

The Apex Body Story - CINTEC



Aruni K. Goonetilleke

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(Some names are fictitious.)

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LK Domain Registry

Bernard's Business Park, 106, Dutugemunu Street, Dehiwala

TP: (011) 421-6061

Email: hostmaster@domains.lk

Web: www.domains.lk

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Introduction

Ms. Aruni Goonetilleke has been the live wire behind the popular website History of ICT in Sri Lanka and the book How ICT was enabled in Local Languages. She has now documented the work done by the Council for Information Technology (CINTEC) in its almost 20 years of developing ICT in Sri Lanka.

This book is the first part of this fascinating story, and describes why there was a need for such a body, how it was set up, and the work it has carried out. It shows that Sri Lanka did not get to where it is today automatically. The vision and a lot of hard work by many people were needed to bring us here. I trust that you will find this an interesting story. More information on the personalities involved, and some of its success stories, is available on the ICT-History website.

Gihan Dias

March 2023

Prolog

Computerization commenced in the 1960s in Sri Lanka, in both the State and the private sectors; way back in 1962, IBM came to Sri Lanka on the invitation of the then Prime Minister. IBM was invited due to the fact that the insurance business and other key sectors of the economy such as banking, insurance, foreign trade and the petroleum industry were nationalized during this period. When the insurance business was nationalized, major issues in handling data relating to insurance policies etc. ensued. Consequently, while other international businesses had to leave, IBM was invited to Sri Lanka. Subsequently data were captured into cards through data entry machines and the cards were sent to India for processing and the results were returned. This was one of the earliest inroads into this new territory.

Early initiatives: There were many initiatives during the early stages led by several pioneers; An ICL 1901S computer was installed at the State Engineering Corporation (SEC) in 1967. Dr. A.N.S. Kulasinghe, Chairman of SEC during this period, initiated this venture. SEC had excess computer capacity; therefore, SEC undertook computerization projects for other Government organizations. Many are not aware of the fact that the results of the G.C.E. Ordinary Level examination for the entire country were processed with computers from 1968 onwards. SEC also processed the results of the G.C.E. Advanced Level Examinations, and undertook computerization projects of various other Government

organizations. During the period 1968/69, SEC designed the Ceylon Technical College situated in Maradana - this was the first building in the country that was designed using a computer. Dr. A.N.S. Kulasinghe initiated the designing of a Chaithya¹ with a shell structure using a computer; there was no software available for designing such a structure during this period. Professor Sam Karunaratne and team developed their own algorithms in designing this Chaithya. This is the Chaithya at the Kalutara Bodhiya.

An electronic computer system, an ICT 558, was installed at Walker, Sons and Company. It was used for payroll and inventory control work and an ICL 1901 computer system was installed in 1968 at Computer Systems Ltd. (CSL), a subsidiary of Walkers. An ICL 1901A was installed at AMS Data Services Ltd (AMS), in Colombo. AMS was a service bureau operation, and the Company undertook accountancy projects and work relating to tea auctions, etc. These were the initial computer installations.

From 1969 onwards, IBM 360 mainframe computers were installed at the Insurance Corporation, the Ceylon Petroleum Corporation and later at the Department of Census and Statistics and the Central Bank of Sri Lanka. Subsequently, the Examinations Department also leased an IBM 360 mainframe computer mainly for in-house processing of the results of the G.C.E. A' Level and O' Level examinations.

Computerization at Universities: Computerization commenced early in Universities too. There were IBM 1130s at the Faculty of Engineering, University of Peradeniya under Dr. J.A. Gunawardena and at the Faculty of Engineering, University of Moratuwa under Professor Sam Karunaratne. By 1980, Professor Abhaya Induruwa was in charge of the Computer Center at the University of Moratuwa at which a Computer Library and a Computer Laboratory were set up in 1984.

1. *Chaithya: a dome shaped structure in Buddhist temples enshrining sacred relics*

Students could borrow Sinclair ZX Spectrum computers from the Computer Library and use networked Commodore 64 computers in the Laboratory. Professor V.K. Samaranayake procured an HP Scientific desktop machine for the University of Colombo, and so did the Postgraduate Institute of Agriculture and the Agricultural Research Training Institute (ARTI).

In 1986, a team led by Professor Induruwa demonstrated the possibility of connecting to a remote computer by logging into the TRS 80 at the University of Colombo from a similar computer at the University of Moratuwa using UUCP over a telephone line connected to modems with 300 baud (bits per second) speed. This was a milestone. It marked the beginning of the computer networking era in Sri Lanka that led to the establishment of LEARN (Lanka Experimental, Academic and Research Network²) as the data communication backbone to connect all Universities and research institutes. Sri Lankans in various Universities overseas communicated with each other and exchanged information using an electronic mail-based bulletin board and the group was named SLNET - this was one of the very first social media networks.

Introducing computers to schools: Under the direction of the Computer Advisory Committee of the Ministry of Education, a program to introduce computers to schools commenced in 1984; computer labs with Sinclair ZX Spectrum computers were set up in schools which had G.C.E. A' Level Science streams. Due to hardware resource limitations, only programming in BASIC (Beginners' All-purpose Symbolic Instruction Code – a high-level general purpose programming language) was taught to school children and 200 teachers were trained for this purpose by the Universities of Moratuwa, Colombo and Peradeniya and by DMS (Pvt) Ltd.

2. Presently known as Lanka Education and Research Network

Banking sector:

The banking sector too, commenced computerization very early. The Central Bank also was one of the first banks to use ICT. In the late 1960s, the Central Bank commenced using ICL Tabulating equipment, primarily for EPF (Employees' Provident Fund) accounting functions and printing member statements. Later, an IBM System 360 was used to fully computerize the EPF employee and member account details. During this period the Central Bank undertook several computerization projects for other institutes too, such as the National Savings Bank (NSB), the Department of Examinations, Air Ceylon and the Textile Corporation. The generation of national ID card (NIC) numbers was another project which the Central Bank undertook during this period.

Later, the systems were upgraded to IBM 4331. In 1985/86 the Central Bank implemented the first ever passbook printing system in Sri Lanka using an IBM 4700 Financial Communication system linked to the main frame computer. This was used for printing EPF member balances. This initiative of printing a passbook for EPF member balances, was later discontinued. Implementing the Sri Lanka Automated Cheque Clearing House (SLACH) around 1986/87 was a significant milestone.

In the 1970s, the Bank of Ceylon (BOC) placed an order for an IBM System/34 computer system; the emphasis was on supporting the finance functions for the generation of financial reports as well as reports for the Central Bank. A real breakthrough at BOC was the implementation of the Letters of Credit process under the direction of Mr. Janaka de Silva, Corporate Advisor, and his team. Later, automation was extended to other areas such as generating telex messages to be dispatched to the correspondent banks etc., under the direction of Dr. R.B. Ekanayake, who was the Director, IT. The first ATMs were installed by HSBC bank at their premises at Sir Baron Jayatilleka Mawatha. But this was a single-location ATM; Sampath Bank was the first bank to install multi-point ATMs in the late 1980s.

Mobile telephony: Mr. Siri Samarakkody founded Celltel, Sri Lanka's first mobile telephone service around 1987.

Various private sector initiatives: The Computer Society of Sri Lanka (CSSL) was inaugurated in 1976. There were many private sector organizations operational during this period and some of these are as follows; Data Management Systems Ltd. (DMS) has provided ICT products and services since the late 1970s. As stated earlier, AMS Data Services Ltd (AMS), a service bureau operation headed by Mr. Chandi Wijesekara, undertook accountancy projects and work relating to tea auctions, etc. Dr. Maya Sittampalam Rainford commenced the Company "A to Z Computers" around this time. This Company initially developed software on coding sheets for customers in the UK. The software included software for Courts in the UK, ERP solutions, accounting software, software for gaming and also for cleaning services. Thereafter, a Burroughs computer was used. This Company also conducted structured educational and training programs on ICT. Dr. Gamini Wickremasinghe established Informatics in 1983 as a total turnkey solution company, offering hardware, software, training and maintenance. Mr. Jagath Ranawaka started Jagath Robotics Pvt Ltd in 1985 and entered the areas of both computer hardware and software. In the early 1980s Metropolitan Computers was a supplier on banking equipment such as ledger cards and printers.

This was the ICT arena into which the Computer and Information Technology Council of Sri Lanka (CINTEC) the first Government apex body on ICT, entered.

Chapter 1 – setting up CINTEC

That first formal meeting

It was a hot and humid morning in September 1982. Dr. Mohan Munasinghe the newly appointed Senior Energy Advisor to President J.R. Jayewardene entered the Presidential Secretariat for his first weekly meeting with the President. The Presidential Secretariat was in the Old Parliament building facing the Galle Face Green and the Indian ocean. The security staff opened the imposing gates for Dr. Munasinghe's official vehicle. After getting down, he climbed the flight of broad steps at the entrance of the building, with its beautiful architecture and imposing colonnades. This building, which had been declared open in January 1930, housed the Legislative Council of Ceylon until the legislature was moved to the new Parliament in Sri Jayewardenepura, Kotte, in 1982.

Dr. Munasinghe had weekly meetings with President Jayewardene. These meetings were scheduled just before the meetings of the National Security Council. The members of this Council who were waiting outside as Dr. Munasinghe arrived for his first meeting, looked at the youthful 37-year-old with great interest. During this period all of Dr. Munasinghe's work was focused on energy, so he had a 3-page memo on that topic ready for the discussion. The President was seated at the far end of his

office with his usual impassive demeanor, but with an inscrutable smile.

The President took the memo and glanced through it briefly, as Dr. Munasinghe watched him closely. President Jayewardene handed back the memo to Dr. Munasinghe and requested him to condense the document into a ½ page memo with the recommendations in two lines, at the end of the document. The President expected the summarized document to be ready in a few days. But Dr. Munasinghe went back quickly to his office and promptly edited the document. He used his bulky Tandy Radio Shack TRS 80 micro-computer – with only 45K memory - and took a printout of the ½ page memo using his EPSON tractor feed dot matrix printer (both were new to Sri Lanka at this time). There were no laptops or laser printers then. Dr. Munasinghe returned with the document in the style and format required by the President, within ½ hour.

The President was thoroughly impressed with the speed with which the document had been edited. “*Your secretary must be really efficient!*” he said. Dr. Munasinghe explained that he had used his micro-computer to edit the document and then used a printer. This triggered immediate interest. At subsequent weekly meetings, the President kept asking about computers. Then in late 1982, the President said “*we should know more about this technology, so will you write me a note on this?*” This was the beginning of a long journey; a journey which led to the setting up of the Computer and Information Technology Council (CINTEC) of Sri Lanka, and ultimately two decades later its successor, the Information and Communication Technology Agency (ICTA) of Sri Lanka.

Dr. Munasinghe wrote a brief note wherein he recommended that a computer policy should be developed. The word “policy” resonated, because Dr. Munasinghe had just outlined the integrated national energy policy for Sri Lanka.

A Computer Policy Emerges

When President J.R. Jayewardene requested a longer report as the next step, Dr. Munasinghe realized that he could not do it himself. He informed the President that he was not an expert in this arena and advised the President that there were many others who would be more suitable than he was. Some names that immediately came to his mind were those of Professor V.K. Samaranyake, Dr. Abhaya Induruwa and Professor J. A. Gunewardena. But the President wanted Dr. Munasinghe to chair and be in charge of this new venture. It was consequently agreed that a committee would be formed. This resulted in the setting up of the Special Presidential Committee on National Computer Policy. This is how Government involvement in the area of ICT commenced.

The Natural Resources, Energy and Science Authority (NARESA) provided the institutional framework for setting up the Presidential Committee on National Computer Policy (COMPOL). The Committee consisted of eminent members with extensive experience and expertise. One very important consideration that shaped this Committee was that those in charge of drafting the computer policy should have a broad outlook. This was reflected in those who became members of the Committee. In addition to Dr. Munasinghe (as Chairman), the other members were Professor V.K. Samaranyake from the University of Colombo, Dr. R.B. Ekanayake of the Computer Society of Sri Lanka, Dr. N.W.N. Jayasiri from the National Institute of Business Management (NIBM), Professor Sam Karunaratne from the University of Moratuwa and Dr. Ajit Kanagasunderam from the Central Bank of Sri Lanka. Mr. N.U. Yapa from NARESA was the Secretary.

The Committee started writing the report. They met either at the office set up in Dr. Munasinghe's home, or in the office of the Senior Energy Advisor at the Ministry of Power and Energy. The Committee completed the report within four months and handed over the report to the President, with no fanfare. It was possible to complete the work quickly due to the high professional quality of

the Committee and the excellent teamwork. The resultant policy document was approved by the Cabinet in 1983, and it stood the test of time. For over 20 years, this was the only Cabinet approved ICT policy in Sri Lanka.

This very first computer policy was not a “controlling” policy. The President was interested in development. Therefore, the objectives of the policy dovetailed with this viewpoint that the needs of the country be addressed from a developmental perspective. The emphasis was on facilitation and the use of ICT for development – i.e., “to use computer technology in all its aspects, for the benefit of the people of Sri Lanka, and to further the socio-economic development of the nation”. This language was notably farsighted in a scientific document, well before concepts like sustainable development became fashionable. First, the developmental needs of the country were identified and then the way in which technology could be used for development was ascertained. The general philosophy underlying the National Computer Policy Guidelines was specifically stated as “to foster initiative and creativity in both public and private sectors, and to coordinate, encourage and guide these efforts rather than to control and regulate them”.

Then during the Sinhala/Tamil New Year period in April that year, Dr. Munasinghe met the President, incidentally while both were in Nuwara Eliya. This meeting was at the President’s House on the morning of 14th April. The President was relaxing in the garden with Mrs. Jayewardene. The President offered Dr. Munasinghe some kiribath and then went on to inform him that the COMPOL recommendations should be implemented as soon as possible. Discussions were held on the way in which this should be carried out. Such was the relaxed atmosphere in which a momentous decision was made -- a significant milestone in the history of ICT development in Sri Lanka.

The very first computer Act in Sri Lanka; the Computer and Information Technology Act no. 10 of 1984

Drawing on the COMPOL report, Dr. Munasinghe helped the Legal Draftsman's Office to prepare the proposed legislation. In November 1983, he informed the President that the Legal Draftsman's Office had transmitted the final draft to him, and that it was consistent with the directions given by the President and the Cabinet, based on the recommendations contained in the original report prepared by the Presidential Committee on National Computer Policy. The draft also incorporated several amendments suggested by the Minister of Education. This Act was broadly focused on the formulation and implementation of policy for supporting national development. Some of its key objectives were to advise the Minister on the formulation and implementation of a national policy on computers and IT and also to promote, facilitate and assist the use of and application of computers and IT in Sri Lanka with a view to improving the quality of life of its people and enabling Sri Lanka to acquire the necessary capability to meet the challenge of technological change. Dr. Munasinghe who also served on the Presidential Committee on Telecommunications Policy, was able to incorporate relevant ideas from that exercise into the CINTEC Act.

The first ICT Government Apex Body

President J.R. Jayewardene announced the setting up of CINTEC at the convocation ceremony of the University of Sri Jayawardenepura on February 25, 1984. This was also the 25th Anniversary of the founding of the University. At this ceremony the President addressed the graduands: "Science and Technology must be an essential part of development. It has to be part of upbringing from the cradle.... we are in the process of establishing a Computer and Information Technology Council.....the microchip is today the carrier of knowledge.... the need to leapfrog into the

future is paramount in the life of a developing nation.... Time is of essence. The time is now, and we must grasp it. You, young men and women of the future will be the beneficiaries.”

Through the “Cabinet Memorandum on the Computer and Information Technology Council” dated February 20, 1985, President J.R. Jayewardene stated the following:

The Computer and Information Technology Council
CINTEC Act no. 10 of 1984 was made effective on
May 1, 1984 by Cabinet.

CINTEC thus came into being. The President had already appointed Dr. Munasinghe as Chairman of CINTEC on May 11, 1984. At the President’s request, Dr. Munasinghe had previously nominated five senior persons to be considered for the chairmanship of CINTEC, professionally excluding his own name. Nevertheless, the President insisted on appointing Dr. Munasinghe as the Chairman. In the above Cabinet memo, the President also proposed a list of nominees from which nine members were to be selected to the Council under Article 4 of the CINTEC Act. He further stated therein that the nominees have been selected “on the basis of their coverage of relevant disciplines, long-run and balanced national viewpoint, interest in the work of CINTEC, wider knowledge and perspective, maturity and credibility, and ability to work together as a team”.³

The members who were eventually appointed to this first Council were Mr. G. Cumaratunge (Commissioner of Customs), Dr. R.B. Ekanayake (President of the Computer Society of Sri Lanka), Mr. C. Gunasingham (Additional Secretary, Presidential Secretariat), Mr. K.K. Gunawardena (Director of Telecommunications), Professor J.A. Gunawardena (University of Peradeniya), Professor Abhaya Induruwa (University of Moratuwa), Dr. N.W.N. Jayasiri (NIBM), Mr. Akiel Mohamed (Director of National Planning), and Professor V.K. Samaranyake

3. *Source: Cabinet Memorandum on the Computer and Information Technology Council, 20th February 1985*

(University of Colombo). The professionalism and broad coverage of the Council (which included senior persons from Government and academia), helped to ensure its success. An all-encompassing principle in appointing Council members was that they should have a broad outlook. What is learnt in one sector should be of help in other sectors.

Thus, the Computer and Information Technology Council of Sri Lanka (CINTEC), was established as the apex Government body on computers and ICT.

Positioning CINTEC directly under the President

An Apex body on ICT would be able to function more effectively, if it is positioned directly under the President. Responding to this suggestion, the President said “Please work it out with my secretary”. This was a difficult hurdle, since Mr. W.M.P.B. Menikdiwela, Secretary to the President, was a very experienced public servant, but unfamiliar with digital technology. Dr. Munasinghe argued: “Mr. Menikdiwela, I promise to handle all the technical aspects, but we would benefit greatly from the administrative guidance provided by the Presidential Secretariat”. Mr. Menikdiwela suggested that Mr. S.M.L. Marikkar, Additional Secretary be assigned to work on CINTEC matters. This formula was accepted and CINTEC began to function directly under the President. This helped to promote early computerization of the Presidential Secretariat, as well.

There were three elements which facilitated the work of CINTEC; firstly, as described earlier, there was the Board or the Council to advise the President (or the Minister in charge). Secondly, there was the CINTEC Secretariat which was the core of CINTEC and supported the work of the Council. Thirdly, there were subject-specific Working Committees, Centers of Excellence and private sector and professional groups. Decentralized implementation depended on these.

CINTEC was not meant to be a huge organization because a large body might have interfered unduly with the growth of digital technologies in the country. Therefore, there were only a few people recruited as staff. Then there were the Working Committees. Most of the work was carried out through the Working Committees, with members drawn from the Government sector, from the academia and the private sector. The Committees comprised those with expertise in relevant fields.

Working Committees are established

The CINTEC Act in Section 6, specifically gave power to the Council to “establish with the approval of the Minister, working committees to assist the Council in any aspect of its work, define the scope of work and authority of such committees and to appoint, with the approval of the Minister, persons to such committees”.

Dr. Mohan Munasinghe recommended to the President several names for three permanent Working Committees. These were the Committee on Computer Education, the Committee on Computer Applications in the Public Sector and the Committee on Telecommunications and Data Transfer. These three committees are specifically mentioned in the COMPOL report. These committees were chaired by either the Chairman of CINTEC or a Council Member. Later there were other Working Committees which were established based on assessing the requirements in the ICT arena.

Centers of Excellence

Several academic and research organizations were identified as Centers of Excellence. There were, in the beginning, the Universities of Moratuwa, Colombo and Peradeniya, the Arthur C. Clarke Center for Modern Technologies (ACCMT) and the National Institute of Business Management (NIBM) for training. Dr. Munasinghe worked hard to successfully obtain foreign

funding to support ICT development in these Centers -- e.g., Japanese financing for the University of Colombo.

Private sector and professionals

During the initial stages, Dr. Munasinghe also led meetings of major private sector and professional players at the time. This group which embodied the concept of “public private partnerships” - many decades before such buzzwords became fashionable - helped CINTEC develop strategies on how to make the country a leader in digital technology, using business as a key driver.

All these groups in the ICT arena were included and balanced through CINTEC. This was clearly depicted in the organizational chart. The key point was that one person or entity should not dominate the ICT arena. CINTEC had to be above this and these aspects were clearly thought of, in the beginning.

International Profile and Linkages

CINTEC quickly established a high international profile as a role model for digital technology development in the developing countries. It broke new ground in setting out policies for harnessing ICT for national development. Several expert training workshops and international conferences, as well as national meetings were organized. In the 1980s, several books were jointly published by CINTEC with renowned organizations such as the US National Academy of Sciences (Washington DC) and Third World Academy of Sciences (Trieste).⁴ These publications were widely disseminated worldwide, especially in the developing countries.

4. Examples include: **Microcomputers for Development** by Mohan Munasinghe, Michael Dow and Jack Fritz (editors), CINTEC-US national Academy of Sciences, Colombo and Washington DC, 1985. **Computers and Informatics for Development** by Mohan Munasinghe (editor), CINTEC and the Third World Academy of Sciences, Colombo and Trieste, Butterworths Press, 1988.

Academics from the Centers of Excellence were also sent for conferences and courses abroad.

Another initiative promoted through CINTEC led to visits by high level executives from Motorola and Harris Semiconductors (two leading chip making firms at the time). They came to ascertain the prospects for setting up manufacturing plants in Sri Lanka. Potential sites were shown, and discussions were held with local infrastructure service suppliers (such as power and water), as well as Universities producing ICT graduates, to ensure an adequate supply of critical inputs. Financial incentives to foreign investors were also described in discussions with the Treasury. These efforts presaged the activities of the Board of Investment of Sri Lanka (BOI) to attract foreign direct investments (FDI). Sadly, these plans never materialized; after the unrest in July 1983 these firms shifted their interest to countries such as Malaysia, which were also providing attractive FDI opportunities.

Business model

It was initially envisaged that CINTEC would be self-sustaining. CINTEC was to have a source of funds. In Section III of the CINTEC Act it is stated that “there shall be charged, levied and recovered on every computer and related equipment imported into Sri Lanka, a cess - a tax charged for this specific purpose - at such rate as maybe determined from time to time, by Parliament by resolution”. But this did not transpire.

Premises

For the first few months, CINTEC operated from the Ministry of Power and Energy, where Dr. Mohan Munasinghe already had established the office of the Senior Energy Advisor. Furthermore, Dr. Munasinghe’s office space in the Presidential Secretariat was too small, and it became necessary to find more permanent premises for CINTEC. The bids received through a mini-tender were evaluated and the Bandaranaike Memorial

International Conference Hall (BMICH) was selected as being the most suitable. There were facilities at the BMICH. There were telephone lines. The office rooms were furnished and cleaned daily. Tea was provided, if required. There were parking facilities. It was a convenient location. And there was a peaceful ambience throughout. Two rooms on the second floor were initially selected for CINTEC.

Initial staff

The very first staff member to be recruited was Ms. Nishanthi de Silva. She was the Confidential Secretary to the Chairman. Another early employee was Mr. S.H.A.J. Kumara. He was at CINTEC until it closed and later, he was employed at ICTA -- CINTEC's successor. Kumara was "ubiquitous". He was in the Accounts Section but most staff members turned to him for assistance in many other areas. Then there were the Coordinating Officers: Mr. Abeywardena and Mr. Susantha Perera. Mr. Damith Gunatilake was an Office Assistant and Mr. Truman de Silva joined as a driver. Eventually Mr. Silva joined CINTEC as the Administrative Officer and Ms. Indira Fernando too joined as a Confidential Secretary.

The time had come to leave Professor V.K. Samaranayake assumes Chairmanship

Dr. Munasinghe was working at CINTEC but he was employed at the World Bank, Washington DC. He had taken leave without pay from the World Bank, thus interrupting a successful career as a manager, to serve voluntarily in Sri Lanka at President Jayewardene's request.

Initially, the President of the Bank had agreed to release Dr. Munasinghe for one year. But President Jayewardene persuaded the Bank to let Dr. Munasinghe continue for over three years in Colombo, citing the necessity of Dr. Munasinghe's work. From

1982 onwards, the time passed swiftly, and so once again Dr. Munasinghe had to remind the President in late 1985, that he had an obligation to return to Washington or lose his job there.

President Jayewardene's first reaction was to ask if Dr. Munasinghe might consider continuing to run the initiatives he had launched (in diverse areas such as energy, science and technology, forestry and water resources), remotely from the USA. Dr. Munasinghe realized that this was not possible. He thanked the President for the confidence placed in him, but advised him that there were people who were capable of taking over. Dr. Munasinghe then guaranteed that he would continue to be available for at least one more year (from Washington), to ensure the smooth functioning and continuation of the various key initiatives. The unstated point that neither raised was that President Jayewardene's own tenure would also be ending after 1986, and there was no guarantee that his successor would retain his senior appointees. In a personal letter to Mr. Clausen, the President of the World Bank, President Jayewardene thanked him for making Dr. Munasinghe's services available to Sri Lanka, with special appreciation of Dr. Munasinghe's work in Sri Lanka.

One critical issue was the appointment of the Chairman of CINTEC. Through a short-list of three potential candidates for Chairman, Professor V.K. Samaranyake was singled out to take on the Chairman's position. Dr. Munasinghe provided assurances that there would be a transition period during which he would ensure continuity, even after returning to USA. Eventually Professor V.K. Samaranyake was confirmed by the President as the new Chairman of CINTEC.

True to his word, Dr. Munasinghe maintained his close relationship with the new Chairman and continued to provide advice from Washington for many years. Meanwhile, the Council of CINTEC took the unusual step of appointing Dr. Munasinghe as "Chairman Emeritus". On his periodic visits back to Sri Lanka, he never failed to renew his close links with CINTEC staff and even informally attended Council meetings. Many years later,

the enduring friendship of over 40 years between Professor Munasinghe and Professor Samaranayake was evident to all, when the very first Vidya Jyothi Professor V.K. Samaranayake memorial oration organized by the University of Colombo School of Computing, was delivered by Deshamanya Professor Mohan Munasinghe at the University of Colombo, on June 5, 2008.

Kumara joined CINTEC on April 1, 1985. He had initially worked at the Presidential Secretariat, but he was later recruited to CINTEC. CINTEC did not have premises of its own at this time. When CINTEC started operations at the BMICH, Kumara's office was in Room 2-202. He was initially not assigned a computer. But he was happy with this arrangement because he had never used a computer before. At this stage, he did not know how to operate a computer. He didn't even know how to switch on a computer. He developed resistance, but he was quiet about it. He observed that Nishanthi who was in Room 2-201 was using a computer. It was a monochrome IBM XT computer. She was typing with speed. He covertly watched her and tried to understand how the keyboard functioned, but he had an internal reluctance to ask anyone, which he found difficult to overcome. Kumara assisted all sections at CINTEC; he was assisting Mr. Silva in administrative functions and he also worked in the Finance Section. He tried to tell himself that he could continue this way and carry out his work manually, indefinitely, but at the back of his mind he wished he could use a computer. Then Professor Samaranayake assumed duties as Chairman of CINTEC. Kumara was assigned the computer that Nishanthi had been using. It was placed on his desk. He kept looking at it in wonderment and awe, but did not try to use it.

Chapter 2 - Awareness

Professor Samaranayake assumed duties as the Chairman of CINTEC in 1986. Then he realized that there was an immediate necessity for ICT awareness. In the mid-1980s computers were new in most Government organizations. Employees were wary. There was wide-spread fear that computers and ICT might replace people's jobs resulting in unemployment. Professor Samaranayake met this challenge with alacrity and speed. He kept emphasizing that computers would not replace people. Indira and Nishanthi, who were Confidential Secretaries to the Chairman, heard him worriedly say that there may be trade-union action against computerization. Secretaries and typists at this time were mostly using manual typewriters, and had to continuously strike hard on the keys; poor ergonomics led to many problems such as strain and fatigue, for these users. Use of Tipp-Ex, a brand of white correction fluid, was prevalent. In some organizations people were painstakingly writing in books. In organizations which had micro-computers, only a few employees could use these. Others would look at it with a mix of awe and distrust.

These were the first fundamental issues that CINTEC, as the newly established Government Apex body on ICT, had to address and alleviate. CINTEC had to make users aware that they would be able to carry out their work easily, in a more efficient and effective manner by using computers. This would result in overall well-being and better performance. CINTEC even let it be known

that there would be more attractive job titles for those who were then designated as “clerks” and “typists”.

Initially, Nishanthi and Indira started carrying out awareness programs for Secretaries and other typewriter users. CINTEC leased another room, 3G-18, which was on the ground floor of the BMICH. This was more spacious than the CINTEC office rooms on the second floor and it was equipped with computers. CINTEC organized 10-day programs and the participants were made aware of computer use for their day-to-day work. They were also trained on using word processing software; during the 1980s WordStar was used. The participants were also given exercises and evaluated.

In 1986, Professor Samaranayake decided that ICT should be taken to areas in the country away from Colombo. Access to computers and awareness on ICT was limited during this period to Colombo and its environs. People in remote, rural areas had no access to computers. Penetration of fixed telephone lines during this period was low. Even these were centered mainly in Colombo. There were no mobile phones. There were people in rural areas during this period who did not have access even to electricity from the national grid. The objective was to make sure that the benefits of ICT were accessible to the people in Sri Lanka.

The mobile computer unit

In the mid-1980s ICT infrastructure was new and not available to most citizens in the country. A large swathe of the population at this point in time had not even heard of computers and the benefits these could bring; there was a gap between the city and the rural areas which had to be bridged.

Obtaining a bus for CINTEC and converting it into a mobile computer unit to take ICT to rural areas was Professor Samaranayake’s idea. The bus was donated by the Petroleum Corporation. Mr. Lalith Athulathmudali, who was then the

Minister of Ports and Shipping, approved funding for the bus from the Mahapola⁵ Trust Fund. The bus seats were removed and the interior was equipped with networked BBC micro-computers. These computers and the educational software were given by the British Council. The educational software was meant for children from playgroup level up to the level of students preparing for G.C.E. Ordinary Level exams. The software was interactive. For example, when using the mathematics software, a response was triggered stating whether the user's solution was correct or not. But a problem encountered was that the software was in English and most people in rural areas in Sri Lanka were conversant only in Sinhala or Tamil. Augmented thus, the bus visited schools and other educational institutions in the provinces, in order to create awareness in ICT related aspects in these areas.

The objective of the CINTEC mobile computer unit was to take awareness on the benefits that could be accrued through computers and ICT to rural areas. It visited the *Mahapola* exhibitions, the duration of which spanned several days. The mobile computer unit visited the *Gam Udawa*⁶ exhibitions and also the Presidential Service events.

Sisira Senaratne, a staff member of CINTEC, and a team managed the work relating to the mobile computer unit. This team trained schoolchildren selected from a school close to the exhibition site. This is how it was done; the bus visited the exhibition area about three days prior to the exhibition and selected several students in the G.C.E. O' Level and A' Level classes through an IQ test. These children were trained for three days before the exhibition. Thereafter, these trained schoolchildren carried out demonstrations on computers to members of the public visiting the exhibitions; The children explained how computers could be

5. *Mahapola – an educational trust fund managed by the Government*

6. *Gam Udawa exhibitions – an exhibition that was held on the development initiatives of the Government*

used and the benefits that could be gained by using computers, The schoolchildren thus trained were made aware of the benefits that could be accrued through computers and ICT. Many of these school children continued their education in the ICT field thereafter.

CINTEC worked out various means through which people could be enticed into visiting the mobile computer unit; with this in mind, the University of Colombo developed a software for the mobile computer unit, through which a person's horoscope could be cast. Astrology is a subject which is extremely popular in Sri Lanka. With this software, when the visitor's birth information was input, the horoscope was cast and a printout was given to the person visiting the bus. This triggered huge interest among the rural populace and resulted in very long queues at these exhibitions with people waiting to visit the mobile unit. Sometimes people asked questions and wanted astrological predictions. Sisira was not an astrologer, but visitors came with hope in solving these problems, therefore he tried his best; he referred a book on astrology and tried to answer these queries. Interest in astrology was ubiquitous in Sri Lanka. Therefore, this turned out to be an astute and clever method to introduce people to and get people interested in computers. During this era people in these rural areas were not aware of what a computer was, and the mobile computer unit thus bridged an immense gap.

The bus also visited Rehabilitation Camps; this was after the JVP⁷ insurrection in 1988/89. The insurrectionists who were placed in Rehabilitation Centers were trained in using computers. By this time the BBC computers in the bus had been replaced by new Intel 286 computers.

IT Pages in newspapers

CINTEC made arrangements with several newspapers in 1995 to publish a page on IT in their daily/weekly papers. The

7. JVP – Janatha Vimukthi Peramuna, a political party.

objective was that the IT page be a forum for IT related issues, announcements, and IT related advertisements.

Radio program

CINTEC also initiated a radio program through which information on the Internet and other IT related subjects was broadcast weekly. This program targeted all sectors of the community, especially those in remote areas of the country. The main objective of the program to raise awareness on the benefits that could be accrued by using IT and the Internet. The Internet was used to provide answers to questions raised by listeners. This program featured a professional guest speaker every week to speak on his/her specific field for ½ an hour. Thereafter, CINTEC received queries on the specific topic. The program was hosted once a month at schools in the provinces.

Seminars/workshops

CINTEC held many seminars and workshops on specific subjects targeted to stakeholders in that specific arena. Some of these are as follows.

- Workshop on Electronic Commerce - October 1998.
- Workshop titled "*From E-Commerce to E-Business*" - October 1999,
- Seminar on *Current Trend in Electronic Commerce* - May 2000.
- Workshop on "*Computer Crime and Commercial Fraud*"
- Workshop on "*IT -the need for Law Reforms*"
- Awareness Program on *Y2K related legal issues* for the Hon. Judges of the Supreme Court and the Court of Appeal.

- Awareness Program for the Police Department: for DIGs and SSPs on *ICT and Law*.
- Seminar on *"IT and the Legal infrastructure"*
- Workshop on *"Computer Crime and other Crimes of Dishonesty"*
- Seminar on *"Computer Crime"*
- IT Law Seminar held in conjunction with the 15th AFACT meeting, addressing IT and Law in the Asian region.
- Workshop on *"IT - the Issues"*
- Meeting of the National Coordinators and IIP focal Points for RINSCA held in Sri Lanka in November 1998.
- the *e-Government Conference* – May 2003

Library

CINTEC set up a reference library with over 1000 books, magazines and periodicals on ICT related subjects. This was used mainly by students and researchers in the ICT arena. They used the CINTEC Board Room in the mornings to carry out reference. There was no specific librarian. Many staff members managed the library over the years; Ms. Dushyanthi Goonetilleke, Ms. Aarunya Darshan, Ms. Hasitha Dias, Ms. Chathurani Ratnayake and Ms. Yasmina Maharooof were in charge of the library at various times.

IT quiz

In the year 2000, students were selected through an IQ test, from all schools in the island, for an IT quiz. The quiz was broadcast once a week through Rupavahini TV. CINTEC coordinated this initiative and the Company E-WIS sponsored the project. The University of Colombo School of Computing drafted the questions for the quiz.

IT Year

The Government of Sri Lanka, on the recommendation of CINTEC and the Ministry of Science and Technology declared 1998 as the Year of IT, with the theme "Exploiting IT for National Development". The Government identified IT as one of the major thrust areas in its development plan, as IT was essential for all development goals such as increased productivity and competitiveness in international trade and commerce, and for facing up to the challenges of globalization. CINTEC held an International IT Conference in October 1998, as part of the IT Year activities. Resource persons from Canada, Australia, UK, India, Sweden and Sri Lanka conducted the conference. Several pre-conference workshops on areas such as network technologies, web publishing, e-commerce and ICT law were held in conjunction with the main IT Conference.

Kumara worked in both the Administration and Finance sections. He had now overcome his initial resistance towards using a computer. He was enthusiastic about learning how to use a computer. The word processor, WordStar was installed in his computer. He started using the QWERTY keyboard. Nishanthi helped him. It did not take him long to be familiar with the keyboard layout. He had to look at the keyboard and carefully pick out each key, initially with only two fingers, but this did not deter him. He had noticed that Nishanthi looked at the screen and not at the keyboard while typing at great speed. He observed her carefully and he too kept trying; he tried at least to use both hands rather than only the two index fingers. Mr. Silva, the Administrative Officer then started requesting Kumara to type out letters relating to administrative and purchasing work. Kumara worked in the Finance section too and to facilitate his work, the spreadsheet software Lotus 123 was also installed in Kumara's computer. After a while, the word processing software WordPerfect was installed in his computer. He went through all the menus and made himself thoroughly conversant with the word processor. Then he was given an opportunity to demonstrate his competence. The Committee on Law and Computers decided to hold a workshop titled "Computer Crime and other Crimes of Dishonesty". Invitations were mostly sent by post during this period. Kumara helped everyone and all sections at CINTEC. Therefore, he was requested to help by writing the names and addresses of the invitees on the envelopes. Kumara found this boring and monotonous. He had found out that there was a merge feature in his recently installed WordPerfect software. He found that it was easy to use and most of the process was automated. He gleefully tried it and created a stack of envelopes with the addresses in a matter of seconds. He now realized how a computer could ease work processes. So, Kumara's naturally inquiring nature helped in making him quite conversant in using his computer.

Chapter 3 – the Working Committees are functional

LAW AND COMPUTERS

Assigning Law Committee Work:

Aarunya Darshan joined CINTEC in January 1990. Aarunya was assigned the management of work relating to the Law Committee; this entailed project management. She would be expected to manage the projects being implemented under the Committee, follow up on deliverables, convene meetings and run the Committee.

Law Committee - background

The Working Committee on Law and Computers had a very long lifespan - it was established in 1986 as one of the Working Committees of CINTEC and functioned until CINTEC was closed down in 2003.

At the first Committee meeting held in February 1986, the rationale for the setting up the Committee was discussed. The Committee agreed that “in a few years computer technology related matters could become major legal issues. The main purpose of setting up this Committee is to look into the formulation and

incorporation into the country's legal system suitable measures relating to computers and information technology, so as to promote its wide use and development”.

Professor Samaranyake chaired this Committee throughout the Committee's lifetime; i.e., from its inception in 1986 until CINTEC was closed down in 2003. When Aarunya joined CINTEC in 1990 the Committee members were Mr. Upawansa Yapa PC, Solicitor General, Mr. P.B. Herath who was the Secretary to the Ministry of Justice, Mr. N. Selvakkumaran, Dean of the Faculty of Law of the University of Colombo, Mr. Nalin Abeyesekera the Legal Draftsman, Dr. D.M. Karunaratne, Director General of the National Intellectual Property Office, Mr. Lal Dias an IT professional from the banking sector, Mr. B.K.G. Nawaratne from the Police Department, Mr. K. Kanag-Iswaran, PC, and representatives from the Securities and Exchange Commission and also from the Stock Exchange. Mr. Kolitha Dharmawardena represented the Attorney General's Department. Mr. Jayantha Fernando joined the Committee first as a research assistant to Mr. Dharmawardena and was appointed as a committee member. Later there were other members; when Mr. Herath retired Ms. Dhara Wijayatilaka who was the Secretary to the Ministry of Justice became a committee member. Dr. Shirani Bandaranayake who was the Dean of the Faculty of Law also joined the Committee; Ms. Therese Perera Legal Draftsman replaced Mr. Nalin Abeyesekera. Mr. N. Sivahumaran, Deputy Legal Draftsman, represented the Legal Draftsman's Department. Several years later Mr. W.P.G. Dep from the Attorney General's Department and Ms. Indunil Abeyesekera from the Law Faculty also were appointed to the Committee. Meetings of the Committee on Law and Computers (the Law Committee) were held monthly usually commencing at 4.00 p.m. in the CINTEC Board Room. This was Room 2-207.

Evidence (Special Provisions) Act No. 14 of 1995

Overall, the issues being addressed by the Committee Law and Computers (Law Committee) at this time, i.e., in 1990, included Intellectual Property Rights, evidential issues, issues related to computer crime, issues on data interchange, on data protection and privacy. The specific main area of work that was being addressed was the review and reform the law of Evidence in Sri Lanka. This was the first main task that was undertaken by the Law Committee. The Committee at the outset realized that there was a need to examine the law of evidence in order to ascertain whether the law of evidence could deal with new conditions that could arise through the use of computers and information technology. There was a serious issue; the law of evidence required original evidence in the form of either a statement made by a human or a document prepared by a human. Nothing else was actually evidence according to the law of evidence. The Committee agreed that this would cause serious problems.

The Law Committee noted that there were two legal principles on which the entire Evidence Ordinance is based; one is the best evidence rule; if there is evidence on any subject, then it must be the best evidence available which must be presented in Court. This means, with regard to a document, the original document, and not a copy must be presented in Court. The other rule was the hearsay rule; The Committee, over several meetings, had extensive discussions on the hearsay rule. This entails that only original evidence must be given to Court. For example, if a person saw something, then the person who saw that must come to Court and explain what he saw. A third party cannot come to Court and say “this person told me that these things were seen by him”. If a person made a document and confirms its authenticity, then the person who actually made the document is expected to come to Court. There were certain exceptions but generally these two rules were fairly strictly observed with regard to the Law of Evidence.

Even at present, the principles remain the same, although there are many more exceptions.⁸

The Law Committee then decided that there should be amendments to the law of evidence. Thereafter, CINTEC held a series of seminars and workshops on this subject, addressed to various sectors, such as the banking sector and the public sector. Consequently, after several months there was general recognition that the law of evidence should be comprehensively reformed. This work was assigned to Mr. Dharmawardena on a consultancy basis. The Committee requested Mr. Dharmawardena to prepare comprehensive proposals for the amendment of the law of evidence and for introducing new provisions. Mr. Dharmawardena reported to the Committee at each meeting and apprised the Committee members of the research that he had carried out and his findings on the need for computer related evidence and the kind of evidence that may be dealt with under a new law. He worked entirely under the guidance of the Committee on Law and Computers and the Committee members actively contributed towards this venture.

The Committee reviewed the proposals prepared by Mr. Dharmawardena and made several recommendations. These recommendations were discussed extensively at each meeting and incorporated into the proposals and were thereafter presented to relevant audiences at several seminars and workshops. Thereafter, these proposals on the admissibility of information produced by computers and other electronic devices were finalized and this work carried out by the Committee resulted in the Evidence (Special Provisions) Act No. 14 of 1995. This law was a significant milestone and dealt with the admissibility of audio-visual recordings and information contained in statements produced by computers, in civil and criminal proceedings in Courts of Law. This was probably the first ICT related law in Sri Lanka.

8. *Reference: write-up on Kolitha Dharmawardena by Aruni Goonetilleke, www.ict-history.lk*

While this work was being carried out by the Committee, Professor Samaranayake's appointment as the Chairman of CINTEC was not renewed. He was to leave CINTEC. This was in 1992. Staff of CINTEC were made aware that Mr. Rohan Wijeratne, an IT professional was to be appointed as the Chairman. Mr. Wijeratne was still at the World Bank in the USA and during the interim period before his arrival Professor K.K.Y.W. Perera was appointed as the Chairman. Vidya Jyothi Professor K.K.Y.W. Perera was the founder and initial Head of the Department of Electronics and Telecomm Engineering at the University of Moratuwa.

Mr. Wijeratne assumed duties as the Chairman of CINTEC in 1994. Working Committees were usually chaired by the Chair of CINTEC but Mr. Wijeratne requested Professor Samaranayake to continue as Chairman of the Law Committee.

Proposals for legislation on Computer Crime

After completion of the project on law of evidence, the Committee proceeded to address the subject of computers and crime. The Committee recognized that there may be various types of new issues and events that may not be dealt with under the criminal law. The criminal law had also been developed in a traditional manner; it dealt with tangible property; that is, property that can be seen and touched, or the law addressed an injury or harm done to a human. Therefore, the same problem transpired again. Damages and harm could be carried out through computers, which could be worse than the harm done to tangible property. Therefore, the Committee recognized the need for amendments to the law or a new law to deal with computer crime.

In 1995, Mr. Jayantha Fernando was introduced to Mr. Kolitha Dharmawardena. Mr. Fernando entered this area almost by accident. It was 1995 and Jayantha was working as a judicial intern to Hon. Justice Mark Fernando, Senior Justice of the Supreme Court of Sri Lanka, who used to say that new entrants to the legal profession should consider entering new areas of the law. Therefore, Jayantha sought new opportunities. He was informed that there were openings for research assistants at CINTEC. The specific project that the Law Committee was addressing at this time was on developing proposals for legislation on computer crime; it required identifying gaps in the law and developing new legal principles on computer related crime. Mr. Jayantha Fernando was first introduced to Mr. Yasantha Kodagoda from the Attorney General's Department who in turn introduced him to Mr. Kolitha Dharmawardena, who was then a Senior State Counsel.

Mr. Jayantha Fernando then worked under the direction of Mr. Kolitha Dharmawardena and carried out research on computer related crime to ascertain whether the existing criminal law was adequate to deal with threats and abuses created with computers and directed at computers. Jayantha first attended a meeting of the Law Committees in 1995, held in the CINTEC Board Room at which he ascertained the role of the Working Committee, the scope of its work and the impact it made. And at this meeting Mr. Jayantha Fernando realized that he had found the ideal career path.⁹ Initially, Jayantha, under Kolitha's direction carried out research on computer related crime to ascertain whether the existing criminal law was adequate to deal with threats and abuses created with computers and directed at computers. Jayantha Fernando eventually reached many milestones in the area of law and ICT and as observed by Mr. Kolitha Dharmawardena, became an internationally recognized figure in this arena,

An initial draft on proposals for legislation on Computer Crime was prepared and the Committee held a series of seminars

9. Reference: write-up on Jayantha Fernando by Aruni Goonetilleke, www.ict-history.lk

and workshops to ascertain the views of a wider audience. Some of these were as follows:

- Workshop on *"IT -the need for Law Reforms"*
- Awareness Program for the Police Department: for DIGs and SSPs on *"ICT and Law"*
- Seminar on *"IT and the Legal infrastructure"*
- Workshop on *"Computer Crime and other Crimes of Dishonesty"*
- Seminar on *"Computer Crime"*
- IT Law Seminar held in conjunction with the 15th AFACT meeting, addressing IT and Law in the Asian region.
- Workshop on *"IT - the Legal Issues"*

After the closure of CINTEC, its successor, the ICT Agency (ICTA) Sri Lanka took over this work.

Proposals for legislation on Electronic Transactions

The Law Committee also recognized the need to address this area of the law and established a subcommittee, which addressed this issue. This work too was eventually taken over by ICTA and addressed by Mr. Jayantha Fernando. This work led to the enactment of the e-Transactions Act No. 19 of 2006. This Act is based on the standards established by United Nations Commission on International Trade Law (UNCITRAL), the Model Law on e-Commerce (1996) and the Model Law on e-Signature (2001).

Intellectual Property Rights

The Law Committee also gave its inputs to the National Intellectual Property Office on the IPR Act no. 36 of 2003, to meet

Sri Lanka's commitments under the WTO and TRIPS Agreements. Discussions on this area were mainly led by Dr. D.M. Karunaratne who was the Director General of the National Intellectual Property Office of Sri Lanka (NIPOS). Computer programs were protected under "literary, artistic or scientific work" under this Act.

Legal Working Group at AFACT - Aarunya attends AFACT

Sri Lanka was a member country of the Asia Pacific Council for Trade Facilitation and Electronic Business (AFACT). AFACT was a non-profit, non-Governmental organization which promoted trade facilitation, electronic business policies and activities in the Asia Pacific region, "mainly focusing on those promoted by UN/CEFACT to guide, stimulate, improve and promote the ability of business, trade and administrative organizations".¹⁰ CINTEC nominated Aarunya to attend the meeting held in Seoul, South Korea. On the recommendations of the Law Committee, CINTEC agreed to propose the setting up of a Legal Working Group (LWG) under AFACT. Aarunya attended the meeting and Sri Lanka's proposal in establishing a LWG was accepted. The first meeting was held in Seoul. This meeting was a success. Aarunya presented the Sri Lanka country report to an audience comprising representatives from the Asia Pacific region and succinctly explained the activities and tasks being carried out under the CINTEC Law Committee.

10. Reference: UN/CEFACT

EDUCATION AND TRAINING

The Working Committee on Computer Education was initially assigned to CINTEC staffer Ms. Imelda Warakagoda. Later when Mr. Rohan Wijeratne assumed Chairmanship of CINTEC the work under this Committee was assigned to Ms. Prasadi Jasinghe.

The Working Committee on Computer Education was one of the three Committees specifically mentioned in the COMPOL report. This Committee too was chaired by a CINTEC Council Member; at first Professor Abhaya Induruwa chaired the Committee and later it was chaired by Professor V. Kumar. The overall objective of the Committee was to promote ICT education in Sri Lanka.

Examinations

Organizations were gradually computerizing and employees had to be capable of using computers. There was a dearth of ICT conversant human resources in Sri Lanka during this period. Consequently, the demand for ICT related training was increasing at an exponential pace. Very often, organizations after buying computers, relied on the vendors to provide basic training to employees. A topic that Professor Samaranayake brought up at most meetings was the fact that there was no standardization on ICT related training. There were many training institutions springing

up during this period and students were enrolling for courses and were being given certificates thereafter. These institutions differed in the quality and capabilities of the trainers, the syllabi covered, in the facilities that were available, the exams conducted and in the evaluations that were carried out. Very often these trainings did not match the organizations' requirements. Employees were not capable of carrying out the work required and the organizations had to provide more training after employment. Therefore, a need arose for a mechanism to ensure uniformity in subject content and quality, relevance of syllabi to industry requirements and a recognized system of evaluation.¹¹

The Working Committee on Computer Education realized that there was a necessity for a State-recognized examination scheme on ICT. Therefore, it initially introduced the "National Examination in Computer Studies" and later the "National Examination in ICT (NEICT)".

NECS

One of the first tasks that the Committee carried out was to implement the National Examination in Computer Studies (NECS). Work relating to the NECS examination was firstly overseen by Professor Abhaya Induruwa who was a member of the CINTEC Council. After about twelve months Professor Induruwa emigrated overseas and Professor Vijaya Kumar who was a member of the CINTEC Council oversaw the work. But the NECS exam was not a success. It was not possible to garner the support of the ICT community and most students preferred to sit for the exams of the Australian Computer Society (ACS). During this period the largest number of students who sat for the ACS examination were from Sri Lanka. There were also other problems; when a student sat for the exam, marking the exam papers took a very long time. The results were released after a long period and hence the students were demotivated.

11. Reference: CINTEC NEICT document

NEICT

Around this time the Department of Electronics and Accreditation of Computer Classes (DOEACC) of India invited several South Asian countries including Sri Lanka, Nepal and Bhutan to visit India and to study the examination which India was conducting. Professor V. Kumar was a member of the team which visited India. One reason for the failure of the previous exam NECS was the length of time that was taken for the exam papers to be marked and the results to be released. Therefore, a satisfactory fact that the team which visited India observed, was that the exam papers with regard to the DOEACC exams were to be sent from and marked by DOEACC in India. Overall, it was acceptable and consequently India supported Sri Lanka in commencing the exam in Sri Lanka. This was the NEICT examination. There was also a career path through which a student could proceed up to postgraduate level. The NEICT scheme consisted of the following:¹²

- National Diploma in Applied Computing
- National Advanced Diploma in Applied Computing
- Professional Diploma in Information and Communication Technologies
- Masters Diploma in Information and Communication Technologies

CINTEC studied the syllabi and decided that the courses being offered were more relevant to Sri Lanka than the courses under the ACS exam. For example, the syllabus of the National Diploma in Applied Computing included the following: Information Technology, Internet and Web Page Designing, Client Server Computing, Personal Computer Software, Desktop Publishing and Presentation Graphics, Computerized

12. Reference: CINTEC document on NEICT.

Financial Accounting, Programming and Problem Solving through “C” Language, Programming and Problem Solving through COBOL and Programming in Visual Basic. In addition, candidates had to complete a project.

Publicity was given on the commencement of this exam and there was a lot of interest on this exam in Sri Lanka. Through this exam, a consistent high quality in education was maintained with practical knowledge, through a system of accreditation of educational organizations at each stage.

CINTEC ran this exam satisfactorily for several years. Thereafter, the University of Colombo School of Computing commenced the external degree program Bachelor of IT (BIT) and students evinced more interest in sitting for BIT exams rather than in sitting for the exams under NEICT. In 2003 CINTEC was closed and the Information and Communication Technology Agency (ICTA) of Sri Lanka was set up as the successor to CINTEC. ICTA did not continue with the NEICT exams. NEICT in Sri Lanka ceased to be.

International Olympiad in Informatics (IOI)

The objectives of the IOI were to stimulate interest in Informatics and ICT and to provide a forum for talented students from different countries to scientific and cultural experiences. The competition was held annually in one of the participating countries. Each participating country usually sent a delegation of four pupils with two adults. Students below 20 years of age who were in school during the year of competition with conversant in programming in Pascal, C or C++, and conversant in data structures and algorithms were eligible for applying for the IOI.¹³

During the early 1990s, CINTEC coordinated the work relating to the IOI competition. Mr. Lal Chandranath and

13. *International Olympiad in Informatics* – <https://ioinformatics.org>

Mr. Palitha Rodrigo, both from DMS (Data Management Systems), undertook the training. Sri Lanka first sent a team to participate in this annual event in 1992. In 1994, Sri Lanka's team comprising Sifaan Zavahir, Arjuna Wijeyekoon, Buddhika Kottahachchi, and Shehan Maduraperuma won a silver medal for the first time. CINTEC organized an event in appreciation. The team that participated in 1995 won a gold medal for the first time and also won a silver medal.

When CINTEC was to close down, ICTA scrutinized the work that CINTEC was handling and decided that coordinating the IOI competition was not within ICTA's main mandate of implementing the e-Sri Lanka development program. Therefore, it was decided that this initiative would not be continued at ICTA. It was thereafter coordinated by the University of Colombo School of Computing.

CICC

CINTEC as the counterpart organization of Center for the International Cooperation for Computerization (CICC) coordinated the work related to selecting participants for the CICC training. This entailed selecting suitable nominees through a test and interviews and then sending the nominations for training courses on IT conducted in Japan. This was open for members of the public with requisite qualifications. This work was under the purview of the Education and Training area of CINTEC.

The Director Administration, Mr. Wijewardena, wanted a letter typed in Sinhala. He was rather agitated. The letter was to be sent to a senior officer of a Government Department. He wrote it out on a piece of paper. He asked Mr. Silva whether this could be typed in Sinhala. This was several years before the Sinhala script was included in the Unicode standard and before Unicode compliant Sinhala fonts were developed. Most people at CINTEC were not aware of this standard. Mr. Silva looked at the letter on his desk and pondered. Kumara had been listening intently to this interchange. He had the Sinhala word processor “Wadan Tharuwa” (වදන් තරුව) developed by Mr. S.T. Nandasara of the University of Colombo, installed in his computer. He was not familiar either with the Sinhala keyboard layout or the input mechanism at this stage. But he offered to type it. He took a printout of the keyboard layout and pasted it near his computer. He typed slowly, but he completed the letter, much to everyone’s appreciation. Later, the software Thibus developed by Science Land, was installed in Kumara’s computer and he undertook most of the work that had to be typed in Sinhala.

PUBLIC SECTOR COMPUTERIZATION

CINTEC set up the Public Sector Computerization Committee in 1986. The members of this group were primarily senior managers (Data Processing/IT) from key Government organizations such as the Central Bank, the Department of Census and Statistics, the Department of Agriculture, and the Department of Finance etc.

The primary objective of this Committee was to promote the use of computers and computer applications for operational and decision-making work of these key Government organizations. To meet this objective CINTEC set up several sub-groups in areas such as health and agriculture. Initially, staff from these organizations had to be made aware of the benefits that could be accrued through computerization. During this period there was also an over-riding fear that computerization would result in loss of jobs. These fears had to be initially alleviated. Therefore, during the initial period CINTEC held a series of seminars (funded by CINTEC and other funding agencies) targeting the key users from sectors such as Health, Agriculture, Law, Engineering, Commerce/Shipping etc.

In the early 1990s, CINTEC organized international Committee sessions and workshops on Public Sector Computerization. These sessions were attended by selected members from India, Pakistan, Bangladesh, Malaysia, Philippines, Japan, and Sri Lanka.

Training sessions were carried out for professionals, originally in the CINTEC office at the BMICH. Senior officers from Government offices were trained on using spreadsheets, word processing software, presentation programs and on using dBase III plus, a database management program which was popular during the late 1980s and the early 1990s. In the beginning, these officers had to be trained in basic aspects such as the way in which the mouse had to be held and moved. Training was also provided at the Army Headquarters for young Army personnel who had lost both legs due to the terrorism prevalent in the country then. They were trained on using spreadsheets, word-processing software, using emails and browsing the Internet which enabled them to work in the Army offices. They could thus be productive and carry out useful work while being seated. This was the objective of this training. A training program was also carried out within the Parliament for members of Parliament on using computers and the Internet. After CINTEC moved to Clifford Avenue in Colombo 03 in the mid-1990s, a training center was set up within the premises and Government officers were trained for a nominal fee.

CINTEC developed websites for Ministries and Government Departments. The first page was created according to a common format; if the organization had relevant information, then the other pages were also created. Some organizations, such as the Ministry of Public Administration had developed their website and this was hosted at CINTEC. Viz. This was one of the first organizations to register its domain under gov.lk. The Sinhala content in the web site was in pdf files. CINTEC had a leased line and hosted Government websites during this period. The sites were backed up daily.

In order to facilitate research carried out by Government organizations CINTEC negotiated a multi-user license facility for the software SAS (Statistical Analysis System) with the parent company in the US. The software was made available to these Government organizations at a nominal fee.

CINTEC also played active roles in projects implemented at the Presidential Secretariat, the Parliament of Sri Lanka, the Ministry of Foreign Affairs, and the Western Provincial Council. Consultancy services were carried out for the public sector. CINTEC also carried out consultancy services and assisted the Government sector by assessing and gathering requirements and drafting technical specifications (and tender documents) for IT projects being undertaken by these organizations. CINTEC also facilitated the technical evaluations related to tenders.

CINTEC was the main Consultant with regard to the computerization of the Department of Immigration and Emigration. The Cabinet approved the tender which was awarded to IBM World Trade Corporation-Sri Lanka and to Informatics (Pvt.) Ltd for the hardware and the software respectively. The tenders were originally awarded around 1996 but there was a delay in commencement due to the fact that the Department of Immigration and Emigration was moving to new premises. In the 1999, CINTEC appointed Dr. Dileepa De Silva as a Consultant to the project. Due to the obsolescence of hardware and software with the passage of time, it was necessary to negotiate the prices with the vendors and more hardware was also required. The implementation process commenced in November 2000 and the hardware and software solutions were installed and accepted. The live run was in July 2003.

THE FINANCIAL SECTOR

The Financial sector committee was established when Mr. Rohan Wijeratne was Chairman of CINTEC. Members represented many of the key banks. The Committee studied the requirements of the banking sector and the benefits that could be accrued through the creation of an integrated banking network and a common ATM switch. Benefits to users would be convenience and reduced costs. Several meetings were held at CINTEC but the expected results did not transpire from this particular initiative.

RECOMMENDING SINHALA AND TAMIL SCRIPT IN COMPUTER TECHNOLOGY

CINTEC set up the Committee on Recommending Standards for Sinhala and Tamil at its inception in 1985. This was an area of paramount importance, since the dividends of ICT could not be taken to the country-at-large in English. It was imperative that using ICT in Sinhala and Tamil was enabled. This particular Committee too had a very long lifespan; it even functioned under another name under ICTA¹⁴ – viz. the Local Languages Working Group - even after CINTEC was closed down.

One of its earliest tasks was to define the Sinhala alphabet and an alphabetical order. This committee was integrated with a committee that NARESA (Natural Resources, Energy and Science Authority of Sri Lanka) had appointed which resulted in the setting up of the Committee on Adaptation of National Languages in IT (CANLIT). CANLIT consisted of experts in the Sinhala language as well as IT.

CANLIT defined the Sinhala alphabet as having 16 vowels, 2 semi consonants and 41 consonants as shown in the CINTEC publication of 1990. 13 consonant modifiers were also identified. A new character to denote “fa” (ආ) was introduced. CANLIT also agreed on the alphabetical order with a slight modification.

Thereafter, the committee worked on the Sinhala Standard Code for Information Interchange SLASCII. In developing the Sinhala character set for use in IT, the work that had been carried out in Thailand for the Thai language, which was somewhat similar to Sinhala, was studied with Dr. Thaweesak Koanantakool of Thammasat University, Bangkok. At this stage the aim was to develop a 7-bit code to fill the positions A0 to FF in the single byte ASCII code table (ISO 646). Sinhala was not yet included in the international standard Unicode (Universal Encoding). The draft standard code was approved by the Council of CINTEC and

14. *ICTA – Information and Communication Technology Agency of Sri Lanka (CINTEC’s successor)*

was approved by the Sri Lanka Standards Institution (SLSI) as Sri Lanka Standard 1134 (SLS 1134) in 1996.

The CINTEC Committee initiated Professor J.B. Disanayaka's and Mr. S.T. Nandasara's attendance at the Working Group 2 meeting of ISO/IEC (ISO/IEC JTC 1/SC 2/ WG 2¹⁵) held in Heraklion, Crete, Greece in June 1997. At this meeting the inclusion of the Sinhala script in ISO 10646 and in the Unicode standard was discussed. ISO/IEC JTC1/SC2/ WG2 is the international standardization working group of the International Standards Organization (ISO) and the International Electrotechnical Commission (IEC) for the Universal Character Set (i.e., the Universal Multiple-Octet Coded Character Set - ISO/IEC 10646). The scope of the Working Group 2 was to develop the Universal coded character set that encompasses all the world's language scripts, all the symbols, characters and emoji used in ICT. Each character in the Universal Character set is identified by a unique code. ISO works with the Unicode Consortium to develop the Universal Character set.

Among the input documents at this meeting were; Proposal for encoding the Sinhalese script in 10646 by Michael Everson; Request to add Sinhalese to 10646 based on recent Sinhalese standard (SLS 1134-1996) by the Sri Lanka Standards Institution; Towards Standard Sinhala Character Code by J.B. Disanayaka; and Mapping of Sinhala from 10646 to SLS 1134 by Everson. The result was that "WG 2 accepted 80 characters, their shapes, and their names in the report of the ad hoc group on Sinhala script and assigned them to code positions in the range 0D80 to 0DFF in the BMP"¹⁶. Thus, Sinhala was included in Unicode version 3.0 in 1998.

15. *ISO/IEC: International Organization for Standardization/international electrotechnical commission*

16. *BMP: Basic Multilingual Plane*

IT GLOSSARIES - SINHALA GLOSSARY

A Glossary of Technical Terms in Computer Science in Sinhala was compiled by the Subcommittee set up under the main Working Committee. Dr. Gamini Wickremasinghe of Informatics Ltd requested Mr. S.M. Banduseela, to assist in compiling and publishing a dictionary of computer terms in Sinhala. Mr. Banduseela was then the Director, IT at the Urban Development Authority, had extensive experience in translating scientific books from English to Sinhala. Dr. Wickremasinghe was of the opinion that unless sufficient literature on computing was made available in local languages, it would not be possible to attract a sufficient number of young students to the computer field. Dr. Wickremasinghe selected the 'Penguin Dictionary of Computers' and obtained copyright to translate and publish this book in Sinhala. He requested Mr. Banduseela to carry out the translations.

When Mr. Banduseela commenced working on the translations, he was faced with the problem of finding suitable Sinhala terms. He therefore met Professor V.K. Samaranayake and sought his advice on this issue. Professor Samaranayake informed Mr. Banduseela that CINTEC had established a Subcommittee to develop suitable technical terms in Sinhala and requested Mr. Banduseela to join the CINTEC Sinhala Glossary Subcommittee.

The Sinhala Glossary Subcommittee was established under the main Working Committee on Recommending Standards for the use of Sinhala and Tamil Script in Computer Technology, to work on a Sinhala Glossary of Technical Terms in Computer Science. It was this Subcommittee that Mr. Banduseela joined.

The CINTEC Glossary Subcommittee comprised experts from a wide range of areas such as language experts and IT professionals. Professor J.B. Disanayaka was a key member. This Subcommittee took such a long time to compile the dictionary because the Sinhala language experts could

not agree on the terms. This was because they represented divergent schools. In this Subcommittee there were scholars in oriental languages (Professor Mahinda Palihawadana), those representing the Hela school (Mr. Aelian de Silva) and others such as Professor J.B. Disanayaka. Those representing the Hela school were opposed to coining technical terms using Sanskrit words. But they were not totally opposed to using the English term with appropriate modifications. The Hela school also opined that it is the verb that should be translated and not the nouns.

The Subcommittee meetings at which the words were coined were held at CINTEC, usually once a week. The meetings were coordinated first by Ms. Mayura Wijesinghe and at a later stage by Ms. Prasadi Jasinghe. The Subcommittee took a while to finalize the glossary, but ultimately, there were results.

This Committee completed the first Glossary of Technical Terms in Computer Science in 1991. This was deemed to be the first Sinhala glossary on Computer terms. It was published by the Department of Educational Publications. Since this publication had only 1000 terms the Glossary Subcommittee continued to work, taking into consideration the needs of this rapidly developing field. The technical terms developed by this Subcommittee over several years were handed over to the Official Languages Commission. After it was reviewed by another committee, the Official Language Commission published these terms as “Glossary of Technical Terms – Information Technology” in 2000.

IT GLOSSARIES - TAMIL GLOSSARY

In the early 1990s CINTEC established a Subcommittee to work on a Tamil Glossary of Technical Terms in Computer Science. It was accepted that the Tamil terms used in Sri Lanka are not the same as those used in India and in other

countries. CINTEC purchased two copies of the Penguin Dictionary of Computers and handed over one to the Sinhala Glossary Subcommittee and the other to the Tamil Glossary Subcommittee. The Tamil Glossary Subcommittee was chaired by Professor Uvais and comprised Tamil language experts, linguists and IT professionals. The members worked rigorously and effectively. In a very short time, they had completed translations up to the letter “T” in the English Dictionary. The members used to check on the work being carried out in parallel by the Sinhala Glossary Subcommittee. The Tamil Glossary Subcommittee was always ahead. But later CINTEC introduced a new member who was an ICT professional, to the Tamil Glossary Subcommittee. This new member deemed that this was not the way in which the work should be carried out. This new member stated that the translations should be carried out under three areas, namely *hardware, software and communication*, much to the chagrin of the other Subcommittee members. After this intervention, unfortunately there was no progress and no Glossary was published. All the translations that had been done were lost. CINTEC could not retrieve the work that had been done.

CINTEC was in the process of organizing the final workshop on the area of Local Languages. Participants were invited from organizations which had developed local language applications or Sinhala or Tamil fonts. There were participants from newspapers, the National Library and Documentation Board, users of local language products such as the Ministry of Public Administration, from organizations which were teaching Sinhala typing, from the Library Association and Professors of Sinhala. There were to be many speakers. Aarunya contacted the speakers and obtained the speakers' presentations and booklets through email. These were to be distributed to the workshop participants. Kumara was then tasked with collecting the speakers' presentations into a folder in his computer and creating physical folders with the relevant material to be given to each participant. He sat at his computer and checked each presentation. Professor J.B. Disanayaka had emailed a comprehensive booklet titled "Some Salient Features of the Sinhala Alphabet". Kumara opened the booklet on his computer. He tried to read it through but was baffled; there were symbols instead of Sinhala letters. There were no Unicode compatible Sinhala fonts during this period. CINTEC was using Thibus software for working in Sinhala. The specific Sinhala font used to type the booklet had to be installed in Kumara's computer for the letters to be displayed. The Professor informed Kumara that he had used the Sinhala font Bindumathie to type Sinhala letters. He wanted this font to be used in his book. Kumara obtained the font with much difficulty, installed it and opened the booklet. He then looked at the Sinhala letters displayed in the aesthetically pleasing font Bindumathie, designed and developed by Mr. Pushpananda Ekanayake. The font was

*beautiful. Kumara had not seen this font before. From the time it was installed he had to keep looking at letters typed with Bindumathie again and again continuously. It was inexplicable.*¹⁷

17. *How we enabled ICT in Local Languages – by Aruni Goonetilleke*

INTERNET AND SINHALA FONTS

The Internet

There were many activities with regard to the development of the Internet in Sri Lanka in the late 1980s and during the early/mid1990s. The first local-area networks (LANs), dial-up email systems and bulletin boards were set up and LEARN (Lanka Educational and Research Network) was established. The academic network LEARN commenced when three Universities – the Universities of Moratuwa, Colombo and the Open University were connected. Lanka Internet, the very first Internet Company in Sri Lanka and the very first commercial email server, sri.lanka.net were established. Then Lanka Internet published the first online newspaper in Sri Lanka; viz. the newspapers Daily News and the Sunday Observer of the Associated Newspapers of Ceylon (Lakehouse) were published online in September 1995. Lanka Internet also started the first online radio station, TNL Radio.

If people used emails during this period, they mostly used dial-up email. But even this was troublesome. Sometimes even in the Colombo Metropolitan Area telephone connections were not available. Telephone calls were very expensive then. When an organization used a phone line for the Internet, payment had to be made for the entire time that the Internet was used, and it was not possible to get any other phone call from that line. Users resorted to connecting and downloading mail, reading and writing all their emails off-line and sending them quickly when the connection was

made. Often, at CINTEC, staff had to stay late after office hours to connect to the Internet, sometimes until very late in the evening, much to their exasperation. This happened mostly when events were being organized. People could get a leased line to alleviate paying per minute, but these were very expensive and beyond the reach of individuals. Only organizations such as businesses, Universities and research institutions could afford leased lines. The concept of tele-centers from where people could access the Internet, was in a nascent state. But there were a few Internet cafes with computers and a leased line and at these cafes users paid per unit time.

When Dr. Dias requested one domain name for email from Dr. Jon Postel, the entire .LK top-level domain was allocated. Registration of domain names started in 1990 at the University of Moratuwa. The number of requests for domain names under .LK increased gradually in the early 1990s. Then Dr. Gihan Dias in early 1996, proposed to the Chairman of CINTEC, the setting up of a Sri Lanka Registry and Network Information Center – LKNIC. Sri Lanka had not been operating a NIC during this period and allocation of Internet (IP) addresses was being handled by the Asia Pacific NIC in Tokyo. In mid-1996, the CINTEC Internet Committee agreed that technical management of LKNIC would be handled by Dr. Gihan Dias and LKNIC would be established under the purview of the CINTEC Internet Committee.

The Internet Committee evolved from the Working Committee on Telecommunication and Data Transfer which had been chaired by Professor Abhaya Induruwa. The latter Committee was largely responsible for leading the establishment of data communication infrastructure for academic work and research and for Internet in the country. In the beginning, the Internet Committee consisted of only a few members; they were Professor V.K. Samaranyake, Dr. Gihan Dias, Mr. Lal Chandranath, Mr. S.T. Nandasara from the Institute of Computer Technology (later the University of Colombo School of Computing) and Mr. Mashish Kuhafa from

CINTEC. Later there were others such as Mr. Rasika Amarasiri, Hostmaster of LKNIC, Mr. Jayantha Fernando, Attorney-at-Law, Mr. Sisira Senaratne, Ms. Kumudu Chandrasekera and Ms. Aruni Goonetilleke from CINTEC, Mr. Harsha Wijayawardhana, Ms. Sadhna Jayatunga and also representatives from the Licensed Internet Service Providers' Association (LISPA), the Computer Society of Sri Lanka (CSSL) and the Telecommunications Regulatory Commission.

The Internet Committee meetings were held monthly at CINTEC. From the start, the Committee members, assiduously and tirelessly tried to figure out a way in which people of Sri Lanka could be made aware of the benefits that could be gained through using the Internet, get more people to use the Internet and find ways in which it would be less expensive. The members did much work on publicizing the Internet; they published press articles and they spoke on TV. The terms of reference of the Committee, drafted in February 1999, consisted of monitoring the quality and cost of the Internet; addressing the issue of Internet security and setting up a computer emergency response team (CERT). (A CERT was not established until CINTEC was closed down and ICTA¹⁸ was set up as its successor; then TechCERT was established by the University of Moratuwa in March 2005, and the Sri Lanka Computer Emergency Response Team (SLCERT) was set up in August 2005.)

The Internet Committee oversaw the maintenance of several key websites. The Government web portal www.gov.lk was maintained by CINTEC from January 2000 until CINTEC closed in 2003. This site served as a portal for several Government agencies, and provided access to information and documents, such as the Government Gazette, Public Administration Circulars, a list of public holidays, Sri Lanka weather reports and newspapers in Sri Lanka. The Committee was also overseeing the development of a website about the Internet in Sri Lanka, www.internet.lk,

18. *ICTA- Information & Communication Technology Agency of Sri Lanka*

which was to contain information on the Internet, press releases and information on ISPs targeted to the public, and to investors and schoolchildren etc.

Dr. Dias regularly updated the Committee on the registration trends under .LK. It was deemed that more awareness was necessary, particularly among Sri Lanka's policy makers. Ministries and Government Departments had to be made aware that it was far more suitable to register their domains under gov.lk and use appropriate email addresses, rather than use email addresses based on Yahoo or Hotmail domains. This was necessary to ensure credibility and trustworthiness among recipients and to project a professional, serious image of the relevant organization; i.e. during these initial stages, the country had to be made aware of the appropriateness for registering their domains under .LK, and not register their domains under .com.

In 2001, the CINTEC Internet Committee facilitated the setting up of a single domestic Internet Exchange (IX); Sri Lanka Telecom and LISPA were both planning to set up an IX each. Then CINTEC convened and chaired a meeting in January 2001. At this meeting everyone agreed to collaborate, resulting in the domestic IX. Before the IX was set up if a person using one ISP wanted to connect to a website hosted by another ISP, then traffic was routed all the way to USA and returned. With the establishment of the IX this problem was alleviated and costs were reduced. The IX provided interconnection for member Internet Service Providers (ISPs) to exchange Internet traffic and allowed them to easily interconnect within Sri Lanka which resulted in improved connectivity and service to customers. The domestic IX was formally launched by CINTEC and LISPA at the BMICH on June 18, 2001.

At present, the mobile phone is ubiquitous and is the primary, and sometimes the only cost-effective and accessible Internet connection for many people across the island. Many years after the initial struggles and with the advent of smartphone connections at an affordable price and sufficient computing power, the Internet is

everywhere in Sri Lanka. It is a way of life. These developments were not sudden, but happened gradually over a period of time.

The Internet Committee later decided to expand its terms of reference to include liaising with organizations such as the Telecommunications Regulatory Commission and LISPA to develop the physical infrastructure; monitoring the availability, speed and costs; reviewing technologies relating to Internet Security; overseeing LKNIC; keeping abreast of relevant international developments, recommending web standards for Government websites and also promoting the Internet in rural areas in Sri Lanka mainly by developing Sinhala and Tamil web content.

Web content had to be available in local languages on the Internet if people in rural areas were to be made aware of the benefits of ICT and the Internet. But most people in Sri Lanka were not thoroughly conversant in English. Most people, even though they could read English could not really understand and make full use of the content profusely available in English on the Internet. In many other countries in the Asian region, such as in Korea and Thailand, people had been using ICT in their languages for many years. They had a choice in using their local languages for computing. In Sri Lanka too, since everyone was not conversant in English, users had to be given a choice – they should be able to select – using ICT in Sinhala or Tamil, if they wished to do so; if given a choice most people would prefer to use ICT in Sinhala or Tamil. The Committee then requested one of its members to draft a template for a local language website. He did this and presented it to the Committee. The Committee approved it. The next step was to create relevant content in Sinhala. This was when the Internet Committee suddenly realized that they faced a huge obstacle, a problem which was not easy to surmount then; there was no standard Sinhala font. Each person used a different font.

People developed proprietary fonts; there were many non-standard fonts with beautiful glyphs – symbols representing a character - which were popular during this period. Some were

being used almost as if they were de-facto standards. Each application used its own fonts. Therefore, documents produced using one application could be accessed and used only through that application. When accessing a Sinhala website, various legacy fonts had to be downloaded. Otherwise, the websites were displayed as incomprehensible symbols which could not be read. This was a major problem when a person tried to use a document created by another, which had been produced using a different font. The font had to be emailed to the recipient together with a Sinhala document, unless the recipient already had the font. There was no way in which actual Sinhala content could be developed for the Internet. It was not possible to search, or to sort in Sinhala.

Developing a standard font could not be done immediately. Therefore, the Internet Committee agreed to set up a committee to specifically address this issue. To do this, a memo dated February 2003 was tabled through the CEO of CINTEC Mr. Ajith Ekanayake, at a CINTEC Council meeting, seeking approval to set up the *Committee on Unicode Compatible Sinhala Fonts*. This became known as the Fonts Committee. The objective was to define the basic minimum requirements for Unicode compatible Sinhala fonts; define the essential features which should be present in a Sinhala character set, character combinations and their input, address the requirements for a standard Sinhala keyboard, keying-in sequences, and issues relating to glyphs and keyboard drivers.

The Committee's specific plan was to:

- investigate the issues of supporting Sinhala under Unicode
- clarify the use of Unicode, and make recommendations on resolving ambiguities, but not recommend changes to the approved Unicode standard
- make recommendations on Sinhala keyboard layout, character representation
- implementation of Unicode compatible Sinhala fonts

This new Committee was chaired by Dr. Gihan Dias. The other members were Professor J.B. Disanayaka from the University of Colombo; the Librarian, National Library and Documentation Services Board; the Deputy Government Printer; Mr. Abhaya Amaradasa and Mr. Anura Tissera from the Associated Newspapers of Ceylon (Lakehouse); a representative from Wijeya Publications; Mr. Niranjana Meegamma from e-Fusion; Dr. Ruwan Weerasinghe and Mr. Harsha Wijayawardena from UCSC and a representative from the Department of Official Languages. Professor V.K. Samaranyake and Mr. S.T. Nandasara were resource persons.

The Fonts Committee at the outset agreed that the way of getting out of the disorder caused by the use of numerous non-standard solutions was standardization. The Committee agreed that a Sinhala font compliant to the standard Unicode (Universal Encoding) should be developed. Unicode was the only available international standard for a language character set and it included all the languages of the world. The standards-based fonts should cover all characters, and should be aesthetically correct. The font should be complete with all possible letters and combinations used in Sinhala.

In addition, the Committee also diligently worked on ensuring that there was agreement on the Sinhala keyboard layout and keying in sequences, with a view to standardizing these. This had to be done as soon as possible because it was now widely known that the lifetime of CINTEC was slowly coming to an end.

With this in mind, the Fonts Committee organized a workshop for key stakeholders. It was held on June 13, 2003. The objective was to present the report titled *“The representation of Sinhala characters in the Unicode standard; Sinhala keyboard layout and keying in sequences; printed and on-screen representation of characters”*. The Committee intended to seek the views of a wider audience on the report. The workshop was well attended. The participants at this workshop unanimously agreed that the Sinhala

keyboard layout should be based on the Wijesekera keyboard layout and input should follow the “type as you write method”. The Wijesekera keyboard layout was widely used in Government organizations. At this workshop it was also agreed that the domain name fonts.lk should be registered and a website should be created from which relevant material on Unicode compatible Sinhala and Tamil fonts could be freely downloaded by users. This was to be the last event that CINTEC held on the local language area, because ICTA, CINTEC’s successor, became operational two weeks later, on July 1, 2003.

Aarunya had been convening meetings of the Fonts Committee. She realized that a decision on the Sinhala keyboard layout was needed as soon as possible. Thereafter, the keyboard layout which was agreed on would have to be standardized through the Sri Lanka Standards Institution. CINTEC was to close down and a final decision on the keyboard layout had to be made at this workshop which was to be held on 13th June. She did not know at present how the new organization which was to be set up, ICTA, would address this area. She decided to check the venue for the event, which was the Continental Hotel. An advertisement had already been published in the newspaper calling for applications to various posts at ICTA.

The activities of these Working Committees led to achievements of significant and long-lasting national impact.

It was October 15, 1997. Kumara was working diligently at CINTEC on the financial aspects with respect to the 12th AFACT meeting which CINTEC was organizing. Kumara was conversant in using computers and financial software now. Participants and speakers were expected to attend the meeting from all the AFACT member countries in the Asia Pacific region. The participants had already remitted the participation fees. The venue for the meetings was to be the Colombo Hilton and the participants were to stay at the Galadari Hotel. Kumara was at his office in Clifford Avenue. There was no TV on, nor was there a radio. Kumara was not even checking news on relevant websites as he worked. It was a few minutes past 8.30 a.m. Then Professor Samaranayake phoned. Kumara felt as if he had been struck by lightning. It was a severe calamity; the LTTE terrorists had detonated a bomb, there were many casualties and both the Colombo Hilton and the Galadari Hotel were heavily damaged. The ensuing days and weeks were a cloud of confusion and anxiety. CINTEC staff, led by Professor Samaranayake scrambled to find another venue. CINTEC was inundated by the participants' emails from all the AFACT member countries. Participants had to be reassured. At CINTEC, the dial-up connection was made only in the afternoons. Therefore, Aarunya had to stay after office until late in the evening; she replied to every single email from each agitated participant before she left the office. Finally, the Oberoi Hotel was selected as the venue and the 12th AFACT meeting was held smoothly.

ELECTRONIC DATA INTERCHANGE (EDI)/E-COMMERCE

CINTEC established the EDI (Electronic Data Interchange) Committee. Committee membership was from the e-commerce community; there were representatives from Sri Lanka Customs, the Ports Authority, Export Development Board, Freight Forwarders, the Ceylon Association of Ships' Agents and from Sri Lanka Telecom. The Chairman of CINTEC chaired the EDI Committee. At the Committee's inception, the Chairman was Professor V.K. Samaranayake. The Committee members were from the organizations which faced problems relating to the process of clearing goods and the time taken in manual processing. These stakeholders realized that adopting EDI would eliminate the use of paper documents, reduce operating costs and minimize human intervention. By the mid-1990s most countries in the Asia Pacific region were moving towards adopting EDIFACT¹⁹ standards.

The EDI Committee was thereafter recognized as the National body/Focal Point for EDI in Sri Lanka by the Cabinet of Ministers. The EDI/EC Committee was also the Focal Point in Sri Lanka in respect of the Asia Pacific Council for Trade Facilitation and Electronic Business, (AFACT), the body which promoted EDI, electronic commerce and electronic business in the Asia Pacific

19. *EDIFACT: Electronic Data Interchange for Administration, Commerce and Transport*

region. The functions relating to the National EDI Committee Secretariat were carried out by CINTEC.

Sri Lanka became a member of AFACT in June 1995. (AFACT was then known as the Asia EDIFACT Board.) This was at the 10th AFACT meeting held in Bangkok. Sri Lanka thereafter took an interest in all its activities, and participated in all AFACT meetings. Twelve Joint Working Groups (JWGs) were established under the framework of AFACT for tasks as standard message development, maintenance, technical assessment and promotion of the standard UN/EDIFACT together with its operating rules and procedures. The Secretariats of the Purchasing Working Group (PWG) and the Joint Working Group on Legal Issues (LWG) were both based in Sri Lanka. The establishment of the LWG was proposed by Sri Lanka. Sri Lanka hosted the AFACT meeting in 1997.

The National EDI Committee reviewed the relevant standards and recommended to the Sri Lanka Standards Institution (SLSI) the adopting of ISO 9735 Version 4 viz., "*UN/EDIFACT²⁰ - Application-Level Syntax Rules*", as a Sri Lanka Standard. The SLSI adopted the standard as a Sri Lanka Standard.

The Committee addressed the issue of standardizing of EDI codes for locations and ports terminals, particularly with the involvement of the representatives from the Sri Lanka Ports' Authority (SLPA), the Ceylon Association of Ships' Agents (CASA) and the Sri Lanka Freight Forwarders Association (SLFFA). The Sri Lanka Ports' Authority and the South Asia Gateway Terminals accepted the container terminal codes which were recommended by the Committee. These codes were uploaded on the UN/CEFACT web site.

CINTEC published a quarterly newsletter on EDI and e-commerce - e-info. AFACT member countries regularly sent to CINTEC, many interesting and informative articles on

20. *UN/EDIFACT - United Nations Electronic Data Interchange for Administration, Commerce and Transport*

developments with regard to EDI, electronic commerce and electronic business to be included in the newsletter. These were compiled into a magazine and sent to all the AFACT member countries/economies.

Sri Lanka EDI Network Services (Private) Limited (SLENS) was set up in 1997 through the EDI Committee, to establish an EDI switch for Sri Lanka. Dr. Dileepa De Silva was appointed as the Consultant/CEO of SLENS. Dr. De Silva was tasked with assessing and reviewing relevant systems in the Asia Pacific region related to EDI. A Secretary was appointed to address the day-to-day operations of SLENS. The SLENS office was located within the CINTEC premises at Clifford Avenue. Dr. De Silva studied the relevant systems in Malaysia, Singapore, Indonesia, Korea and Hong Kong. The EDI systems implemented in many of these countries were very satisfactory. With the implementation of an EDI system, the use of paper documents, the time taken in manual processing and data entry errors would be minimized, resulting in a seamless flow of information and reduction in costs. Discussions were underway between Sri Lanka and Malaysia. Malaysia was willing to assist Sri Lanka to implement the gateway. Many people and organizations worked assiduously in setting up an EDI switch in Sri Lanka. Eventually, despite all this activity, the switch was not implemented. Stakeholders were not in accord.

CINTEC had moved its offices several times; from the BMICH, CINTEC moved into Clifford Avenue and leased two buildings adjacent to each other – these were numbers 05 and 09 Clifford Avenue. CINTEC staff were mainly at 09, Clifford Avenue. Later, FITIS also functioned at 05, Clifford Avenue. Thereafter, CINTEC moved to Elvitigala Mawatha. CINTEC occupied the ground floor and the Ministry of Economic Reform, Science and Technology was operating from the upper floor.

Chapter 4 - the Associations

The Sri Lanka Computer Vendors Association, the Association of Computer Training Organizations and Sri Lanka Association for the Software Industry were established in the early 1990s on an initiative by CINTEC.

Computer vendors faced many issues and one key issue was the problem encountered with regard to HS (Harmonized System) codes – “the multipurpose goods nomenclature used by the Customs organizations as the basis for Customs tariffs and for the compilation of international trade statistics”.²¹ Back in those days devices such as fax machines, printers and scanners were being imported as separate items and all these were classified under different HS codes. Later, there was the multifunctional device – i.e., a device that was “all-in-one”, with printing, copying, faxing and scanning facilities. The Department of Customs intended to categorize these multifunctional devices under the highest tariff category. But computer vendors wanted these to be classified under the lowest possible tariff category and in each national budget the ICT industry wanted ICT products to be exempt from value-added taxation. These were issues faced by computer vendors. There were many other issues. Vendors kept directing all such issues to the CINTEC Council. This resulted in Professor Samaranayake who was the Chairman of CINTEC at this time,

21. Reference: www.customs.gov.lk

holding frequent discussions and convening numerous meetings with various Government organizations such as the Department of Customs. Consequently, he decided that there was a necessity for an association of computer vendors to be established. The problems faced by the computer vendors could then be brought to the notice of the Association and resolved rather than being brought to the notice of the CINTEC Council. This was the root cause for the creation of the Computer Vendors Association. This resulted in the computer vendors being brought together through CINTEC and Professor Samaranayake was instrumental in getting the Sri Lanka Computer Vendors Association (SLCVA) established.

Another issue that arose was the fact that many training institutions were springing up and offering various training courses that did not meet the needs of employers. These training organizations were offering various non-standard training programs and charging various different fees from the students. Students received certificates but they did not realize that they were not really proficient in ICT through following these non-standard trainings which they had undergone. There was a quality related issue with regard to ICT related training, resulting in confusion in the market. Consequently, organizations which were offering training of acceptable standards started bringing up this problem to CINTEC. CINTEC commenced a State recognized exam, NECS. These issues being brought to the CINTEC Council eventually resulted in the Association of Computer Training Organizations (ACTOS) being set up as the “focus group of ICT trainers” in Sri Lanka. It was expected that ACTOS would ensure acceptable standards with regard to training institutions.

Issues also arose with regard to software. Software was being imported and software was also being developed locally. The Government during this period had not established a mechanism of selecting appropriate software. There were some vendors who opined that the Government should procure locally developed software in order to develop the local industry. There was ambiguity and confusion. Consequently, the Sri Lanka Association for the Software Industry was established.

Even though the Associations were established problems encountered by the ICT industry were still being directed to CINTEC. For example, there was the issue of recognition given to ICT personnel and the grades which should be assigned to them. In 1996 the Federation of IT Industry Sri Lanka (FITIS) was established as a focal point for the industry, or as Professor Samaranayake termed it “as an umbrella organization”. Mr. David Dominic was appointed as Executive Director which post he held satisfactorily for many years.

Removal of duty on computers

It was believed that ICT should be promoted if the country was to progress. In 1998, duty on computer and communications equipment was completely removed. Turnover tax had also been removed previously. It had also been proposed, in the Budget of 1999, to allow a 100% deduction on IT purchases made to remedy the Y2K problem, until March 31, 2000.

It was December 31, 1999. Kumara was at CINTEC office on the 14th floor of the World Trade Center in Colombo. He watched Mr. Harsha Wijayawardhana seated at a computer. Several computers were set up in the office. This was the National Event Management Center. Harsha was in charge of the Center. Professor Samaranayake was overseeing the activities. A check list of critical systems had been created. There was an Action Plan. This Center was linked to the critical systems in the country in order to obtain real-time information from critical sectors such as power; hydro-power stations and sluice gates, civil aviation, the banking sector, health sector etc. In hydro-power stations, the sluice gates opened through a computer program. It had to be possible to open and shut the sluice gates; if they could not be shut then there would be flooding which would be a disaster. But these critical systems had upgraded, replaced and rectified issues during the previous 1 ½ years.

The team at the Center that night had prepared a check-list containing the names of the countries which the date line would cross first; these were Fiji, Kiribati, New Zealand, Tonga, Japan and Australia. Then the Hon. Minister of Science and Technology Mr. Batty Weerakoon arrived at the CINTEC office and so did the media. Crossing over to the new year in other countries commenced around 11.00 am Sri Lanka time. The team at the Center was receiving information through the Internet on what transpired in other countries. The team was monitoring what was

happening in these countries. This information was being published real-time on Government websites. Every country had an update and the team kept watching what transpired in every country.

Kumara watched the mega-carnival which was being held at the Galle Face Green where there was a massive musical show. This was clearly visible from the CINTEC office at the World Trade Center. It was nearly midnight. Harsha immediately started phoning the relevant people listed in the check-list.

Then it was midnight. Suddenly the lights went out in the surrounding buildings. Kumara rushed to the windows. He thought something calamitous had happened to the power stations. But he watched Harsha phoning the relevant organizations and they all reported negative. Suddenly the power came on again and it was a relief. It had happened due to overloading. Then it was difficult to take phone calls. The phones too were blocked due to overloading. Harsha kept checking the list. Everything was in order. It was now year 2000. The relief was immense. Most members of the team stayed on almost until 3.00 a.m. Harsha was tired. He decided to leave and went to a restaurant on the second floor of the World Trade Center. There, the cashier told him that Harsha's payment would have to be processed manually because the cashier system had stopped working due to the Y2K issue. This was the Y2K issue that Harsha encountered.

Chapter 5 - Y2K

The Y2K Challenge in Sri Lanka

In the 1990s most computer programs had been written with the four-digit year formats given in two digits due to memory limitations. Consequently, the year 2000 would be “00” and could be interpreted as “1900”. Basically, this was the Y2K issue. It was believed that due to this issue, computer programs which only recognized the year in double digits up to 99 would not function properly beyond December 31, 1999 because the date related comparisons and calculations would produce incorrect results. This posed a dilemma for many such systems during the pass-over from the year 1999 to 2000. This, it was envisaged would create disorder in many critical computer systems around the world. The remedy given simply, was to change the double-digit year to cater to four digits. But this was easier said than done. Many systems needed to be re-written, replaced, and re-designed. This would cost money and take time. As a developing country, Sri Lanka faced a serious national crisis which could potentially affect all sectors of the economy, banking and financial, aviation, health, ports, power and energy, corporates, SMEs, and the list went on. It had to be ensured that the critical systems would continue to function.

To respond to the potential crisis, the National Task Force was formed via a Cabinet directive in May 1998. This initiative was led by CINTEC. The mandate was to monitor and guide

Government and private sector institutions in dealing with the Y2K problem. The Y2K program in Sri Lanka was supported by the Information for Development (InfoDev) Program of the World Bank in planning and implementation phases via grants of USD 100,000 and USD 500,000 respectively.

The Task Force studied the progress made in this respect by the developed countries and international professional bodies. They identified professional organizations whose expertise could be engaged by organizations which would require assistance. An internal task force was set up in critical institutions to check on year 2000 compliance of their computer processor-based plant, machinery, equipment, instruments and related software and to create awareness of the issue among staff. It was also proposed that it should be mandatory for all Government establishments, corporations, boards and the private sector organizations to check on year 2000 compliance of all plant, machinery, equipment, instruments and software imported or to be imported and to include this requirement as a condition of purchase where ever necessary.

Composition of the Task Force

Ms. Nilu Madapatha was seated at her desk on the ground floor at CINTEC when Professor Samaranayake called her to an initial meeting on the Y2K problem, held in the CINTEC Board Room at Clifford Avenue. Mr. Nilan Perera was already there. They were introduced to Mr. B.R.O. Fernando, the National Y2K Project Director, and then they were appointed as Assistant Y2K Coordinators. They were among a group of new graduates who were employed to coordinate and assist in the National Y2K Program under Mr. B.R.O. Fernando who was to lead Y2K activities.

The National Task Force (NTF) was chaired by Professor Samaranayake, the Chairman of CINTEC. The Task Force included key public and private agencies and associations in the country covering mission critical sectors. The organizations were

represented by nominated professionals. Their key responsibility was to apprise the NTF on the status of Y2K compliance within their organizations and sectors. The Task Force then compiled the information to report to the Government on the overall Y2K compliance of the country. The positive side was that many mission-critical institutions had already established their own task forces and had commenced their own Y2K compliance journeys, with targets for completion in mid-1999. An example was the Y2K Task Force appointed internally by the Central Bank of Sri Lanka (CBSL) to monitor the progress of CBSL Y2K remedial activities and also guide the banking and financial sector.

Reporting to the Government

In December 1998, the National Y2K Task Force presented its interim report to H.E. President Chandrika Bandaranaike Kumaratunga on the country's Y2K progress. The final report was submitted mid-1999. The NTF, via CINTEC, also submitted the National Action Plan and National Contingency Plan and reported on the Y2K status of the country to the Government and international monitoring agencies such as the World Bank. Awareness programs and exhibitions were organized along with random test missions to check on Y2K readiness. A series of TV productions was telecast to educate the public and keep them informed of the progress.

Year 2000 rollover

CINTEC set up a National Event Management Center (EMC) staffed by twelve CINTEC personnel and representatives from mission critical organizations, such as the sectors health, banking, airport, seaport, power, energy and police. They were linked real-time with respective mission critical organizations, ready to respond, should any crisis arise. On December 31, 1999, the EMC operated from the CINTEC office at the World Trade Center. The young graduates, named 'Bug Busters' by Professor

Samaranayake, stood vigil throughout the night. However, to everyone's relief, the rollover happened without any Y2K issue across the island.

All's well that ends well

The Y2K program in Sri Lanka was a success, due to the teamwork and coordination across agencies, sectors and the National Y2K Task Force. In a report to the World Bank in 2008, Mr. Nagy K. Hanna, Senior Advisor on Digital Transformation at the World Bank, described it thus:

“Y2K task force—The Y2K preparations in Sri Lanka give useful insight into some aspects of e-Government. Initial pressure for action at the national level came from the Central Bank and from several Western embassies, including those of the United Kingdom and the United States. Most ministries were uninterested. The pressure, however, led the Cabinet to approve establishment of a Y2K task force led by CINTEC. The task force consisted of professionals from key agencies. They all worked as a team and kept the Cabinet and the public informed. They also handled the funding provided by the World Bank. The success of the project is due mainly to the dedication of the task force members and the urgency and narrow focus of their mission.”

CINTEC staff was mainly at 09, Clifford Avenue, Colombo 03. Kumara watched a team setting up computers at 05, Clifford Avenue. This team consisted of those who had been recruited on an initiative of Mr. Batty Weerakoon, the Hon. Minister of Science and Technology. Everyone in this team was given a seat at 05, Clifford Avenue. The original idea had been to establish a computer assembly plant so that the assembled computers could be given to underprivileged schools, but this did not transpire. Instead, they purchased computers from vendors at a low price and handed over these to schools in rural areas. Therefore, the members of this team were mainly involved in commuting to these rural schools and maintaining the computers. Kumara watched these new recruits curiously for a while. He realized that they were handling low-end computers. He then lost interest and walked back to his office at 09, Clifford Avenue satisfied with the knowledge that he had been newly assigned a new Kaypro computer.

Chapter 6 - The End is Nigh

In 2002 CINTEC facilitated the visit of a two-member team from the Swedish International Development Agency (SIDA). Consequently, several study visits were made by Sri Lankan delegations to Sweden and Estonia. In 2002 CINTEC coordinated work relating to the National ICT Steering Committee which functioned under the Ministry of Economic Reform, Science and Technology. CINTEC also coordinated study visits by World Bank teams. On November 20, 2002 the Hon. Prime Minister launched the e-Sri Lanka Development Program. This event was facilitated by CINTEC. CINTEC was also responsible for copying of the “ICT Roadmap”, its design and also designing and updating the site www.esrilanka.lk. All these activities augured the closure of CINTEC. CINTEC, a Government institution, weighed in by long processes, took too long to make decisions. The World Bank was funding the e-Sri Lanka Development Program and it was believed that the right institution with a different institutional model and the required capacity had to be in place to direct the implementation of the e-Sri Lanka development Program. CINTEC, as it was in 2003, would not meet these requirements. With the enactment of the Information and Communication Technology Act, No.27 of 2003, the Information and Communication Technology Agency (ICTA) of Sri Lanka was established as the legal successor to CINTEC. ICTA had to be made operational. Premises had not yet been procured for the newly formed ICT Agency. Therefore, a

team headed by Mr. Manju Haththotuwa, who was the first CEO of ICTA, commenced working in the Chairman's office at CINTEC. Professor Gihan Dias, Mr. Reshan Dewapura, Mr. Dilanthe Withanage, Ms. Kumudini Dasanayake and several CINTEC staff members were in this team. This team was planning ICTA operations. CINTEC staff members were requested to carry out presentations of the work which they were handling, in order to decide which areas should be taken over to ICTA. Requirements were being assessed and lists were made. Mr. Thayaparan, the Chairman of CINTEC, convened a meeting and informed the staff that all staff would not automatically be taken to ICTA. Staff would have to apply and then face an interview, and some would be selected. Staff members were restive. An advertisement had been published in the newspapers calling for applications to positions at ICTA. The Interviews for recruitment commenced. Mr. Thayaparan, Mr. Reshan Dewapura and Professor Gihan Dias consisted of the interview panel. Aarunya was called for an interview scheduled at 4.30 p.m. She walked down the corridor to face the interview. She did not know then that this was the beginning of a worthwhile journey.



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Sri Lanka realized in the 1980s that the national output in Information and Communication Technology (ICT) was not sufficient and that it was necessary to utilize the new technology for national development. The Computer and Information Technology Council (CINTEC) of Sri Lanka was formed in 1984 and given the task of addressing this issue. This book documents the work that CINTEC carried out from the inception until it was closed down in 2003, giving way to its successor the Information and Communication Technology Agency (ICTA) of Sri Lanka,

Aruni Goonetilleke who was associated with CINTEC during most of its life and also with ICTA thereafter, has written this interesting history of CINTEC. The book is well written and should attract the attention of those interested in the challenges governments face today in technology development.

Vijaya Kumar, D.Phil. (Oxon.)

Professor Emeritus, University of Peradeniya

LK Domain Registry

