as IS95 based CDMA and corDECT, Sri Lanka's misadventure with technology-specific licensing in the mid 1990s is likely to be remedied shortly.

- **Universal service obligations (USOs).** There is a tendency for USOs to be used to reinforce incumbency. Sri Lanka expressly exempted the incumbent from USOs on monopolies (e.g., South Africa). As a signatory to the telecom provisions in the WTO/GATS, Sri Lanka is bound to be competitively neutral in its USOs. The Telecom development Fund (TDF) proposed in the draft NTP falls within WTO parameters.

- **Least-cost subsidies.** Least-cost subsidies, pioneered in Latin America, are likely to be the most effective mechanism for disbursing universal service funds in the TDF. The South African experience suggests that direct government funding of telecenters is not effective. We will review best practices and adopt the principle of least cost subsidies for connecting post offices and providing general access in rural areas.

Revenue Generation

- A significant area of revenue generation can be created by outsourcing the point of delivery (not the point of decision) of government services through various forms of delivery mechanism including telecenters, Interactive TVs, kiosks etc. The latter can prove to be excellent sources of revenue generation for non-basic government services. These would also play the additional role of making various e-government projects self-sustaining and would give them a life independent of political compulsions and budgetary constraints once they are stabilized and completely rolled-out.

- **Asymmetric Interconnection and Market Signals** . Services provided over telecom networks may be broadly categorized into four: call originations services; call terminations services; information-retrieval services; information-disseminations services. The latter two are especially relevant in the context of the Internet. For simplicity, only the first two are dealt with in this section. Generally, operators see only call origination services as revenue generating because termination is bundled with it. Therefore, rural and poor customers are erroneously seen as unattractive, or even loss causing. A proper measured-compensation interconnection regime (asymmetric termination rates to reflect the higher costs of low-density networks) is essential to transmitting the proper market signals in relation to rural customers.

- **Urban Poor and Special Needs Segment** The reverse-subsidy and asymmetric-interconnection solutions are dependent on geographical factors. Technically, the urban poor have access to telecom services, but may be unable to use them fully because of lack of creditworthiness, fixed addresses, affordability of high installation charges, etc. Pre-paid mobile has allowed them to surmount these barriers to some extent. However, this solution does not provide them with access to the Internet. There is merit in examining the barriers to the emergence of cyber cafes such as those in Peru, which are not government subsidized, but provide valuable services to the urban poor.

- **Diaspora marketing and services negotiations in the Doha Round.** Sri Lanka is a highly globalized country with a high percentage of its population living abroad. If telecom and ICT service suppliers can offer end-to-end services to Sri Lankans living abroad (who tend to have more disposable income), it is likely that the overall revenue pool that operators can draw on will be expanded significantly. To that end, we will promote service industries in general and the use of the ongoing Doha Round of the WTO to promote market entry by telecom operators from Sri Lanka (In the sequel, this will mean making additional commitments to the WTO to allow foreign operators greater access to the Sri Lankan market.)

III. Policy and Regulation

- **Uncertainty and regulatory risk.** Since the partial privatization of SLTL in 1997, explicit policy changes have not been made. Yet, efforts to enforce the ambiguous exclusivity granted to SLTL in relation to international telephone services since 1999 have degraded the policy and regulatory environment and significantly increased regulatory risk. Therefore, we will take quick action to promulgate the new NTP and implement the elements of the telecom consultation recommendations that are consistent with it.

- **Perceptions of capricious regulatory behavior.** The TRC has been perceived as having acted in a non-transparent and unfair manner tin the past three years. We can partially address this problem by accepting the recommendations of the draft NTP pertaining to the constitution and independence of the Commission and rapidly implementing them by amending the Act. The real remedy lies, of course, in action; we will appoint qualified, credible commission members, demonstrate expertise-based regulation by the staff who have been trained, and conduct inclusive and transparent regulatory proceedings that result in decisions that are enforced.

Attachment 3

Developing Sri Lanka's Software Industry

This annex focuses on the development of exports in software and ICT-enabled services. The impact of ICT cuts across all sectors, and the health of other of sectors affects, in turn, the growth of ICT. Strength in ICT has become an important factor in foreign direct investment. It is also now a major component of modern government administration. Finally, there is the direct impact of ICT on citizens through distance learning, telemedicine, cultural offerings and other forms of societal applications. ICT policy is complicated by this broad ranging impact on business, government and the public.

There is potential for rapid development of both software exports and ICT – enabled services. Even in the present challenging global environment, Sri Lankan software entrepreneurs are making progress. Small investments to support these entrepreneurial activities, whether by the government or by outside sources, could make a very significant impact if properly targeted. Overall economic growth could be significantly enhanced by the technology sector in just two or three years:

- Increased export revenues (from products, services, technology licensing);
- Increased foreign investment and the creation of thousands of jobs, especially in ICT – enabled businesses;
- Improved global competitiveness of companies in other economic sectors (textiles, agriculture, tourism, finance, etc.); and
- More effective implementation of our developmental goals (like education via distance learning, ,more effective government operations, establishing Sri Lanka as a regional services center, etc.).

I. Three ICT – Related Opportunities

The high level of general literacy and the availability of thousands (underemployed) university graduates are the key resources that enable Sri Lanka's response to a number of global business opportunities. The opportunities are of three types:

1. Outsourcing of knowledge work, called ICT-enabled services, ranging from clerical for business in the US and Europe to outsourced functions like data entry, medical transcription, claims processing, call centers, design, translation, and engineering. This work requires, minimally, foreign – language skills and computer literacy.
   During the next few years, the market for this kind of outsourced knowledge work is expected to expand dramatically throughout the world[1] and is a major target for growth in India and a number of other countries.

In his inaugural address, the Chief Minister of Andra Pradesh stated that the Information Technology Enabled Services industry is a huge growth opportunity for India. Nearly a million jobs will be created for graduates in the industry and his vision is to capture a significant proportion of those jobs by making Andhra Pradesh the pre-eminent global hub for ITES/Business process Outsourcing (BPO)[2]

2. Outsourcing of software services, ranging from low-level maintenance to cutting-edge software development to consulting and systems design. This work requires skills of several kinds: programming, project management, client relations, etc., and will attract both Sri Lanka companies and foreign firms who set up operation in Sri Lanka. Attracting the large foreign software companies will depend on the availability of hard working, highly-skilled workers, regionally competitive wages and telecommunications costs, and first-class international transportation facilities.

3. Development of software products. The worldwide software industry continues to offer new markets for new products (in addition to the software services mentioned above). New software technologies, new platforms (PCs, mobile phones, ERP databases, etc.), new applications, and new geographical markets appear every year, as the price of computing continues to fall. Sri Lankan software entrepreneurs are active in this software – publishing arena. Success in this business requires the highest level of software skills; inventive technology and deep knowledge of the domain; software architects (who understand the world of platforms and tools); top-notch programmers; general business acumen; global marketing; rapid business evolution (to hit an always – changing market at just the right time); and significant amounts of risk taking (amajority of software startups fail). This segment also offers the highest rewards for success.

To exploit these opportunities, we will focus government policy on the key human resources, as well as on industry stimulation and promotion through both direct incentives and regulatory reform.

II. Key Enablers – An Executive Summary

How can Sri Lanka get there from here? Here are the key points for expending the growth of the software and ICT-enabled services industries. These and others are detailed more fully in the sections that follow on " Human Resources" and "Regulation, Stimulation and Promotion".

---

[1] See, for example, Business World, The BPO Boom, January 14, 2002.

[2] Re: Shri N. Chandrababu Naidu, Honorable Chief Minister of Andhra Pradesh, in his address to the ITES Strategy Summit, 10th June 2002, Hyderabad. http:// www.ap-it.com/itessummitnews.html.

- Investment in primary and secondary education in both computer literacy and English Language. Skill level testing in both areas for university admission to any Course of study.

- Intensive post-secondary school (and post graduate) training programs in English, computer literacy, and customer service operations to create a pool of 50,000 top-notch people prepared for call-center and services outsourcing operations in the next 5 years.

- Full autonomy for ICT schools within the public university system to allow them to rapidly move toward more competitive advanced ICT education.

- Gradual modernization and automation of major government departments, with some projects targeted for Sri Lankan vendors to boost the domestic software Industry.

- Fast-tracked legislation and administrative reform to remove obstacles from Sri Lankan companies and foreign investors, e.g., intellectual property rights, labor pool flexibility, immigration, bankruptcy and venture finance.

- Small but frequent " trade mission" efforts to promote Sri Lankan software companies in targeted markets (Middle East, Scandinavia, US) and to raise image of Sri Lanka as a technology center.

- De-regulation and increased competition in digital telecommunications – ICT-enabled businesses cannot be started until overseas telecommunications charges are regionally competitive.

- A showcase technology park or industry zone, demonstrating SL's business-friendly environment, infrastructure, and human resources.

To facilitate and enable the industry we need to take the fledgling software sector seriously. While most of these companies are very small in terms of number of people employed or annual revenue, they are a key component to the future of the country. If we put the government's weight behind the industry, it will send the right messages, both here and abroad.

III. Responding to a Fast-Changing Marketplace – Seizing the Moment

The opportunities that exist for Sri Lanka today in the ICT sector are not static. Both the nature of the business possibilities and the status and positioning of other countries pursuing the same business will change rapidly. India's rise to creditability in the software services sector in the 1990's, for instance, was made possible by the retooling of corporate IT in the US , Europe and Japan during that period (ERP systems, Y2K audits, and the introduction of e-commerce). The outcome of India's investment in engineering education and telecommunications infrastructure might have been very different if her timing was off by 10 Years.[3]

[3] Discussions with Anil Srivastava, former CEO of NASSCOM and founder of AcrossWorld Communications, Inc.

There is widespread agreement in Sri Lanka that a high literacy rate is a key ingredient for successful society. In the future, however a 92 % literacy rate will mean little without a comparable level of IT literacy. Sri Lanka risks falling behind in all relevant global measures, from productivity to competitiveness to GDP , if concrete measures are not taken soon to support the development of a modern knowledge society. It is not possible to re-enter the global economy of the 1970's!

We must make decisions now for educational initiatives that may take 10 years to create adequate numbers of graduates. Similarly, we must take bold policy action with regard to telecommunications, so that the multi-year process of building out the infrastructure can begin. We must also continue regulatory reform in ICT –related areas at a brisker pace so that entrepreneurs can compete unencumbered by outdated laws and policies.

Singapore and Malaysia are well ahead in implementing their respective national ICT strategies. Other potential regional competitors, countries such as Egypt, India, and the Philippines, are already actively pursuing the first phases of their ICT vision. Many of these countries have identified back office services as their entry points into the knowledge economy because of the broader employment opportunities these activities offer. As the ICT –enabled services market develops momentum in the next year or two, Sri Lanka must be poised and ready to compete for this business, or it will be bypassed in favor of countries that have made more headway in strategy implementation. Moreover, without expeditious change, the higher valued-added software segments will continue to be stymied in their growth.

IV . Human Resources to Support ICT Strategy

Every mother in every village wants her children to know IT.
- Minister Milinda Moragoda[4]

In the preceding sections, a distinction was made among the three basic types of ICT- related business opportunities, since the required training time lengthens for jobs of increasing sophistication. Training more people , or retraining people with outdated or inadequate skills, for ICT-enabled clerical services could be well underway within months of instituting relevant policies and programs. Some types of ICT –enabled services jobs, such as call centers, might also require additional training in English or other languages. Still, with a competitively –priced telecom infrastructure in place, and some strong marketing or Sri Lanka as a business destination, this segment of the ICT industry could generate several thousand or even tens of thousands of jobs within the next three to four years.

Improving the quality and quantity of higher-level software professionals will require more planning, more expense and substantially longer execution. While more difficult to achieve, aiming for a globally competitive software workforce is critical to

---

[4]Conversation with the Minister of Economic Reform, Science and Technology, June 18, 2002

Small countries like Sri Lanka. Without the large number of workers available compared to countries such as china and India, Sri Lanka must effectively leverage the people it has. High-end software products, services, and solutions offer significantly higher opportunities for revenue per employee than ICT - enabled clerical work. Moreover, a software industry based on innovation by highly skilled workers will contribute long - term to the economy, in contrast to ICT - enabled clerical work which will tend to migrate over time to countries with lower per capita income levels.

With regard to ICT - enabled clerical services, there appear to be sufficient educated people with foreign language skills available in Sri Lanka currently to staff further development of the data entry, transcription and call center services businesses for the near - term (two- years) Furthermore, the country's education system is slowly ramping up to graduate more students with both IT literacy and educated English skills.

For the production of professional software however, the situation is not as clear. Only a very small number of university students receive bachelors or masters level degrees in software - related subject every year (less than 500 yearly graduates). Furthermore, industry opinions about the skill level of these graduates vary -only a small percentage has any depth I computer science (CS) and software engineering. While local companies report adequate availability of mid-level and entry Workers in the current sluggish global business climate, all note a growing shortage of programmers and managers with advanced skills. Software professionals recognize that success depends on the availability of at least one "A" player on the team it doesn't matter how many "B" players there are. Ensuring the supply at the high and will require substantial attention going forward so that adequate numbers of skilled graduates are available as the software industry rebounds.

The following HR strategy actions address both the need of the need of the software industry and the range of ICT - enabled services jobs.

Increase Number Of Qualified Software Professionals

Establish Centers of Excellence. Establish centers of Excellence at the University of Moratuwa , the University of Colombo, and the Sri Lanka Institute of Information Technology (SLIIT), and other institutions These centers will be key , not only as hubs for research activity, but also as leaders in the development of specific plans for improving the quantity and quality of the nation's ICT graduates. We will encourage the centers , with appropriate support , to develop distance learning curricula to help broaden tertiary education in ICT , including more access to cutting-edge research and advanced topics.

Order to assure its freedom to pursue relevant funding opportunities. At least 100 Diaspora with ICT expertise would be attracted to collaborate with these centers. University - industry cooperation in R&D would commence or intensify in these centers.

- **Objective Tertiary ICT Education Assessment.** Public educational institutions around the world lack the dynamism the ICT industry requires, due to lack of incentives, equipment, affordable Internet access, and qualified /trained teachers. Closing the training gap more quickly than regional competitors could be an important competitive advantage for Sri Lanka, and as such we need to evaluate both quantity considerations and quality requirements at the high-end so that appropriate measures can be put into place in the near-term.

- To get an objective assessment of the situation in the universities, initiate an external audit of the relevant departments (computer science, software Engineering management information Systems) of Sri Lankan universities and their graduates to identify shortfalls in curriculum, faculty training, and graduation requirements. Improvements based on auditor's recommendations should be addressed immediately We will pay similar attention to private institutions offering software degrees at the bachelors and masters level. Such an audit would also be a useful vehicle for addressing the modernization of accreditation criteria.6

- **Support for Software Education.** Encourage the pursuit of Software education at both public and private institutions with tax deferments tuition grants /loans, and other means. In order to maintain quality these incentives might be tied to performance evaluations of the institutions. Include masters-level post -graduate and contending education programs a well as bachelors and bridge programs. in connection with this effort to encourage software education, consider public awareness activities that would encourage high-school students to choose careers in ICT.

- **Software Education Capacity Expansion.** In connection with broad support for software education, expand the software education capacity at the universities. Attention to teachers' salaries is the most critical element, since software faculty members are highly employable outside the university. Recruiting of part-time faculty from industry should be encouraged, as should continuing education for faculty (e.g. tuition grants, industry-consulting leave of absence etc) Expanded research and publishing opportunities would also contribute to faculty retention. University staff in ICT at all universities would be linked to each other and the Internet through campus wide networks and the LEARN inter-university network. We believe we can double current output rather quickly, to over 1000 graduates annually, while preparing for further expansion through structural changes.

- Autonomy for Public University ICT Programs. Develop a fast-track plan for granting autonomy to public university ICT Programs within the next two years, with a longer-term goal of transitioning the entire university system to a fully autonomous status. ICT programs offer an appropriate proving ground for the benefits of autonomy , since the needs of the highly dynamic ICT industry will drive a more rapid pace of change. These reforms would allow Sri Lankan universities to recreate themselves for the 21st century; to offer creative educational solutions for both local and global industry demands; to develop centers of excellence that will attract the highest caliber of researchers, teachers and students; to develop new collaboration and self-funding opportunities; and to streamline administrative processes. Autonomy may offer several longer-term benefits too, including reducing the "brain drain" of university students currently choosing to train (and stay) abroad.

- **Broad R&D Support.** Advanced software skills are often only developed at institutions and companies that conduct research in computing. In addition to the research activities proposed at the Centers of Excellence mentioned above, create incentives for R&D investment generally, including at all public universities, technology parks (including new ICT research initiatives at the ACCIMT[8]), private educational institutions, and corporate R&D groups. The government may encourage (e.g., through tax write-offs) corporate sponsorship of university R&D and joint industry-academia research projects. Since private industry is currently leading the way in ICT innovation in Sri Lanka, close cooperation between academic and industry research groups would be particularly beneficial to advanced ICT education.

Mainstream ICT Education AT All Levels

- **ICT Training for All University Disciplines.** Implement a pilot training program on effective use of ICT in all disciplines in tertiary education. Involvement of faculty outside of Computer Science departments is critical. Graduates in engineering, chemistry, health care, education, accounting, and so on, must be educated in IT to take part in the knowledge economy. Furthermore, innovative ideas in the software industry often come from subject-matter experts who invent better ways to use computers.

- **Computer Literacy and E-Learning for Primary and Secondary Schools.** Implement a pilot program in computer literacy in primary and secondary education and e-learning programs for teacher training. These programs could be coordinated with measures to improve connectivity and affordable access.

---

[7] The National Education conference, sponsored by the Ceylon Chamber of Commerce, May 2002, has offered a number of sound proposals for the achievement of a "relevant, demand-driven, [and] competitive" tertiary education system. While these proposals address higher education generally, they are particularly relevant to ICT education.

[8] Arthur C. Clarke Institute for Modern Technologies.

Computer literacy is also a prerequisite to improved primary and secondary education vial distance learning offerings and other ICT-enabled educational programs; additional pilots in the area of distance learning should be supported in parallel. Build on or scale up World Bank and Asian Development Bank assistance already targeting these areas.

ICT Training For Working Professionals

- **Incentives for Corporate ICT & Language Training.** Tax credits for companies who invest in software training and foreign language training for their employees.

- **Strategic Uses of ICT Training for Government Managers.** Create pilot training programs in ICT for management at all levels in government to include not only the basics of computer literacy, but also strategic uses of ICT, ICT procurement, project management, and high-tech entrepreneurship. The goal of this training is three-fold; 1) inform decision makers so that they can have more effective involvement in the process of government automation; 2) develop an appreciation within the government of the nature of the software industry; and 3) enable leaders to represent Sri Lanka's technology sector both domestically and abroad.

- **Computer Literacy Programs for Civil Servants.** Create pilot computer literacy training programs for all civil servants. We will expand the Sri Lanka Computer Driving license program as the national test for office applications. Government efficiency will benefit substantially if more civil servants gain an understanding and higher comfort level about what information systems are capable of, and how to be effective participants in government automation and e-government projects.

English

- **Incentives for English Education.** Support English and other foreign-language education at all education levels with performance-based increases in faculty salaries, tax incentives, tuition loans, etc. Government certification of these institutions should be based on performance of graduates. English proficiency exams might also contribute to establishing effective standards.

- **English Proficiency, ICT Literacy and Culture.** Initiate TV and radio programs to raise English proficiency throughout the country. Also create national campaigns to raise awareness of ICT and its role in economic development Offer computer literacy courses via TV.

Other HR-Related Actions

- **Visa Program for Foreign ICT Professionals.** Discussions are underway to enable the offering of multi-year visas to foreign ICT professionals as individuals, in a manner similar to the US H1B visa program. Such an idea has benefits for the industry and warrants implementation in the near-term. Foreign professionals, from

India and elsewhere, will increase the capacity of the ICT industry as well as offer knowledge transfer opportunities to Sri Lankan software professionals.

- **ICT Educational Advisory Council.** Create an ICT Education Advisory Council to inform policy and guide government programs. Include software industry leaders as well as government and private stakeholders.

V. Stimulation and Promotion of the Software Industry and ICT-Enabled Services

The Sri Lankan software industry is small but promising. It has been making steady progress for years without significant government support. Still, we can make efforts now to stimulate the domestic demand for software in order to propel forward an industry which will contribute to post-war revitalization of the entire economy. Even very small programs could make a significant difference in the overall success of the existing software companies and the others to follow.

Sri Lankan software companies are at a significant disadvantage to their competitors abroad because of their lack of critical mass, supportive habitat firms, or large local customers. [9] It is the last need that is most compelling. While many Sri Lankan software companies have the competence to undertake large, complex projects for government and local companies, they often encounter significant difficulties in winning these types of business. Having their product installed at a suitable reference site in Sri Lanka is a tremendous advantage for companies trying to sell their technology abroad. (Millennium Information Technologies is a well-known example of a company that has been able to win large projects abroad, in part because of its success with a large local reference site, the Colombo Stock Exchange.) The action items below support the software industry and the ICT–enabled service industry.

Stimulate Domestic Demand for Software

Ameliorate Government Procurement Practices. Reform government procurement practices so that local software companies can compete for government tenders on a level playing field. Ensure that local bidders are not arbitrarily excluded from bidding on the basis of size or years of experience; instead, devise procurement policies that focus on the capabilities of bidders and the actual demands of the job. Allow small local providers to partner or create consortia (with domestic or foreign firms) for the purpose of offering joint bids on bigger projects. Also, encourage foreign vendors who do get contracts to work with local providers of products and services. Bring IT expertise into the government, e.g. by establishing a CIO office with adequate authority to run systems outsourcing and manager procurement. Include private sector experts in the tender evaluation process. Audit procurement process to ensure fairness-perhaps an independent ombudsman to hear private sector complaints.

[9] For a more complete discussion of the impact of the domestic market on software startups, see Barr, Tessler and Miller, Software Entrepreneurs in Korea, Stanford University, December, 1999 www.aldo.com/papers/FinalReport.pdf.

- **Government ICT Project for Industry Stimulation.** We will target some government automation and e-government projects to stimulate growth of the domestic software industry. Even a half-dozen projects will make a big impact on the domestic software market in the short term. Many planned government automation projects (back-office automation, websites, etc.) are well within the capabilities of even the smaller local firms. Besides stimulation of the software industry, projects will be selected based on impact on the citizens and the economy, cost savings in government operation (ROI), and chance of success. (We will implement low-risk projects first, to build credibility and experience.) Some of the projects that are being studied are those suggested by the industry stakeholders themselves as prime areas for government automation and e-government. The short listed projects include:

    - National ID database (a prerequisite to financial reform: pensions, income tax, etc.)
    - Delivery of services to Sri Lankans abroad
    - International business promotion (e.g., visa applications, hospitality industry)
    - Land registration
    - Project management, e.g. of NGO-funded projects
    - Judicial records management
    - Accounting systems for budgeting, cost control and reporting
    - E-procurement
    - Portals for services such as on-line forms completion and submission

- **Incentives for Corporate ICT Investment.** Create incentives for private sector investment in new information systems. These investments would not only stimulate the domestic software industry, but would also improve the efficiency and global competitiveness of firms in other industrial sectors. Create specific incentives for SME's to encourage broad adoption of basic ICT and concomitant employee training, as part of overall economic development goals. Tailor other incentives for large companies to upgrade and modernize systems to enhance global competitiveness, and to provide encouragement for additional revenue-generating ICT-related activities such as "productizing" domain expertise embodied in corporate systems.

  Create support programs that encourage industry associations in all sectors to develop computerized solutions to shared problems; e.g. electronic marketplaces, specialized industry databases, and other joint resources to raise their collective competitiveness in the global marketplace.

- **National Resource Sharing.** Establish a national PC support hot line for any citizen or civil servant to get answers to basic computing and Internet questions. This concept might be creatively implemented as a Youth Corps, to offer another avenue for unemployed new graduates to enter into the ICT industry. Also organize
  Private sector PC support and training firms to help government employees and citizens with basic computer-use issues. Regional IT support centers might be similarly organized around the country.

Create a Business-Friendly Policy Environment

- **Workshops for Government Leaders.** We will conduct high-level workshops for government officials and Members of Parliament to enable them to be leaders in introducing ICT in their organizations, and in creating an enabling environment for the growth of ICT-related companies, and to discuss the progress and potential of the software and ICT- enabled services sectors.

- **Software Industry Inputs to Policy Planning**. Bring software industry leaders into the government policy-making process at the highest level, e.g. , through an Advisory Board. Include both large and small firms. Include software publishers, software services firms, and ICT-enabled services.

- **ICT- Enabling Laws.** Implement mechanisms for fast- tracking the enabling laws and programs for the ICT industry, so that Sri Lanka can take advantage of identified opportunities in a timely fashion. Consider making English the legal language for ICT-related laws, in order to facilitate the passing of important legislation. Consider establishing some kind of exemptions or Malaysia-like "zones" for software and ICT-enabled services that will temporarily insulate these industries from excessive regulation.

- **Regulatory Reform for Venture Capital.** Reform venture capital financing laws, import/export controls and other policies that inhibit the availability of high –risk capital. With the recent announcement of the abolition of the capital gains tax, we have a timely opportunity to jumpstart Sri Lanka's venture capital industry. The VC community needs solid assurances that the capital gains tax abolition will apply to them. Only then can they begin to offer adequate support to Sri Lankan software startups. Software publishing is a market-share-driven business. Since all competitors have roughly the same product development costs, their success ultimately depends on quickly capturing the bulk of the market, an exercise which is costly placing requisite demands on the availability of VC. Sri Lankan software product companies need access to venture capital in order to compete for global market-share with their peers worldwide.

  Implement policy reforms in exchange controls in the near-term. Foreign venture capitalists, for example those in the US, who agree to invest in Sri Lankan software firms, require that a US registered holding company be set up and existing stockholders of the local company swap shares with the US company, Lengthy processing delays severely limit both software company growth and local VC exit opportunities.

  Work with representatives from the venture capital community to implement appropriate regulatory modernization.[10] In addition, use this forum to create plans and proposals for joint public-private- donor high-risk venture funds that could be used to invest ICT companies with global promise.

- **Labour Law Revisions.** Undertake a review of labour laws, with the specific purpose of determining how current laws may be revised to support the activities of the ICT industry. Examine particularly retention rules, pensions, and other issues to ensure that ICT companies can maintain a flexible, competitive workforce at all times. In ICT-enabled clerical services, for example, flexibility is required in terms of shift hours, and demands for different language skills or other knowledge may vary considerably as new clients come and go. In software services, project-based staffing it typical, and difference

skills may be required for each new project. Workforce mobility, the ability of workers to move freely among employers, has been cited as a major advantage of Silicon Valley since this practice shortens the learning curve across all companies in the region.[11]

- **Offshore Lender Assistance.** Institute appropriate polices and encourage local financial institutions to assist small domestic software services companies in obtaining lines of credit , guarantees or other help for making offshore tenders ,especially in emerging markets.

Establish awareness abroad of Sri Lanka as a technology producer

- **Promote software industry abroad** . Partner with industry associations EDB,BOI and foreign missions to hire local marketing professionals experienced in specific industries e.g. Swedish expert in selling soft ware to European telecommunications companies or an expert from Dubai on IT in financial services in the Middle East.) These marketing professionals would staff small trade missions housed in Sri Lankan embassies in targeted markets to facilitate the efforts of Sri Lankan firms in those countries. Also hire marketing firms in integrated markets (Middle East, Scandinavia, US, and elsewhere) to begin establishing a brand awareness of Sri Lanka as a technology center for software services and ICT-enabled clerical services. Finally, sponsor a study to analyze current market and future trends to better target software and ICT- enabled services segments for which Sri Lanka would have a competitive advantage in two to three years.

- **Communicate with the Diaspora.** In key markets abroad, engage Sri Lankan expatriates in seminars, online discussion groups, distance learning projects, and other activities aimed at creating new business opportunities for Sri Lankan software products and services.

---

[10] Key Reforms for the Growth of the Venture Capital Industry, A proposal for the Budget 2002, Venture Capital Association, January 2002.

[11] *The Silicon Valley Habit.* In Lee, Miller Hancock, and Rowen, The Silicon Valley Edge, Stanford University Press, November 2000.

Create an Environment for Attracting ICT-Related Services Companies

- **Effective Telecommunications Infrastructure.** Ensure that high-quality telecommunications bandwidth will be available to software and ICT-related businesses at regionally competitive prices as soon as possible. Processing of license applications and private proposals for Colombo area infrastructure improvements should not be delayed while alternatives for a national network build-out are debated. Plans for e-government, computer literacy training, distance learning, and software industry stimulation all depend to a significant degree on the availability of affordable, reliable, high-bandwidth connections.

- **Soft Infrastructure Development.** Sponsor a study to identify priority areas of soft infrastructure[12], such as internet-based data centers, electronic trading hubs, and payment gateways, for investment and targeted incentives. The first phase should concentrate on building the basic systems lavers required to implement any ICT- enabled services.

- **Legislation of Importance to MNE's.** Key pieces of legislation, e.g., IP protection, computer crime, etc., are currently tied up in the translation process. Free up and pass these pending items and fast – track remaining ICT-related legislation in order to make MNE's comfortable about outsourcing software services to Sri Lanka. The software and ICT – enabled services industries are fast moving. Passing the various policies and regulations that are required to be competitive in the call center business, for instance, cannot wait another year. Other countries will have, by then, taken the best positions in the prime markets.

- **One-Stop Shop for MNE's.** To expedite investment, create an effective agency to provide a one-stop shop to for MNE's who are considering locating operations in Sri Lanka. (Take into account the impact on local players, including small startups, when giving incentives to the first MNE's). MNE's create jobs, stimulate demand through extensive marketing, and train local employees in cutting-edge skills. Look to lreland as an example of a country which has actively courted MNE's for the express purpose of exposing lrish technical professionals to globally competitive technologies, in order to develop expertise and then start their own software companies.

- **Showcase Technology Park.** Develop one technology park as a showcase for local companies and for MNE's who might consider setting up operation here. This concept park might include buildings, roads, telecommunications, nearby housing, access from airport, quality schools and healthcare, etc. perhaps bring in a consultant from India or Singapore to specify requirements, or to undertake a joint venture. Incentives to early tenants might include rent reductions, attractive telecommunications package, and so on.

---

[12] ICT Development Roadmap for Sri Lanka , May 9, 2002

IV. VI. Concluding Remarks

The window of opportunity is short. The number of countries trying to promote their high-tech exports and their ICT –enabled business services is growing fast. The Sri Lankan software industry is small but dynamic. Government can help right away by reducing bureaucratic and regulatory barriers. Joining with international partners to fund targeted stimulation efforts will offer additional benefits. The most important action for the long-term development of the industry, however, will be for the government to become a sophisticated user of ICT, as well as an enthusiastic promoter of Sri Lankan technology in every public forum.

Attachment 4

Sri Lanka's E Government Strategy and Implementation

This annex outlines key dependencies and prerequisites for the success of Sri Lanka's e-government initiative, creating the enabling infrastructure, and financing. We will address these prerequisites and manage these interdependencies.

1. Key Dependencies/ Pre-Requisites for the Success of e-Government

An e-government strategy must be placed in the broader framework of the national development strategy. E-government is a means to accelerating development through more convenient delivery of citizen's services and through improving government efficiencies. The e-government vision and implementation needs the following critical success factors,.

- **Political support and leadership**, We will implement a powerful structure directly under the Prime Minister with the appropriate administrative and financial autonomy for speedy decision making along the lines of a private corporation. Similarly, the civil service leadership must be one that is viewed by all as dynamic, pro-active and results as opposed to process oriented so that it act as a catalyst for change. This will involve some difficult change management, and process re-engineering efforts and will require sustained leadership from all levels of public management

- The e-Government Strategy will be part of the core development strategy of the State. ICT is an enabler and a means to deliver a coherent and powerful National Development Strategy to bring home development of the country as a whole. We will ensure extensive open consultation with all groups in society and advertise the program widely to get support and buy-in from all concerned ad different levels.

- We will view the strategy holistically,. it is the web of e-Leadership, Institutions, provision of Infrastructure through meaningful public private partnerships, building a human resource base, implementing a digital strategy for providing remote citizens services, creating a knowledge corridor and good quality jobs, and driving investments in key niche areas, all done together which will ultimately add value to Sri Lanka. For instance there will be concrete steps taken to improve physical infrastructure, tourism, municipal services, transport, and the financial and logistics sectors which give key support to growth .

- The existence of a national fiber optic backbone and Government WAN is critical to the success of e-government implementation. Last mile connectivity is equally important to backbone connectivity with respect to extending the Government network to key points of local administration. SL Telecom has buried about one thousand kilometers of fiber connecting important towns. The new National Telecom Policy will encourage further development of the nation's backbone connectivity by a number of operators. We will make available the required dedicated bandwidth for government field offices and use this backbone to establish multimedia communication facilities. This will facilitate communication and information sharing between federal and provincial (and later local) government and will also enable several independent application providers to design content using the network. These can be in areas such as distance learning, healthcare, and a databank of all government acts/rules/ circulars which can be used by all departments and citizens. Currently one of the impediments to successful e-government implementation is the lack of a national backbone and limited options for last mile connectivity which will impede rapid field implementation.

- We will put in place an explicit e-government policy framework that will articulate the vision, strategies and specific initiatives along with specific timelines so that these are will have specific fiscal incentives that allow third parties to remotely deliver various citizens services for a fee. The policy will also include implementation of large scale computerization in order to deliver remote citizen services in line with established international service level standards. This will create the enabling environment and create a strong interest among citizens to demand more e-government services.

- Trained civil servants are needed to manage a large electronic administration. Government servants at various levels need different kinds of training and this is critical both for day to day operations and for change management issues with organized trade unions.

- The creation of Nation-wide Land and people's Databases integrated with each other is another sine quo non for success in e-government implementation. Sri Lanka has several existing paper databases in the Registration of Persons Department. We need to crate a comprehensive hub of data which would include several socio-economic and development indicators for each individual citizen. This is the master database from which key remote citizens' services can be spun off.

- Choice of financing options - capital expenditure by the Government, and financing by committed private sector partners.

II. Next Steps

- Announce National IT and e-government policy and Roadmap
- Appoint key players with the highest levels of authority and responsibility empowered to deliver.
- Engage a reputed global management consultant to study individual departments and services, to be dovetailed with the overall National Development Strategy
- Establish a high powered sub committee to decide on the broad IT Architecture for the Government of Sri Lanka.

III. Delivering E-Government Services/Creating Enabling Infrastructure

Key steps include:

- Select specific e-government applications, announce a policy for the same and list out detailed milestones and timelines for implementation, These will be initially rolled out as pilots but later based upon the implementation experience, will be scaled up as full fledged projects. This will involve a more detailed study of the number of individual transactions, pricing and user charges, citizen impact and technical feasibility of delivering each service. To do this we will hire world class global management consultants whohave experience in this subject area drawn from developing countries with similar demographic characteristics to Sri Lanka.

- Embark on the process of establishing a wide area network connecting the key major cities like Kandy, Jaffna, Anuradhapura, Hambantota Trincomalee, Batticaloa Matara,, Galle etc with Colombo. We can implement this on a Build Own Operate Transfer BOOT/BOO basis by inviting global bids from some of the leading private sectors players. This consists of two parts - the bare fiber which can be leased from private sector telecom providers. and the wide area network itself which has to be designed and built, also by private service providers.

- Embark on a census like exercise for creating a National People's Hub. We will do this with utmost accuracy and confidentiality for it will involve creating a master database of citizens data which would be used for all future service delivery. International best practice suggests outsourcing this work to a reputed international company with a proven track record, and maintaining tight government supervision,. It would be useful to structure a detailed service level agreement (SLA) based on global experience so that payments are made only after due validation of each entry in the database for accuracy and completeness. The database itself should be architecturally designed as per open standards so as to permit future expansion and interconnectivity. The IT agency will anchor this exercise, but will involve support and

ownership of the Registration of Persons Department (Current Paper Database of personal data covering all citizens over 18 years of age, which is approximately 80% of the population), Census Commissioner, and the Department of Immigration and Passports.

- We will identify potential services which can be automated completely in order to deliver citizens services. Potential key services are:

  - Treasury and Integrated Financial Management System
  - E-Procurement
  - Tax
  - Project Management and Monitoring Systems
  - Land Registration
  - Utilities Payments
  - Transport: Driving Licenses, Registration etc.
  - Tourism
  - Passport
  - National ID/Smart Card Project
  - Employments Services
  - Information based Services

The actual selection of the services will be evaluated against the following criteria:

- Visibility and impact
- Ease of implementation
- Revenue generation/Potential Cost saving capability
- Citizen convenience and need
- Nature and extent of legacy systems
- Network effects which would happen because of its implementation

The final short listing of various G2B and G2C services will be driven by the above criteria. Potential startup services may be e-procurement, utilities billing, project management and monitoring system, government information services, and the passport application.

We will also move in parallel to automate the treasury and implement an integrated financial management system. We can easily implement a computerized financial system connecting all field offices, starting first with the Finance Ministry at Colombo and the Provincial Council offices.

IV. Financing the e-Government Strategy

There is a substantial sum of initial capital expenditure in creating the infrastructure and establishing the Sri Lanka Inc brand, both of which are critical to the overall IT strategy

and also for aggressive e-government deployment.. A viable approach is to look at leveraging assured citizen demand in exchange for technology deployment, through the outsourcing the delivery point of citizen services to the private sector. Only in the event total market failure is evident in this area, will government funding be required. The government can also gain revenue through some kind of pre-announced transaction charges schedule and discriminatory pricing based on speed of service.

Creation of a wide area network could be likened to the building of a national highway in one sense and this itself will catalyze a lot of economic activity and lead to employment generation and internal efficiencies. In addition projects like the national Land and People's Hub have enduring value as digital assets which can be used for delivering remote citizen and business services.

V. Concluding Remarks

Thus, in sum, our e-government strategy and implementation has two distinct facets.

- To improve the internal efficiencies of the government; and
- To improve service delivery and citizen access to government.

These will also help build a strong constituency of support for implementing IT strategy in general. As Sri Lanka embarks on this experiment, leadership, change management, innovative public-private partnerships for financing these initiatives, and telecom reform are the four critical success factors in making this revolution happen. Eventually, acceptability of e-government as part of the day-to-day lives of citizens and government employees - something invisible yet omnipresent like electricity-would be the yardstick for measuring its success or failure. A directly, tangible impact on the lives of the citizens in their daily interface with the government will go a long way in building support for e-government in particular and IT strategy in general.

Attachment 5

Other Project Possibilities for e-Government

The following is a sampling of projects that software exporters deem to be of national importance and provide significant opportunities for governmental revenue collection, expense minimization, lead to an increase in the efficiency and transparency of government action and a reduction of bureaucracy and corruption.

No.	Project	Benefits to National Administration
1.	A secure and robust email system linking every government agency. The goal is to have a unique email address for every government employee within a secure, robust and consistent email system that spans all of government	• This is vital communication tool, and a baseline requirement for any organization. • The benefits are numerous, and range from the ability to communicate securely and effectively regardless of location and distance. • This baseline system will also set the groundwork for incorporating other types of electronic communication within the government sector.
2.	Computerization of all Inland Revenue Department records and information related to taxes-both corporations and individuals. Link this system to (electronic) records at the registrar of companies.	• Increase tax collections • Improve ability to "mine" already available data to support better decision-making. Eg: which customers should be audited, which individual businesses are statistically far from industry norm in terms of their tax payment. • Reduce cost of administration within the Department of Inland revenue • Reduce corruption and increase efficiency and transparency of operations.
3.	National credit reporting agency (CRIB) database containing all consumer finance and credit related information, such as • All loans applied for – granted and not-granted • Information on all credit cards in your name • Servicing history of all consumer debt-loans, credit cards and such • Employment and salary details (if available)	• Enable this agency to become a central source of commercial information on individuals (and businesses) that can be queried by other corporate institutions when needed. • This allows many financial institutions to gain greater visibility into the financial health of their clients at lower cost prior to making credit decisions. • In addition, since this information will be available to other institutions competing for the same client, it will also promote vigorous competition among credit providers in their search for "lower risk"

		clients and thereby increase the funds injected into client's hands and into the economy.
4.	National Police Database with • Criminal activity, • Driving violations, • Finger prints, photos, biometrics of criminals • Enable links to external related info such as customs arrival/departure records and so on	• Dramatically reduce the current problem of compartmentalization of police information • Enable access to all who have a need for this information, and do so in a manner that dramatically reduces administrative costs and increases accuracy.
5.	Computerization of the company registration information at the registrar of companies and enabling to share that information with likely government consumers of that information such as the department of Inland Revenue (particularly the GST section). Should have: • Company registration information • Annual reports that are filed with the registrar of companies • Other company information that is available with the registrar of companies	• The corporate equivalent of the individual ID allows unique identification. This information in turn can be cross-linked and used widely across a number of governmental and commercial enterprises. Ex: Cross-linking to the Department of Inland Revenue to increase revenue gathering ability.
6.	Customs and Dept of Immigration and Emigration-Computerization of all arrival and departure record information from all entry and departure points for all people.	• National security would be dramatically increased with an automated system that had the ability to automatically track wanted people and persona non-grata. In addition, various alerts and such can be registered for people meeting certain present criteria, such as exceeding a certain number of international trips in a given period and such
7.	Computerization of National ID card information and the sharing of that information (electronically) with other relevant national administration authorities	• This critical piece of information enables locating and verifying the identity of individuals for a number of legitimate reasons. Ex: the Department of immigration and electronically verify that a passport applicant's identification is legitimate. The Police could verify that submitted identification is accurate.

8.	Computerization of all elements of paperwork handling for import and export of goods. This should include: • LC information from Banks for goods importers • Shipping manifests from ships that will call at the port • Customs information and forms so that importers can submit and clear their goods prior to arrival • 'Payment gateway so that customs duties can be paid even prior to the arrival of goods • Facilities that enable customs to clear goods prior to arrival at Port. • Links to freight forwarders, shipping agents, goods importers, banks, port authority, and customs, and all necessary forms and workflow systems to enable system to perform as the Singapore model of paperless goods import.	• Will have significant cost winds for our island nation. Will reduce the cost of processing import and export documentation from 6% of the value of the goods serviced to sub % levels (Numbers based on documented Singapore experience)
9	Department of Motor Vehicles. Computerization and sharing of all: • Motor vehicle registration information • Driver's license information • With authorized and approved governmental and commercial authorities.	• Increase transparency and reduce the cost of business for everyone dealing with motor vehicles. For example, leasing and lending companies and the police.
10.	Creating a database of all land owned in the country-both private and government owned so that land management in the country becomes that much easier. Could also include: • Building permit register • Grantor/Grantee records	• The World Bank has funded and mapped all the water resources in the country (Central environmental authority – a first in this part of Asia); this is a logical second step. • Agriculture, home ownership, expanding towns, roads all can be managed more efficiently and effectively. • All land transactions can be automated and

	• Maps and plats • Mechanics Liens register • Real estate nation-wide database • Tax assessor's records	there will be no issues relating to lost deed or and cases of the land registry being burned leading to loss of records.
11.	Computerization of all Birth, marriage, divorce, and death related information at the registrar of persons, and the electronic sharing of that information with the appropriate governmental organizations to cut down on fraud. This can also be used to simplify the process of obtaining a birth certificate. At minimum should have, and should enable the sharing of: • Birth certificate information • Marriage certificate information • Divorce information • Death certificate information	• A logical extension of the National ID Card project that gets all the fundamental information about the person electronically available and sets the stage for thee utilization of the same information across the administration to reduce cost of governance.
12.	Hospital Management System that includes all elements of running a hospital, which includes: • Patient admission system • Room allocation and meal preference system • Pharmacy module • Drug store module • Kitchen module showing meals needed for the day – depending on who is at the hospital and their preferences • Billing, invoicing, payment and accounting system hook-up modules • Physician and specialist availability and schedules modules • Operating theatre schedules and the required resources for each theater • Resources allocation modules (i.e. medical hardware allocation)	• The national administration spends significant amount of funds on national healthcare-without the benefit of being in a position to make inform and effective healthcare related decisions based on hard facts, as most often no institutional "memory" is maintained. This system fixes the technical elements of that problem. • In addition, patient care can be dramatically improved with enhanced and readily available patient medical history. Especially if facility exists for maintaining centralized patient/medical information. Anyone could be treated accurately and effectively at any of the governmental hospitals as very one of them will have access to the required medical history and drug allergy information and such • One of the more useful elements will be the access of actual information to the national health service administration so that decisions can be made on hard data, rather than on ad-hoc and incomplete information –which will lead to better effectiveness of

	hardware allocation) • Patient admission and medical histories • Types of illnesses and the types of drug therapies that can be prescribed. Index of all known/permitted surgical procedures and the material requirements for each of these procedures and such…	each rupee spent by the national administration on citizen's healthcare.
13.	National court cases database that lists all relevant case information- appropriately categorized for easy access by all lawyers for a fee for their research and on-going casework.	

Attachment 6

Bridging the Digital Divide: Initiatives for Societal Applications

Sri Lanka will demonstrate how information and communication technology (ICT) can be used as a strategy for overall national development and poverty reduction. As we work towards establishing a lasting peace, we will rebuild the nation's economy by leveraging ICT combined with equitable distribution, access, and a pro poor and innovative approach.

The project ideas listed below were conceived by volunteers from the Sri Lanka Silicon Valley advisory group (www.slsv.org). They are indicative only and not a comprehensive list of what can be done and will need to be further developed.

Project I: Open School Initiative

Action:

- Establish an international task force for online learning in Sri Lanka.
- In the spirit of the Colombo Plan, bring together, say Sebit in Turkey to collaborate with Sri Lanka's Worldview International Foundation to adapt its comprehensive secondary education multimedia material for use in Sri Lanka over the Internet.
- As part of the joint venture, Sebit to share with Worldview International Foundation pedagogy, content creation, and technical expertise.
- Enable LEARN (Lanka Education and Research Network) to provide connectivity to schools and individual students.
- Arrange direct assistance to Sri Lankan schools for teacher training and providing computers from WorLD (World Links for Development) and other similar agencies.
- Contract with an independent economic research organization or establish an economic research unit within Sri Lanka to do a cost-benefit study and ongoing monitoring and evaluation of online learning.

Rationale:

The quality of basic education needs to be improved in Sri Lanka, to make up for the set back suffered during years of conflict. Innovative use of ICT can offer enhanced learning experiences for children both in and out of school. Education for all requires a proving ground. Combining World Bank's Basic, Education Project experience in Turkey, the experience of WorLD (World Links for Development), and online learning communities around the word, the EOE Foundation will provide a laboratory to test ideas about online and distance learning at the secondary school level. Combined with Sri Lankan expertise

in educational research this effort will result in useful insights/indices for investment in technology for education.

Project II: Sri Lanka Open University Online Learning Exchange (OUSL/OLE)

The Open University of Sri Lanka (OUSL) enrolled its first batch of students in 1980. Established by the Sri Lankan government, it is an integral part of the university system of the country.

Actions:

- Develop a work plan, consistent with the stated corporate Plan 2001-2005, to "...enhance opportunities for adult life-long learning of people by facilitating Open and Distance Learning, and supporting excellence in research and scholarship."
- Identify collaborating institutions world wide that will produce knowledge, experience/pedagogy of online content, as well as distance learning and online course material adaptable for local use in Sri Lanka.
- Examine how they can collaborate with OUSL to make it "...a leader in Open and Distance Learning renowned for excellence, in human resource development and empowerment of people to achieve their full potential."
- Engage consultant(s) to prepare, in consultation with these institutions, a report that will provide:
    - Best practices in distance learning
    - A technology road map with focus on connectivity and compatibility
    - Learning resources including course content and digital library access that may be freely and/ or easily available to OUSL
    - Training and fellowship plans for OUSL faculty and staff abroad
    - A list of international experts who can work as faculty with OUSL
- Establish a steering group to identify prospective donors and facilitate funding to extend the reach of open and distance learning.

Rationale:

- ICT has become an integral part of distance learning, specially in North America, and its global significance is on the rise through LMS (Learning Management Systems), multimedia content creation collaboration, testing and academic administration.
- Many important learning institutions and corporations have moved their content online including library resources. Open source initiatives are increasingly making academic material available free of cost or as part of academic collaboration including accreditation.

Project III: LEARN (Lanka Educational Academic and research Network)

The Lanka Educational Academic and Research Network (LEARN) interconnects educational and research and development institutions across the country. The LEARN project started in 1990. The first service provided was dial-up *LEARN mail,* the first e-mail service in Sri Lanka. This was supported by the Computer and Information Technology Council (CINTEC), and Lanka Academic Network (LAcNet), and maintained by a dedicated group of volunteers in Sri Lanka and abroad, Today LEARN provides e-mail, dial-up and dedicated Internet connections.

Actions:

- Upgrade and extend LEARN to become the backbone network for education, research and development, software development and for societal applications of information and communication technology.
- Explore with the possibility of LEARN becoming a member of the Internet2 consortium, which is developing and deploying advanced network applications and technologies for research and higher education, and recreating the partnership of academia, industry and government that helped foster today's Internet.
- Participate in PRAGMA, an open, international initiative to establish sustained collaborations among a community of investigators at leading research institutions. PRAGMA is supported by the San Diego Supercomputer Center, the National Science Foundation, and participating institutions.
- Discuss with SIDA, ADB and other potential stakeholders on ways to establish sustained funding.

Rationale:
Most modern applications of computer technology are dependent on networks. Therefore, interconnecting educational and research institutions to collaborate in deployment and development of networks will increase Sri Lanka's capability and competitive advantage.

Sri Lanka's participation in Internet2 consortium will give us access to advanced networking technology, increased academic collaboration, and higher-end next-generation global software markets.

Project IV: Private Enterprise Partnership

Actions:

- Select two to three enterprise customers for 'model' enterprise-wide ICT implementation and match them with Sri Lankan ICT SMEs for design and implementation.
- Select two or three Sri Lankan ICT SMEs that have technology and/or services for an international market.

- Identify matching foreign market opportunity and select foreign partner for ICT SME to share experience, expertise and market access.
- Negotiate funding with payback in commercializing of technology derived by similar assignments abroad.

Rationale:
Sri Lankan ICT SMEs need success stories that allow them to access international market with a higher yield per person employed. Sri Lankan SMEs have demonstrated entrepreneurial attitude and their ability to acquire and manage technology internationally.

Project V: AIESEC Student Exchange

Actions:
- Identify 20 foreign students as AIESEC interns with Sri Lankan NGOs or private sector companies who have management and information technology degrees to work on ICT projects for a period of 6 months to 2 years.
- Work closely with AIESEC International to place 20-50 Sri Lankan students in ICT companies in G& countries with products/technologies/services of relevance to growth of ICT in Sri Lanka. This may involve engaging short-term consultants with high technology business background and/or working with members of the Sri Lankan diaspora in senior management position in G7 corporations.

Rationale:
AIESEC is an international, non-political, non-profit, student-run, independent, educational foundation. It comprises students and recent graduates of institutions of higher education who are interested in economics and management. AIESEC facilitates international exchange of thousands of students and recent graduates each year. Whether in a paid traineeship of as a volunteer for a non-profit organization, their experiences abroad will undoubtedly affect them forever.

Project VI: International Center for Societal Applications in Information and Communication Technology

Sri Lankan software companies have demonstrated their ability to utilize advanced technology and incorporate them in societal applications (e.g. MediaSolve's village PDA platform). Multinational high technology companies (IBM, Sun, Microsoft) are increasingly inclined to invest in such efforts by providing technology and resources.

An institution such as this will not only advance the application of ICT in Sri Lanka but also serve as a center for excellence and a resource center for ICT deployment elsewhere in the developing world.

Actions:

- Gather an international task force for the formation of an International Center for Societal Application of Information and Communication Technology in Sri Lanka.
- Create a website, online forum and series of moderated teleconferences to determine mission, scope, and collaboration among development thinkers and institutions.
- Create a trust with private-public endowment for the Center.
- Establish and independent international board of trustees to manage the affairs of the Center.

The Center itself should become a model of e-governance and participatory management among members from different nations.

Rationale:

Computers, telecommunications, software, the Internet, are rapidly and inevitably reshaping global economy and society. With it goes increasing economic inequality, the distribution of income in the digital economy being much more highly skewed than in the older ones. The new economy may be extremely productive, but benefits only a small minority.

However, ICT can be the quintessential socio-economic strategy of developing nations instead of just a commodity for export based on cheaper cost of labor or a modernization indicator. Societal applications of ICT across all sectors, combined with efforts to enhance human capital can lead to a more equitable economic environment and national prosperity.

Project VII: Sanasa Cooperative Federation

The SANASA movement-Sri Lanka's thrift and credit system-is one of the most exciting cooperative and micro-finance success stories.

Actions:

- Establish a pilot project to use innovative information and communication technology in Sanasa in collaboration with a credit union from the developed world.
- Put together a consortium of companies in the US to support the work of the ICT group in Sanasa supplemented with a team of Sri Lankan ex-pat consultants

and/or local talent to develop and integrated ICT solution for financial institutions.
- Export solutions developed for SANASA to similar small/cooperative financial institution in other parts of the world.

Rationale:
This project is a particularly good example of how societal application of ICT can be an incubator for developing software and services export.

Sanasa has members from all communities of the population across Sri Lanka (Tamil, Muslim, Buddhist), and over a million members (out of 18 million people in the country). The vision of Sanasa is to establish a new social order based on co-operative principles and values, strengthening and developing the community and creating wealth for all. ('The SANASA Model: The Inspiring Story of Sri Lanka's Credit Union Movement' a study, and "The SANASA Movement of Sri Lanka: Co-op Development through Micro-Credit' a videotape, are both available with the Canadian co-operative Association.)

Project VIII: Sri Lanka Silicon Valley Center

International Business Incubator (IBI, a project of the City of San Jose and San Jose State University, provides a base for companies from all over the world to establish a presence in the Silicon Valley. Sri Lanka's Software Exporters Association is in dialogue with IBI to expand the Sri Lanka Cluster and provide marketing assistance to its member companies. One of the founding companies of SL-SEA is already based in IBI and is instrumental in expanding the support services to other SO-SEA member companies.

Actions:
- Contract International Business Incubator (IBI) in California to provide (a) facility to Sri Lankan companies in Silicon Valley; (b) trade facilitation; and (c) entrepreneurship development.
- Identify and engage consultants to mentor Sri Lankan companies in the US, and help them establish strategic alliances/partnerships with high technology companies.
- Offer special services to selected Sri Lankan companies for access to technology and to showcase their capability in Silicon Valley.
- Establish regular virtual trade meeting through videoconference.

Rationale:
Strategic partnerships help emerging market companies to access high technology opportunities. Silicon Valley is the Mecca for high technology companies from all over the world.

Attachment 7

Reforming Sri Lanka' Mass Media Sector to promote the developmental thrust of the ICT Roadmap

Radio and Television have a unique ability to produce and disseminate information and knowledge, particular to the poor who are generally underserved, and to deliver as part and parcel of the larger ICT family general public interests and essential public goods. Radio and Television are, in this context, indispensable tools to help fast-track developmental efforts and objectives.

Radio and Television can support the broadly-based market development schemes of the ICT Roadmap, for information flows promote the enabling environment for institutional reform, and also affects people's incentives and impetus for commerce and exchange. Radio and Television are also capable of contributing to improving public health efforts, as demonstrated by successful AIDS/HIV education campaigns. Empirical studies show that in particular women's access to the media is associated with better health and fertility outcomes, even after accounting for different income and education.

Radio and Television can also positively affect the quality and spread of civic education, substantially enhancing people's understanding of and access to government services and processes. Greater access to all media can furthermore provide an voice for social groups to press for changes in institutions, both public and private, and norms of behavior.

To achieve these outcomes the media needs to be independent and able to operate within transparent constitutional and legal parameters. Absence of a supportive legal framework, heavy-handed governmental interference, concentrated ownership, restricted competition, financial dependence, and onerous regulations on press freedom frustrate the media's ability to help fast-track developmental objectives.

The most recent history of the electronic mass media in Sri Lanka has been characterized by the politicization of the broadcasting system. Action to remedy this situation is already underway.. The Defamation Law was abolished on June 18, 2002, and a Freedom of Information Act is now under discussion.

But more needs to be done, and we will make a good faith effort to deregulate the broadcasting system with an eye toward establishing and managing radio and television as a Public Trust - and in the Public Interest.

We need to base the country's broadcasting system on universal access, democratization of the airwaves, nation-building, education and strengthening the moral fibre of society. In addition, we need to ensure that a national radio and television system is guided by such universal principles as freedom of expression, equality, multi-culturalism, multi-ethnicity, choice, and diversity within a framework of national unity.

I. Reform of Public and Private Broadcasting

Broadcasting represents a public sphere for discussion and the dissemination of information and ideas, essential for the proper functioning of a democratic society. Public broadcasting is, in that sense, of the public for the public and by the public.

Yet broadcasting is managed and regulated in the public interest as a matter of public policy. It is at the policy level that the determination and balancing of the various interests in broadcasting is undertaken to achieve general public interests and public goods.

To enable broadcasting to both fulfill its general public service function and to support and promote the creation of a world-class ICT sector, we need to thoroughly overhaul radio and television, both on the policy and operational level, to include:

- Guarantee the independence of a public service broadcaster (e.g. Rupavahini or its designated successor) through appropriate structures such as pluralistic and independent governing boards.

- Guarantee the public broadcaster adequate funding to fulfill its mandate, serve the needs and interests of the public, and to promote the free flow of information and ideas.

- Make broadcasting directly accountable to the public, especially with regard to the discharge of its mission and the use of public resources.

While Public Broadcasting has traditionally been the dominant "player" in Sri Lanka, Private Broadcasting has become a regular and ever more visible entrant. The result has been a pervasive duality in the Broadcasting industry. In re-designing the Broadcasting industry, we will take proper account of this duality, and at the same time we will fully consider the important differences between the two - public service and private broadcasting - and their ultimate objectives.

Private investment in broadcasting differs from ordinary business activity. Broadcasting involves the transmission of value and attitudes, and therefore the regulation of private broadcasting has to balance off investments on the one hand, and the role, duties and responsibilities of broadcasters, on the other.

In any new Broadcasting policy for Sri Lanka, we must therefore be mindful of the need of specific impositions of specific broadcasting license conditions on private broadcasters

to ensure that they make a contribution to society at large, either through programming or funding of educational and information programs. the production of indigenous program material, promotion of all ethnicities, languages, or the multi-cultural nature of the society.

We will also consider issues such as limitations on foreign ownership and investment, as well as cross ownership of various media, and we will set these off against the effects this will have on the overall development of the mass media sector, and by extension on the ICT sector.

II. Community Broadcasting

In addition to public and private radio and television broadcasting, a broadcasting policy framework must also make provisions for Community broadcasting, as it provides access to needy areas with little resources, skills, expertise and funding.

Generally, Community broadcasting in Sri Lanka will be defined as

- a community of interest; and
- one that is geographically founded.

Community broadcasting will:

- be inclusive of whatever common interest need is expressed by a potential operator;
- be geographically founded and serve the specific community within a determined geographic area;
- represent all the people in the community both in ownership and control and in decision making; and
- provide a district broadcasting service dealing specifically with community issues that are normally not addressed by other broadcasting services in the particular region.

Traditionally, the majority of community stations are based in urban areas and the least developed parts of the country have the least number of community radio stations. The challenge of the national broadcasting strategy will therefore be to help develop an equitably distributed community broadcasting sector that gives greater access to the needy areas in order to provide equal opportunity to the public at large.

Community broadcasters draw their revenues from grants, donations, sponsorships, and advertising from their respective communities. And while they will have no restrictions to accessing local advertising, national advertising must be restricted through proper regulatory provisions.

III. Signal Distribution

All Sri Lankan's need to have access to either radio or television, and through them direct and indirect access to the information and content made available by the Internet. The regulatory strategy for the signal distribution sector must be to achieve universal access to both. Furthermore, we must make signal distribution affordable and put in place a flexible tariff structure for services where public interest imperatives apply.

Different licenses of signal distribution will be offered and granted to applicants, with the appropriate determination to be made by an independent Broadcasting Regulator, to be established. The regulator will also be charged with the development of a scheme for appropriate tariff regulation. Priorities for signal distribution will reflect Sri Lanka's developmental goals and the needs of the broadcasting community, as well as the needs of the end users of the broadcasting services.

To ensure the optimal utilization of limited spectrum, and Independent regulation will be ensured. The regulator will be responsible for the overall function of policy development, research and planning of the use of the spectrum. The agency will be established as soon ɑ possible, and it will work closely with regional and international Inter-Governmental organizations, such as the International Telecommunication Union (ITU).

The frequency spectrum is a valuable natural resource and as such and asset that belongs to society at large. The use of the spectrum is, therefore, a privilege and it is in the public interest that the frequencies cater for the diverse needs of the total population. In case of any conflict between public interest and private commercial interest, public interest will prevail.

But beyond the Public Interest consideration, regulating the use of radio frequencies also stems from other concerns. They include the need to define broadcasting parameters to avoid interference; the need for radio frequencies for other socially important activities such as the defense of the country, emergency and other communication services; the need to affirm the role of previously underrepresented and disadvantaged groups; the larger international responsibilities of the government; and that broadcasting plays and integral role in developing and reflecting a Sri Lankan identity, its character and cultural diversity within the framework of national unity.

IV. Digital Convergence and Multi-Media

A future-oriented broadcasting policy framework must also take note of the various broadcasting delivery methods. Multi-channel delivery systems, for instance, can serve a host of social goals, contribute to cost efficiency and effectiveness. These systems can play a significant role in helping to meet the following goals: Universal access by all Sri Lankans to broadcasting and multi-media services; delivery of educational services; and diversity in program content and services in all regional and major languages.