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As the 21st Century unfolds, people around the world are awakening to a growing danger. Religious and tribal movements are harvesting anger against abuses of power by failing states, predatory rulers, local warlords, and perceived advances by crusading empires. These trends, if unchecked, may assure further catastrophes in coming years as new technologies make it easier for haters to kill.

Developed countries have a vital stake in finding effective ways to meet this threat. Yet wars, occupations, and expansion of state powers risk further inflaming passions and eroding the foundations of civil society. An alternative vision and course of action is needed—one that offers practical paths for large numbers of people across ethnic and religious lines to build stakeholdings in a peaceful and prosperous future.

New paths toward this end are now under development in Sri Lanka. A South Asian country with about 18 million residents, it has been riven since the early 1980's by one of the world's most bitter and protracted civil wars, costing more than 60,000 lives and billions of dollars. Once known as a world leader in terror, suicide bombings, and assassinations, Sri Lanka since early 2002 has made a remarkably decisive turn towards peace. Although the transition is not yet complete or assured, its progress gives grounds for hope in other troubled areas of the world.

An innovative "e-Sri Lanka" initiative has emerged as a centerpiece of a broadly-supported reform package aiming to increase accountability and confidence in government, and to foster conditions for rapid and sustained economic growth. It has been shaped by an abiding public and private sector commitment to see advanced technologies used not as engines of destruction, but as enablers of potentially revolutionary gains in the quality of governance, diffusion of valued skills, and private sector driven growth.

Early results give reason for hope. Regulatory reforms have led to plunging prices in international telecommunications. Telework is bringing jobs to rural villages. Small and new enterprises for the first time are entering online markets for transcription, graphic art, and web design services. E-learning partnerships and micro-scholarships are helping to meet skills gaps in remote areas. Diaspora donors and investors are linking via the web with grassroots self-help initiatives. And a range of E-Government projects is being launched to ensure transparent and efficient delivery of public services.

Key decisionmakers in the public and private sectors of Sri Lanka see prospects for becoming a model to other countries. Much as Hong Kong and Taiwan's manufacturing success helped inspire Southeast Asia's export-led industrialization, Sri Lankans are recognizing an opportunity for their country to set a distinctive example in broad-based growth of information industries and services. Moves are already beginning to package elements of this model for possible extension to conflicted areas of the Middle East and Africa.

Success in this undertaking may have implications which reach beyond countries suffering from civil strife. In North America and Europe, it may affect options for dealing with the mounting problems of failed states. Advocates of "hard power" solutions have been pressing to deepen interventions in these environments in attempts to stave off future catastrophes. Yet such force-fed solutions appear to have triggered a mounting revulsion in world opinion, as well as skepticism from citizens of developed countries who fear that free institutions will erode as state power grows. A non-imperial, independently-originated set of innovations that work to bring hope and opportunity to war-torn areas may prove useful in advancing the values and security interests of the West in critical areas of the world.

Background on the Sri Lankan Conflict

Located fewer than 30 miles away from the Indian subcontinent, Sri Lanka is an island nation that has been known since antiquity by a variety of names, including Taprobane , Serendip , and Ceylon. Its first large-scale immigration was by the Sinhalese , who moved from North India about 2500 years ago and remain the dominant majority. Their predominant religion is the Savakayana (Hinayana) form of Buddhism. The Sinhalese were followed by the Tamils, a Dravidian people who migrated in waves from southern India. Tamils, who are primarily Hindu, today comprise approximately 17 percent of the overall population and form a majority in the northern and many eastern areas of the country.

Sri Lanka has attracted more distant peoples as well for more than a thousand years. It became a key port of call for Muslim Arab traders, many of whose descendants remain and have prospered in the private sector. A substantial Christian community also has taken root, stemming from successive arrivals of Portuguese, Dutch, and British traders, missionaries, and colonial rulers over the past four hundred years.



Mark Frazier

Although relations among the communities had been relatively harmonious for most of the country's history, British policies of divide and rule in the colonial era left an enduring residue of communal resentment. Britain's rule over Ceylon systematically favored Tamils with educational and employment opportunities surpassing those of the majority Sinhalese . After independence came in 1948, the Sinhalese majority reversed the preferences, generating grievances on the part of once-favored Tamils. Over the next 30 years, Tamils in the north grew increasingly restive, calling for regional autonomy.

Cold War rivalries helped kindle the festering tensions into full-scale civil war. By the early 1980s, warm relations between a Sinhalese-dominated government and the United States prompted fears in India and the Soviet Union that pro-capitalist policies, and a possible US military base, might be in the offing. India responded by supporting and equipping radical elements in the Tamil community. A 1983 attack on Government forces by Tamil rebels sparked a pogrom in which thousands of innocent Tamils throughout the country lost their lives and property. This and ensuing cycles of violence radicalized many Tamils in favor of outright politicial secession, leading to a hardening of Sinhalese attitudes and almost two decades of devastation. Outnumbered by Government forces, and abandoned by their Indian government sponsors, the Tamil Tigers perfected the tactic of suicide bombings as an instrument of assassination and destruction, killing prime ministers of Sri Lanka and India and devastating commercial as well as military targets. Civilians on both sides bore the brunt of no-holds-barred conflict by the warring parties.

A grinding war spread other costs across society. Although Sri Lanka has remained a functioning democracy, with regular elections and transfers of power among Sinhalese-dominated parties, the growing demands for defense and security spending fed corruption and an ensuing popular disgust with politicians. Breakdowns in civility grew as deserters from the armed forces turned their arms and fighting skills to crime, further destablizing communities. Hundreds of thousands of young Sri Lankans have had their education cut short or disrupted.

Mobilizing Support for Change

A turn towards peace came in late 2001, when war-weary voters brought a new government to power, on a platform of peace and private-sector led growth. The new Govern-

ment, led by Prime Minister Ranil Wickremesinghe, made clear its intention to devolve fundamental autonomy. In return, the political leaders of the Tamil Tigers agreed in principle to withdraw their claim to outright political independence.

External factors played a part in this transformation. Prospects that the United States would target the Tamil Tigers in the aftermath of September 11 influenced their decision to come to the bargaining table. Active diplomacy by the Norwegian government launched a ceasefire and a series of negotiations that has profoundly reduced tensions.

Internally, a pivotal transformation in the business community also had occurred. Leaders of the private sector long had been split over the merits of continuing the war versus making compromises with the Tamil militants. By the late summer of 2001, however, a combination of high profile military setbacks, a collapse in tourism, crippling air freight price rises, and mounting fiscal problems convinced many leaders throughout the private sector that the time for peace had come.

An appreciation of the economic gains possible for Sri Lanka was especially clear to companies engaged in information technology and related services. While Sri Lanka's mainstays of tourism and apparel assembly had been growing modestly over the previous decade, India's economy had surged with the opening of a vast new market for information and communications technology (ICT) industries. India's exports of software and information technology services leapt from less than \$300 million to more than \$6 billion in a span of 10 years. Sri Lankan business leaders realized that, with peace, a wide spectrum of software development, engineering research, computer graphics, and technical support operations could find a home in the country. Moreover, they foresaw opportunities for broad-based employment creation in lower skill ICT exports, in fields ranging from secretarial services, answering services, customer support call centers, and other back office operations.

Well prior to the 2001 election, many of these technology-focused leaders — including representatives of software exporting organizations, venture capital firms, educational institutions, and lawyers specializing in information technology — began meeting as a nascent "ICT Cluster" to evaluate information and telecommunications technology-based opportunities for Sri Lanka. Their search for a distinctive Sri Lankan competitiveness strategy found four key drivers that were to become the basis for a new way forward.



Mark Frazier

- Plunging costs of international and community-level telecommunications. Advances in telecommunications systems are making possible pervasive and affordable telecommunications. High quality Voice Over Internet Protocol (VOIP) links are enabling high volume users such as call centers to drive international telecommunications costs to a few pennies per minute. These prices enable countries with liberalized telecommunications to generate large scale employment in ICT-enabled market segments. Exceptionally affordable Internet links are also becoming available via VSAT satellite dishes comparable in size and cost to their TV broadcast receiving brethren. An always-on VSAT link that averages 2-10 times faster than dialup connections in some developing countries can be installed at a one time expense of less than \$1000, with monthly costs in the \$100-200 range. The emergence of Wifi (802.x) systems, with one-time equipment costs of around \$100, means that this international bandwidth can be affordably shared at neighborhood levels. Launching low-cost telecenters that combine VSATs with neighborhood-level Wifi networks means that bandwidth can be made available even in remote corners of Sri Lanka - or indeed, any country within satellite footprints.
- * Electronic marketplaces that offer immediate job opportunities to micro-entrepreneurs. Auction markets such as eMoonlighter.com, Elance.com, Rentacoder.com—patterned after E-Bay's reputation-based marketplace—today allow small and new enterprises as well as larger firms to rapidly build global reputations. An immediate opportunity exists for entrepreneurs, regardless of size, to build visibility in global outsourcing markets—and to gain valuable credentialing projects in the "reverse auction" systems. Information and advice on how to successfully access and prosper in such markets can be widely spread along with telecenters in rural and urban areas.
- * "Anytime, anywhere" learning that spreads skills at exceptional speed and savings. A further area of breakthroughs is in diffusion of skills. New e-learning systems have emerged to rapidly create and share online learning resources. Wherever bandwids permits, short courses, workshops, seminars, and degree programs can be readily delivered—enabling students and practitioners to stay current as market conditions, skills, and technologies change. These online "just-in-time" training resources help level the global playing field for jobseekers, entrepreneurs, and public offices, by enabling technical, management, and language skills to permeate throughout developing countries at unprecedented speeds and at far lower cost than before. Much as microlending has created opportunities for millions of entrepreneurs, small scholar-

- ships and vouchers can open new skills and certifications opportunities for people in rural and urban areas alike who seek language, keyboarding, or ICT-related skills. These can reward e-learning and classroom-based training that leads to independently measured increases in skills.
- Innovations in E-Government. E-Government systems offer the prospect of introducing unprecedented transparency, efficiency, and accountability in public sector operations. Yet many countries have experienced delays in realizing these benefits – as a result of a lack of inter-operability of systems, and of delays caused by "winner-take-all" systems of choosing from among vendors. A new approach – "web services" – has emerged to fundamentally overcome such problems. Under the WSDL technical standard, both new and legacy software applications will be able to interoperate regardless of vendor and underlying technology. Committing to web services also can remove the "win-lose" basis upon which proprietary vendors have competed for major projects to date, by minimizing risks to all arising from long-term vendor lock-ins. Adoption of the web services standard also can enable faster deployment of e-Government solutions by promoting use of reusable software components. Web services solutions can be particularly valuable in fast-tracking deployment of E-Government solutions for firms to obtain online licenses, incentives, and approvals at a fraction of current time needed.

As the pro-peace Government took office in late 2001, the ICT Cluster was invited to make inputs into a road-map of policy initiatives for transformational reform. These inputs, together with advice from leading business associations, provided groundwork for a team of World Bank specialists sent to draft comprehensive "e-Sri Lanka" proposals for Milinda Moragoda, the Minister of Economic Reform, Science and Technology and a key figure as well in the peace negotiations. After the plan's acceptance by Cabinet, Prime Minister Wickremesinghe unveiled the program in November, 2002 as central to his Government's aims of catalyzing broad-based economic and technological growth.

Highlights of the E-Sri Lanka Initiative

The aim of the e-Sri Lanka campaign has been defined by the Government as "taking ICT to every village, citizen and business, with e-Government as its mainstay." Towards this end, a superagency has been formed to spearhead implementation of a four-part program. Its mandate is to use ICT to bring new transparency and efficiency to



Mark Frazier

the public sector, promote private provision of infrastructure, expand skills, and promote private industry.

In war torn societies, restoring public trust in Government is perhaps the foremost challenge. E-Government components of the e-Sri Lanka program accordingly call for unprecedented levels of public sector accountability. The e-Sri Lanka vision calls for E-Government to reinforce peace and help "integrate marginalised regions and communities." An initial step is to set up community portals where information and online public services can be accessed without gatekeepers or delay.

For business, E-Government measures to rebuild trust and foster conditions for growth include an Government to Business (G2B) system which will facilitate the "seamless interaction between the private sector and the government in the transaction of business, procurement, and day to day commercial activities"—including but not limited to customs, taxation registration, and funds transfer.

To ensure that affordable bandwidth reaches communities across the country, the Government of Sri Lanka took a radical step. It pledged to grant an unlimited number of external gateway operator (EGO) licenses for international services. The decision led to a steep plunge in the costs of international telecommunications available to the public. The market price for overseas calls through the major providers has recently plunged to \$ 0.20 per minute, with high volume "closed user groups" able to negotiate further price cuts of 80-90 percent. The Government also has announced an innovative "least cost subsidy" system of competition for vendors to bring communications links to outlying villages that have yet to be connected.

The e-Sri Lanka program calls for a massive role for "e-education," especially as a means to spread marketable skills in English and ICT literacy. Tax incentives for private providers of such skills are to be established, along with incentives for digitizing video archives of useful materials. An accompanying system of tuition loans is expected to spur further demand for these resources. Although the specific methods for implementing this are yet to be defined, the approach holds promise as a means of overcoming gaps in diffusion of marketable skills caused by rigidities within traditional education providers.

In a country where state-run media have become distrusted for skewing their reporting in partisan ways, the e-Sri Lanka plan also breaks important ground. It calls for deregulation of the mass media sector, to expand freedom

of expression, equality, multiculturalism, multi-ethnicity, choice, and diversity within a peaceful single nation.

Finally, the e-Sri Lanka plan envisages Sri Lanka as model for other countries. The World Bank-drafted document foresees a future in which delegations from emerging economies will learn from Sri Lanka and "partner with local institutions on ICT applications for sustainable development." The newly-appointed head of the ICT superagency comes with a background well suited to make this vision a reality. Before taking his new post, he served as an executive of Millennium Information Technologies, a large local firm that has successfully adapted local software solutions to meet needs of the global market. An early Millennium project was to automate the Colombo Stock Exchange during the 1990's. From this beginning, it has won contracts to do likewise for countries in the Indian Ocean region and in Eastern Europe. The stock exchange success has awakened interest in other local companies about delivering solutions based on a Sri Lankan model to the global market.

Towards a Replicable Model

Even as the new leadership of the ICT superagency prepares for action, private sector interest is mounting in the opportunity to assemble innovations in replicable and scalable form. Pioneering Colombo telecenter developers are exploring opportunities to establish branches or franchises throughout Sri Lanka—and perhaps beyond the country's borders. Gathering elements for sustainable telecenter operations into a globally exportable form could yield revenues for parties responsible for this toolkit creation.

Near the once-active frontlines of the civil war, a grass-roots initiative to spread ICT skills is moving on a parallel track. The Horizon School (www.horizon77.org) has drawn international attention for its success in imparting language and computer skills to more than 100 students in an impoverished rural village. Openworld Learning, a US-Russian e-learning venture, is developing a toolkit on how substantial transfers of public lands to the Horizon School can support its operations and expansion of its scholarship/"microvouchert" funds for e-learning. Openworld has also introduced local entrepreneurs to rapidly growing outsourcing marketplaces for telework projects. These outsourcing projects are initially focusing on conversion of North American videotaped lectures and other course materials into on-demand learning formats.



Mark Frazier

In so doing, the parties are hoping to establish an example of how business and technological resources in North America can be shared at community levels in developing countries—and demonstrate a benefit for citizens in North America, who will increasingly need affordable "lifelong learning" resources as their workforce faces the challenge to re-skill given the trend of globalization to move more work offshore.

In the area of E-Government, leading members of the newly-formalized ICT Cluster – now called the Sri Lanka Information and Communications Technology Association (SLICTA) — are backing public-private partnerships in a form that will enable contractors to "productize" exportable elements of their Sri Lankan solutions. They are also seeking frameworks under which local ICT firms can team with leading multinationals to deliver comprehensive E-Government solutions. A promising opportunity for such teaming may be for Sri Lankan firms to take a lead in building web services interfaces for proprietary solutions, to ensure their interoperability with modules from other vendors.

Success-sharing opportunities for Public-Private Partnerships in Sri Lanka could become a powerful magnet for leading multinationals—and their local counterparts—to make Sri Lanka a replicable showcase. Among the "carrots" that could be offered in return for committing resources in the near term are opportunities to share in millions of dollars in new revenues that could flow from deployed systems in the following areas:

- Electromagnetic spectrum management and auctioning
- * Land registry and management systems
- Concession tendering for high profile demonstration projects (e.g. technology park concessions)
- * H1-style "Technology Visas".

One of the most rewarding near-term partnership opportunities could come from establishing Sri Lanka as a world-known location for online formation of ICT companies ("Virtual Corporations") at exceptionally low cost. Creating an online system for this can stimulate startups by local firms otherwise deterred by high costs and lengthy and uncertain approval processes. Millions of dollars annually also can be earned from offshore company registry by attracting ICT entrepreneurs from other countries who seek affordable domiciles with good conduct codes. These resources can be applied to ongoing support and expansion of the scholarship funds for ICT skills development and other success-sharing programs.

Implications Beyond Sri Lanka

Developing and developed countries alike share a pressing interest in solutions that can rebuild trust, marketable skills, and jobs for the future in conflict-ravaged settings. Unless alternative paths are offered to those now trapped in failing systems, people in more fortunate settings will likely face intensifying enmity and new forms of terror in coming years.

Even as hatred grows in other countries and regions, Sri Lanka has won respect and given hope for moves in the other direction. After 20 years at the frontlines of bitter ethnic grievances and conflict, it has embarked on a path that can transform economic horizons and expose people to new ways of thinking without barriers across the country.

Communities across Sri Lanka hunger for new ways to learn, earn, trade and connect on peaceful terms. So too do tens of thousands of communities in other countries that have suffered grievously from deprivation or subjugation. They provide a waiting market for replicable and scalable solutions that are not imposed upon them. Sri Lanka's willingness to use technologies to build and share new paths toward peace comes at the right time for the world.



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