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Innovative ICT Applications for achieving SDGs in Sri Lanka

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Presentation....

- ▶ **1.0 Introduction**
- ▶ **2.0 Current Status of SDGs and gap filling.**
- ▶ **3.0 STI Policy in Sri Lanka its relevance to SDGs**
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On September 27, 2015, at the United Nations Summit for the adoption of the post-2015 development agenda held in New York , HE the President of Sri Lanka, said...

....the country is fully committed to the adopted resolution: “Transforming our world: the 2030 Agenda for sustainable Development”.

I quote the President: “The Government of Sri Lanka fully supports the Post-2015 Sustainable Development Agenda and the Sustainable Development Goals and targets that have been adopted by this Assembly. Accordingly, I declare that the Government of Sri Lanka will act with determination as a pioneer of eco-sensitive civilization that is emerging in the 21st century.” End of quote



Sri Lanka's commitment followed by ...

- ▶ December 2015, the Ministry of Sustainable Development, one of the first in the Asia - Pacific Region, was set up.
- ▶ Enactment of the Sustainable Development Act, No.19 of 2017 which provides for the development and implementation of a national policy and strategy on sustainable development and for the establishment of the Sustainable Development Council. - Already set up under the Chairmanship of the Secretary to The President.
- ▶ The Government of Sri Lanka pursued SDG 1 in 2017 on a priority basis. On January 2, it was declared, 2017 as the “Year for Poverty Eradication”
- ▶ A Parliamentary Select Committee was established to monitor the progress of the implementation of SDGs.
- ▶ The “Sri Lanka Voluntary National Review (VNR) on the Status of Implementing Sustainable Development Goals” was presented at the High Level Political Forum (HLPF) held in 2018.
- ▶ On August 6, 2018 ,the first draft of the “Sustainable Sri Lanka Vision - Strategic Path December 2017” prepared by a ‘Panel of Experts’ was launched for public consultation by The President.



The core framework presented in the report prepared by the Panel of Experts (PoE)... main aim to “leave no one behind”

- ▶ Harmonize : economic, social and environmental dimensions of the sustainable development triangle..
- ▶ The report identifies the balanced inclusive green growth (BIGG) path that will facilitate the transition of Sri Lanka from “Conventional Sri Lanka 2018” to “Sustainable Sri Lanka 2030”.
- ▶ The BIGG process follows the middle path traditionally followed by Sri Lanka
- ▶ Specific sectors addressed : agriculture and food, education, energy, health, marine resources, transport, urban development and physical planning and water.
- ▶ crosscutting themes addressed : poverty and inequality, climate change, disasters and air quality, ethics, values and citizenship, gender, governance, **innovation, technology** and industry, international relations, reconciliation and national unity, security and peace, and youth.etc.

Priority areas : **Alleviating poverty (SDG 01), achieving food security (SDG 02), energy (SDG 7), education (SDG 04), minimizing income disparity (SDG 10) and urban development (SDG 11).**



Sri Lanka is committed to this consultation because ...

At the last Governing Council held in Manila Sri Lanka made the following Statement: I quote

“The representative of Sri Lanka informed the Governing Council that In addition, Sri Lanka requested APCTT’s support on capacity building related to disruptive technologies such as Internet of Things (IoT) and innovative applications of ICT in achieving SDGs.”

Sri Lanka is pleased to make this presentation in that context



Science Technology and Innovation (STI), including ICTs, are...

- ▶ an essential component of policies to promote development.
- ▶ They can serve as instruments for supporting relevant components of the national development agenda with focus on SDG, helping local industry , generating better paying jobs, reducing poverty, promoting export diversification.
- ▶ The Government has declared to focus on Mechatronic Enabled Economic Development Initiative (MEDI) - to include export oriented High-Tech in general
- ▶ Standards Training Prototyping Testing Facility (SPTF) with NERDC the lead partner in setting up and operation.



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2.0 Current Status of SDGs and Gap Filling

- ▶ The poverty rate has dropped to 4.1% in 2016 and country is reaching the upper middle income status with a per capita GDP of USD 4,066 in 2017
- ▶ Unemployment rate stood below 5% for last seven years.
- ▶ Free education and health policies have resulted in high life expectancy of 75 years, having a very high literacy rate of 92% (youth literacy - 98.7% ; more than 50 % having ICT and other skills).
- ▶ In 2013, Sri Lanka had maternal mortality ratio of 26.8 per 100,000 live births already
- ▶ Sri Lanka being able to provide 99.3% of its population with access to electricity by year 2017.
- ▶ UN has recognized Sri Lanka among 'high human development achieved countries.'



Measures Underway - Gap filling Required....

- ▶ The annual growth rate of real GDP per capita in Sri Lanka is 3.2% and the target set for 2030 is as high as 7%. At times this was achieved but was not sustained.
- ▶ Proportion of woman in managerial positions in 2016 is 28.4%
- ▶ Mandatory 25% quota for woman in local government bodies according to the constitution need to be enlarged to other political decision making bodies.
- ▶ Percentage of youth who are not educated , employed or undergoing training was 26.1% in 2016 need to enhance Vocational Training - Introduction of Technology at degree level programmes.
- ▶ Addressing Chronic Kidney Disease of un known etiology CKDu in mainly agricultural areas .
- ▶ Unsustainable agricultural practices.
- ▶ Droughts , natural disasters such as floods and land slides.



3.0 STI Policy in Sri Lanka - Relevance to SDGs

developed in 2008 now under review...

- ▶ Foster a science, technology and innovation culture that effectively reaches **all citizens** of the country
- ▶ Enhance Science and Technology capability for **national development**, make use of Science and Technology expertise in the national planning process, and strengthen governance and policy implementation mechanisms in alignment with the National Research and Development Framework
- ▶ Build up, and progressively expand and improve the **human resource base** of scientists and technologists necessary to undertake a leading role in achieving national developmental goals
- ▶ Promote **basic, applied and developmental research**, particularly in areas of national importance and priority
- ▶ Develop, or acquire and adapt, appropriate scientific knowledge and **technologies for transfer to** achieve progress in all sectors and to **enhance the country's economy** and its global competitiveness
- ▶ Ensure **sustainable use of natural resources** for development while **protecting the environment**
- ▶ Document, preserve and research into the scientific basis of, and promote **indigenous knowledge based technologies**
- ▶ Develop a culture of creativity and innovation and protection of **Intellectual Property Rights (IPR)**
- ▶ Ensure **quality standards** of Science and Technology Institutions, deliverables and services to achieve **national and international recognition**
- ▶ Promote the application of Science, Technology and Innovation for **human welfare, disaster management, adaptation to climate change, law enforcement** and defense, to ensure **human safety** and national security.



4.0 ICT policy in Sri Lanka - Relevance to SDGs

- ▶ Objective 1 - Make government **information available and accessible** electronically to **citizens** through multiple channels
- ▶ Objective 2 - Make government **services electronically available and accessible** to **all citizens** via multiple channels in a citizen friendly manner
- ▶ Objective 3 - **Improve/Re-engineer government processes** to be **citizen centric**
- ▶ Objective 4 - Use **eGovernment** to eliminate duplication in **ICT Infrastructure, information collection, government processes and ICT solutions** within and across government organizations
- ▶ Objective 5 - Use of ICT to achieve, measure, monitor and publish defined service levels for all government services
- ▶ Objective 6 - **Address the requirements/needs** of **marginalized communities** through ICT
- ▶ Objective 7 - Implement processes and systems in government organizations to be **highly responsive and interactive through the use of ICT**
- ▶ Objective 8 - **Enable citizens' engagement** through electronic means for consensus driven, public policy and decision making process wherever authorized
- ▶ Objective 9 - **Strengthen the rule of law** through the use of ICT
- ▶ Objective 10 - Establish and implement a proper enabling operational framework for successful e Governance



4.1 Some of the ICT initiatives with immediate impact in the short term

- ▶ More passports issued in one day without waiting in queue.
- ▶ The government Information Center 1919. A citizen obtains government services in all three official languages.
- ▶ Online submission of pensioners documents and get their pension number via the web portal. Convenience to aged population.
- ▶ The Sri Lanka E-agriculture Strategy (2016 - 2020) a roadmap by which ICT development significantly contribute towards achieving - agricultural vision increase the productivity in crop production, increase availability of safe food, to have a healthy nation.
- ▶ Charge Net; Sri Lanka's first smart Electric Vehicle (EV) charging solution, powered by IoT for a fully automated network. Connect all charge stations can be viewed using the web or app.
- ▶ Park Me App; mobile app to avoid your day to day parking hassle in in urban areas The Park Me App provide the facility to the people to find the nearest parking place and reserve the park slot.
- ▶ Magicblocks is a cloud connected microcontroller platform for learning, design & development of IoT and robotics based applications.
- ▶ Developing relevant local language digital content required to uplift living conditions of the rural and urban poor, and disadvantaged groups.
- ▶ Tell the President; The main objective of this effort is to create a communication bridge between the first person of Sri Lanka and the general public by providing the opportunity to communicate with the president directly



5.0 ICT and STI Interventions in SDG provided by key communication service providers.

- ▶ The **leading communication service providers** have taken the **lead** in providing STI and ICT services towards meeting the SDG s.
- ▶ **Fixed line** and **mobile operators** now **readily transformed** themselves to providing **data communication and many other value added services** in ICT and STI usage that will not only meet SDGs but challenge the ever competitive environment - easy access provided to almost **any day to day service** required in education, employment, transport, entertainment, health care, information etc.
- ▶ Sri Lanka is suppose to have cheapest IoT rates in the region LKR 100/- (0.62 US \$) per GB
- ▶ For details Please refer to my paper!



Glimpse of the services of ICT service providers

- ▶ 34 categories of ICT providers operating in Sri Lanka
- ▶ 3 fixed access telephone service providers and 5 cellular mobile telephone service providers.
- ▶ There are more than 2.5 Million fixed line connections and 28 Million mobile connections among a population of 21 Million people.
- ▶ Sri Lanka has already launched an IoT support platform to support the connection of devices using different applications.
- ▶ They support **Research and Development** activities by establishing research laboratories in some Higher Education institutes and universities.
- ▶ They also provide **connectivity, network related information and interconnecting facility to local R&D institutes**, universities (LEARN) and schools (SchoolNET). They conduct ICT related workshops for the industry (Eg. IoT workshops)
- ▶ Supports online education of adults who have not had any primary education. In meeting SDG 4



ICT and STI Interventions in SDG provided by key communication service providers. Sri Lanka Telecom:

Doc call for professional Medical advice and e-Channeling

- **SLT Sisu Connect** is a revolutionary value added service to get in touch with the children while they are out of home, at School etc
- **SLT Tele Life** addressing Goal 3. Ensure healthy lives and promote well-being for all at all ages
- Introduce Smart living concepts through its rich product portfolio
- Increasing Broadband Penetration- Reduce Digital Divide
- Partnered with Government bodies to provide improve digital infrastructure and boost digital transformation.
- Expand the Lanka Government Network (LGN) to connect 860 government institutions through fiber optics.
- Provide the digital backbone and smart solutions to the Ministry of Megapolis and Western Development flagship project, Techno City
 - Provide the necessary fiber infrastructure and all digital services for Colombo Port City



ICT and STI Interventions in SDG provided by key communication service providers. Dialog Axiata:

- The Dialog customer base of 12.7 Million Sri Lankans (country's population is 21 Million) are provided with data , voice , broadband , TV , e-commerce services via 2.5G and 3G/3.5G and 4G/4.5G , DTH networks at affordable rates. Though this has a direct impact of Goal 1 it also cuts across many other goals such as Goal 4, 9 and 11 to a large extent and many others
 - education.**NenasaTV** which allows island wide access to school children via satellite TV ,the best teachers for their studies , School Net which has connected schools and Labs through Dialog's Broadband Network. **Guru.lk (web learning portal)**
 - **eZ Cash** - electronic cash transaction system integrated with mobiles and payment platforms.
 - **I-Moni** remote monitoring and controlling platform designed at Research Lab at University of Moratuwa in Collaboration with Dialog.
 - **“GoviMithuru”** - which is a digital platform that helps Sri Lankan farmers to access information and about crops ,agriculture and market information
 - Global System for Mobile Association (GSMA) award winning **DEWN (Disaster Early warning Network)** which alerts Dialog customers. The platform is linked with Disaster Management Centre Sri Lanka



ICT and STI Interventions in SDG provided by key communication service providers. SLT -

Mobitel:

- (mLearning) to give learning opportunity to all, the Mobitel provide the mLearning is the only commercially available online facility in Sri Lanka that allows students to follow a complete university programme
- mCashand Reservations of tickets :
- Connect to Learn - Empowering Girls in Sri Lanka with
- "Liyasara" - Liyasara focuses on various projects to keep women informed, motivated and inspired via the use of mobile phones and is aimed at helping to empower their lives and add value to their daily engagements. Maternal and new born health, Cancer Awareness, Child Psychology, Diabetes Awareness & management are some of the services provided through this initiative.
- mSpace to facilitate the growth of Entrepreneurs and SMEs.
- Mobitel partnered with Sri Lanka Red Cross Society to provide communication solutions to manage emergency situations
- 'CHAMP' Child Watch, a sleek, technology advanced, easy-to-use child location tracker that will ensure the protection of children at all times.



6.0 Role of STI and ICT in Transport

- ▶ Major transformation underway:
 - upgrading and electrification of 180 km of the railway network in the Western Province
 - upgrading the suburban railway network of Kandy, the second largest city of Sri Lanka
 - light-rail commuter network is being planned for the city of Colombo.
 - Multi-modal transit centers are planned, with one of them already under construction
 - all vehicles in the country to be powered by non-fossil fuel sources by 2040 in a staged development; all government vehicles will be converted to hybrid or electric vehicles by 2025.
- ▶ The above measures call for urgent action to cope up with the requirements by harnessing all STI and ICT initiatives.
- ▶ On line Information on train movements , timetables, including reservations on long distance trains, improvements made quality and accessibility of the services provided, Electronic ticketing with automatic gates will require ICT and STI interventions . Designs already underway
- ▶ bus transport, trials are already being conducted on the use of a single charge-card, usable on any bus



Road Safety, Traffic Management and Transport Planning

- ▶ Effective Solutions Ltd. (www.effectivesolutions.lk) led by a young engineer contracted to develop in collaboration with the Sri Lanka Police, an accident management system, as a national project in road safety. initiatives taken by the World Health Organization(WHO) in Sri Lanka. It addresses the objectives of SDG 3, good health and wellbeing; SDG 9, industry innovation and infrastructure ,and SDG 11, sustainable cities and communities.
- ▶ The aim: reduce the number of accidents, taking action to counter the causes of these accidents. The system will allow the police to record accidents on line for easy analysis.
- ▶ The system is being developed by the company in collaboration with the University of Moratuwa and can be cited as one where innovative technologies and ICT are used extensively.
- ▶ Furthermore, it will generate valuable outputs to help policy and decision making, road planning by RDA etc.
- ▶ The project is to be launched on September 7, 2018 in Colombo



7.0 STI and ICT Interventions in the Electricity Sector Aimed at Goal No 7

- ▶ **STI and ICT Applications for SDGs-Power Sector Planning** - to introduce renewable energy resources : Data acquisition from resource locations, detail modeling work and simulation of the performance of energy production of those resources , quality of different resources. The impact made on the power system stability by renewable energy sources modeling and simulation done using advanced software tools.
 - The result: renewable energy integration study completed by CEB has enabled to increase by **four times the annual renewable capacity additions during the next twenty years.**
- ▶ **CEB Distribution Division Efforts to Address SDG 7, 8, 11 and 16 by Minimizing Fault Reporting and Rectification Process and Improvements to Customer Care** : Breakdown Management in the distribution system , breakdown reporting, automatic (or otherwise) clearing of the fault, feedback and clearing of the fault record.
 - introduction of a mobile app for the meter readers to read meters and instantaneously issue monthly bills
 - KIOSK Machines for bill payments 24 hours of the day, Drive through Payment Counters
- ▶ **Same Day service connection**



Road Map for Digital Transformation of Ceylon Electricity Board

- ▶ **Aim:** interventions in the planning of generation, transmission and distribution of electricity to be translated into a larger digital transformation of the power sector within both CEB and LECO to convert the entire national grid into a smart grid.
- ▶ The key elements of digital transformation roadmap of CEB includes
 - Development and implementation of Information Technology Roadmap of CEB
 - Implementation of Enterprise Resource Planning System for the CEB.
 - Upgrading the existing Grid as a Smart Grid in CEB

At Present :

- a) The preliminary work for selecting a System Integrator for the implementation of the ERP System has already commenced and the ERP Project is expected to be completed within three years
- b) Development of the Smart Grid is twofold. - Upgrading Transmission Grid as a smart grid and Upgrading Distribution Grid as a smart grid



Five Pilot Projects already in Place

- ▶ Thousand Meters Pilot Smart Metering Project which uses RF mesh communication technology in operation. Deployment of another 1000 pilot smart meters complete with RF hand held communication is underway.
- ▶ Research and Development Branch is in the process of implementing 500 smart meters on pilot scale funded by ADB.
- ▶ Fully fledged Advanced Metering Infrastructure (AMI) Project in an urban Area of 50,000 customers.
- ▶ The development of the Breakdown Assist Solution. The goal is to have a feature rich automated system for receiving, handling and providing feedback for customer complaints and supply disconnections and re connections with mobile based apps etc.,
- ▶ development of a fully fledged Electric Vehicle Charging Station system by CEB .

The above pilot projects , one to four, mainly use smart metering, demand side management technologies aiming at the efficient use of electricity and effective management of the electricity distribution network while consumers/prosumers are made aware of their usage too. The fifth project will promote electrical energy in the transport. Thus, these projects are directly aimed at STI and ICT interventions focused on achieving SDG7, SDG11,SDG12 and SDG13.



Lakvijaya Coal Power Plant addressing the Goal 7, 8 and 9 of SDGs.

- ▶ LakVijaya Coal Power Plant(LVPS) established in 2012 - 2014, is the most important power plant in the national grid of Sri Lanka, the first ever coal power plant of 900 MW and contributing to about 30 to 40% of annual generation of electricity in the country
- ▶ Many STI and ICT interventions that had helped Plant operation and maintenance staff to achieve very high availability in a place the availability was in serious question.
- ▶ Truly a CEB engineers initiative using state of the art ICT interventions.
- ▶ A success story worth reading.



LECO Smart Grid Platform and its Relevance to SDGs

- ▶ Commenced in 2017 and to be carried out till 2021 which is proposed to be implemented as a single unified communication, data and application platform.
 - Monitored and Controlled Network - A network remotely sensed and controlled will be implemented in creating a platform for the network behavioral studies,
 - Controlled and supervised Operations - The operations of LECO will be controlled through an integrated platform, and,
 - Targeted Customer Services - Advanced customer-utility information portal will be implemented for the mutual benefit of the customers and the utility

Ante LECO Metering Company (Private) Limited, a joint venture with LECO (70% shares) and Ante Metering (30%) has initiated manufacturing smart meters for Sri Lankan Utilities.

LECO puts more effort to promote in-house and local development of software applications such as smart metering server and backend systems, these actions would enhance the technical knowhow opportunities, innovation capabilities of local expertise while allowing to grow the electricity infrastructure for the future needs. Thus the SDG 9 will also be met.



Conclusions

- ▶ Sri Lanka is firmly committed to a path of Sustainable Development not only because of its announced commitment to the world community, but more so as a means of improving its economy in a sustained manner that will be more robust and beneficial to the Sri Lankan population.
- ▶ Sri Lanka is already on a path of achieving them as it had a long history of social based policies of free medical care and education.
- ▶ Sri Lanka had a very rich heritage and a history of utilizing irrigation systems and water conservation systems that had stood the test of time and modernized in more recent times using modern and innovative technology.
- ▶ Sri Lanka has popularized modern information dissemination systems and connectivity using modern technology as soon as they are introduced and has led the way to introduction of ICT based technologies and now in very speedy manner IoT technologies. These initiatives will go a long way in achieving very fast achievement of SDGs.



Conclusions

- ▶ Sri Lanka is already ahead than many countries in the region with a very high literacy and numeracy levels due to free education and use of ICT IoT etc. in furthering education even among deprived communities. Almost all communication providers are already busy competing among them in reaching not only for profit but even as their CSR obligations in reaching out to students and deprived communities and in agricultural production.
- ▶ The Ministry of Science Technology and Research has played an important role in formulation of policy carrying out information dissemination, and engaging in implementation many programmes in association with the Presidential Secretariat, Prime Minister's office and the Ministry of Sustainable Development.
- ▶ The transport sector is geared to transform in a **dramatic way** in using innovative and ICT based systems for convenience, efficacy and meeting the aspirations of SDGs by way of having sustainable Development as a key driver among other urgent necessities
- ▶ Power sector has always been in the lead to embrace software tools in planning and information management for decades, to ensure a reliable power system which is already among the best in the region in terms of coverage (99.3%) , service quality (24x7 availability Island wide, Plant availability at international levels of 98 % to some older plants having 78%) very low losses (9.6 % all T& D losses in 2016) , is geared to leap frog into the future spurred by local talent using their best innovations and financed by many bi-lateral and multi lateral funding agencies is already well underway.



Thank You