

Executive Director's Speech on 15th Foundation Day – April 13, 2002

Shri. Shyamal Ghosh, an able administrator with a varied experience of handling Chemicals & Petrochemicals, Finance, Industry & Agriculture, Textiles, Foreign Trade, Electronics and Telecom Industry, who in his current position as the Chairman of Telecom Commission has led significant liberalised policy promulgations, and whom we came to know closer as Secretary of the erstwhile Department of Electronics of Govt. of India as an ardent believer of indigenous technology. It was in his regime then that we had the fortune of delivering our powerful supercomputer PARAM 10000.

Prof. Rao, an internationally renowned space scientist with Aryabhata, Bhaskara, Apple, Rohini and several INSAT & IRS satellites to his credit, who gave thrust to the manifold space technologies on the orbital paths envisioned by our renowned scientists Vikram Sarabhai and Satish Dhawan.

Prof. Indiresan, a popular teacher and a prolific writer with a sound combination of a Scientist and an Engineer with several awards and recognition to his credit by both national and international institutions.

We are fortunate to have amongst us today the proud recipients of PADMA Awards for the year 2001 in the information science and engineering areas, Dr. Kohli, Prof. Jhunjunwala and Dr. Suresh.

We are also privileged to have today a galaxy of distinguished professionals, Prof. Govind Swaroop, Prof. Ram Takwale, Shris Poonawalla, Dr. Goel, Hon'ble Dhariaji, Hon'ble Srinivas Patilji, Dr. Bhatkar, Dr. Nitin Kareer, Dr. Ratnasamy, Cmde Khandekar, Gen. Dua, Dr. Dharmadhikari, Dr. Sarnot, Dr. Bohra, Shri. Gupta, Shri. Bhargava, Shri. Ramakrishnan, and many more,

Other Distinguished guests, Ladies and gentlemen and members of C-DAC family. A very good morning. It gives me great pleasure in welcoming you all to C-DAC's Annual Foundation Day, a day when we complete fourteen memorable years and go well into our teens. I also bring to you all our greetings and best wishes for the New Year Gudi Padwa.

It is a day when we exchange pleasantries, we re-establish our valued association, we share with you our excitement of successes, but also lean on you in occasions of despair that gave us strength to overcome our testing times. And above all, a day when we prepare ourselves once

again for the challenges to face, new opportunities to grab, and for times of hard work, dedication and commitment and of course to witness the events of an eventful year.

Last year, on a similar occasion, carrying with your blessings and good wishes I had made a promise on behalf of C-DAC to echo this time our even greater accomplishments. Your support, understanding and love have indeed remained with us to inspire in us the confidence to deliver the results as expected. Ladies and Gentlemen, I present before you the success story of the year that just went by.

We revisited our Vision and Mission statements, and reaffirmed our faith and indeed chalked out individual group plans to implement. We immediately realised that in the melee of the information technology movements that have witnessed unprecedented growth, the institutions which managed to keep pace of their developments in synchronism with the developments in this sector are indeed the ones with success stories to enumerate. Also, institutions which maintained their area of niche have established themselves in this potentially fast growing sector of economy. Specialism scored over generalism.

C-DAC consequently organised itself by keeping pace with the developing technologies and judiciously capitalised on the skills built up and the experiences gained to develop and deploy advanced information technology products and solutions.

For those who may not be aware, we have, as example, dealt with contemporary technologies of parallel processing, artificial intelligence, natural language processing, real-time systems, network security, data warehousing/data mining, Geomatics, Bio-informatics, Scientific Modelling and Visualisation. And the sectors we applied these technologies to by offering specific solutions are Healthcare, Telecom, Power, Utility, Financial services, Agriculture, Education and Government.

Sir, we would be presenting to you today our humble contributions in four selected technologies that we concentrated building on in the past year:

- Natural language processing based intelligent information retrieval
- Decision support system using Geomatics technologies
- Security over public networks
- Bio-informatics towards safer drugs design and designer medicines

High Performance Computing has always been an area of strategic interest to every country as it prepares it to address the requirements in important strategic and economic sectors. Our direction of efforts in this area of C-DAC's extreme focus in the year have been to design and build new generation of powerful supercomputers based on its PARAM technology, and also

based on this platform, develop and offer solutions in specific compute intensive and data intensive applications. Significant example applications that we developed solutions for are:

- Regional weather forecast and ocean modelling
- Scalable information warehouse for Government Data Centre
- Financial modelling and Capital Market simulation for investment agencies and fund managers
- Simulation of internal combustion engines for automobiles
- Design simulation of large and complex aeroshapes
- Processing and visualisation of oil exploration data
- Bioinformatics

Encouraged by our achievements in these areas, and relevance of their increasing need, as a natural successor to these developments, we are gearing ourselves to designing and building an iGrid: A Grid Enabled Information Infrastructure for Next Generation High Performance Computing, so as to help provide access of large computing facilities to a large number of users over a high bandwidth network. I am happy to inform that a multi-institutional Steering Group of the Ministry of Communications and Information Technology has indeed recognised its need and given a go-ahead to this proposal.

Multilingual Computing technologies are of special significance to the Indian needs. A country with 18 officially recognised languages and a vast population spread across metropolis, towns and villages and of vastly varying economic strata, a need for providing user-friendly low cost products need no emphasis that will enable people at large to communicate over computing devices and networks in their own languages.

At C-DAC we continue to sport the development activity in this area as another significant area of our focus. True to our tradition, we have been bringing out newer products every year in this area. The new products that we brought out in the past year are:

- MOVE CG (for multilingual character generation on TV)
- MANAS (for Studio automation)
- LILA Pragya (for self Hindi learning through the medium of English)
- PCI based GIST (for multilingual data base)

And more products as we step into the first quarter of the current fiscal. Friends, the popularity of our products is evident from the fact that we continue to enjoy our leadership in this area.

Ladies and Gentlemen, I wish to assure you that we are not sitting quiet on these laurels. Our large teams are engaged in newer areas of research that would lead to altogether new products and applications, all designed to service the needs of large Indian populace. The areas include:

- Natural language processing based information retrieval through powerful search engines, text to speech that access mobile devices such as Cellular phones
- Authoring and interpretation of our vast Knowledge residing in ancient Sanskrit literature like Vedas, Upanishadas and other epics as a Digital Library
- Systems for speech-to-speech combining powerful technologies of optical character recognition, machine translation and speech synthesis.

Let me now turn to another important area on which both our Central and State Governments have laid extreme emphasis. The subject of eGovernance. Realising that we have all the bricks and mortars of technologies for this in C-DAC, we jumped into developing and deploying diverse solutions of e-Governance. There are, as a result, several success stories to present. But let me just put before you a few that witnessed fruition in the past year.

SARITA: An automated stamp and registration system for Government of Maharashtra

Revenue	:	Rs.2500 crores
Sites	:	366 (all networked)
Total cost	:	Rs.25 crores (1%)
Development Cost	:	Rs.2.5 crores (0.1%)
Result	:	Eight private companies on BOT Employed 1000 personnel. No capital or recurring cost to Govt.

No. of documents registered/day/office increased from 16 to 40

Time to register reduced from several hours or days to 30 mins

For all a win-win-win situation

www.mahaigr.com

StateWorks: An integrated Works Management for PWD

Revenue	:	Rs.2500 crores
Sites	:	250 (all networked)
Total Manpower	:	25000
Cost of development	:	Rs.7.5 crores
Deployment	:	Rs.30 crores
Result	:	Works Management

Tender Management
Employees Management
Accounts Management
Inventory and Infrastructure Management
GIS based road information system
fully computerised resulting in efficient management, reduced
subjectivity and improved customer interface.

www.mahapwd.com

Municipal Corporations of Karnataka

Revenue : Rs.800 crores
No. of Corporations : 6 Statewide
Development Cost : Rs.2.5 crores
Result : All MCs fully computerised giving efficient citizen services:
Property tax billing, issue of certificates and licences, consumer
complaints, MIS, etc.

On Line Voter Query: Election Commission of India

Features Search from Indian language based voter data
On-line query from the citizens into the database
Pilot 16 cities in first phase to grow countrywide later

Sir, an area which has been engaging regular attention of the Government, is the shortage of skilled human resource in this entire area of information science and engineering. Though our celebrated academic institutions are doing an excellent service by producing the quality person power, the numbers are nowhere near the needs. This has given rise to efforts at private enterprise to help bridge this gap through a non-formal sector of education.

Realising its responsibility in helping to fulfil this national need, you are aware C-DAC entered into this sector 8 years ago, but with a difference. The difference stems from a rigorous quality check in multi-stage filtering for admission on an India wide selection basis, specially searched and developed course material, special considerations on faculty skills and a range of 'soft skills' imparted to the students, and above all the course syllabus is designed by the developers of the technologies themselves with a heavy orientation on practical aspects. The courses offered are unique, one of its kind, and cover such subjects as Advanced Computing, Semiconductor chip

design, Embedded System Design, Digital Multimedia with 3D Animation & Modelling, Enterprise System Management and Geomatics.

Our training school greatly feels encouraged by the kind of response our educational courses have evoked from the 25000 students who were the beneficiary of the various education and training programmes offered last year. And this came from our 100 plus Authorised Training Centres from 15 different States and 9 different course offerings, with the Centres, also assisting us in our on-site development/deployment projects. We now have signed up to take this successful programme overseas in countries like U.S., New Zealand, Emirates, Mauritius and Colombia.

Friends, we have always believed in and struck a sound balance between the advanced research and developments and capitalise it for good economic returns. The technology developed is only as good as it is capable of being exploited to meet its given objectives. Thus, while at C-DAC we have dwelt on contemporary technologies, these have also been applied to develop real life solutions. It is this approach that has enabled us to drive our R&D towards a successful economic model. As a consequence, we are currently engaged in executing business projects for wide range of users such as Election Commission of India, Indian Patent Office, UP Power Co. Ltd, MP Police, CDFD, PMGSY, DOEACC, Rajya Sabha, Cabinet Secretariat, Governments of Maharashtra, Karnataka, Goa, UP, Punjab. Ladies and Gentlemen, we are today a proud achiever of Rs.85 crores budget with well over Rs.100 crores targeted for this fiscal. Our patrons compliment us on this performance as one of the best witnessed by any of the country's Research & Development organizations. We owe this all to your best wishes, understanding and support.

Ladies and Gentlemen, nearer to my end of this presentation, an insider's word of ourself will be appropriate. As we sail through the winds of uncertainties and economic recession, we usefully utilised time to build on our technological strengths with quality of processes, objectivity of purpose, and draw upon our membership and the environment that we offer. Our members have been our pride possession. We have prided in practising and offering a member-friendly culture, a highly transparent, and intellectual environment and attracting best brains that work on technological challenges. We also define values and recognise those who epitomise those values to build on the culture and motivate the members. I consider myself privileged to have such fine, humane and intellect teams and it is through a sound combination of these attributes only has it been possible for me to mirror before you our accomplishments. But with no less challenges, constraints, hick-ups and possibly mistakes. These are part of every rose bud. I do wish to take this opportunity to congratulate every member of C-DAC for all the good work done and also thank their family members from whom they have been away for longish hours in their

accomplishment of tasks. And I look forward to many more exciting events, rewards and accomplishments in the year ahead.

We have been fortunate to have a very supportive and understanding Governing Council. We are also privileged to be the recipient of continuing Government recognition and financial support in our pursuit of excellence, and in the Ministry of Communications and I.T., our parent, a strong inspiring source that pushed us to the high echelon we are in today. We do not become complacent, and our efforts continue in the path of contributing its share to make India truly an I.T. Super Power.

Ladies and Gentlemen, as I close my story, I thank you all for your kind attention and continuing support, understanding and love.

Many thanks once again.