

Annual Activity Report

for the year 2003-2004



Manipur Science & Technology Council (MASTEC)

(An Autonomous Body of Government of Manipur)

Central Jail Road, Imphal - 795 001

Phone:0385-2443451; TeleFax:0385-2230037; e-mail: mastec@sancharnet.in

Annual Report for the year 2003 - 2004

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.

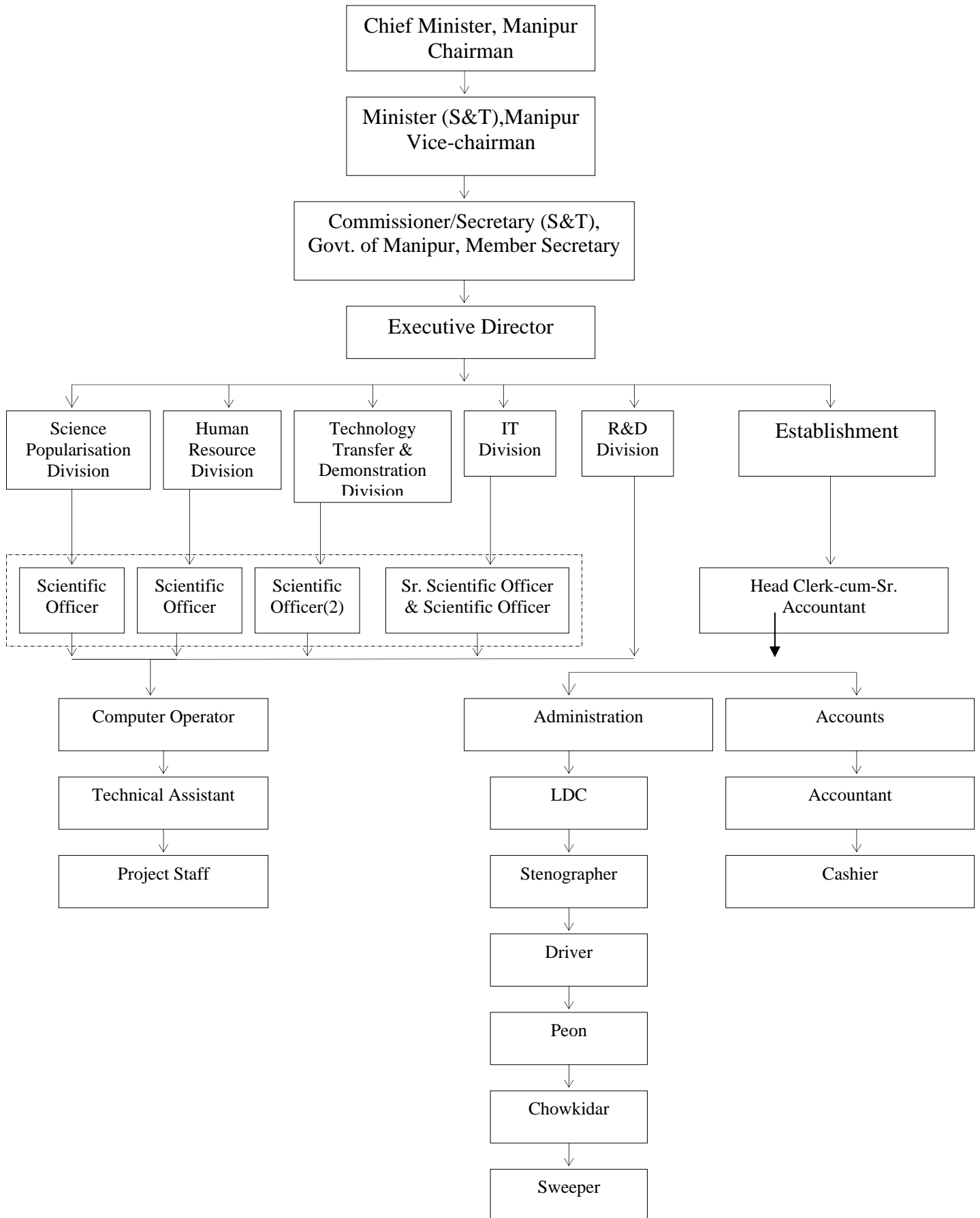
1.2 Organisation

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.	Th. Surendranath Singh	M. Sc., PGDCA, LLB	Executive Director
2.	Dr. L. Dinachandra Singh	M.Sc., PGDRS, Ph. D.	Sr. Scientific Officer
3.	Dr. L. Minaketan Singh	M.Sc., P.G.Diploma in Remote Sensing, Ph.D.	Scientific Officer
4.	Kh. Rakesh	M.Sc.	Scientific Officer
5.	Ch. Sarat Singh	B.Tech.(Civil), M.Tech.	Scientific Officer
6.	Dr. R.K. Pritamjit Singh	M.Sc., Ph.D.	

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.	L. Nilkumar Singh	B.F.Sc.	Research Scientist
22.	O. Deepak Singh	B.E. (Mechanical)	Field Assistant
23.	Dr. Rabi Sarangthem	B.V.Sc	Project Assistant
24.	Miss W. Romita Devi	i. Diploma in Civil Engineering, ii. Certificate course on F.R.P	Artisan Grade - II
25.	Shri Manghen Vaiphei	Class VIII passed	Helper

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 2003- 2004.

1.4.1 Science Meet 2003

Since the year 1997, Manipur Science & Technology Council (MASTEC) in coordination with the leading science 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 Manipur Association for Science and Society (MASS), Manipur Association for Promotion of Science (MAPS), Manipur Science Communicators' Association (MASCA) and Generation De New Image (GENIM), has organised the 5 day long Science Meet 2003 during May 11-15, 2003 at Khuman Lampak Main Stadium, Imphal. Science Meet 2003 was organised in commemoration of the National Science Day and National Technology Day 2003.



Chief Minister inaugurating SM 2003

Inaugural Function : The Science Meet 2003 (SM 2003) was inaugurated by Shri O. Ibobi Singh, Hon'ble Chief Minister, Manipur at a function at Khuman Lampak Main Stadium, Imphal on May 11, 2003. Shri T. Manga Vaiphei Minister (S&T), Manipur, Shri A. Aza, Minister, Youth Affairs & Sports, Manipur and Dr. T. Meinya Singh, Minister, Higher and Technical Education, Manipur were the President and the Guests of Honour of the function respectively.

Shri S. Madhusudan Singh, Director (S&T), Govt. of Manipur welcome the guests, invitees, students, visitors, media persons etc. and highlighted the background of the SM2003.. In his inaugural address, Shri O. Ibobi Singh said that science had been an integral part of the modern civilization and it can not be away from the day to day activities of the life of a modern man. He appreciated the scientific talents of the students of this region and appealed that opportunities should be created for the young talents to shine for future as scientists. He further said that the Science Meet 2003 would help to produce children scientists from this region. He asked the science 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 on May 11 and 13, 1998. He further said that organising Science Meet every year would help develop scientific temperament among the students and also remove superstitious beliefs from the young minds of the students.. Shri A. Aza, expressed that as people have been living in the age of science & technology, all the activities are controlled and fashioned by science right from cradle to the grave.

In his presidential remarks, Shri T. Manga Vaiphei lauded the role of MASTEC in the science popularization activities in the state.



Chief Minister interacting with science model exhibitors

He said that all preparations were to form a foot for setting up a science centre in the state. He thanked all the coordinating agencies for jointly organising the Science Meet 2003 and further appealed to other NGOs to join hands with MASTEC so that such Science Meet would be organized with more and more fan fare every year. About 3000 (three thousand) people from student community and other organisations gathered at inaugural function of the Science Meet 2003. Shri Th. Surendranath Singh, Executive Director(i/c), MASTEC proposed vote of thanks.

Activities of Science Meet 2003 : The activities of the Science Meet 2003 included

1. Competition (Science Quiz, Painting, Science Model and Declamation)
2. Popular Science Gallery & Model Exhibition
3. Science Behind Miracles
4. Puppet Shows
5. Book & Poster Exhibitions
6. IT Shows
7. Face to Face with distinguished scientists
8. Scientific Film Shows
9. Popular Science Talk

The above activities were shared among the co-ordinating organizations.

Activities of MASS : Manipur Association for Science & Society (MASS), a voluntary organization in coordination with MASTEC organised Popular Science Gallery and Science Model Competition.

Popular Science Gallery : Popular Science Gallery or Interactive Model display was a grand success with visitors thronging the stall everyday to try their hands or to display their skills. Posters of Nagashaki and Hiroshima bombing and photos of MASS Nature Camp at Phoibi were exhibited during the 5 days Meet. Altogether 10(ten) interactive science models were exhibited during the Meet.

Science Model Competition : The competition was open to the students reading in class VIII – XII. Altogether forty two(42) models were exhibited by 76 (seventy six) students (50 boys and 26 girls) from 16 different institutes/ schools. The models were based on varied themes such as electronic gadgets – 12 models, Issues on environment – 8 models, technological application – 16 models and other themes of interest – 6 models.



First Winner of Model competition

The following were the winners of the competition:

Position	Exhibitor	School	Name of the Model
1 st Position	1. R. K. Albert 2. G. Jempu	Maria Montessori School Imphal	Model Hovercraft
2 nd Position	1. Ch. Kukuchand 2. N. Gyaneshwor	Kanan Devi Memorial School, Imphal	House Security System
3 rd Position	1. Shantajit N 2. Samson O	Harvard School, Imphal	Life Saving Instrument
Consolation	1. W. Bankim 2. Sunder Yumnam	Shantilata Memorial School	Grass Cutter
Consolation	1. H. Dianarani 2. Manjulei Vaiphei	Royal Academy of Science	Laser Technology

Activities of GENIM

Generation De New Image (GENIM), Ningthoukhong in coordination with MASTEC organized the activity **Science Behind Miracles** during Science Meet 2003.

Science Behind Miracles : Miracles or magics 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 GENIM and also explained the scientific background behind it. The items such as Child killing box, 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, Counting match sticks, Water to blood, Rose presentation, Water to tea, Miracle bag, Calling of soul, Changing of handkerchief colours, Child killing box, Child shooter canon (top) etc. During the 5 (five) days Meet 2003 the programme of Science behind miracles was kept for 4 (four)



Science Behind Miracle Show

days of 1(one) hour duration each day and every day about 500(five hundred) people watched the show and many of them could learn how science is related with miracles.

Activities of MAPS

The two activities like Science Quiz and Declamation contest were organised by Manipur Association for Promotion of Science (MAPS) during Science Meet 2003.

Science Quiz : The competition was open for students currently reading in class XI-Degree in Science/Technology. Twenty two teams from schools and colleges registered for the competition. Altogether four teams selected from the Preliminary written Quiz contested for the final round consisting of oral, audio and visual rounds. The Quiz was

on the subjects pertaining to science and technology. Shri Athokpam Loyalemba and Y. Devashree of Modern College, Imphal got the first prize. Shri N. Shantajit and Miss Vinita Thokchom of Harvard School, Imphal and Miss N. Ibemcha Chanu & W. Sandhya Chanu of R. K. Sanatombi Devi Vidyalaya were given the second and third prizes respectively. Shri Ph. Sadananda Sharma and Md. Anwar Khan of Jawahar Navodaya Vidyalaya, Khumbong was given the consolation prize.

Declamation Contest : The competition was open to the students currently reading in class XI- Degree in Science/ Technology. The topics of the contest i) 50 Years of DNA ii)Pollution free industries iii) 25 Years of IVF iv) Information Technology v) Biotechnology today out of which each candidate was given opportunity to speak on one topic of his choice. Fourteen students from various institutes participated in the competition



Declamation Contest

Miss W. Sandhya Chanu of R.K. Sanatombi Devi, Pangei, Miss Vinita Thokchom of Harvard School, Imphal and Mr. M. Kiran Singh of Royal Academy of Science, Imphal were given the first, second and third prizes respectively.

Activities of MASCA

Manipur Science Communicators' Association (MASCA) in coordination with MASTEC organized the **Spot Painting Competition** during Science Meet 2003.

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).



Painting Competition

Sub-Junior Group : The theme of the Painting for the **Sub-Junior Group** was **Water is life- save it** and thirty five students participated in the competition.

The result for the **Sub-Junior Group** was as follows:

1 st Position	Ayekpam Dinku	Tiny Tot's Unique School, Imphal
2 nd position	Athokpam Panjenba	St. Meera's School, Imphal
3 rd Position	T. Suraj Singh	St. Paul English School, Imphal
Consolation	Th. Siddarth	Maria Montessori School, Imphal
Consolation	Uzeeta Soraisam	Lainingthou Awangba School, Imphal

Junior Group : The theme of the painting of this group was **Mass media has made the world a small place**. Sixty eight (68) 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	Ng. Soulson	Sacred Heart School, Imphal
3 rd Position	Ksh. Johnson	Shantilata Memorial School, Imphal
Consolation	Md. Zio Aid Hussain	Shantilata Memorial School, Imphal
Consolation	Akoijam Buyan Bud	D.A.V. Public School

Senior Group : The competition was for the students currently reading in class IX-X. The theme of the painting was **My vision of a pollution free environment** and 33 students participated in the competition and the result of the competition was as follows:

1 st Position	Millan Laishram	Catholic School, Canchipur
2 nd Position	Lakhajit Laishram	Grace Academy, Imphal
3 rd Position	Shilpi Ningthoujam	Maria Montessori School, Imphal
Consolation	Nandeibam Joyshree Devi	R. K. Sanatombi Devi Vidyalaya
Consolation	Hijam Dinendra Singh	Maria Montessori School, Imphal

Puppet Show : The professional members of MASCA presented 3(three) science based puppet shows on the topics viz., Saroi Ngaroida Shinakhrashi (Based on Conservation of natural resources), Nambul Kanshi (Based on Water pollution) and Khanglamdraba (Based on DNA).

The puppet shows were found highly impressive to the visitors and they could realize how far the art of puppetry could be utilized in S & T communication.

Book Exhibition

A Scientific Book Exhibition was also kept as an activity during the 5 (five) day long Science Meet 2003. A good number of students and teachers paid visit at the book exhibition. Three local book store namely Sharma Book Agency, Paona Bazar, Imphal, Sangam Book Store, Job Centre, Imphal participated in the book exhibition.

. MASCA also opened its library where newsletters, journals, books on science which are not available in print outs.were kept for reference of the visitors.

Activities of MASTEC

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

IT Show : Science Meet was found an occasion where IT could be introduced to the students in a very effective way and hence MASTEC invited the local computer institutes/firms to participate in the IT show during SM-2003. Four local computer institutes such as Mangall Infotech's Endeavor, Imphal , Arena Multimedia, Nongmeibung, Imphal, and Micronet Computer Systems, Imphal participated in the IT show and interacted with the visitors. Hundreds of students and teachers witnessed the IT show and most of the visitors appreciated the IT shows.

Face to Face: A face to face interaction programme with distinguished scientists was organised during the Meet 2003. Three local scientists namely Shri Ch. Rajendro Singh, Physics Dept, Imphal College, Shri G. Tomba Sharma, Chemistry Dept.D.M. College of Science, Imphal and Prof. B. Manihar Sharma, Life Sciences Dept. Manipur University participated in the face to face programme and interacted with the students on the selected topics. Shri Ch. Rajendro Singh delivered and interacted on the topic Earthquake Science, G. Tomba Sharma on the topic Ozone depleting substances and Prof. B. Manihar Sharma on the topic Environmental Implication and Awareness among the youths respectively. The programme was kept for three days of 1 (one) hour duration daily during the 5 day SM-2003 and students in hundreds took part in the interaction session and they were really benefited by the programme.

Popular Science Talk/Lecture Series: The following Four local resource persons delivered lectures on the topic shown below.. The programme was kept for 3 (three) days of 1 (one) hour duration during 5 days long SM-2003.

1. Prof. H.N.K. Sarma -The Golden Helix
Physics Dept, Manipur University
2. Dr. Th. Bhagirath Singh -50 Years of DNA
Associate Prof., Life Sciences Dept
Manipur University
3. Shri R. S. Longjam DNA Finger Printing
President, MAPS - What & How ?
4. Dr. Ng. Indrakumar Singh -25 Years of IVF
Asst. Professor, Dept. of Obs. & Gynaecology
Regional Institute of Medical Sciences, Imphal

About one hundred students and teachers were present at the programme and they were impressed at the talk.

Poster Exhibition: A scientific poster exhibition was also one of the activities of Science Meet-2003. About 40 (forty) scientific posters were exhibited. Many students were impressed to the scientific posters and they submitted impressive comments.

Scientific Film Show: A one hour duration scientific film show was kept on all 5 days of Science Meet-2003. Altogether 8 (eight) scientific films viz., Food Chain, Loktak Lake in Peril, Orchids – the Royal plants, Energy of Life, Solar Cokker, Thermoluminescence, Ambrosia – the Black Rice, Chili – the King of Spices were screened during the Science Meet-2003. About hundred students, teachers, visitors watched the film shows daily.

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 2003 for SM-2003 was given to Miss Bidyarani Ayekpam of Maria Montessori School, Imphal. The award carries a certificate of merit with a cash prize of Rs. 1000/-

Prize Sponsorship: MASTEC invited prize sponsorships from the interested commercial firms, individuals and philanthropic organisations for the prizes of Science Quiz, Science Model Competition, Spot Painting and Declamation Contest. Two organisations namely the European Manipuri Association(EMA), London and Shri Ch. Babu Singh of Saktombi Memorial Trust on Science & Technology, Imphal honestly accepted MASTEC's invitation and sponsored whole prize of Science Quiz amounting to Rs 7000/- and a sum of Rs. 2000/- for the whole prize of Declamation contest respectively in the interest of promoting better scientific knowledge of the young school and college students of the state.

Closing Function: The closing function of the 5 day long Science Meet 2003 was held on May 15, 2003 at 3.00 p.m. at Khuman Lampak Main Stadium, Imphal. Shri P. Sarat Chandra, Commissioner (S&T), Govt. of Manipur was the Chief Guest and Prof. H.N.K. Sarma, Physics Dept., Manipur University presided over the function. Dr. R. K. Ranjan Singh, Secretary, MASS, Shri R. S. Longjam, President, MAPS, Shri L. Somarjit Singh, Secretary, MASCA and Shri Kh. Kapoor Singh, President, GENIM were also present as the guests of honour.

Shri P. Sarat Chandra in his speech at the closing function expressed that Science, today is no longer confined to a few seriously devoted scientists. Though science has been recognized as a driving force behind human progress, we very often tend to appreciate the struggle of the scientists behind each invention or discovery. Science Meet 2003, the state level science festival organised by MASTEC in commemoration of the National Science Day 2003 can help the state for promotion and popularization of science & technology. He also said that MASTEC should organise Science Meet every year with inclusion of more number of activities. Prof. H.N.K.

Sarmain the presidential remarks expressed his happiness and congratulated all the coordinating agencies for organising the SM-2003 with a grand success. He also said that MASTEC should organise Science Meet every year with inclusion of more number of activities. 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. Dr. L.



Prize Distribution

Dinachandra Singh presented the activities report of MASTEC. Shri R.K. Pholmani Singh, Secretary, GENIM gave the activity report of GENIM.

Cash prizes with citations for the various competitions, awards were distributed to the prize winning students during the closing function by the Chief Guest and the President respectively. Shri Th. Surendranath Singh, Executive Director(i/c), MASTEC gave the concluding remarks of the Science Meet 2003. Thus ended the 5 day long Science Meet 2003 organised under the banner of National Science Day 2003.

1.4.2 Observation of National Science Day - 2004

National Science Day has been observed on 28th February all over the country every year since the year 1987 to mark the discovery of the well known "Raman Effect (1928)".

Under the sponsorship of National Council for S&T Communication (NCSTC), Department of Science & Technology, GoI, New Delhi, MASTEC observed the National Science Day on 28th February, 2004 on the theme “**Encouraging Scientific Awareness in the Community**”. at two different districts; one at **Royal Academy of Science, Ningthempukhri Mapal, Imphal East District** and another at **Praja Higher Secondary School, Lamsang, Imphal West District** in coordination with Science Teachers Forum Manipur (STFM) as the formal launching programme of Year of Scientific Awareness-2004.

Dr. T. Meinya Singh, Hon’ble Minister (Hr. & Tech. Edn.) Manipur and Prof HNK Sarma, Vice-Chairman, State Organising Committee-YSA 2004 graced the inaugural function held at **Royal Academy of Science** as the Chief Guest and President respectively. About 200 science students including teachers, from Schools, Colleges, invitees, dignitaries from the science NGOs etc. attended the function.



Minister (Hr. & Tech. Edn.) giving inaugural address

Popular Science Lectures by the eminent resource persons, question & answer sessions, interaction with the students on C.V.Raman were the main activities of the Day. Shri Ch. Rajendra Singh, Imphal College spoke on **Life & Achievements of C.V.**



Students interaction with the resource speakers

Raman, Prof B. Manihar Sharma, Manipur University on the topic **Environmental Pollution & Its Implications** Shri G. Tomba Sharma, Department of Chemistry, D.M. College of Science delivered on the topic **Food Adulteration** respectively. Gift hampers were also awarded to the student winners by Shri Th. Surendranath Singh, Executive Director, Manipur Science & Technology Council (MASTEC)..

Shri W. Brajabidhu Singh, Minister (MI & CADA), Manipur and Shri K. Mani Singh, Principal, Praja Higher Secondary School were the Chief Guest and the President of the inaugural function of the NSD – 2004 held at Lamsang, Imphal West District. A large number of participants from schools and general public of Lamsang area attended the programme. Shri L. Dwijendra Singh, Department of Physics, D.M. College of Science delivered on **Life & Works of Sir C.V. Raman**. G. Tomba Sharma, Department of Chemistry, D.M. College of Science spoke on the topic **Encouraging Scientific Awareness in the Community** and interacted with the participants. **Spot Quiz** of the School Children on C.V. Raman was also organised the same day.

1.4.3 District Level Lecture Series on Disaster Management

The main objective of the lecture series was to make people aware of the disasters commonly occurring in the North-Eastern region. The lecture series was conducted



Resource persons at the Dias



Audience attending lecture programme

during August – September 2003. The lecture was organized as follow up activity of the 3-day state level training workshop on Disaster Management held during July 29-31, 2002 at the State Youth Centre, Khuman Lampak, Imphal. The programme was catalyzed & supported by RVPSP, Department of Science & Technology, Government of India. Experts from different fields delivered lectures on various man made and natural disasters commonly occurring in the region such as earth quake, land slides, fire, thunderstorm and lightening, road accident etc. Techniques for rescue of disaster victims were also demonstrated to the participants consisting mainly of School students, teachers, general public etc. Altogether six lecture programmes were organized at six places in the state covering all the nine districts of Manipur. The first lecture was conducted on August 11, 2003 at Ramji Pravu Mandav, Wangkhei for Imphal East District followed by lecture in Bishnupur district on August 14, 2003 at Moirang Multipurpose Higher Secondary School, Moirang. The third and fourth lecture were organized at S.K.Ideal High School, Ngairangbam on August 21, 2003 for the Imphal west district and at Rayburn High School, New Lamka for the Churachandpur and Tamenglong District respectively. The fifth and the sixth lectures were delivered at New Cannan Top High School, Yaingangpokpi on September 12, 2003 for Ukhrul and Senapati Districts and Thongjao Junior High School, Thongjao for Thoubal District on September 17, 2003 respectively. On an average, about 250 participants witnessed each lecture.

1.5 Official Visit of Officers on deputation

Sl. No.	Name & Designation	Date	Purpose and Venue
1.	Th. Surendranath Singh Executive Director	May 23, 2003	Core Group Meeting on Micro Hydel Projects at New Delhi
		June 18, 2003	Group Monitoring Meeting at Bangalore
		September 4, 2004	Project Advisory Committee meeting at INSA, New Delhi
		December, 2003	ROC meeting on Year of Scientific Awareness at Gauhati

		March 9-10, 2004	Sensitisation Workshop on Year of Scientific Awareness (YSA) at Gangtok, Sikkim
2	Dr. L. Dinachandra Sr. Scientific Officer	January 15, 2004	Project evaluation meeting held at INSA, New Delhi
		February 12-13, 2004	Joint S&T based Developmental programme amongst S&T Councils and Departments of Mountaineous regions held at Itanagar
3	Dr. L. Minaketan Singh Scientific Officer	August 22- Sept. 4, 2003	Collection of hatching egg of Japanese quail from Central Avian Research Institute (CARI), Izatnagar, Barielly, U.P.
		November 27-29, 2003	National Group Monitoring Workshop (GMW) held at Nimpith, West Bengal
		February 13 – 14, 2004	NOC, ROCs and SOCs meeting for the Year of Scientific Awareness held at Chandigarh
4	Kh. Rakesh Scientific Officer	May 28 – 30, 2003	All India Consultation meeting for the Year of Scientific Awareness at Lucknow
		September 4 – 5, 2003	All State S & T Councils meeting for the YSA – 2004 and Transit of Venus and Rise of Modern Indian Science Programme at Chandigarh
		February 13 – 14, 2004	NOC, ROCs and SOCs meeting for the Year of Scientific Awareness. at Chandigarh
		March 9 – 10, 2004	Sensitisation workshop of all State and district co-ordinators at Gangtok, Sikkim
5	Ch. Sarat Singh	May 28 – 30, 2003	All India Consultation meeting for the Year of Scientific Awareness at Lucknow
		January 15, 2004	Project evaluation meeting held at INSA, New Delhi

1.6 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 :

1.6.1. Pottery Modernisation - A CGCRI, CSIR – MASTEC joint project

Objectives :

- i. To bring out an overall improvement in the productivity and quality of existing rural pottery
- ii. Diversification of product range especially into the production of glazed terracotta for creating new avenues for sustenance of rural pottery.
- iii Transfer of technology package to the rural potters for implementation for the overall benefit of rural potters.

Under the joint ventured project of Central Glass & Ceramic Research Institute (CGCRI), Kolkata and Manipur Science and Technology Council (MASTEC), Imphal, Ceramic Machineries have been installed in the pottery work shed of the two project sites at Thongjao in Thoubal District and Nungbi in Ukhrul District, Manipur

1.6.2. Survey and Modernisation of the traditional Fishing Crafts and Gears in the Lakes and Wetlands of Manipur Phase – II sponsored by State Council Division, DST, GoI, New Delhi

Objectives:

1. To survey and inventories the traditional infra- technologies associate with the existing gears and crafts of fisher folk in Manipur Valley (work already completed in 1st phase).
2. To cause modernisation or introduction of appropriate technologies through modification of existing gears /crafts or introduction of new ones under scientific guidance and research.
3. To cause enhancement of fishing efficiency through modernised tools.
4. To cause growth of small scale industries of fishing gears and crafts in the fishermen society.
5. To save ecology and environment in the state through reduction of felling of large trees for canoe making and use of pesticides in capture fishery.
6. To bring about the overall economic development in a sustainable manner for the fishing community of Manipur.

The project is being implemented in consultation with IIT Kharagpur.

Role of IIT, Kharagpur :

IIT, Kharagpur will help MASTEC to construct the prototype model of both Plank and FRP boats and Canoes and testing of hydrodynamic, stability test, improvement of hull design and model test of fishing canoes and narrow boats.

MASTEC's component:-

- i. Multiplication of successful prototypes at pilot scale for demonstration/ Popularisation.
- ii. Selection of fishing gears which has to be modified and introduction of new ones in consultation with IIT, Kharagpur and state Fisheries Department, Govt. of Manipur.

Achievement /Progress of the Project :

Fishing Craft : In order to develop suitable prototype models of boats and canoes, IIT, Kharagpur team comprising of Prof. N.R.Mandal and Prof. C.K Mukherjee conducted a field study at Moirang Boat Factory and studied the designs of the existing fishing canoes being commonly used by the fishermen in and around the Loktak Lake. Fishing techniques of some gill nets and nets used for Phoom fishing in Loktak Lake were also studied during the field visit. The IIT team also held a meeting with local experts from State Fisheries Dept, Govt.of Manipur and Loktak Development Authority (LDA) to find out appropriate inputs on developing the prototype models.

As an outcome of the meeting and field study, the team of scientists of IIT, Kharagpur has been able to now provide line drawing of the following boats/canoes models.

- i) Catamaran configuration with the existing canoe.
- ii) Mono hull design of 3 meters boat of wood.
- iii) Mono hull design of 3 meters boat for FRP.
- iv) Mono hull design of 6 meters boat for both FRP and Wood.
- v) One model with structural design of sunshade cover.

And, the IIT team will be providing one outrigger model with the existing canoe and a Catamaran configuration with half the size of the existing canoe at an early date..

Construction works :

Construction of the work shed for carrying out the activities of boat making is in progress .

Gear :

Gill Net: - Catch composition of the gill nets operated in Loktak Lake was studied. From the catch composition data optimum mesh size will be determined.

Purse seine Fishing: - Purse seine fishing is under trial.



Construction of Work shed in progress

Trap:-

Taijep : The following three designs of Taijep have been developed .

- (a) Folding Taijep made of bamboo strips with single entrance.
- (b) Folding Taijep made of bamboo strips with double entrance.
- (c) Folding Taijep made of bamboo strips and net.

The above 3 models are presently operated in Loktak Lake for further study. A new model of rectangular trap with angular attachment for riverine fishery has also been worked out. D.C current fishing technique-using Dynamo for riverine fishery and fish attracting low voltage D.C light system for the gill nets are identified for trial.

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

The project aims at reducing dependence on electrical energy for building 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
2. Construction of a demo building with solar passive architecture at Imphal which will be used later as office by MASTEC.



MASTEC Passive Solar Building: Side View

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 buiding 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. The construction work of the building is completed. And RETs are yet to be installed.

1.6.4. Dialong Micro Hydel Project sponsored by State Councils Division, DST, Govt of India :

The objectives of the project :

- 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

- The tract clearance for penstock laying has been completed
- Construction of Desilting Tank has been completed and fore bay tank construction is in progress
- Penstock welding work is going on and is in progress
- Ground leveling of power house building has been done and construction work is yet to be started.



Construction of Diversion Weir

Engineering and Monitoring Equipments

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



Trench for Penstock laying

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

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 establishment for dissemination to potential technology users in the state.
- Generation of Local situation specific technologies in collaboration with capable organisations.

Progress :

The project was launched in December 2000 and ended on March 31, 2003. For the project, data and information related to various technologies were collected from industrial sectors and other R&D organizations in the state of Manipur and 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 .

- Technology Transfer by MASTEC - from which information on the areas such as solar passive building technology, Mycro hydel, Pottery, Japanese quail rearing etc 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 contained 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 updation of data in the website is still a continuous process even though it ended on March 31, 2004.

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

Objectives of the Project

- i) Popularisation of quail farming techniques among farmers in Manipur.
- ii) To provide hatching and incubation facility to quail farmers consistently to sustain the industry in the state.
- iii) To provide periodic training to farmers.
- iv) To provide quail eggs and quails to the farmers

Achievements / Progress

Construction of rearing shed

The demonstration center / rearing shed of the Japanese quail has been constructed at the plot of Manipur Science & Technology Council at Takyelpat, at a distance of about 4 km. in the west from the Capital town Imphal. The shed is a wooden structure with CGI sheet roofing and cement concrete floor. The shed consists of two rooms viz, project office / staff room and quail rearing room where there is space for installation of cages for a capacity of about 10000 (ten thousand) quail birds



Japanese Quail demonstration centre

Construction of multi layer quail rearing cages and procurement of brooder

The three layer quail rearing cages have been constructed by engagement of local artisans. All the cages are of wooden structure with wire mesh wall.



Multi layer quail rearing cages

Chicken brooders are procured from the brooder manufacturing agencies. (*N.B.:- The iron poles or iron items available in the market are very costly since the items come from outside the state. Hence, instead of using irons, good quality wood available in the region have been used to construct the cages*)

Incubation and Hatching : The Principal Investigator and the Project Assistant paid a visit to the Experimental Quail farm of the Central Avian Research Institute (CARI), Barielly, U.P. to see their rearing facility, learn the techniques of the rearing and also expert consultation. One thousand number of fertile hatching eggs of quail were procured from CARI for incubation at Imphal. The eggs were incubated and hatched at the hatchery of State Veterinary Department. Out of 1000 eggs incubated, we could get 700 number of quail chicks i.e. @ 70%. The chicks were reared at the Quail demonstration centre of the Council as parent stock. A mortality rate of about 8% was faced while rearing the quails.



Adult Japanese Quails in the demo. centre

While counting the number of female and male birds, it was found the male birds more in number than the female birds. Hence, keeping the male and female in an appropriate ratio of 1:3, the male birds in excess were sold @ Rs 15/- per adult bird and the demonstration centre has, now stock of 336 parent quails (male 84 and female 252)

N.B. *Literature survey indicated that the maturity period of quails is 45 days. However, it was interesting that some of the female quails started laying eggs when they become 35 days old and out of the remaining, most of them also started laying eggs from 40th day of their birth. A study is required how quails have early maturity in this hilly region.*

Availability of quail eggs in the Demonstration Centre : The center is collecting about 150 -170 eggs in average daily and on the basis of size, the eggs were classified into two categories viz,

- i. Hatching eggs (which were meant for incubation and hatching)
- ii.) Commercial eggs.

The hatching eggs are made available to the interested farmers/ individuals @ Rs 0.75 per egg and commercial eggs @ Rs 0.50 per egg. The weight of the eggs ranges from 10 gm to 12 gm. The response from the



10 gm. weigh quail egg

people is overwhelming. They keep on visiting the center .to look at quail birds and also buy eggs.

Training for farmers : The First phase training for farmers on quail rearing was organized on November 12, and 19, 2003. Altogether selected forty farmers /entrepreneurs have been trained in quail farming The publicity of the programme was made through media organizations such as Local News Papers agencies, Local Cable Network, All India Radio, Imphal Station , DDK, Imphal etc and state organizations.

Report of the Training in Japanese Quail rearing :

A two day training in Japanese Quail production was organised by Manipur Science and Technology Council (MASTEC) during November 12 and 19, 2003 at the Youth Centre, Imphal.. The training was organized as part of implementation of the project “ Japanese Quail Demonstration cum production Centre being catalysed and supported by Science and Society Division, DST, GoI, The target participants were farmers, entrepreneurs, qualified unemployed youth, interested individuals. The main objective of the training was to popularize and introduce quail farming in the state and make aware of the participants about rearing of quails for income generation

The training was inaugurated by S. Madhu Sudan Singh, Director, Department of Science and Technology (DST), Govt. of Manipur and presided over by Shri Th. Surendranath Singh, Executive Director, MASTEC. Dr. S. Joykumar Singh, Director, Veterinary and Animal Husbandry Services, Govt. of Manipur attended the inaugural function as the Guest of Honour.

In his inaugural address, Shri Madhu Sudan Singh mentioned about the needs for introduction of Japanese Quail farming to the farmers, entrepreneurs etc. as a source for generating income. In his presidential remarks, Shri Surendranath Singh asked the participants to work sincerely and become a successful entrepreneur.

In the speech by Guest of Honour, Dr. S. Joykumar thanked the MASTEC 's initiative on introduction of Japanese Quail farming in the state at right time. He further expressed that he would extend all the possible co-operation in implementing the project for the benefit of the people of the state.

Earlier Dr. L. Minaketan Singh, Scientific Officer (Project PI), while welcoming the guests deliberated in brief upon the goal of the programme. Three resource persons from various organizations such as



Inaugural function of the training :
From right ,1. Executive Director, MASTEC, 2. Director, Veterinary Dept, & 3. Director, DST Govt. of Manipur.



A section of the participants

1. Dr. M. Dhaneshwor Singh, Head, Department of Animal Sciences, Central Agricultural University, Imphal, 2. Dr. Ksh. Pabitra Singh, Officer In-charge, Central Poultry Farm, Directorate of Veterinary and Animal Husbandary, Govt. of Manipur, 3. Dr. K. Rajbihari Singh, Poultry Specialist, State Veterinary Department imparted in depth training to the participants. The training included series of lectures, slide shows accompanied by discussion/interactions etc. **Altogether forty participants** including three lady participants attended the training. The following topics were covered during the course of the training.

- i. Quail industry and its prospects
- ii. Breeding and Management of quails
- iii. Feeding and Nutrition of quails
- iv. Diseases of quails
- v. Marketing

All the participants along with some journalists/reporters who attended for coverage of the programme were taken to the recently constructed Quail Demonstration Centre of MASTEC at Takyelpat where adult quails were kept. The participants also visited the Hatchery of the State Veterinary Department. on the second day of the training



Participants visiting quail centre

Post Training Activity

A new batch of 2000 hatching eggs collected from the Quail demonstration center has been incubated at the hatchery of State Veterinary Department on payment basis out of which 1200 quail chicks only were obtained showing hatchability rate of 60%. The quail chicks after rearing about one week have been sold to the interested farmers/ ex-trainees @ Rs 5/- per bird on the first come first served basis.

Technical Back-Up Support & Linkages With Nearby Institutions:

The Central Poultry farm, Department of Veterinary and Animal Husbandry Services, Govt. of Manipur are providing full co-operation by providing incubation facilities and also other technical guidance for rearing the quails. The Animal Sciences Department of Central Agricultural University, Imphal is also extending expertise as well as technical guidance as and when required. Both the Poultry specialist and Professors from the above organizations keep on visiting Quail Rearing Centre for observation of the health care of the quails and sharing their expertise for successful implementation of the project.

Science And Technology Component

Giving technical training to the farmers about (i). rearing of quails, (ii) feeding & nutrition, (iii) breeding and management of quails, (iv) medical measures to protect from diseases etc. have been major S&T components of the project.

Almost all the iron based items are imported from other states. And imported items are all very costly in this region. Besides, transportation and communication system is very poor. Hence, instead of using iron cages to be imported from other states, the quails for the ongoing project, are reared in a multi tier battery type cages made of locally available wood and wire mesh. The 3 or 4 tier wooden mixed with wire mesh cages are low cost and it is observed that such cages are also highly appropriate for keeping quails in the hilly region like Manipur

Progress Indicators for Monitoring :

- I) Personnel trained : 40 (forty) persons / entrepreneurs /farmers have been trained
- II) Income : The Council have collecting money by selling quail eggs to the public@ Rs 0. 50 per egg and the money so earned is used in purchasing quail feeds for the time being.
- III) Skill Upgradation : The Project staffs such as Project Assistant (1) and Helper (1) have been very much improved and become quiet familiar with the techniques of rearing of quails.

Work Remaining to be done under the Project :

- I) District Level Awareness Training in Japanese Quail farming in all the districts of the State.
- II) Making Parent Stock available to the farmers (to be continued in the post project period also).
- III) To help farmers co-operatives and marketing groups.
- IV) To provide incubation and hatching facility to quail farmers consistently to sustain the industry in the state (for which SSD, DST, New Delhi has accepted in principle to provide one lakh to set up incubation facility).

Special Features / Highlights

- i) Since the ongoing project is first of its kind so far implemented in this region, encouragement is being received from various state organizations including Academic Institutions
- ii) The ongoing project is becoming very much academic oriented in the sense that some scholars belonging to the Zoology discipline of Manipur University have shown their interest to do advanced research (on quail) leading to Ph.D. degrees.
- iii) It appears that the quail farming has not been properly started in other parts of the North Eastern Region. The reason being that some students of Assam Veterinary College, Khanapara, Guwahati (Assam) had recently visited the Quail Centre and also approached to MASTEC to provide them minimum facility for research on the Topic “ **Nutrition of Japanese Quails** “.
- iv) A documentary film entitled *Japanese Quail Farming* in Manipur has been developed by a team of DDK, Imphal and it has yet to be telecast at the DDK, Imphal.

1.6.7 Project on **Community Information Centre (CIC) sponsored by Ministry of Information Technology, Govt. of India.**

- Objective :**
1. To proliferate the use of Information Technology (IT) for Socio-Economic Development up to the Block Level
 2. To develop databases, locally relevant contents,. finally leading to e-governance, e-commerce,, e-learning etc.

MASTEC, NIC, Govt. of India, Imphal center and DST, Govt. of Manipur play a key role in jointly implementing the above mentioned project. NIC supports the

technical know how, DST, Govt of Manipur shares in the overall administration and MASTEC handles the financial matter including the payment of monthly honorarium to the project manpower/ staffs engaged on contract basis in the project.

So far 33 (thirty three) CICs have been set up in 33 developmental blocks in the state. Each CIC has got 6 numbers of computers connected to the Internet through a VSAT

Users :

Panchayat representatives, Student members, Womens Development Organisations, Youth Club Members, NGOs, Entrepreneurs, Educational Institutions, Common men etc.

Benefits to the rural people :

- i. Internet access and e-mail connectivity
- ii. Access to data base /developmental information of national importance.
- iii. Training through distance learning techniques and connectivity to leading educational and research institutions in the country
- iv. Awareness of IT at block level

1.7 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.

1.8 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	Shri S. Chakravarty	Scientist F & Head Clay and Ceramic Section Central Glass and Ceramic Research Institute (CGCRI), Kolkata	Preliminary arrangement for installation of Ceramic Machineries and internal electrification works of pottery work sheds at Thongjao & Nungbi Villages
2	Shri Mantu Saha	Proprietor Diana Ceramic 1,Ambika Mukherjee Road, Kolkata	do

3	S.K. Saha	Civil Engineer Central Glass and Ceramic Research Institute (CGCRI), Kolkata	Inspection of Ceramic Machineries and internal electrification works of pottery work sheds at Thongjao & Nungbi Villages
4	Shri S. Bhattacharya	Junior Engineer (Electrical) Central Glass and Ceramic Research Institute (CGCRI), Kolkata	do
5.	Shri Mantu Saha	Proprietor Diana Ceramic 1,Ambika Mukherjee Road, Kolkata	do
6.	Prof. N.R. Mandal,	Indian Institute of Technology, Kharagpur	Meeting in connection with Fishing crafts and Gears project
7.	Prof. C.K. Mukherjee	Indian Institute of Technology, Kharagpur W.B.	Meeting in connection with Fishing crafts and Gears project
8.	Shri Hariom Nanda	Managing Director Matronics India Pvt. Ltd New Delhi	Dialong Micro Hydel Project