Executive Director's speech on 12th Foundation Day – 18th March 1999

Shri. Ravindra Gupta, Secretary, Department of Electronics, Prof. C.N.R. Rao, President, Jawaharlal Nehru Centre for Advanced Scientific Research, Dr. V.P. Bhatkar, Chairman, ETH Research Labs, Distinguished Guests, members of C-DAC family.

Warm Welcome to C-DAC's Annual Foundation Day Celebration

Very Best Wishes for the New Year on Gudi Padwa.

On this auspicious occasion every year we have been meeting when C-DAC has always striven to communicate its significant accomplishments in the year as its humble contribution to the Indian Science & Technology. We have been privileged to have your patronage, in joining with us to share the joy of this accomplishment. The occasion has thus over the years become a landmark celebration of the year and everyone in this fine city of Pune always look forward to participate and be with us in this celebration - a celebration of Indian Research & Development.

Last year, from this platform, on this day, we brought the news of India building its largest Supercomputer, a machine which only a few countries in the world possess. That was a milestone in the history of the decade of existence of C-DAC, and we all shared the happy moments of accomplishments and those on the other side of the globe looked at it as a proof of what the developing world is capable of contributing to the world of science. A shining example of Indian Science.

We immediately realized that it was not the time to sit back, as we are dealing with a technology that is moving with unprecedented speed, a speed never encountered in the history of industrial revolution. Also, we are amidst an environment in which high technologies are not traded but bargained. So we have to continue to work untiringly, ceaselessly to not only bring self-reliance but also self-confidence in building and using these technologies.

We have been fortunate to receive the much-needed support from the Government through the Department of Electronics, our parent. In our pursuing this path, C-DAC has come a long way in a decade of its existence, rising from an R & D institution that the Government set up to address a specific need to building self reliance in the area of vital importance, the HPC, to a high end IT solution provider corporate major in the country.

After an eventful year of 1997-98, I would like to inform that this year was equally rewarding. A year, in which we not only consolidated on our past accomplishments, but charted our path to gear up for the coming millennium. A shift in the focus, on both technology and business fronts, and a strategy to capitalize on strengths we have at our sister institutions in India and a look overseas for achieving our goals.

Let me share with you a happiest moment of all of us at C-DAC in this year. The Government, bestowing their continued confidence in us, has approved our third mission. A mission with a change. One in which we focus on technology building and application building.

The overall scope of the mission falls in four categories:

1. Advanced technologies for Next Generation High Performance Computing and Communication - it is here that we see a change in our approach.
2. National PARAM Supercomputing Facility - who will be dedicated to the nation soon, which houses PARAM 10000 to be available to various users in the country.
3. Applications development - three areas - Mission Critical, Science & Engineering and Business applications.
4. Collaborative initiatives & infrastructure building - Collaboration with Academic Institutions, and building a World Class high end R&D facility with a vision of a top end IT solution provider institution.

We are extremely thankful to Shri. Ravindra Gupta for spearheading the Government's approval of this Mission with a conviction.

What are the advanced or next generation technologies we are talking about. This is something on the ground:

1. We adopted workstations as a compute node in PARAM 10000
2. We are now using Commodity PC elements such as the emerging Intel Chips and other advanced processors available from multiple sources.
3. In a record time of less than four months (we started this exercise in November 1998) we have put together a system with PARAM 10000P – 8 node 16 processor Open Frame scalable system with Paramagnet switch, with our own operating and programming environment having 10 Flop power.
4. Focus is on System Area Network (SAN) to produce ultra-fast low latency switch with very low communication overheads.

5. Also, to build hardware programmable libraries to map the application algorithms to derive the best through put from the parallel machine.
6. In this approach, we "build the technology to build supercomputer". This will help generate a know-how package, which we could provide to the institutions, industry or users to build their own machine suitable to their own needs - that is the key.

I congratulate P.R. Eknath, Ajit Karnik, Sanjay Wandhekar, Vinodh Kumar, Ashish Kuvelkar, Mohanram, Nitin Parab and all other members of the N-19 project Task Force directly and indirectly associated with this project for their contribution.

There is a lot of work ahead in this direction, and we dedicate ourselves to accomplish this task.

Let me turn to another aspect of this:

The National PARAM Supercomputing Facility (NPSF) which houses PARAM 10000 is now being offered for country-wide use - use primarily by R&D units and Academic institutions. The facility provides space and resources for users in the user terminal area. Also, C-DAC will provide connectivity so that PARAM 10000 could be accessed through a wider network. To achieve this, PARAM 10000 is being optimized fine-tuned, upgraded and supported with all user software tools that we have.

As part of this activity, in the Third Mission, we are building a collaborative programme with premier academic institutions such as IITs, IISc, RECs etc. The idea here is to build new applications to run on PARAM 10000 which are of interest to us and which can even be commercialized. Towards this end, the Department of Electronics has agreed to a support to provide a given configuration of PARAM 10000 along with software tools to these institutions. As another step in this direction, C-DAC is organizing a workshop in June this year involving these institutions to work out individual projects. V.C.V. Rao and his colleagues have worked hard to finalize arrangement for this workshop.

Ladies and Gentlemen, let me know turn to another major achievement of this year. The DOE has promoted a Multimedia Development programme as part of its 11 point NII Action Plan. The objective of this program is to reach multimedia to the masses. This has been proposed to be achieved through training, entrepreneurship development, low cost multimedia content creation, development of tools and templates for wider applications etc. In this program, C-DAC has been given responsibility on its technology part. An NMRC, a National Multimedia Resource Centre, has therefore been set up where we are conducting various training activities. We have already

developed and built a CD on **Dnyaneshwari,** which was launched during the 1998 Pune Festival. It is getting popular in Maharashtra as its commentary is in Marathi. WE have also developed and brought out another CD called **SHAILI** which is being launched today. It is one of the fine arts done by the team of Dinesh Katre in a record time of two months. A server is being set up in NMRC to offer preview of these multimedia components through the Web.

This year was one of the most eventful years for another reason. To exhibit our continued thrust on R&D and bring fruits of this R&D to the market place, we brought out a record number of products this year. These are:

1. iLEAP
2. LEAP Office Ver. 2
3. GISTMail
4. MANTRA Tool – nominated for Smithsonian Computer World Award
5. Shaili
6. iLEAP for ISP
7. CCP Chip

Congratulations to the GIST Team led by Shashank Pujari to have brought out these successful products, and the VLSI team for the CCP Chip, one of the most complex Chip designed in India and successfully used in a product, our PARAMNet.

And the story is not over, as we have another two products getting ready for launch with a month.

Sir, a word about our business would not be out of place in this scenario of technology development. Through a directive from our Governing Council in 1993, we set up a Business Operation in C-DAC. Ever since then we have grown significantly, registering a growth of over 50% last year to reach a level of Rs. 25.5 crores in 1997-98. We are confident of maintaining this level of growth this year too. Our main business in from three lines, viz.

1. GIST Business
2. HPCC Business
3. Training Operations

A significant mention here, I would like to make of three major contracts bagged this year.

1. We recently successfully commissioned a Financial modelling system based on PARAM 10000 technology for a customer in Singapore. This contract was won against a tender with fierce competition from IBM, SGI etc. I acknowledge the efforts of Dixit, Seetha Rama Krishna and Medha Dhurandhar on this.

2. A major contract from Doordarshan for multilingual character generation system for all their studios in India. Here again, C-DAC won it against a very close fight in a tender. I acknowledge the hard work of Pujari, Raje etc. for this.
3. We have been very successful in installing a SCADA system for major power projects in India. This is a totally indigenous software solution on a distributed processing architecture system. Based on our past successes, we bagged a repeat order from Power Grid Corporation for their northern regional load despatch centre in Delhi. I acknowledge the contribution of Ganga Prasad, Bindu and the entire team of Real Time System Group.

On training side, our Advanced Computing Training School (ACTS) has been doing commendable work every year providing training to over 3000 students from various courses. We started our own Hyderabad Centre recently to spread, and are opening new Authorized Centres countrywide to address the growing demand.

Appreciating the success in our business operation and a felt need to tap a potentially large market for our products, technologies and solutions, the CDAC Governing Council has recommended to corporatise C-DAC's business operation. A proposed to set up a corporate structure under Section 25 of Companies Act is now under consideration of the Government.

C-DAC had earlier supplied its PARAM machines to ICAD Russia. Recently, realizing a potential for synergising the expertise at ICAD and C-DAC, a proposal has been finalized for co-operation between the two organizations. This will include supply of a powerful PARAM 10000 by C-DAC to ICAD and a joint development of application softwares in various areas of science and engineering of mutual interest.

Sir, in the IT world of business when the companies are trying to synchronize their actions with a view to solve the millenium bug facing all of us, investing heavy resources and efforts in the Y2K compliance exercise, C-DAC initiated exercise, though somewhat late, to ensure that it complies with Y2K not only in its infrastructure but the products and technologies developed by it: A task team set by us informs me that C-DAC is already compliant to the extent of 50% and it would become fully compliant by September 1999. This is a target we have kept.

Ladies and Gentlemen, let me come to the last item of my presentation. That is on a national cause, a social cause on which C-DAC realizes its responsibility. There has been a demand for quite sometime to make some of our fonts in various Indian languages available in open domain to promote the use of computers in Indian languages in a large measure, and consequently drive

the standards on script that we have. Our GIST team is happy to announce a scheme to address this need. With your permission Shri. Gupta Sir, on your behalf as you were championing this cause, I would like to read it out. I quote :

"Free Multilingual Content Creation Facility

C-DAC is pleased to announce a new facility on its Server for free and easy way of creating multilingual Web Content. Till now, one was required to buy a software with fonts in order to do the same.

C-DAC had already announced provision of a few fonts on its Web-site for noncommercial use and for content creation activities. However, Indian languages being non-linear the input keyboard driver was required by the content creators.

This made Indian language content creation difficult for many enthusiastic Indians. It has been estimated by the Department of Electronics that the new wave of Internet in India could be created by objective, this facility has been created.

This new facility is being made available on C-DAC's GISTMail server at http://gistmail.cdac.org.in where users having a free account can type the text in Hindi, Marathi (and other Indian languages shortly) for conversion into HTML format directly. This converted Hindi text in HTML and with font codes is delivered at the Email address of the user, who can just place it on any Web Page using any standard HTML editor like Netscape Composer.

One can now expect a large number of visitors on such a web site, who are already users of iLEAP or GISTMail and having the same font on their PC. For others, a font can be provided on their Web-site (with credits and link to C-DAC) for download and for browsing the content. If the content is exceptionally good, C-DAC will also provide a link from its Web-site to such sites. There are some more tips on C-DAC's web-site which are being given for multilingual content creation.

A large number of personal pages, magazines and newspapers are using C-DAC's software for Web content creation. This new facility will give a tremendous boost to the individual content developers to enter the area of Indian language content". I unquote.

I must add here that we will be giving special attention this year to the Urdu language, and will come out with user friendly products to support our Urdu speaking friends.

Ladies and Gentlemen, that brings me to the end of C-DAC in perspective 1998-99. I would like to take this opportunity to thank you for your patronage, and giving us encouragement to live up to your expectation. We have had times of both joy and despair in our R&D efforts. But your best wishes have been with us always, and we came out of our testing moments.

I have been privileged to have with us very intelligent, sincere and above all, humane colleagues, and through their hard work only we are able to reach you with our accomplishments. I take this opportunity to thank every one of them and look forward to an equally rewarding and eventful 1999-2000.

Thank you all once again.