



# **Annual Activity Report**

for the year 2001-2002

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

# Annual Report for the year 2001-2002

## 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, Govt. 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.

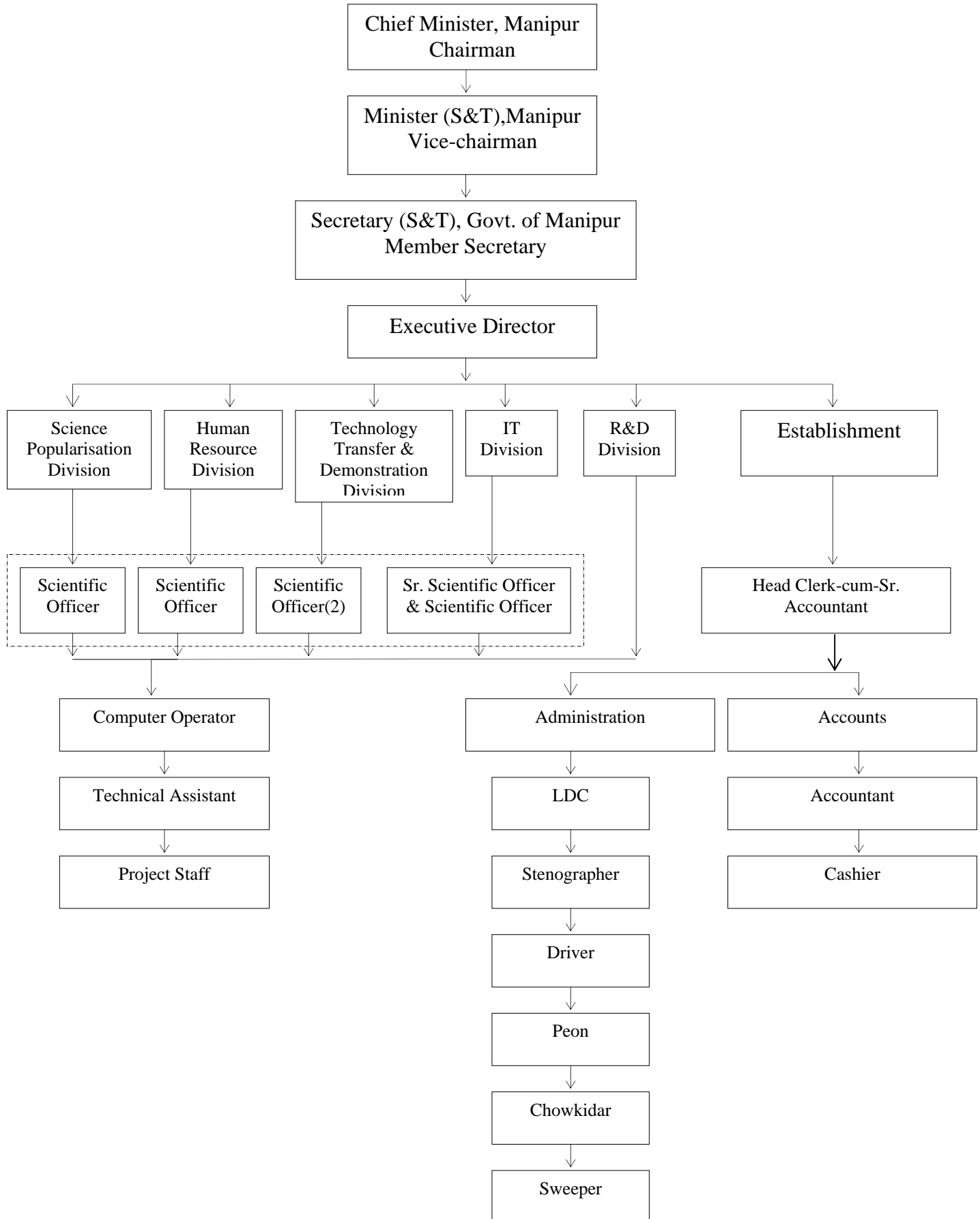
## **1.2 Organisation**

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 22 members 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., 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.	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.	O. Lokendro Singh	MBA	Project Asst.
23.	Ch. Usharanjan Singh	B.E.(Mechanical)	Project Asst.

### 1.4 Activities

The Manipur Science and Technology Council (MASTEC) organised various centrally sponsored workshops/trainings relevant to the state including science popularisation to fulfill the objectives for establishment of the Council. The Council receives overwhelming response from the people in the State in all the S&T programmes and organised with a big success.

The following are the programmes implemented by MASTEC during the year 2001-2002

### 1.4.1 Training Workshop on ‘Science of Flight’

The 1<sup>st</sup> State Level Training Workshop on ‘Science of Flight’ was organized during April 17-19, 2001 at Panchayat Bhavan, Porompat, Imphal. The main objective of the training workshop was to generate local resource persons in the field of Aerodynamics for initiating further activities on science of Flight. The training was Catalysed and supported by National Council for Science & Technology Communication (NCSTC), Department of Science & Technology, Govt. of India.

Shri S. Madhusudan Singh, Director, Science & Technology, Govt. of Manipur inaugurated the training workshop as the Chief Guest and Dr. R.K.Shyamananda Singh, Executive Director, Manipur Science & Technology Council presided over the inaugural function respectively.

In his inaugural address, Shri S. Madhusudan Singh mentioned the importance of the workshop to the science students in developing scientific temperament and curiosity about science. Dr. R.K. Shyamananda Singh, Executive Director, MASTEC while giving presidential remarks, urged the trainees to take full advantage of the opportunities offered by the workshop and to share their experiences and knowledge with others especially the students by imparting adequate knowledge of aerodynamics to the students.

In his keynote address, Shri Madhav G. Khare, a key resource person from Shastravahini, Pune, highlighted about the need for educating and imparting training of science of flight to the students as an educational challenge. In his speech, Shri M.A Singh, Aero modelling Instructor, Air Wing, NCC Group H.Q (M&N), D.M.College Complex, Imphal mentioned about the scope of aero modelling

Altogether 30 participants from various school/college and representatives from NCC Air Wing and Science NGOs took part in the workshop. During the 3 days course, Madhav G. Khare from, Shastravahini, Pune Shri Madhav Gopal Khare and Shri M.A.Singh, imparted in depth training to the participants. The training was emphasised more on practical.

Theories as well as practical sessions were conducted on the topics such as Laws of motion, Force, drag, Basics of flight, Parts of an aircraft, Multimedia shows on various model aircrafts,

Demonstration of various static model of aircrafts, Basic skills in flying, Making of various flying aircraft models including catapult gliders using low cost paper, thermocol and balsam



*Resource person caring practical session*



*Demonstration of various aircraft models*

wood. Making test flight and observation of flight mechanism. Flying demonstration of engine aircrafts.

During the 3 days session, each participant developed 19 different aircraft models from low cost paper, thermocol sheets and balsam wood strips by pasting the pre-cuts part of model, which was already supplied to them. Out of the total 19 models, four models were made of thermocol sheets, 4 using paper and thin strips of balsam wood and the remaining were made exclusively from low cost paper. In the process of making the models, proper and careful use of sharp blades and scissors, proper ways of using adhesives was illustrated. Handling of model aircrafts and proper launching of the models were also taught. Test flight of the models both at the outdoor and indoor were tried and a keen observation on the flight mechanisms of the models was made. They studied movements like 1) Pitching Movement – up and down movement, 2) Yawling movement – left and right movement, 3) Rolling Movement – banking on left and right etc.

The uses of control surfaces for the aircrafts were taught. Practical use of these components made the trainees aware about several facts of flying. Apart from the activities mentioned above, five static aircraft models and three flying models along with the engines from NCC, Imphal Branch were demonstrated to the participants. Of the three flying models, two were of String type and one remote control type. The resource person, Mr. M. Amuba Singh, Aeromodelling Instructor, after giving the theoretical knowledge about the flight mechanism of the 3 aircrafts to the participants demonstrated flying of these models in the open ground. From the 3 days training course, the participants could learn the basic principles of flight and how they could be applied to all flying objects. The training module was easily graspable by the participants. The participants expressed their willingness to work further for the benefit of the people of the state particularly the children in the schools.

On the last day, a discussion session was held with the Executive Director, MASTEC in the chair to discuss about the training module and follow up activities of the programme. Feedback sheets in the form of questionnaires were also distributed to the participants for monitoring the efficiency of the workshop. Enthused with the various activities of the workshop, most of the trainees were of the opinion that such programme will be of great significance to the students as all the activities of the workshop will excite the minds of the young student and once the activities reach the children, the talents as well as the creativity which remains hidden in the brain of the young children will be developed. Encouraged with positive feedbacks from the participants, the Executive Director, MASTEC convened a post programme meeting exclusively for the ex- trainees at the office of MASTEC to discuss about the training module and follow up activities of the programme in the state. The minutes of the discussion were –

- 1) Organisation of similar workshops exclusively for the school science teachers and students in 4 (four) districts of Manipur will pave a way for introduction of the activities on science of flight in various schools of the districts concerned.
- 2) The 3 (three) days session was emphasised more on practical. It would be more interesting and understandable to the participants if brief theory sessions were prefixed for each corresponding practical.
- 3) Three (3) days duration for such type of workshop is short. The resource person running the activities fast to enable him to cover up the activities makes the participants bored in some particular topics. Hence, to avoid confusion, 4 (four) days duration is proposed for the workshop.

- 4) Some of the materials that have used for constructing the aircraft models were quite costly and are not available throughout the country e.g. Balsam wood strips. Depending on the availability and cost efficiency, other sp. of trees that can substitute balsam may be worked out for use in the future programmes.
- 5) The programme will be of great significance to the students since the activities of the workshop can excite the minds of the young student. Once, the activities of science of flight reached the students of the various schools, the talents as well as the creativity that remains hidden in the brain of the young children will be developed.

#### 1.4.2 Science Meet 2001

The Science Meet 2001 was organised by MASTEC in coordination with 3(three) leading science NGOs of the state like Science Teachers' Forum, Manipur (STFM), Manipur Association for Promotion of Science (MAPS) and Manipur Science Communicators' Association (MASCA) at Manipur Kangshang, Stadium Complex, Khuman Lampak, Imphal during May 21-25, 2001 in commemoration of the National Science Day 2001 and National Technology Day 2001. The national theme for the year was **Information Technology for Science Education**.

The Science Meet 2001 was supported and catalysed by National Council for Science & Technology Communication (NCSTC), Department of Science & Technology, Govt. of India, New Delhi

The Science Meet 2001 was inaugurated by Prof. H. Tombi Singh, Vice Chancellor, Manipur University. Shri Ram Muivah, Commissioner (Science & Technology), Govt. of Manipur and Member Secretary, MASTEC presided over the inaugural function. Prof. H. Tombi Singh in his inaugural speech expressed his happiness and congratulated all the coordinating agencies for the Science Meet 2001 in the sense that they had put their hands together with MASTEC to put a



*Venue of Science Meet-2001*

concerted effort towards a common goal of science popularisation in the state. He opined that Science Meet should be repeated every year with more and more perfection so that the spirit of voluntarism and solidarity kindled today might grow into a glaring flame to warm up every body in the years to come. He stressed that students should develop their career with scientific thinking and applications and expressed that Science Meet would give tremendous impact for popularisation of science in the state. Shri Ram Muivah, Commissioner (S&T), Govt. of Manipur, in his presidential remarks thanked all the business firms, organisations, institutions and individuals who extended their helping hands to MASTEC in organising the Science Meet 2001, which had become indeed an encouraging sign of developing scientific aptitude in the state. Dr. S. N. Singh, Dr. H. N. Dutta and Dr. B. D. Malhotra scientists from National Physical Laboratory, New Delhi also attended the inaugural function as guests of honour. About 1000 (one thousand) people from student community and other organisations gathered at the inaugural function of the Science Meet 2001.



## **Activities of Science Meet 2001**

The activities of the Science Meet 2001 included Competition of Science Quiz, Painting, Science Model and IT Declamation, Popular Science Gallery & Model Exhibition, Science Behind Miracles, Puppet shows, Book and Poster Exhibitions, IT shows, Face to Face with distinguished scientists and Scientific Film shows. The activities were shared by the co-organising agencies such as STFM, MAPS & MASCA in co-ordination with MASTEC.

### **Activities of STFM**

The activities such as **Science Gallery and Science Model Competition** were organised by STFM during the Science Meet 2001

#### **Popular Science Gallery:**

The main objectives of the gallery were

- to arouse interest in playing with simple kits explaining scientific laws, principles etc.
  - to enable to transfer ideas in the head to the hand and vice versa
  - to enable to identify the area of interest
- to enable to appreciate the beauty of Nature and System

STFM under the theme “**play and learn yourself**” exhibited 15 (fifteen) working models viz. Monocular vision, Play with pulley, Play with lever, Illusions – all seeing are not believing – I, Illusion – II, Illusion – III, Studying scientific principle – Archimedes Principle, Studying scientific principle – Isochronism, Study with Lissajous figures, Working of transformer, I.Q. measuring model – tangram, Study of wave motion, Precession motion, Working of microscope, Study of transfer of energy etc.

#### **Science Model Competition:**

The competition was open to students reading in class VIII – XII. Altogether 39 (thirty nine) models were exhibited by 71 (Seventy one) students (46 boys and 25 girls) in the competition. The models were based on varied themes such as Electronic gadgets, Issues on Environment, Technological applications and other scientific themes of interest. The competitions were from 19 different institutes.



*Students/ visitors interacting with Science Model Exhibitors.*

### **Activities of MAPS:**

The following activities were organised by Manipur Association for promotion of Science (MAPS) during the Science Meet 2001 in coordination with MASTEC

**Science Quiz:**

The Competition was open for students currently reading in class XI-Degree in Science. Preliminary round of the Quiz was held on May 25, 2001 at 9.30 a. m. and 18 (eighteen) teams from schools and colleges were participated. Four teams were selected for the final round.

**IT Declamation:**

The competition was open to students currently reading in class XI-Degree in Science. Fifteen students from various institutes participated in the competition. The topics of the contest were i ) IT in Science & technology ii ) IT in medicine iii) IT in crime iv ) IT in education v) IT in trade & commerce.

**Activities of MASCA:**

Manipur Science Communicators' Association (MASCA) in coordination with MASTEC organised the following activities during the Science Meet 2001.

**Spot Painting Competition:**

The competition was conducted in 3 (three) groups viz. (i) Sub-Junior Group (class III-V), (ii) Junior Group (class VI-VIII) and (iii) Senior Group (class IX-X).

**Sub- Junior Group**

The theme of the painting was CHILDREN PARK and 85 students participated in the competition

**Junior Group**

The theme of the painting was OUR ENVIRONMENT and 121 students participated in the competition

**Senior Group**

The theme of the painting in senior group was SCIENCE AND WE and 44 students participated in the competition



*Painting Competition*

**Puppet Show**

The art of puppetry has been effective for communicating science to the people. The members of MASCA presented the following 3 (three) Puppet Shows during the Science Meet 2001.

- 1 Mangal (Light)
2. Chaokhatpa (Development)
3. Shyamogi Mang (Dream of Shyamo)

## **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 MASCA during the SM – 2001 and the scientific backgrounds of the shows were also explained. Some of the items demonstrated during the Meet included 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 etc.

## **Book Exhibition**

The following Four firms took part in the Book Exhibition.

1. Sharma Book Agency, Paona Bazar, Imphal
2. Sangam Book Store, Paona Bazar, Imphal.
3. Job Centre, Babupara, Imphal
4. Youths' Club, Brahamapur, Imphal

## **Activities of MASTEC**

MASTEC organised the activities of IT shows, Face-to-Face, Poster exhibition and Scientific film shows during the Science Meet 2001.

### **IT Show**

The revolution of Information Technology (IT) has been the most important development in the world during the last few decades. Events in any part of the world can directly influence the events in the remotest areas. Internet has transformed the entire perspective of communication. Science Meet is an occasion where we can introduce IT to our students in a very effective way and hence, MASTEC invited local computer firms/ institutes to participate in the IT show during the SM- 2001. The following 6 (six) computer institutes participated in the IT show during SM- 2001.

1. Aptech Computer Education, RIMS Road, Imphal
2. Infotech Systems, Thangal Bazar, Imphal
3. GROM Computer, Singjamei Mayeng Leikai, Imphal
4. Arena Multimedia, Nongmeibung, Imphal
5. ITCTC, RIMS Road, Imphal
6. S. S. I. Education, Minuthong, Imphal

The above mentioned IT organisations presented multimedia shows, learning on computer peripheral devices to school children, everyday computer on line quiz contest, internet in our daily life and utilities of IT. They had a good interaction with the visitors and every day more than 1000 visitors have paid their visits.



*Chief Guest with IT Exhibitors.*

## **Face to Face**

A Face to face interaction programme with distinguished scientists was organised during the 5 day Science meet 2001. The programme was kept for 4(four) days of 2 hours each day and about 400 students everyday joined the interaction and gained new ideas by listening to and interacting with the scientists. The following scientists were engaged for the interaction programme on the topic of their specialised fields.

1. Dr. S. N. Singh, Scientist, NPL, New Delhi
  - Solar cells a clean source of energy.
2. Dr. B. D. Malhotra, Scientist, NPL, New Delhi
  - Bio sensors in Health care
3. Dr. T. Meinya Singh, President, MASCA
  - Our position in the Universe
4. Dr. H. N. Dutta, Scientist, NPL, New Delhi
  - Fascinating facts about Antarctica and your participation
5. Prof. H. N. K. Sarma, Physics Dept. Manipur University
  - The Universe
6. Dr. M. Dhaneswar Singh, Central Agriculture University, Imphal
  - Animal production for socio-economic development
7. Prof. L. Chandramani Singh, Regional Institute of Medical Sciences, Imphal
  - Human anatomy
8. Shri R. S. Longjam, President, MAPS
  - Human genome
9. Dr. Kh. Shamungou singh, D. M. College of Science, Imphal
  - Sangai – the state animal
- !0 Dr. L. Rupachandra Singh, Manipur University
  - Enzyme – in our day today life
11. Ch. Rajendra Singh, Imphal College, Imphal
  - Triode- the wonderful tube

## **Poster Exhibition**

About 64 (sixty four) NCSTC, DST, GOI published posters on science and technology related themes were exhibited during the 5 day programme and many students got impressed to these posters and presented good comments.

## **Scientific Film Show**

Altogether 9 (nine) scientific films viz. Feathered Guest, Blue Vanda, Solar Cooker, Supper Conductivity, the Butterfly Effect, Food Chain, Piers-the biting Butterfly, the Insect Migration, Sega of life etc. were featured during the Science Meet 2001.

## **Best Appreciation Award**

The award was introduced by MASTEC since the year 1997 to be given to the individual student who proves to have maximum knowledge of science through Science Meet as judged by questionnaire response and personal interview. Two hundred ten (210) students participated in the preliminary questionnaire test held on May 25, 2001 at 11.00 a.m. out of which five students were selected for personal interview for selection of the awardee. The Best Appreciation Award was given to Jammy Maisnam, Class-XII of Human Resource

Development Academy, Ghari, Imphal. The award carries a cash prize of Rs.1000 with a citation.

### **Prize Sponsorships**

MASTEC invited prize sponsorships from commercial firms, individuals and other philanthropic organisations for the prizes of Science Quiz, Science Model Competition, Spot Painting Competition and IT Declamation Contest. Six commercial firms including scientific & medical research institutes extended their helping hands by sponsoring cash prizes of various competitions for the promotion of better scientific knowledge of the young school and college students. Shija Hospitals & Research Institutes, RIMS Road, Imphal sponsored a sum of Rs. 6500 for the whole prizes of Science Quiz. Technocraft Computer Education, Khoyathong Imphal sponsored a sum of Rs. 2000 for the whole prizes of IT Declamation contest. A sum of Rs. 3000 for the 3(three) prizes of Senior Category of Spot Painting Competition was borne by Babina Diagnostic Centre, Imphal. The cash prizes of Rs. 3000 for the Junior Category of Painting Competition was sponsored by Symphony Computers, Imphal. Sharma Bros Scientific Instruments & Co, Paona Bazar, Imphal sponsored a sum of Rs. 2000 for the 1<sup>st</sup> prize of Science Model Competition. The cash prize of Rs. 1500 for the 2<sup>nd</sup> prize of Science Model Competition was sponsored by Sagolsem Mani Singh & Sons, Thangal Bazar, Imphal.

### **General Observation**

Science Meet 2001 was organised with grand success. Three scientists from National Physical Laboratory, New Delhi without any financial involvement from MASTEC except providing local hospitality participated in the Face-to-Face interaction programme sparing three days for the Science Meet 2001. Eight local scientists also attended the interaction session. MASTEC received encouragement and cooperation from various organisations and individuals for organising the Meet. More than 10 thousand students visited the 5 day programme. The number of student participants in the various competitions was more than the previous meets. MASTEC invited feedback from coordinating agencies, exhibitors and received good comments with suggestions for organising the state level science festival in a more elaborate way in the years to come. The activities of SM 2001 were extensively covered in various media agencies like AIR, DDK, press and local cable network. Students from remote hill districts of the state also attended and took part in the various competitions of SM-2001.

### **Plenary Session**

The plenary session of the Science Meet 2001 was held on May 25, 2001 at 2.30 p.m. at Manipur Kangshang, Khuman Lampak Stadium Complex, Imphal with Shri Ram Muivah, Commissioner (S&T), Government of Manipur and Dr. R. K. Shyamananda Singh, Executive Director, MASTEC as the Chief Guest and the President. Dr. T. Meinya Singh, President, MASCA, Shri R. S. Longjam, President, MAPS, Shri Y. Nabakumar Singh, Secretary, STFM and members of the prize sponsorers were also on the dais. Shri Ram Muivah, Commissioner (S&T), Govt. of Manipur in his speech at the closing function assured that MASTEC would organise Science Meet every year with the inclusion of more number of activities to fulfil its objectives for popularisation of science in the state. Dr. R. K. Shyamananda Singh, Executive Director, MASTEC in his presidential remarks expressed happiness for organising the Science Meet 2001 with a grand success with the cooperation given by the coordinating agencies,

individuals, students. The Secretary, STFM presented the activities report of STFM. Shri Ch. Rajendra Singh and Shri N. Mohandas Singh presented the activities reports of MASCA and MAPS. Dr. L. Dinachandra Singh gave the activities report of MASTEC.

### Prizes/Awards

Prizes and awards with certificates were distributed to the winners of the competitions on the last day at the plenary session

The 1<sup>st</sup> prize of the painting competition in the sub-junior group was given to Kh. Sunil Singh, class –V of Grace Academy English School, Heirok. Ishworlal Chongtham, class –IV, Tiny Tot's Unique School, Imphal and Kh. Romesh Singh, class –V of Grace Academy English school, Heirok bagged the 2<sup>nd</sup> and 3<sup>rd</sup> prizes. Consolation prizes were bagged by M. Bidyakanta Singh, class –V, Tiny Tot's Unique School, Imphal and L.Puru Singh, class –V of Shantilata Memorial School, Imphal. The prizes carry cash awards of Rs.1500. Rs.1000, Rs.500 and Rs.100 with citations.

In the junior category of the painting competition Millan Laishram, class- VII of Catholic School, Canchipur bagged the 1<sup>st</sup> prize. The 2<sup>nd</sup> prize was given to A. Thunder, class-VII of Maria Montessori, School, Koirengei and S. Sandeep singh, class-vii of Shantilata Memorial School, Imphal bagged the 3<sup>rd</sup> prize. Lenin Leikham, class –VII, Shantilata Memorial School, Imphal and Kiran Khumanthem, class –VII of Maria Montessori, School, Koirengei bagged the consolation prizes. The prizes carry cash awards of Rs.1500. Rs.1000, Rs.500 and Rs.100 with citations.

Ambika Sougaijam, class –IX of Maria Montessori, School, Koirengei bagged the 1<sup>st</sup> prize of the senior category of spot painting competition. The 2<sup>nd</sup> prize was given to R. K. Ranjitsana Devi, class-IX of Brighter Academy, Khumbong and N. Romenkumar, class-X of Maria Montessori, School, Koirengei bagged the 3<sup>rd</sup> prize of the competition. Richa Nameirakpam, class-X and Deeparani Nameirakpam, class-IX of Maria Montessori, School, Koirengei bagged the consolation prizes. The prizes carry cash awards of Rs.1500, Rs.1000, Rs.500 and Rs.100 with citations.

In the Science Model competition for the students of class VIII-XII standard, the 1<sup>st</sup> prize of Rs.2000 with citation was given to the team of Shantilata Memorial School, Imphal represented by W. Bankim and Prity choudhury on the model **A building design which withstand earthquake better**. The 2<sup>nd</sup> prize of Rs.1500 with citation was bagged by S. Ranjita Devi of J. N. V Khumbong on her science model Recycling **waste paper**. K. Sanjitkumar, Ananda Singh of Hr. Sec. School, Imphal bagged the 3<sup>rd</sup> prize of Rs.1000 with citation and the name of the model was **Electromagnetic Induction**. The team of Paradise Boarding School, Thoubal represented by L. Ashini Devi and L. Shusunita Devi and S. Usharani devi of J. N. V. Khumbong bagged the consolation prizes of Rs.500 with citations. The names of the models were **Non Smoking Portable Multifuel Chulah and Hunna Langchak Tareng**.

In the Science Quiz competition, the team of Imphal College, Imphal represented by Th. Surchandra Sharma and Kenish Ningthoujam bagged the 1<sup>st</sup> prize of Rs. 3,000/- with Citation. The 2nd prize of Rs. 2,000/- with Citation was bagged by the team of Imphal College represented by R.K.Uttam Singh and N. Kennedy. The team represented by Mr Robin Toijam and Radheshyam Keisam of C.C.Higher Secondary School, Imphal bagged the 3<sup>rd</sup> prize of Rs. 1,500/- with Citation. The consolation prize of Rs. 500/- with Citation was given



to the team of Human Resource Development Academy, Ghari represented by Jammy Maisnam and Ujjal Roy.

The 1<sup>st</sup> prize of Rs. 1,000/- with Citation of the IT declamation Contest was bagged by Gayatri Chanambam of Aptech Computer Education, Imphal. Elizabeth Kaisa of Aptech Computer Education bagged the 2<sup>nd</sup> prize of Rs. 750/- with Citation, The 3<sup>rd</sup> prize of Rs. 500/- with Citation was given to Paonam Sureshkumar of Imphal College, Imphal.

The **Best Appreciation Award**, the most prestigious award of the Science Meet 2001 was given to Jammy Maisnam of Human Resource Development Academy. The award carries a certificate of merit with a cash prize of Rs. 1,000/-.

### 1.4.3 Training Workshop on Puppetry for S&T Communication

After successful organisation of the State level training workshop on Puppetry for S&T Communication, the first district level training workshop on puppetry for S&T Communication for the participants of Imphal West, Thoubal and Chandel districts was held during January 5-9, 2002 at Pujari High School, Khangabok, Thoubal District. The training was organised by Manipur Science & Technology Council in co-ordination with Manipur Science Communicators' Association, Imphal & Social Development Association, Khangabok. The programme was catalysed and supported by National Council for Science & Technology Communication (NCSTC), Department of Science & Technology, Government of India.



*Inaugural function of puppetry workshop*

The programme was inaugurated by Shri Y. Tijendra Singh, Principal, Y.K. College, Wangjing as the Chief Guest and Shri M. Irabot Singh, Principal, New Public Hr. Sec. School, Khangabok presided over the inaugural function. During the inaugural function, a few experts presented a puppet show. The show was so good that it attracted the audience of the function. More interesting was that the participants on witnessing the show have developed an eagerness of acquiring the knowledge of puppetry.

Altogether 30 (thirty) participants consisting of representatives from various NGOs, Schools, Colleges with a few individuals from Imphal West, Thoubal and Chandel districts who possess skill in performing arts took part in the workshop.

Three ex- trainees namely Shri S. Beeren Singh, I. Sushilkanta Singh and Y. Ojit Singh already selected from the state level puppetry workshop held during July 19-24, 2000) were engaged as key resource persons to train the participants. With a slight modification in the specific module of the NCSTC, the 3 resource persons imparted in-depth training to the participants about the art of puppetry. In the new module, the puppet



*Puppet show competition*

making process preceded the voice modulation and dialogue exercise. The training course which was designed specially for glove puppets included voice modulation, procedures of story and script writing, process of puppet making, manipulation of hands for puppet shows, costume designing, stage crafts, exercise for puppet shows etc.

The resource persons elaborately explained about the origin of this particular art form, its prevalence in other parts of the world and its usefulness in disseminating meaningful information. The resource persons also explained the basic principles of the making process and presentation of shows for the rod, string and shadow puppets.

Besides the various activities undertaken by the 3 key resource persons, a few lectures were also arranged during the training course for developing scripts by the participants. Dr. G. Mohendro Sharma, Joint Director, Directorate of Health Services, Govt. of Manipur delivered a lecture on 'AIDS' and lectures on the topics such as 'Environment' and 'Family Welfare Programmes' were delivered by Dr. B. Manihar Sharma, Associate Prof. Manipur University and Dr. Kh. Radheshyam Singh, District Family Welfare Officer, Thoubal, Family Welfare Department, Govt. of Manipur respectively. Shri Kh. Gyaneshwor Singh, an HIV infected person from Manipur Network of Positive People, Yaiskul Police Lane, Imphal delivered a talk on the topic 'Information on maintaining good health, nutritional requirements, exercises and alternative therapies after infection of HIV'.

Using the scientific information given in the lectures, the participants developed 30 scripts and out of which 10 scripts were found in proper. Fifty five number of puppets were fabricated by the participants. The overall performance of the participants was good. However out of the 30 participants, only 25 participants were turned out as successful trainees in the sense that they could fully grasp the benefit of the workshop.

The following remarks came out on discussion held on the last day with the participants for planning future like of action.

- i. Puppet shows orchestrated with background music would be more attractive to the audience. While 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.
- ii. To widen activities on puppetry, school children might be imparted puppetry training during their S.U.P.W. period.
- iii. Programme specially aimed at dissemination of scientific information through puppetry might be planned in various schools in the state. A team of expertise persons would be engaged for such programme.
- iv. Puppetry could be used as an effective tool for communicating the people since less expenditure is involved.
- v. Organisation of state level puppetry Festival/Competition on various activities of puppetry such as scripts writing, fabrication of puppets, costume designing, puppet shows etc. would be a right step in diversifying this art form in the state.
- vi. Telecast of puppet shows on Doordarshan & other local Television Channels might be a good programme for popularising this art in the state.

The workshop concluded on 9<sup>th</sup> January, 2002 with a small valedictory function with Shri Y. Tijendra Singh, Principal, Y.K. College as the Chief Guest and Shri L. Somarjit Singh, Secretary MASCA as the president. In the closing function, 5 puppet shows were presented to the audience by five teams of participants on the themes AIDS, Family Planning, Smoking is



injurious to health, Science for human welfare and Extinction of birds due to exploitation of habitat.

#### Remarks

The new module of the training in which the puppet making process preceded the dialogue and voice modulation worked better. The participants of the workshop were very creative and co-operative. The plays developed by some of them reached almost professional.

### 1.4.4 Two Day Regional Workshop on Application of Radioisotopes and Radiation in Society for N-E Region

Two-Day Regional Workshop on Applications of Radioisotopes and radiation in Society for North eastern Region was organised by Manipur Science and Technology Council (MASTEC), Imphal and National Association in Applications of Radioisotopes and Radiation in Industry (NAARRI), Mumbai during May 31- June 1, 2001 at the Gandhi Memorial Hall (G.M. Hall) of Imphal City. Shri P.B.O. Warjri, Principal Secretary to Government of Manipur inaugurated the function and Dr. V. Venkat Raj, resident, NAARRI, Mumbai, presided over the inaugural function.

Dr. (Mrs) Samuel, Director, Bio-medical Group, Bhabha Atomic Research Centre (BARC), Mumbai presented the keynote address during the inaugural function. About 220 participants comprising of researchers, doctors, science teachers / in schools and colleges, technologists, engineers, scientists, post graduate students in various fields in science subjects, journalists, entrepreneurs, representatives of NGOs, intellectuals from Manipur University and Central Agricultural Universities etc. attended the programme. Eighteen reputed scientists including 15 scientists from BARC, BRIT Govt. of India attended the two-day workshop as key resource speakers. The programme was supported by Department of Science and Technology, Govt. of India and Board of Research in Nuclear Science (BRNS), Department of Atomic Energy, Govt. of India.

The main objectives of the two day programme were

- to create general awareness of radioisotopes and radiation and their various socio-economic applications and to relief the minds of general public of their fear of the use of radiation



*(From L to R) Dr ( Mrs) A.M. Samuel, R. Muivah, P.B.Warjri Dr. V. Venkat Raj on the dais during the inaugural function)*



*A section of the participants group*

- to identify the immediate needs of the North-Eastern States for applications of radioisotopes and radiation in food preservation and various sectors
- to draw an action plan for socio-economic applications of radioisotope in the N-E Region
- to connect potential users of radioisotopes to the technology givers.

In his inaugural address, Warjri expressed about the beneficial uses of radioisotopes and radiation under controlled conditions in various sectors for socio-economic developments. He mentioned about the fear of the general public on use of radiation. He further appealed to the scientists working in the related field to disseminate the information to the masses so that the people of this region will be aware of the various applications of radioisotopes and radiation technologies for benefits of mankind. A souvenir consisting of 91 pages produced in connection with the programme was released during the inaugural function by the Chief Guest.

In his presidential remarks, Dr Venkat Raj said that the radioisotopes and radiation are nowadays very successfully used in the areas like agriculture, industry, healthcare, food preservation etc.

In her keynote address, Dr. (Mrs) Samuel while delivering on the topic “Atoms for You” said that radiation is usefully employed in the health care such as imaging, diagnosis, cancer treatment, sterilisation etc.

Earlier Shri Ram Muivah, Commissioner (S&T), Govt. of Manipur and Member Secretary, MASTEC welcomed the guests, participants, resource persons, invitees, media etc. for making it convenient to attend the function.

Shri P.J. Chandy, Secretary, NAARRI, Mumbai highlighted about the objectives of organising the programme at Imphal and Dr. R.K. Shyamananda Singh, Executive Director, MASTEC proposed vote of thanks.



*Director, Biomedical group, BARC, Mumbai delivering lecture on Atoms for you*

The following speakers delivered lectures on the topics given against their names.

- |   |   |
|---|---|
| 1. Shri M. Ananthakrishnan,<br>Head, radiochemical section, BARC                    | Production of Radioisotopes                                   |
| 2. Dr. S.F. D'Souza<br>Head, Nuclear Agricultural<br>& Biotechnology Division, BARC | Applications of Radioisotopes and<br>Radiation in Agriculture |
| 3. P. Madhusoodanan<br>Gen. Manager, BRIT   | Radiation Processing of<br>Health Care Products.              |

- |  |  |
|--|--|
| 4. Dr. Th. Tomcha Singh<br>Prof. & Head, Dept. of Radiotherapy<br>Regional Institute of Medical Sciences(RIMS), Imphal | Applications of Radiation<br>in Medical Practice                                 |
| 5. Dr. L. Surendra Singh<br>Prof., Dept. of Radiodiagnosis, RIMS   | Radioisotopes in<br>the Diagnosis of Diseases                                    |
| 6. Dr. M.R.A. Pillai<br>Head, Radiopharmaceuticals, BARC   | Radiopharmaceuticals   |
| 7. Dr. V. Venkat Raj<br>Director, Health, Safety & Environment Group, BARC   | Nuclear Power Plants   |
| 8. Dr. Arun Sharma<br>Head, Food Science & Safety Section, BARC  | Radiation Processing of Food Products  |
| 9. Dr. D.R.Bongirwar<br>Head, Food Technology Division, BARC   | Infrastructure Facilities for Radiation<br>Processing Plants                     |
| 10. Dr. G. Jitendra Sharma<br>Prof in Life Sciences, Manipur University  | Food Irradiation – Prospects with<br>Pineapples in Manipur                       |
| 11. Dr. Sunil Sabharwal<br>Head, Radiation Technology<br>Development Section, BARC                                     | Industrial Applications of<br>Radiation Processing                               |
| 12. Dr. J.K. Ghosh<br>Deputy Chief Executive   | Radioisotopes and Radiation<br>-- Applications in Non-<br>destructive Evaluation |
| 13. Mr. P.B. Verma<br>Gen. Manager, BRIT   | Radiation Equipments   |
| 14. Dr. A.N. Nandakumar<br>Scientist, AERB   | Principles of Radiation Protection   |

Altogether fifteen speakers including Dr. (Mrs) A.M. Samuel delivered lectures and interacted with the participants.

A quiz competition for the students of class IX- Class XII was held on the theme “Radioisotopes and Radiation” on the second day i.e. June 1, 2002 and the following teams were given the winning prizes of the quiz.

The First Prize of Rs 1000/-: with citation went to Mr. R.K. Ranadeva & M. Ajay of Sainik School, Imphal. The second



*Students Quiz competition on Radiation & Radioisotopes*

prize of Rs 500/- with a citation went to Mr. K. Radheshyam & Robin Toijam of C.C. Hr. Secondary School, Imphal and the third prize of Rs 300/-with citation was given to Mr. Ch. Narajosreth & S. Bharatbusan Sharma of C.C. Hr. Sec. School, Imphal

A panel discussion was held with some selected scientists in different fields, with Dr. Th. Tomcha Singh, Prof. & Head of Radiotherapy Department, RIMS, Imphal, in the chair. Most of the scientists/ participants had been given opportunities to put questions and interact with the scientists concerned during the panel discussion for follow of action. Thus ended the two day programme with concluding remarks by the chairman of the panel discussion.



*Experts on the dais during Panel Discussion*

## 1.5 Scheme of the Council

**MASTEC - RSIC Assistance Programme:** The Regional Sophisticated Instrumentation Centre (RSIC), Shillong is one of the seven centres in India where expensive sophisticated analytical instruments are made available to scientists/research scholars under one roof under a nationwide mission of the Department of science and Technology, Govt. of India. Very few scientists/researchers from Manipur have used the facilities at RSIC, Shillong in the past 12 years of its existence.

Realising the importance of precision data in today's research world and with an intention to assist the scientists in the state to get an assess to it. MASTEC and RSIC, Shillong have jointly launched a programme under which all the instruments at RSIC, Shillong are made available to the scientists from Manipur free of cost.

### *FACILITIES :*

1. UV-VIS-Spectrophotometer, 2. Infrared Spectrophotometer,
3. FTIR Spectrophotometer (i) DA-3.16, (ii) DA-8, 4. Nuclear Magnetic Resonance (NMR),
5. FTNMR (300) Mhz, 6. Electron Microscope (i) SEM, (ii) TEM, 7. Atomic Absorption Spectrophotometer,
8. Inductively Coupled Plasma ( ICP) Emission Spectrophotometer, 9. C-H-N-O-S Analyser, 10. DMRX Universal High Resolution Optical Microscope with image Analyser System

## 1.6 Deputation of officers

Sl.No.	Name & Designation	Programme attended
1)	Dr. R.K. Shyamananda Singh Executive Director	First meeting of the Society of IBSD held during May 16, 2001 at New Delhi
2.	Dr. R.K. Shyamananda Singh Executive Director	Visited Tripura, Assam, Sikkim, Arunachal Pradesh, Shillong during September 16-26, 2001 in connection with Bioresources inventorisation in the North East
3.	Dr. R.K. Shyamananda Singh Executive Director	Visited Mizoram during Oct. 29-31, 2001 in connection with Bioresources inventorisation in the North East
4.	Dr. R.K. Shyamananda Singh Executive Director	Brain Storming Session on Food and Nutritional Security held during Nov 21, 2001 at New Delhi
5.	Th. Surendranath Singh Sr. Scientific Officer	Project Monitoring Workshop held during November 2001 at Pune
6.	Dr. R.K. Shyamananda Singh Executive Director	Training on Research Management held at ASCI, Hyderabad during Jan 7-11, 2002
7.	Dr. L. Minaketan Singh Scientific Officer	Entrepreneurship Development Programme held during Jan 10-11, 2002 at Guwahati
6.	Dr. R.K. Shyamananda Singh Executive Director	Consultative cum Workshop on Science Popularising Science & Technology in the North East during March 7-8, 2002

## 1.7 Projects :

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

1. Augmentation of productivity and quality of rural pottery and diversification sponsored by SSD, DST. Govt. of India.
2. Flood Hazard Zonation of Manipur Valley sponsored by NRDMS, DST. Govt. of India.



3. Solar Demonstration Building sponsored by State Councils Division., DST, Govt. of India.
4. Dialong Micro Hydel Project sponsored by State Councils Division, DST, Govt. of India.
5. Technology Demonstration and Dissemination System, sponsored jointly by DST, Govt. of India and CSIR, New Delhi.

### 1.7.1 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'x145'.
- 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. Processes for Procurement of equipment/machineries has been completed. The equipment such as pug mill, jigger jolly, etc. has been received and the following are yet to be received



*Pottery Workshed at Thnogjao*

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

MASTEC deputed three artisans on Modernisation of Pottery at Central Glass Ceramic Research Institute (CGCRI), Kolkata and five trainees on Manufacturing of Chulah Liner at CGCRI, Khurja Centre, U.P. MASTEC had also deputed five trainees on “Studio Pottery” at CGCRI, Khurja Centre. Scientists from CGCRI, Kolkata are providing technical support for implementation of the ongoing project.

MASTEC has tied up with CGCRI, Kolkata to take up two more pilot projects on pottery modernization to be sponsored by CGCRI, Kolkata at Nungbi in Ukhrul District and Thongjao Village in Thoubal District. The construction of one workshed at Thongjao on MASTEC plot has been completed and one workshed and a Kiln House have been constructed at Nungbi for the pilot projects.

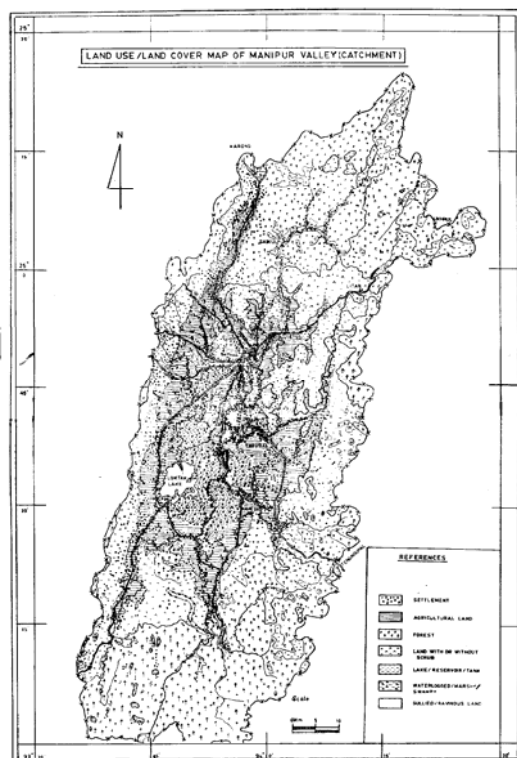
An attempt has been made to make survey of the household pottery beneficiaries of the Thongjao village.

## **2. Flood Hazard Zonation of Manipur Valley sponsored by NRDMS, DST. Govt. of India**

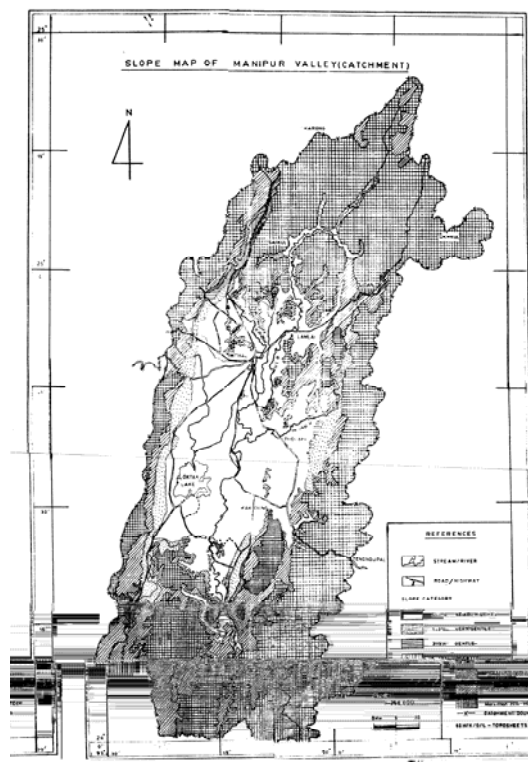
The project covers identification and mapping of flood prone areas and generation of a database for use in landuse and flood management in Manipur Valley and suggestion of remedies to the present flood problems in the valley.

The following studies have been made during the year 2001-2002.

- i. Mapping and analysis of Land use / Land cover pattern of the area
- ii. Slope aspects of the study area, mapping and analysis; slope analysis combined with drainage.



*Land Use / Land Cover Map*



*Slope Map*

- iii. Mapping of floods for the year 1966, 1989, 1992, 1997, 1999, & 2000
- iv. Drainage system studies and mapping of Manipur Valley (catchment area)
- v. A quantitative analysis of the various river systems
- vi. Mapping geomorphological set- up & Hydrogeomorphological status of the area
- vii Collection of data on flood records ( 1916-2000)
- viii Soil erosional pattern, analysis and mapping
- ix Conventional survey of Manipur valley
- x Flood prone areas : identification and mapping
- xi Collection of Meteorological data for Imphal Valley for the period 1975-2000 and analysis
- xii Stage –discharge relationship of the major rivers.

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

The project aims at reducing dependence on electrical energy for building to half 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.

The foundation stone of the construction has been laid by the then Minister (S&T), Manipur and actual construction work is yet to be started. Engineers from Tata Energy Research Institute (TERI), New Delhi are engaged as consultants for the construction of the Passive Solar building.project.

**4. 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: For Civil Works**

- i. The tract clearance for penstock laying has been completed



*Advisor to the Governor, Manipur & Chief Secretary Govt. of Manipur & Executive Director, MASTEC at the project site at Dialong*



- 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.

#### **For Engineering & Monitoring Equipments**

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

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

Objectives:

The Project “Development of Technology Demonstration and Dissemination System” has been designed with the following objectives.

- Assessment of technology requirements in all the developmental sectors in Manipur.
- Inventorisation of the existing infra-technologies in various occupations in the state.
- Data referral system for available technologies developed by CSIR, DST and several other establishments for dissemination to potential technology users in the state.
- Procurement, demonstration and dissemination of appropriate proven technologies, machines etc.
- Generation of local situation specific technologies in collaboration with capable organizations

#### **Progress:**

##### **A) Computerised Database:**

As part of the work plan of the project, MASTEC is designing an offline database by using Microsoft Visual Foxpro-6.0 for technology demonstration and dissemination system. The system should have different information about technologies available in the state, national and international industrial organizations. In this initial stage an attempt has been made to enter more than 200 technologies with their related information and continuing to collect different information from various technology sources. The database contains various district level information that form the baseline data in project formulations.

##### **B) Technology Business Information System (TBIS):**

Technology Business Information System (TBIS) is a part of the Project “Development of Technology Demonstration and Dissemination System”. TBIS will give the benefits to NGOs, entrepreneurs and line departments of the state government and also to potential technology providers, financiers and investors etc. Such a system may be able to change the industrial scenario in Manipur.

Technology Business Information System (TBIS) has 3 components:

1. A website;
2. A computerized data bank about baseline information related to technology application projects;
3. Publications (occasional papers, leaflets, periodicals etc.)

### **Salient Achievements:**

For the part of this project work we have designed “Technology Business Information System (TBIS)” website. The website was launched on 21<sup>st</sup> January 2002 at State Guest House, Imphal. Shri K.Kipgen Singh, Advisor, to the Governor of Manipur and Shri. K. Rakesh Singh, Chief Secretary, Govt. of Manipur, were the Chief Guest and President of the launching function of TBIS website. Dr. Laxman Prasad, advisor, DST, New Delhi and Dr. A.K. Bhatia, Advisor, CSIR, New Delhi were the Guests of honour of the function.

TBIS website address is <http://mastec.nic.in>. The website is hosted by National Informatics Centre (NIC).

### **TBIS Website contents:**

The website included about 25 MB of information under the topics

- About TBIS
- About MASTEC
- Current News
- Manipur at a Glance
- Industrial Scenario
- Market Organisation
- Natural Resources
- Human Resources
- Technology Sources
- Banking and Finance
- Grant Makers
- Entrepreneurship Development
- Industrial Consultancy
- Other useful links
- Feedback
- Tell a friend



*Dr.Laxman Prasad, advisor, DST, GoI  
at the Website function*



*Shri Rakesh Singh, Chief Secretary, Govt. of Manipur  
at the website launching function*



*(L-R) A.R.Khan, Shri Rakesh Singh, K.Kipgen,  
Dr. A.K.Bhatia, and Dr. Laxman Prasad*

The website has its own information content and also a number of link websites have been put in it for browsing during the information hunt by visitors.

A number of important search engines, meta-search engines and subject directories are also put in the website by using which the visitors can browse billions of documents worldwide.

Some tips for web search have also been put in the website to help inexperienced visitors to conduct effective search for information.

The TBIS website is the first website launched by the state government organization in Manipur and therefore it aims at putting full information about the state and its organs after authentication in it in the days to come.

TBIS first Occasional Paper **Manipur: A Few Developmental Issues** was released on the day of website launching function. The Occasional Paper was authored by Prof. Amar Yumnam, Economics Department, Manipur University. It was a part of the Technology Business Information System (TBIS).

### **Replication Potential:**

The TBIS serves two kinds of client populations viz.

- 1) Local clients who want to do the information sourcing from external sources.
  - 2) Clients from all over the world who need the local specific data for their use.
- Information organization for local specific data is something of permanent importance for replication in other different locations (states).

## **1.8 Facilities Available:**

The Manipur Science & Technology Council has a rich infrastructure for technology extension and demonstration programmes. The following are the list of equipments/facilities available with the Council:

Sl. No.	Name of the equipment	Quantity
1	Pentium 75 MHZ	1 (one)
2.	Pentium 200 MHZ	1 (one)
3.	Pentium II	2 (two)
4.	Pentium III	1 (one)
5.	Desk jet Printer	2 (two)
6.	Dot Matrix Printer	1 (one)
7.	UPS (1KVA)	1 (one)
8.	Fax	1 (one)
9.	Video camera	1 (one)
10.	VCR	1 (one)
11.	Slide projector	2 (two)
12.	Overhead projector	2 (two)
13.	Scanner Umax	1 (one)
14.	Light table	1 (one)
15	LCD Multimedia Projector	1 (one)
16.	Braun Paxiscope	1 (one)
17.	Xerox	1 (one)
18	E-mail	

19.	Internet	
20.	Digital Camera	1 (one)
21.	Notebook PC, P-III	1 (one)
22.	Desktop PC, P-III	1 (one)
23.	CD-Writer	1 (one)
24.	Laser Jet Printer	1 (one)

## 1.9 LIST OF VISITORS

The following scientists/officials visited MASTEC in connection with various programmes organized during the year 2000-2001.

Sl. No.	Name	Designation & Organisation	Purpose of visit
1	Dr. S.N. Singh	Scientist, National Physical Laboratory (NPL), New Delhi	Science Meet 2001 held during May 21-25, 2001
2	Dr. H.N. Dutta	Scientist, National Physical Laboratory (NPL), New Delhi	Science Meet 2001 held during May 21-25, 2001
3	Madhav G. Khare	Scientist, Shastravahini, Pune	Training Workshop on Science of Flight
4	Dr. B.D. Malhotra	Scientist, National Physical Laboratory (NPL), New Delhi	Science Meet 2001 held during May 21-25, 2001
5.	Dr. M. Chakraborty	Scientist CGCRI, CSIR, Kolkata	Discussion for Pottery Project implementation held during 27.09.2001 – 1.10.2001
6.	S. Chakraborty	Scientist, CGCRI, CSIR, Kolkata	Discussion for Pottery project held during 27.09.2001 – 1.10.2001
7.	S.K. Banerjee	Sr. Accounts Officer CGCRI, Kolkata	Discussion for Pottery Project implementation held during 27.09.2001 – 1.10.2001
8.	Dr. S.R. Sarkar	Administrative Officer, CGCRI, Kolkatta	Discussion for Pottery Project implementation held during 27.09.2001 – 1.10.2001

Sl. No.	Name	Designation & Organisation	Purpose of visit
9.	S.K. Saha	Technical Officer CGCRI, Kolkata	Discussion for Pottery Project implementation held during 27.09.2001 – 1.10.2001
10	Satyabir Singh	Senior Engineer Instruments Design Development & Facilities Centre, Ambala, Haryana	Training Workshop on Introduction to Laser
11	Shri Madan Singh	Deputy Engineer, Instruments Design Development & Facilities Centre, Ambala, Haryana	Training Workshop on Introduction to Laser
12	Dr. Laxman Prasad	Advisor Department of Science & Technology, Govt. of India., New Delhi	Launch of Technology Business & Information System (TBIS) Website developed by MASTEC on January 21, 2002 & Monitoring Meeting of Dialong Micro Hydel Project on Jan 22, 2002.
13.	Dr. A.K. Bhatia	Advisor CSIR, H.Q. New Delhi	Launch of Technology Business & Information System (TBIS) Website developed by MASTEC on January 21, 2002
14.	S. Chakraborty	Scientist CGCRI, CSIR, Kolkata	Monitoring of progress of the project on Pottery during 23-27, 2002
15	S.K. Saha	Technical Officer CGCRI, CSIR, Kolkata	Monitoring of progress of the project on Pottery during 23-27, 2002
16.	N.K. Das	Store Officer, CGCRI, CSIR, Kolkata	Monitoring of progress of the project on Pottery during 23-27, 2002
17	Hariom Nanda	Director Matronics India Ltd, New Delhi	Micro Hydel Project at Dialong, Tamenglong District, Manipur

Sl. No.	Name	Designation & Organisation	Purpose of visit
18	M.Ananthakrishnan	Head, Radiochemical section, BARC, Govt. of India	N-E Regional Workshop on Application of Radioisotopes and Radiation in Society held during May 31-June 1, 2001
19	Dr. S.F. D'Souza	Head, Nuclear Agricultural & Bio- technology Division, BARC, Govt. of India	N-E Regional Workshop on Application of Radioisotopes and Radiation in Society held during May 31-June 1, 2001
20	P. Madhusoodanan	Gen. Manager, BRIT, Govt. of India, Mumbai	N-E Regional Workshop on Application of Radioisotopes and Radiation in Society held during May 31-June 1, 2001
21	Dr. M.R.A. Pillai	Head, Radiopharmaceuticals, BARC, Govt. of India	N-E Regional Workshop on Application of Radioisotopes and Radiation in Society held during May 31-June 1, 2001
22	Dr. V. Venkat Raj	Director, Health Safety & Environment Group, BARC, Govt. of India	N-E Regional Workshop on Application of Radioisotopes and Radiation in Society held during May 31-June 1, 2001
23	Dr. Arun Sharma	Head, Food Science & Safety Section, BARC, Govt. of India	N-E Regional Workshop on Application of Radioisotopes and Radiation in Society held during May 31-June 1, 2001
24	Dr. D.R.Bongirwar	Head, Food Technology Division, BARC, Govt. of India	N-E Regional Workshop on Application of Radioisotopes and Radiation in Society held during May 31-June 1, 2001

Sl. No.	Name	Designation & Organisation	Purpose of visit
25	Dr. Sunil Sabharwal	Head, Radiation Technology, BARC, Govt. of India	N-E Regional Workshop on Application of Radioisotopes and Radiation in Society held during May 31-June 1, 2001
26	Dr. J.K. Ghosh	Deputy Chief Executive BRIT, Govt. of India, Kolkata	N-E Regional Workshop on Application of Radioisotopes and Radiation in Society held during May 31-June 1, 2001
27	Mr. P.B. Verma	Gen. Manager, BRIT Govt. of India	N-E Regional Workshop on Application of Radioisotopes and Radiation in Society held during May 31-June 1, 2001
28	Dr. A.N. Nandakumar	Scientist, AERB Govt. of India	N-E Regional Workshop on Application of Radioisotopes and Radiation in Society held during May 31-June 1, 2001
29	Dr. Md. Aslam	Scientist, DBT, Govt. of India.	Setting up of IBSD at Imphal

#### 1.10 Library :

MASTEC has made a modest attempt to built up its own library. The collection is about 300 (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.

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