Sri Lankan Experience with implementation of a National STI Strategy and opportunities and constraints for long term mobilization of capital financing

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ECOSOC Forum on Financing for development Follow up
Round Table D: Trade, science, technology, innovation and capacity-building
(Action areas D and G)

25 May 2017
Sri Lanka's International Trade
... Need for high value added exports

<table>
<thead>
<tr>
<th>Year</th>
<th>Exports</th>
<th>Imports</th>
<th>Balance of Trade</th>
</tr>
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<tbody>
<tr>
<td>2010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
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<td></td>
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<td>2012</td>
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<td>2013</td>
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<tr>
<td>2014</td>
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<td>2015</td>
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</table>
Government policy to increase high tech exports

- Increase high tech exports from present 1% to 10% by 2020
  - In STI Strategy
  - In Budget 2016

### Foreign earnings

<table>
<thead>
<tr>
<th>Foreign earnings</th>
<th>US $ m in 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immigrant remittances</td>
<td>6400</td>
</tr>
<tr>
<td>Apparel</td>
<td>4554.75</td>
</tr>
<tr>
<td>Tea</td>
<td>1324.5</td>
</tr>
<tr>
<td><strong>ICT</strong></td>
<td><strong>800</strong></td>
</tr>
<tr>
<td>Rubber</td>
<td>787.3</td>
</tr>
<tr>
<td>Coconut</td>
<td>522.69</td>
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### Status of Exports in 2014

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<tbody>
<tr>
<td><strong>Total Exports</strong></td>
<td>18,641,000</td>
<td>11,118.00</td>
<td>8,300,000</td>
</tr>
<tr>
<td><strong>ICT Industry 2014</strong></td>
<td>5,429,000</td>
<td>800</td>
<td>82,000</td>
</tr>
<tr>
<td><strong>Electronics Industry 2014</strong></td>
<td>1,500,000</td>
<td>343.4</td>
<td>40,000</td>
</tr>
<tr>
<td><strong>Biotech Industry 2014</strong></td>
<td><strong>123,000</strong></td>
<td>7</td>
<td>1000</td>
</tr>
</tbody>
</table>
Sustainability principles

Scientifically literate Society

World class National Research and Innovation Eco-System

Hi Tech Initiative → Rapid Socio-Economic Development → Directed Innovation → Techno-entrepreneurship initiative

World class National Research and Innovation Eco-System

Scientifically literate Society

Sustainability principles
The 3 pillars of Directed Innovation

Economic Development

Social Justice

Environmental Quality

Capacity building, Techno entrepreneurship, Quality assurance, Science For All and Sustainability principles
The innovation process
Where investment is needed

Idea! Identify innovation needs

R&D
Technology Up scaling
Industrial and Commercial production
Market penetration

Industry / End users
UNI & PRI
Industry

Planned Capacity
Coordinated Building

Skills
Infrastructure – Digital and Physical
Systems and processes
Funding and Finances
Skills for the Innovation System

- Technical and Industry design and management skills
- Research, Technical and communication, patent filing, business, management skills
- Searches, Analytics, proposal and report writing skills
- Technical, design and Technology, patent management skills
- Industrial and Commercial production
- Technology Up scaling
- Idea
- R&D
Innovation Infrastructure

Industry → UNI & PRI → Industry

- Idea
- R&D
- Technology upgrading
- Industrial production

- Databases on markets, patents, scientific literature
- Research Laboratories and workshops
- Bioinformatics access, Animal Houses etc.
- Technology Incubators
- Business incubators
- Green Houses
- Designated Fields for trials
- Industrial production plants
Innovation Funding

Important to synergize, harmonize and coordinate

Risk of failure

Government investment

Private investment
The status of the innovation system in Sri Lanka

- Poor patenting and commercialization culture
  - 100/142

- Ad-hoc R&D projects instead of focused programmes

- Low level of industry oriented R&D
  - 115/142

- Poor adoption/visibility of R&D output
  - 76/142

- Low Investment in R&D
  - 118/142

- Inadequate human resources for R&D
  - 79/142

- Outdated R&D infrastructure
  - 92/142

- No significant contribution by R&D for wealth creation in SL
- Only 1.5% of our manufactured Exports are High Tech

A vicious cycle
Government initiatives to increase high tech industries – Ministry of Science Technology and Research of Sri Lanka

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Partners</th>
<th>Year</th>
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<tbody>
<tr>
<td>National Nanotech Initiative (NNI)</td>
<td>NSF and 6 private companies</td>
<td>SLINTEC started in 2008 as a PPP</td>
</tr>
<tr>
<td>Centre of excellence in Robotic application (CERA)</td>
<td>COSTI and Ministry of Industries and Ministry of Science Technology and Research</td>
<td>2015</td>
</tr>
<tr>
<td>Sri Lanka Biotech Innovation park</td>
<td>COSTI and NBIA</td>
<td>(Approved by Cabinet in 2016 and to be initiated in 2017)</td>
</tr>
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</table>
Changing landscape of the Sri Lankan research and financing

- A shift towards experimental development and research commercialization
- Private sector enthusiasm for investing in R&D
- Rise in total Government Expenditure on R&D (but not in keeping with rise in GDP – as %GDP)

National GERD by type of Research

National GERD by source

Government and private sector investment in R&D (Gross and % GERD)
Constraints

• Competition to access regional and international markets
• Inadequate tools and skills to identify niche opportunities and respond fast
• High migration of skilled workers and skills gaps and mismatches
• High cost of innovation infrastructure – not a preferred area yet for Governments (appointed for 5 yrs), development partners or FDI
• Failure of SL Accounting standards to capture intangible assets
• Risk averse financing systems