1.	Th. Budhi Singh Ngairangbam Makha Leikai, Imphal	Forced draught Chulla
2.	Th. Ingocha Singh Ngairangbam Mayai Leikai, Imphal	Low cost fishing gears
3.	Th. Ratan Singh Sagolband Thangjam Leirak, Imphal	Fibre reinforced plastic
4.	Birchandra Meetei Tera Loukrakpam Leikai, Imphal of M/s Kumpuba Machines	Yumleima Rice Mill
5.	Manipur Creative Crafts Society, Elangbam Leikai, Imphal	Ceramic products
6.	Yumnam Rajen M/s Eco Dev. Industries Sagolband Meino Leirak, Imphal	Chulah(improved)
7.	M. Manihar Sharma, Nongmeibung, Imphal	Automatic pump operator

On the basis of the working principle, technology input and utility of the machines/ products exhibited by the technopreneurs, the following were awarded with cash prizes of Rs 1000/-, Rs 750/- and Rs 500 only with citations respectively.

1 st Position	Shri I. Birchandra Meitei M/s Kumpuba Machines, Tera Loukrakpam Leikai, Imphal	Yumleima Rice Mill
2 nd Position	Th. Ratan Singh, Sagolband Thangjam leirak Leirak, Imphal	Fibre Reinforced Plastic
3 rd Position	M. Manihar Sharma, Nongmeibung, Imphal	Automatic Pump Operator

Participation certificates with Rs. 300/- each were given to the remaining technopreneurs.

Best Appreciation Award

Best Appreciation Award, the most prestigious award of Science Meet was introduced by MASTEC since the year 1997 to be given to the individual student who proves to have gained the maximum knowledge of science through the Meet as judged by questionnaire response and personal interview. The Best Appreciation Award was given to Miss Sophia Moirangthem of Maria Montessori School, Imphal. The award carries a certificate of merit with a cash prize of Rs. 1000/-.

Prize Sponsorships

MASTEC invited prize sponsorships from commercial firms, individuals and philanthropic organisations for the prizes of Science Quiz, Science Model Competition, Spot Painting and Declamation Contest. www.e-pao.net.in Imphal sponsored the whole prize of Science Quiz amounting to Rs 6500/-. Shri Ch. Babu Singh of Saktombi Memorial Trust on Science & Technology, Imphal sponsored a sum of Rs. 2000/- for the whole prize of Declamation contest. M/S Singh Medical Hall, B. T. Road, Imphal sponsored the 2nd prize money of Science Model Competition of Rs. 1500 and M/S Sharma Bros Scientific Instruments & Co, Paona Bazar, Imphal also sponsored a sum of Rs. 1000/- for the 3rd prize of Science Model competition. The prize money of Rs. 1000/- for the 2nd prize of Spot Painting Competition Junior Group was sponsored by M/S Amar Offset Printers, Uripok, Imphal and Shri T. Iboi Singh, Kwakeithel, Imphal sponsored the 3rd prize of the group for an amount of Rs. 500/-. These firms, individuals and organisations honestly sponsored the cash prizes for the promotion of better scientific knowledge of the young school and college students of the state.

Two local computer firms viz., i) Kangla Online, Imphal and ii) Technocraft Computer Education, Imphal sponsored free and subsidized various computer courses to the prize winning students and participants of the competitions as a mark of encouragement to the students.

Closing Function

Shri S. Natum Singh, Minister (S&T), Manipur was the Chief Guest and Dr. T. Meinya Singh, Member of Legislative Assembly, Manipur presided over the function. Prof. H. Tombi Singh, Vice – Chancellor, Manipur University was the Honoured Guest. Shri Y. Nabakumar Singh, Secretary, STFM, Shri W. Rajesh Singh, MASS, Shri R. S. Longjam, President, MAPS and Shri L. Somarjit Singh, Secretary, MASCA were present at the function.



Closing Function of SM 2002

Shri S. Natum Singh, Minister (S&T), in his speech at the closing function expressed that Science Meet 2002, the state level science festival organised by MASTEC in commemoration of the National Science Day 2002 and National Technology Day 2002 would help the state in the promotion and popularization of science. He also asked MASTEC to organise Science Meet every year with inclusion of more number of

activities. Prof. H. Tombi Singh, Vice Chancellor, Manipur University, expressed his happiness and congratulated all the coordinating agencies for organising the SM-2002 with a grand success. Dr. T. Meinya Singh, MLA, Manipur in his presidential remarks expressed that as we had been living in the age of science & technology, all activities should be fashioned with scientific thinking.

Shri Y. Nabakumar Singh, Secretary, STFM presented the activities report of STFM, Shri W. Rajesh Singh gave the report of MASS. Shri N. Mohandas Singh, Secretary, MAPS and Shri L. Somarjit Singh, Secretary, MASCA presented the activities reports of MAPS and MASCA. Cash prizes with citations for the various competitions, awards were distributed to the prize winning students, technopreneurs etc.. The 5 day long Science Meet 2002 organised under the banner of National Science Day 2002 and National Technology Day 2002 concluded with the remarks by Dr. R. K. Shyamananda Singh, Executive Director, MASTEC .

1.4.2 Training Workshop on Science Journalism / Writing

The Training Workshop on Science Writing / Journalism for Chandel District, Manipur was organised during June 10 – 13, 2002 at the Conference Hall of the Hotel De Khunai Resort at Moreh in Chandel District, Manipur. Altogether 32 participants (Science teachers in High Schools/ Hr. Sec. Schools/ Colleges, Science Popularisation activists, NGOs, Reporters/ Journalists, interested individuals etc participated in the training. The Moreh Meitei Council (MMC), Moreh and the St. George School, Moreh extended local support in organising the programme. The training was catalysed and supported by NCSTC, Department of Science and Technology (DST), Govt. of India. The training was inaugurated by S. Natum Singh, Minister of State (Ind. Charge) for Science & Technology, Manipur as the Chief Guest and Shri Tombikanta Singh, Addl. Deputy Commissioner, Moreh, Chandel District, Manipur presided over the inaugural function of the training workshop.. Shri S. Madhu Sudan Singh, Director, Science & Technology, Govt. of Manipur attended the function as the honoured guest.

In his key note address, Dr. M. Patairiya of DST, New Delhi highlighted the schemes/ programmes on science popularisation being encouraged by NCSTC Division of DST, Govt. of India. He further elaborated why NCSTC promoted the activities of science journalism in the country.

In his inaugural speech, Shri Natum Singh appealed to the participants to write and develop scripts in their own disciplines in regional languages using the most understandable words in such a way that common people will easily understand the topic. He also mentioned about the fast advancement in IT in the country. He announced for information



From left - A. Tombikanta ADC, S. Madhu Sudan, Director (S&T), S. Natum, Minister(S&T), Dr. M. Patairiya, Scientist, DST, GoI, Dr. R.K. Shyamananda, Executive Director, MASTEC at the Inaugural function



Dr.M.Patairiya delivering key note address

of the people of the area about the departments's decision for early installation of CIC (Community Information Centre) in all the blocks including Moreh in the state.

In the Presidential remarks, Shri A. Tombikanta Singh asked the participants to get maximum knowledge from the training and work dedicatedly to become a real science writer/communicator. Shri S. Madhu Sudan Singh spoke about the active and leading role of MASTEC in implementing science popularisation activities during the last few years in the state. Earlier Dr. R.K. Shyamananda Singh, Executive Director while welcoming all the participants, guests, invitees, media etc. delivered upon the goal of the workshop. A vote of thanks was proposed by Th. Surendranath Singh, Sr. Scientific Officer MASTEC.



A section of the participants group

During the course of the training, six resource persons imparted in-depth training on various aspects on science communication to the participants. The course structure included lecture series using slides, hands on experiments on script development and presentation by participants etc. followed by interaction and plenary session. Resource persons from outside the state included Dr. C.M. Nautiyal, BSIP, Lucknow – A National Awardee on Science Popularisation and Dr. Manoj Patariya, Scientist, NCSTC, DST, Govt. of India.- Honorary Secretary, ISWA. Included among the resource persons drawn from the state were Shri Meghachandra Kongbam, District Information Officer of the Directorate of Information and Public Relations (DIPR), Govt. of Manipur, Shri Ch. Rajendro Singh (Sr. Lecturer in Physics, Imphal College, Imphal) - A columnist of a reputed local News paper in regional language called the Poknapham, Shri H. Debendro Singh, All India Radio, Imphal and Dr. R.K. Shyamananda Singh, MASTEC.

During the technical sessions, Dr. C.M. Nautiyal delivered lectures on the topics **1. Do you wish to be a science writer, 2. Techniques for science writing 3. Writing for radio and 4. Writing for TV documentaries**, Shri Meghachandra Kongbam on the topic **Writing for News Paper**, Dr. Ch. Rajendro Singh on the topic **Role of science communicators in society**, H. Debendro Singh on the topic **Opportunities that All India Radio, Imphal Centre is offering to the science writers**, H. Debendro Singh further read out a paper on the topic **Making Science Communication Effective** and interacted with the participants on behalf of Mr. Dilip Mayengbam, AIR, Imphal - an invited resource person who was absent from attending the programme on account of illness. Dr. R.K. Shyamananda Singh delivered lecture on the topic **Why do we promote Science Popularisation programmes.**

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 media etc..

In the valedictory function, Dr. R. K. Shyamananda Singh, Executive Director, MASTEC as the Chief Guest



Valedictory function

expressed happiness over the enthusiasm of the participants. Shri Radhesyam Singh, Addl. Superintendent of Police, Moreh presided over the function. During the function, Dr. L. Minaketan Singh, Scientific Officer, MASTEC highlighted a summary report of the 4 day programme. He further read out some common comments/suggestions obtained from the analysis of the feed backs submitted by the participants as follows.

1. To organise similar training workshop in all the districts of the state.
2. To increase the duration of the programme

The workshop concluded with a great success with a note of serious commitments from the participants to become an active science worker/writer.

1.4.3 State Level Training Workshop on Disaster Management

A 3-day state level training workshop on Disaster Management was organized during July 29-31, 2002 at the State Youth Centre, Khuman Lampak, Imphal. The programme was organized by Manipur Science & Technology Council and catalyzed & supported by RVPSP, Department of Science & Technology, Government of India. The main objective of the workshop was to impart training to Science Teachers and Science Activists on awareness, preparedness and mitigation measures of some types of natural and man-made disasters commonly occurring in the North-Eastern region which falls under the most earthquake prone areas. The ex-trainees/participants in turn will extend the knowledge to the school children and the general public.

Shri S. Natum Singh, Minister of state (S & T), Govt. of Manipur inaugurated the training workshop as the Chief Guest of the Inaugural function and Shri S. Madhu Sudan Singh, Director, Department of Science & Technology, Govt. of Manipur presided over the inaugural function.

In his inaugural speech, Shri S. Natum Singh highlighted about the significant activities of Manipur Science & Technology Council particularly in the field of science popularization during the past few years. He appealed to all the participants to spread the knowledge gained from the workshop to their friends, relatives, and other groups of people so that everyone in the state will be aware of the concepts disaster and its advance preparedness and mitigation measures etc.

In his presidential remarks, Shri S. Madhu Sudan Singh said that due to the advancement of science & technology, the causes of some of the natural disasters can be known beforehand and also predicted in advance. However, nobody could prevent from its occurrence. He requested all the participants that we must try to overcome such problems.

In his keynote address, Dr. D.R. Nandy, Ex-Director, GSI, Kolkata mentioned about the catastrophic natural



*Dr. D.R. Nandy, Ex-Director, GSI,
Kolkata delivering lecture*

disasters in the country in the past. He said that any disaster has multi-dimensional affects in human life such as physical, economic and social. He further mentioned that though our scientific and technological knowledge has been increasing very fast the death toll and loss of property is also increasing rapidly with time. He also added that till recently,

the disaster management was limited to crisis management like fire fighting; however, now there is a great realization that disaster management should have broader approach which includes short and long term disaster mitigative activities including preparedness, rescue, relief and rehabilitation operations. He recalled the Great Assam Earthquake which killed thousands of people and causing severe damage in property. He said that return period of natural disasters being long human memory being short, people forget the calamities inflicted by the past events. He further warned that no high buildings should be constructed in the earthquake prone areas without proper safety measures.

Altogether 36 participants consisting of Science Teachers, PG Students (Science), Science Activists from NGOs, NCC Cadets etc. from all over the state participated in the training workshop. Eight resource persons viz.,(i) Dr. D.R. Nandy, Ex-Director, GSI, Kolkata, (ii) Dr. Arun Kumar, Earth Sciences Department, Manipur University, Canchipur, (iii) Dr. Jugindra S., Consultant, Shija Hospital & Research Institute, Imphal, (iv) Dr. R.K. Lenin, Psychiatrist, Department of Psychiatry, RIMS, Imphal, (v) Shri Kh. Temba Singh, Executive Engineer, PWD, Imphal, (vi) Ch. Rajendro Singh, Selection Grade Lecturer, Imphal College, Imphal (vii) Shri O. Mahavir Singh, Instructor, Manipur State Scout, Imphal and (viii) Shri S. Lalmohon Singh, Sub-officer, Manipur Fire Service, Imphal conducted



Scout Master, Manipur State Scout Demonstrating Rescue Operation



Fire Service Personels Demonstrating Use of Fire Fighting Equipment

in-depth training to the participants. The training workshop covered both theoretical and demonstration/practical sessions on natural Hazards (earthquake, landslide, flood), Engineering Aspects of Earthquake (safety design of structures), Fire Fighting Operations, Rescue Operations, First Aid to Disaster Victims, Development of Psychological Response. The 3-day training workshop was concluded on the 29th July 2003 with Shri S. Madhu Sudan Singh, Director, DST, Govt. of Manipur as the Chief Guest and Shri Th. Surendranath Singh, Executive Director (i/c), Manipur Science and

Technology Council as the president. In his concluding remarks, Shri Surendranath Singh expressed his views on the necessity of having the basic DO's and DON'TS of the common types of disaster both natural and man-made disaster. He addressed to the participants to share the knowledge they have gained during the training workshop to the general public so that each one of us can understand at least the basic precautionary measures and simple rescue operations whenever any type of disaster takes place. The participants expressed the need for organizing such training workshops for a longer duration and more frequently. They also suggested to covered sessions on other types of disasters which may happen in the region in future.

1.4.4 District Level Training Workshops on Puppetry for Science and Technology Communication (Bishnupur, Churachandpur and Tamenglong)

The 5 days residential training workshop on puppetry for Science and Technology Communication for Bishnupur, Churachandpur and Tamenglong districts was held during August 29 – September 2, 2002 at Mangolnganbi College, Ningthoukhong, Bishnupur district. It was inaugurated by Shri Madhusudan Singh, Director, Science and Technology, Government of Manipur as the Chief Guest and Shri A.Ingobi Singh, Councillor Ward no. 1, Ningthoukhong Municipal Council presided over the inaugural function. Shri



Participants practicing puppet manipulation

B.K.Tyagi, Scientist, NCSTC, DST, GOI, Shri L.Somarjit Singh, Secretary, MASCA, Shri Ch.Rajendro Singh, Selection Grade Lecturer, Imphal College and Shri Th.Surendranath Singh, Executive Director (i/c), Manipur Science and Technology Council were the guests of honour. The training workshop was organised by MASTEC in co-ordination with Manipur Science Communicators' Association (MASCA), Imphal and The Generation De- New Image, Ningthoukhong.

Altogether 33 participants from the above three districts attended the 5 days course. Three local resource persons on puppetry namely Shri S.Beeran Singh, Shri I.Sushilkanta Singh and Shri Y.Ojit Singh acted as resource persons for the overall programme. Under the same module of NCSTC, DST, GOI, the 3 key resource persons imparted training to the participants about the art of puppetry for S&T communication. The course included



A Puppet show presented by the participants of the Ningthoukhong workshop

voice modulation, procedures for story and script writing, process of puppet making, manipulation of hands for puppet shows, costume designing, stage crafts, exercise for puppet shows etc.

During the course, **Shri B.K.Tyagi, Scientist** from NCSTC delivered two lectures on the topic -1) The art of Puppetry for S&T Communication and 2) Developing good scripts for puppet plays. Apart from the various activities, a few more lectures were also arranged for the participants to develop good scripts. The lectures delivered were –

1. AIDS with special reference to the context of Manipur By Dr. H.Premchand Singh District AIDS Officer, Bishnupur District.

- | | | |
|----|--|---|
| 2. | Safe Drinking Water | - H.Manikumar Singh
Executive Engineer,
PHED, Govt. of Manipur. |
| 3. | Environment and Biodiversity of Manipur. | - By Dr.B.Manihar Sharma
Associate Professor, Department of
Life Sciences, Manipur University |

Using the scientific information given in the lectures, the participants developed 29 story lines and 5 scripts for puppet shows. The participants also fabricated 55 puppets during the course. A puppet show competition for 5 groups of participants was held on the last day of the programme to test the performance of the participants. The jury members for the competition were Shri Th.Surendranath Singh, Executive Director (i/c), Shri R.K.Irabotsana Singh, Ex – MLA and Shri S.Beeran Singh, resource person on puppetry.

The following puppet plays were selected for contest.

- | | |
|---------------------------|--------------------------|
| 1) Chinjak Cheksingse | : Theme – Environment |
| 2) Mikap Thokpa | : Theme – Health |
| 3) Cheksinbagi Mahei | : Theme – AIDS |
| 4) Ina Thobana Ina Phangi | : Theme – Environment |
| 5) Classroom | : Theme – Drinking Water |

Based on the script, dialogue presentation, acting and co-ordination of the puppet play “Cheksinbagi Mahei” played with the theme AIDS was declared the winner of the competition. The winning team was awarded a cash prize by the Executive Director (i/c), MASTEC. The workshop was concluded on 2nd September 2002 with concluding remarks from Executive director (i/c).

Feedbacks from the participants for special attention

- Puppet shows orchestrated with background music will be more attractive to the audience. The quality of puppet shows depends upon the scripts. For developing a beautiful script the role of a writer (drawn/play) should always be placed in between the scientist and the puppeteers for transforming the scripts into an interesting format.
- To widen activities on puppetry, puppetry training may be imparted to the school children during their S.U.P.W. period.
- Field performance programmes on Puppetry that aim at dissemination of scientific information through puppetry may be planned in various schools/ rural areas of the state. A team of expertise persons may be engaged for such programme.
- Puppetry can be used as an effective tool for communicating the people since less expenditure is involved.
- Organisation of state level puppetry Festival/Competition on various activities of puppetry such as scripts writing, fabrication of puppets, costume designing, puppet shows etc. will be a right step in diversifying this art form in the state.
- Telecast of puppet shows on Doordarshan & other local Television Channels may be a good programme for popularising the art in the state.

The participants of the workshop were very creative and co-operative. The plays developed by some of them reached almost professional. Hence puppetry hold a good

prospect in Manipur. Diversifying activities on puppetry could be a right step for popularising this art form in the state.

Some puppeteers have realised that puppetry is a powerful tool for communicating science. This has been proved in puppet shows presented in the Science Festival every year since introduction of the first puppetry workshop in Manipur under NCSTC.

It may be mentioned that very recently Manipur State AIDS Control Society, Imphal (MACS) conducted a puppet show contest for selecting the best team for field awareness programme on HIV/AIDS in Manipur

1.4.5 Nature Orientation Camps

Under a specific module and support from the National Council for Science & Technology Communication (NCSTC), Department of Science & Technology, Govt. of India, Manipur Science & Technology Council (MASTEC) organised a state level Nature Orientation Workshop at Loktak Lake during April 18-22, 1999. The workshop generated 40 local resource persons. Based on the overwhelming response of the workshop and also to follow up the programme, NCSTC sanctioned nature camps for 8 districts of Manipur. The main objective of the district level nature camp was to educate the children about the nature with many practical programmes through a series of hands-on-activities with nature as the study object. District level camps were more oriented towards guiding the children in exploring the environment by themselves for developing an intimate understanding about science and nature in particular.

In the 1st phase of the series of nature camps, four camps were organised in the districts of Imphal East, Thoubal, Tamenglong and Ukhrul during the year 2001-2002 and four training camps in the districts of Imphal West, Senapati, Churachandpur and Chandel were organized as second phase in the year 2002-03.

1.4.5.1 Imphal West Nature Camp

The Imphal West Nature Camp was held from December 27 to December 30, 2002 at the campus of Malom Megha High School, Malom Bazar, Imphal West District.



Inaugural function of the Imphal West Nature Camp



Demonstration of Fermicarium construction.

It was organized by Manipur Science and Technology Council in co-ordination with Manipur Science Communicators' Association, Imphal and Rural Development Organisation, Malom. The programme was inaugurated by S. Madhusudan Singh,

Director, Science and Technology, Government of Manipur as the Chief Guest and Shri Th.Surendranath Singh, Executive Director (i/c), MASTEC presided over the function respectively.

Altogether 55 campers comprising of students and teachers team from various schools of the Imphal West district participated in the training camp. (list of participants at annexure - V). 3 Key resource persons namely 1) Shri Kh.Manigopal Singh, 2) Shri S.Damuder Singh and 3) Shri I.Sushilkanta Singh taught the participants about the nature through a series of hands on activities. Apart from the 3 key resource persons, 3 lectures on various topics related to nature were also delivered by Dr.S.Pravabati Devi, Reader, Imphal College, Imphal, Dr.B.Manihar Sharma, Professor, Life Sciences Department, Manipur University and Shri L.Somarjit Singh, Selection Grade Lecturer, Modern College, Imphal.



Students performing transpiration experiment

The topics such as identification and classification of animals and plants, identification & classification of Plants, Bio-diversity an overview to ecology., Sky watching with demonstration, Sorting, Analyzing and preserving samples, Science games, Songs, Light physical exercises, Green House effect, kitchen gardening, Fun with Plants- studying the parts/Processes & exploring the whole, Looking at small animals, Living together- study of habitat/ecosystem, Role plays, Field trips, the micro world, Slide shows on pollution, deforestation, evolution of man & animal welfare, Video shows on wild life The physical natures – soil, water & air were covered during the 4 days programme.

1.4.4.2 Senapati District Nature Camp

The Senapati camp was organized . by MASTEC in co-ordination with Manipur Science Communicators' Association, Imphal and H.M.higher Secondary School, Keithelmanbi. during January 7 – 10, 2003 at the campus of H.M.Higher Secondary School, Keithelmanbi, Senapati district.



Inaugural function of the Senapati District Nature Camp.

The programme was inaugurated by Shri Thangpum Haokip, Sub Divisional Officer, Saitu, Government of Manipur as the Chief Guest and Letjang Singsit, Chairman, Keithelmanbi Village Authority presided over the inaugural function.

Altogether 50 campers comprising of students and teachers team from various schools of Senapati district participated in the training camp. Three key resource persons namely 1) Shri Kh.Manigopal Singh, 2) Shri S.Damuder Singh and 3) Shri I.Sushilkanta Singh taught the participants about the nature through a series of hands on activities. Apart from the 3 key resource persons, 3 lectures on various topics related to nature were also delivered by Dr.S.Pravabati Devi, Reader, Imphal College, Imphal, Dr.B.Manihar Sharma, Professor, Life Sciences Department, Manipur University and Shri L.Somarjit Singh, Selection Grade Lecturer, Modern College, Imphal.



Sorting and Analysis of collected samples by the students.



A girl using a low cost device for catching insects.

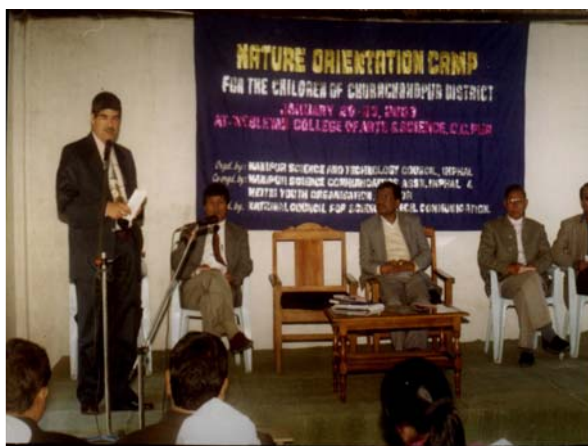
During the 4 days programme, the topics such as Identification & classification of Animals, Identification & classification of Plants, Bio-diversity an overview to ecology, Sky watching with demonstration, Sorting, Analyzing and preserving samples, Science games, Songs, Light physical exercises, Green House effect, kitchen gardening, Fun with Plants-studying the parts/Processes & exploring the whole, Looking at small animals, Living together- study of habitat/ecosystem, Role plays, Field trips, The micro world, Slide shows on pollution, deforestation, evolution of man & animal welfare, Video shows on wild life, The physical natures – soil, water & air, The camp was concluded on the last day with a small closing function.

1.4.5.3 Churachandpur District Nature Camp

The Churachandpur district nature camp was organized at Wesleyan College of Arts and Science, Rengkai, Churachandpur during January 20 – 23, 2003 at the campus of Wesleyan College of Arts and Science. It was organized by MASTEC in co-ordination with Manipur Science Communicators’ Association, Imphal and Meetei Youth Organisation, Churachandpur.

The programme was inaugurated by Shri K.K .Chhetry, D.C., Churachandpur District and the function was attended by Shri Th.Surendranath Singh, Executive Director (i/c) as the President.

Altogether 50 campers comprising of students and teachers team from various schools of Churachandpur district participated in the training camp. (list of participants at annexure - VII). 3 Key resource persons namely 1) Shri Kh.Manigopal Singh, 2) Shri S.Damuder Singh and 3) Shri I. Sushilkanta Singh



Shri K.K.Chhetry, D.C., Churachandpur speaking at the inaugural function of the Churachandpur district camp.



Nature Walk (Churachandpur Camp)



Students performing transpiration experiment

taught the participants about the nature through a series of hands on activities. Apart from the 3 key resource persons, 3 lectures on various topics related to nature were also delivered by Dr.S.Pravabati Devi, Reader, Imphal College, Imphal, Dr.B.Manihar Sharma, Professor, Life Sciences Department, Manipur University and Shri L.Somarjit Singh, Selection Grade Lecturer, Modern College, Imphal.

During the 4 days programme , the following topics were covered.

- Identification & classification of Animals.
- Identification & classification of Plants
- Bio-diversity an overview to ecology.
- Sky watching with demonstration.
- Sorting, Analyzing and preserving samples.
- Science games.
- Songs
- Light physical exercises
- Green House effect, kitchen gardening, Fun with Plants-studying the parts/Processes & exploring the whole.
- Looking at small animals
- Living together- study of habitat/ecosystem
- Role plays
- Field trips
- The micro world
- Slide shows on pollution, deforestation, evolution of man & animal welfare.
- Video shows on wild life
- The physical natures – soil, water & air.

1.4.5.4 Chandel District Nature Camp:

The camp for the children of Chandel District was organized during January 28 – 31, 2003 at the complex of Institute of Responding to Conflict and Development (IRCOD), Nungourok, Chandel district. It was organized by Manipur Science and Technology Council in co-ordination with Manipur Science Communicators' Association, Imphal and Socio Rural Development Organisation (SRDO), Nungourok.

The programme was inaugurated with Shri L.Somarjit Singh, Secretary, MASCA as the Chief Guest and President NGO Forum as the president of the inaugural function. Shri Ch.Rajendro Singh, Selection Grade Lecturer, Imphal College and Mr.Th.Guite, President, RDPF were the guests of honour.

Altogether 50 campers comprising of students and teachers team from various schools of Chandel district participated in the training camp. Three key resource persons namely 1) Shri Kh .Manigopal Singh, 2) Shri S.Damuder Singh and 3) Shri I.Sushilkanta Singh taught the participants about the nature through a series of hands on activities. Apart from the 3 key resource persons, 3 lectures on various topics related to nature were also delivered by Dr.S.Pravabati Devi, Reader, Imphal College, Imphal, Dr.B.Manihar



Students playing nature web game

Sharma, Professor, Life Sciences Department, Manipur University and Shri L.Somarjit Singh, Selection Grade Lecturer, Modern College, Imphal.

During the 4 days, the same topics which were covered in the nature camp at Senapati district were also covered in the camp at Chandel. In all the district camps, the participants found the teaching module very interesting and could easily understand the the benefit of such type of nature education.

During the valedictory function of each camp, all the participants took pledge towards working for nature conservation in their life and as such the camp gave a good impact on the minds of young students about nature conservation and better environment. For initiating activities on studying nature in all the participating schools of the 8 district camps, a set of low cost equipments consisting of simple microscope, tripod magnifier, double magnifier and hand lens was distributed to every participating school. Some activities taken up during the course will be telecast on the local television channel for more messages about nature education.

To assess the efficiency of all the 4(four) camps, feed back sheets in the form of questionnaires were distributed to the participants. According to their feedback and the discussions with the participants of all the nature camps, the remarks such as

1. organization of more nature camps in the state,
2. extension of the programme in various schools of the state would certainly bring about a close relationship of the nature with the children
3. four- days duration was insufficient for such type of camp when huge amount of hands-on-activities are involved. were drawn from the participants.



Demonstration of Green House to the students.

1.4.6 Design Workshop on Innovative Products

A two day State Level Workshop on Design Innovative Products organized in association with Central Leather Research Institute (CLRI), CSIR, Chennai was held on March 13-14, 2003 at the Hotel Imphal, Imphal. The programme was sponsored by CLRI Chennai.

Shri S. Natum Singh, Minister (S&T), Manipur and Shri S. Madhu Sudan Singh, Director (S&T), Govt. of Manipur were the Chief Guest and the President of the inaugural function respectively.

In his key note address, Dr. B.K. Naidu, Scientist and Head, Economics Research Division, CLRI said that NEDFI had given them opportunity to

carry out extensive surveys in the north eastern region and initiate a range of developmental programmes in Manipur with the NER funds of CSIR since state organization like MASTEC had provided relevant local support.

In his inaugural address, S. Natum Singh appreciated the development efforts of CLRI, CSIR for the North eastern Region specially Manipur state. He said that artisan based employment oriented and also resources based economic activities should be encouraged for the small states like Manipur. He further appealed to the local artisans and designers to make use of the opportunities and improve their skills.

In his presidential remarks, S. Madhu Sudan Singh requested CLRI to provide not only training but also inputs in marketing sector. He further requested the financial institutions to provide necessary support to the entrepreneurs.

Altogether forty (40) participants (artisans, entrepreneurs, designers, shoe makers etc.) from various parts of the state attended the programme. A team of 10 (ten) scientists from CLRI including Dr. P.G.Rao, Director, RRL, Jorhat and experts from the financial institutions like SIDVI and NEDFI delivered series of lectures and also interacted with the participants during the programme. About 60 items of leather goods (leather combined with textile /silk/bamboo based products) and foot wear designed and fabricated by CLRI and local artisans/ designers were exhibited during the two day programme.



Exhibition of local made footwears



A section of the participants

1.4.7 Training Workshop on Model Rocketry

The 6 day long state level **Training Workshop on Model Rocketry**, catalysed and supported by NCSTC, DST, GoI. New Delhi by NCSTC, DST, Govt. of India was organised during March 25-30, 2003 at the Conference Hall of the State Youth Centre, Imphal.

Shri S. Natum Singh, Minister of State (S&T), Manipur and Shri S. Madhu Sudan Singh, Director (S&T), Govt. of Manipur were the Chief Guest and the President of the inaugural function respectively. S. Natum Singh inaugurated the training by test firing a specially designed rocket. The training programme was catalysed and supported by NCSTC, DST, Govt. of India.



Minister (S&T) giving inaugural address

The training aimed at i) imparting training to the science teachers / science workers on basics of rocketry and initiate activities at their schools / colleges activities of rocketry in their schools and ii.) to popularize space sciences to the masses specially students community.

Science teachers from schools and colleges and science popularization workers representing science NGOs attended the six day programme. Shri Sripad Mishra, Managing Secretary, Viswarashmi Space Lab, Cuttak and and Er. Jayadev Kar, Senior Engineer, Pathani Samanta Planetarium, Bhubaneswar as invited resource persons, imparted in-depth training to the participants.

Altogether 15 teams consisting of two science teachers from 15 schools / colleges including University and Science NGOs participated in the training. Delivering lectures,



Construction of rocket engine

slide shows, interaction with the participants and hands on practicals were the main activities during the training. Lecture notes and material kits etc. were made available to all the teams. The aspects such as 1. Theory of rockets, 2. Rockets and their uses, 3. Construction of a flying and static model rocket, 4. Balloon rocket, 5. Soft landing of rockets, 6. Weightlessness of an object, 7. Construction of rocket engine etc. were covered during the technical and practical sessions.

Altogether 15 rocket model rockets fabricated by the participants were test fired during the course of the training. Many people including media came to witness the test fire session of the model rockets. Local Cable network and DDK, Imphal center and also All India Radio, Imphal made coverage of the programme.

Attempts were made by the participants under the guidance of the resource persons to develop rocket engines using the chemicals/ raw materials available in the local market. However, the engines so developed did not work well.. The resource persons suggested that it might be due to the quality of the materials available in the local market.

The closing function of the six day long training workshop was held on March 30, 2003. Dr. N. Rajmuhon Singh, Associate Professor (a science popularization activist in the state) was the Chief Guest and the Shri Ch. Rajendro Singh, Executive Member, Manipur Science Communicator's Association (MASCA) presided over the closing function. Dr. L. Minaketan Singh, programme coordinator read out the summary report (including feed back report) and Shri Th. Surendranath Singh, Executive Director, MASTEC presented concluding remarks.

On the next day of the closing function, as requested by the Principal, MASTEC arranged a lecture on the topic " Space Sciences and Basics of Rocketry " at the Modern English High School, Imphal

1.5 PROJECTS (ongoing)

Research as well as application oriented pilot projects sponsored by various central agencies / departments are being implemented by the Council. **The following are the projects supported by central government agencies/organisations and** being implemented by the professional manpower of the Council

Highlights of the Projects :

1. Augmentation of productivity and quality of rural pottery and diversification sponsored by SSD, DST. Govt. of India

The project aimed at

- bringing about an overall improvement in the productivity and quality of existing rural pottery which are unglazed, porous and fragile.
- diversification of product range especially in the production of Glazed Terracotta for creating new avenues for sustenance of rural pottery
- transfer of technology package to the potters of Nungbi and Thongjao villages for overall benefit of rural potters.

Progress:

The following are the steps so far taken up for implementation of the project.

- a. Procurement of a piece of land at Thongjao village measuring 80' x 145'.
- b. Construction of the work shed (20' x 60') which is of brick structure up to plinth and a wooden framework covered with CGI sheets have been completed and ready for installation of the machineries.
- c. Procurement of equipment/ machineries such as pug mill, jigger jolly, etc. has been completed. The following machineries are yet to receive for installation.

- i) Powered Potter's Wheel
- ii) Two Tire Roller Pot Mill
- iii) Disintegrator
- iv) Single Deck Sieving Machine
- v) Universal Jigger Jolly
- vi) Ball Mill
- vii) Grinding Cylinder Ball Mill
- viii) Jaw Crusher cum Roller Crusher
- ix) Dearing Pug Mill
- x) Propeller Type Blunger

d. Training

- ii) Three Artisans on Modernisation of Pottery at CGCRI, Kolkata
- ii) Five Trainees on Manufacturing of Chulah Liner at CGCRI, Khurja Centre, U.P.
- iii) Five trainees on "Studio Pottery" at CGCRI, Khurja Centre have been completed.

e. CGCRI, CSIR – MASTEC joint project

While implementing the project at Thongjao, CGCRI, Kolkata was tied up for technical support. Meanwhile, CGCRI out of its own resources has started taking up two pilot projects at Nungbi and Thongjao in coordination with MASTEC. The CGCRI has constructed one workshop at Thongjaovillage on MASTEC plot in addition to the workshop already constructed by MASTEC for the existing project. One more workshop and a Kiln House have been constructed for Nungbi Pottery in Ukhrul District.

- f. Household survey of the potter beneficiaries of Thongjao village has been completed

2. Passive Solar Demonstration Building sponsored by State Councils Division., DST, Govt. of India.

The project aims at reducing dependence on electrical energy for building through systems integration of solar passive architectural designs in public and private buildings. The components of the project included

1. Training workshop for engineers and architects about energy efficient buildings
- and 2. Construction of a demo building with solar passive architecture at Imphal which will be used later as office by MASTEC.



Solar Passive Building phase- I

The objective for the construction of the MASTEC office building was to demonstrate the following concepts of energy efficient building in the North eastern Region.

- i. Passive solar technologies (orientation, shading, earth-berming, intelligent seasonal control of solar gain and loses by building form, use of appropriate building materials, micro-climate modifications, day lighting etc.) to be used in the building to reduce thermal loads and to increase the levels of comfort for the occupants
- ii. RETs suitable for buildings (solar air and water heating, solar electricity, solar cooking etc.) and their integration in the building design to reduce constructional and operational costs.
- iii. Optimisation of energy savings in the building consumption by exploring the potential of daylight integration.
- Iv Importance of planning and design analysis prior to actual construction of a building.

The foundation stone of the construction was laid by the then Minister (S&T), Manipur. About 90 per cent of the construction work of the building phase – I is completed..

3. DIALONG Micro Hydel Project sponsored by State Councils Division, DST, Govt of India :

The objectives of the project are as follows :

- to demonstrate the use of the cross flow turbine developed by Indian Institute of Science (IIS) under DST, Govt. of India project in micro-hydel generation.
- to seek people's participation in micro-hydel project implementation and management
- to generate people's income through power dependent home scale industries difficult tribal areas.

Progress: Civil Works

- i. The tract clearance for penstock laying has been completed
- ii. Foundation trench for Desilting Tank has been dug up
- iii. Penstock welding work is going on and out of 97 pipes, 40 have been joined into 20 pairs.

Engineering & Monitoring Equipments

- . Two AC Generators, two Control Panels and two Electronic Load Controllers have been received and are yet to be installed.

4. Technology Demonstration and Dissemination System, sponsored jointly by DST, Govt. of India and CSIR, New Delhi

Objectives :

- i) Assessment of technology requirements in all the developmental sectors in Manipur.
- ii) Inventorisation of the existing infra-technologies in various occupations in the state.

- iii) Data referral system for available technologies developed by CSIR, DST and several other establishment for dissemination to potential technology users in the state.
- iv) Procurement, demonstration and dissemination of appropriate proven technologies, machines etc.
- v) Generation of Local situation specific technologies in collaboration with capable organisations.

Progress :

The project was launched in December 2000. According to the work plan of the project, data and information related to various technologies have been collected from industrial sectors and other R&D organizations in the state of Manipur.

Using the available collected data, a website “ Technology Business Information System (TBIS)” has been designed and launched. The contents of the website were updatable. Since the launch of the website, collection as well as entry of data has been a continuing and regular process. The following two new topics have been recently inserted on the home page of the website .

- i. Technology Transfer by MASTEC - from which information on the areas such as solar passive building technology, Mycro hydel, Pottery, Japanese quail rearing etc available with the Council could be down loaded.
- ii. Traditional local technologies – from which information on traditional technologies such as Agarbati Industries, Paphar industries etc could be down loaded.

The TBIS website has got linkages with various institutions like CSIR, NEDFI, IETC (Osaka), APCTT etc for access to several other website world wide. Clients have also been online for information as per their requirements. Many clients could visit various laboratories/institutions through TBIS system for seeking information.

A data base system has been designed for technology demonstration and dissemination. The system should have information about technologies available in the state, national and international industrial organizations. About more than 500 technologies have been entered and collection of information from various sources is continuing. The system would be a CD-ROM data referral system.

5. Japanese Quail Demonstration cum Production Centre sponsored by SSD, DST, Govt. of India

Japanese quails are good source of meat and egg. While quail farming has reached the international market, the awareness of it is yet to be spread in the state of Manipur. There is a need to promote quail production programmes in this region. Promoting quail farming in the rural area will not only supplement the shortages of animal proteins but will also generate income for improvement of socio-economic status.

The main objective of the project are

- i. to popularize quail farming techniques among the farmers in Manipur
- ii. to provide parent stocks to the farmers
- iii. to provide hatching and brooding facility to quail farmers consistently to sustain the industry in the state.
- iv. to provide periodic training to farmers.

Progress :

A. Departmental Construction works :

1. Construction of **wooden** shed for rearing quail at Takyelpat MASTEC Complex completed
2. PCC flooring of the rooms including the room to be occupied by the project staff completed.
3. Eight (8) numbers of Wooden (with wire mesh) quail rearing cage are being prepared (90% completed)



Quail rearing shed

B. Appointment of project staff

Advertisement appeared at two local News papers for the posts of

1. Project Assistant (one) :

Educational Qualification : Graduation in Veterinary Sciences/ equivalent ; Salary : Rs 4500/- (consolidated)

2. Helper (one)

**Educational Qualification : Class - X passed
Salary/ wages : Rs 1500/- (consolidated)**

Personal Interview for appointment of the above posts is planned to be held shortly.

1.6 Library :

MASTEC has made a modest attempt to built up its own library. The collection is about 350 (three hundred) volumes of various disciplines. In addition, a number of periodical journals, newsletters, bulletins, local papers, science publications etc. are received regularly. MASTEC aims at strengthening the library of the Council.

1.7 List of Visitors

The following scientists / officials visited MASTEC in connection with various programmes organized during the year 2002-2003

Sl. No.	Name	Designation & Organisation	Purpose of visit
1	Dr. M.K Patariya	Scientist, National Council for Science & Technology Communication (NCSTC), DST, New Delhi	Training Workshop on Science Writing in Chandel District, Manipur during June 10-13, 2002
2	Dr. C.M. Nautiyal	Scientist, Birbal Sahni Institute of Paleobotany, Lucknow (U.P.)	Training Workshop on Science Writing in Chandel District, Manipur during June 10-13, 2002
3	Dr. D.R. Nandy	Emeritus Scientist and Ex- Director, Geological Survey of India, Govt. of India	Training Workshop on Disaster management during July 29-31, 2002
4	Dr. B.K. Tyagi	Scientist, National Council for Science & Technology Communication (NCSTC), DST, New Delhi	Training Workshop on Puppetry during August 29-Sept. 2, 2002
5.	Shri S. Ramkrishnan	Scientist Central Leather Research Institute, Chennai	Workshop on Design Innovative Products during March 13-14, 2003
6.	Dr. B.K. Naidu,	Scientist Central Leather Research Institute, Chennai	Workshop on Design Innovative Products during March 13-14, 2003
7.	D. Chandramouli	Scientist Central Leather Research Institute, Chennai	Workshop on Design Innovative Products during March 13-14, 2003
8.	S. Mathivanan	Scientist Central Leather Research Institute, Chennai	Workshop on Design Innovative Products during March 13-14, 2003

9.	R. Jagadeeswaran	Scientist Central Leather Research Institute, Chennai	Workshop on Design Innovative Products during March 13-14, 2003
10	Mr. Bidyut Bal	Scientist Central Leather Research Institute, Kolkata	Workshop on Design Innovative Products during March 13-14, 2003
11	G. Prabu	Official Central Leather Research Institute, Chennai	Workshop on Design Innovative Products during March 13-14, 2003
12	M. Aranganathan	Official Central Leather Research Institute, Chennai	Workshop on Design Innovative Products during March 13-14, 2003.
13.	D.C. Siva Subramaniam	Official Central Leather Research Institute, Chennai	Workshop on Design Innovative Products during March 13-14, 2003
14.	Dr. P.G. Rao	Director Regional research Laboratory, Jorhat	Workshop on Design Innovative Products during March 13-14, 2003
15	R.D. West	Member Secretary Meghalaya State Council for Science & Technology, Shillong	Governing .Council. Meeting of IBSD and visit to MASTEC
16.	T.Y. Das	Commisioner (S&T), Govt. of Assam	Governing .Council. Meeting of IBSD and visit to MASTEC
17	Hariom Nanda	Director Matronics India ltd, New Delhi	Micro Hydel Project at Dialong, Tamenglong District, Manipur
18	Sripad Mishra	Managing Secretary, Viswarashmi Space Lab, Cuttack, Orissa	Training Workshop on Model Rocketry during March 25-30, 2003
19	Er. Jaydev Kar	Pathani Samanta Planetarium, Bhubaneshwar, Orissa	Training Workshop on Model Rocketry during March 25-30, 2003