Sub-regional Consultation: Strengthening National Academies of Science in least developed countries in support of the 2030 Agenda.

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Part 1: Introduction
## Introduction to Cambodia:

- **Capital City:** Phnom Penh
- **Landmass:** 181,035 Square Kilometers
- **Total Population:** 15.2 Millions
- **Population density:** 75/km²
- **Annual growth rate:** 1.40
- **Sex ratio:** 96.7
- **Median age:** 25.8
- **GDP growth:** 7% (approximately)
- **GDP per capita:** 1,510$
Introduction to Cambodia:

- **Major industries:** Garments and footwear, Construction, Agriculture, Tourism and Services

- **Major exports:** Garments and footwear, fishery products, rice, rubber, and other agriculture products

- **Major imports:** Household items, construction material, gasoline, industrial machinery, chemistry products, and high-tech products.
Part 2: The STI
Development in Cambodia
Background of General Secretariat of NSTC:

- In organization arrangement, the Royal Government of Cambodia has established **National Science and Technology Council** (NSTC), in 2014, chaired by Head of Government, Its General Secretariat, and its branches in all provinces in the country.

- **General Secretariat of NSTC** is established in May 2015 mandated to **coordinate and promote** science and technology development in Cambodia.
Existing legal framework, Plan and Program:

- Rectangular Strategy phase IV,
- The National Strategic Development Plan (NSDP 2019-2023),
- Cambodia Industrial Development Policy (IDP 2015-2025).
- Science Technology Engineering and Mathematic Education Policy (STEM)
- Technical and Vocational Educational and Training Policy (TVET 2017-2025)
- Cambodia’s National Science and Technology Master Plan 2014-2020,
- Science, Technology and Innovation Policy 2020-2030.
National Innovation Ecosystem

Demand
- Consumers (final demand)
- Producers or Services (Intermediate demand)
  Through traditional market, digital market and promotion of innovation market

Environment
- Historical and Cultural
- National and international Social, economic and Environment
- National and international STI Capacity

Industrial system
- Large Companies
- Mature SMEs
- New Tech-based firms
  (Tech Startups)

R&D System and promote S&T HR
- Public Research Institute
- Higher Learning Institution
- Basic and Private R&D

Political system
- Policies
  - Vision, Objectives, Goals, strategy
  - International Cooperation
  - Promotion and Encourage on Implementation.
- Governance
  - Synergy
  - Service
  - Monitor and Evaluation (M&E)

Infrastructure
- Banking, Venture Capital
- IPR and Information
- Innovation and business support
- Standards and Regulation
- Develop Science Parks/innovation District

Source: Adapted from Kuhlmann and Arnold
Some facts and figure:

- **R&D investment, ratio of R&D/GDP and future trend**

<table>
<thead>
<tr>
<th>Ratio of R&amp;D/GDP</th>
<th>Public</th>
<th>Private</th>
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<tbody>
<tr>
<td>2016</td>
<td>0.12</td>
<td>0.05</td>
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<tr>
<td>2020</td>
<td>0.2</td>
<td>0.12</td>
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<tr>
<td>2025</td>
<td>1.0</td>
<td>0.50</td>
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<tr>
<td>2030</td>
<td>1.5</td>
<td>0.60</td>
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</table>

(R&D survey)

Source: GS-NSTC, MOP.
Some fact and figure:

Number of Higher Education Institutions

Source: Ministry of Education Youth and Sport
Some fact and figure:

- **Key HRST indicators to achieve by year, FTE of R&D Researcher**

<table>
<thead>
<tr>
<th>R&amp;D Personal per Million inhabitants</th>
<th>Year</th>
<th>2015 (R&amp;D Survey)</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
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<td>Researcher</td>
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<tr>
<td>52</td>
<td>2020</td>
<td>252</td>
<td>364</td>
<td>502</td>
<td>664</td>
<td>851</td>
<td>1,064</td>
<td>1,301</td>
<td>1,563</td>
<td>1,851</td>
<td>2,163</td>
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<td>FTE</td>
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<td>31</td>
<td>2020</td>
<td>152</td>
<td>220</td>
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<td>377</td>
<td>501</td>
<td>662</td>
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<td>Technician</td>
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<tr>
<td>83</td>
<td>2020</td>
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<td>353</td>
<td>399</td>
<td>450</td>
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Sources: GS-NSTC, MOP
National Priority Technology:

1. Agro-Processing Technology,
2. Software and Digital Contents,
3. Bio-health technology,
4. Textile Technology,
5. Agricultural Engineering Technology, and
Prioritized Legal Framework to be established:

<table>
<thead>
<tr>
<th>Legal Framework</th>
<th>Year</th>
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<tr>
<td>2. Key Technology Roadmaps</td>
<td>2021</td>
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<tr>
<td>3. Establish and implement National standard for Certification and accreditation of technology</td>
<td>2021</td>
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Political View on STI and It’s ecosystem:

- Important, but see differently
- Scary of R&D investment: Long and expensive
- Organization: no consensus, not systematic
STI Policy Maker’s View on STI and It’s ecosystem:

- STI need systematic, harmony, coordinated process.
- STI Eco-system has to be in place
- Organization: centralized, specialized and liberal.
- Funding: Specialized for STI, regular FY budgeting rules may be not fit.
- Scary of R&D: Long and expensive
- Organization: no consensus, not systematic
STI Eco-system in Practice:

• STI Eco-system commonly defined, but hard to implement due to predefined roles and responsibilities of participating stakeholders.

• Country’s STI coordinating body is not empowered enough to enforce national STI policy.

• Development partners (DP) may face the same gap of coordination in building and strengthening country’s STI Eco-system.
Recommendations:

- DP develop a good model, even small, for government to spin out, by mapping STI activities and fill the gaps.
- Government has to take lead first.
- Country need a strong coordinating body.
- DPs also need to have a strong coordinating body.
Thank You!