STEM Education in Cambodia

Dr. Sopheak REY


Deputy Director General of Higher Education,
Ministry of Education, Youth and Sport

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Outline

- STEM Policy
- STEM at Basic Education
- STEM at Higher Education
  - Industrial Development Policy 2015-2025
  - Skill Gap and Skill Shortage
  - Address the Gaps by HEIP
  - Qualification Framework and Accreditation
Introduction

Economic growth in the rate of 6-7%/year
STEM is deemed useful agenda for present and the future of Cambodia as its vision to strengthen and expand STEM Education service to serve national economic development to response job market demands from year 2030-2050.

For more information please visit STEM Policy attached.
STEM at Basic Education
STEM at Basic Education

New Generation Schools
More investment on STEM with the Higher Education Improvement Project (HEIP) 2018-2024, 92M$, WB
STEM at Basic Education

Higher Education Enrollment

- Total STEM Enrollment
- Total Enrollment

Years: 2004-2005 to 2017-2018

Enrollment: 0 to 250000
Enrolled Student at Bachelor Degree by Sector for Academic Year 2017-2028
To ensure the economic growth in the rate of 6-7%/year, Cambodia needs 36000 Engineers and 48000 Technicians (2012-2018)

Industrial Development Policy:

- Increase the industrial contribution to 30% in GDP Share in 2025 which the manufacturing share will increase to 20% in 2025.

- Increase the export of the manufacturing products with non garment industry of up to 15% in total export share in 2025, and also increase the export of processed agricultural products of up to 12% in the total export share in 2025.
STEM at Higher Education

Export diversification

Source: ITC Trade Map
STEM at Higher Education

Thailand's Exports

- Agriculture (HS 1-24)
- Light manufacturing (HS84, 85, 87, 73, 94, 95)
- Textile & Footwear (HS50-60 & 63-64)
- Garment (HS61 & 62)

Vietnam's Exports

- Agriculture (HS 1-24)
- Light manufacturing (HS84, 85, 87, 73, 94, 95)
- Textile & Footwear (HS50-60 & 63-64)
- Garment (HS61 & 62)
Skills: Skill Diversification, Productivity

Infrastructure: Digitalization, Transportation/Logistics, Utilities (Energy, Water,..)

Transformation: More Value Added Manufacturing

Industries: Diversifications
  - Construction Engineering and Materials,
  - Machine Parts, Electronics, Agro-Industries
STEM at Higher Education

Skill Gap and Skill Shortage

- Basic Science: 5%
- IT: 7%
- Social Science and Art: 10%
- Tourism: 2%
- Agriculture: 3%
- Health: 4%
- Engineering: 8%
- Law: 8%
- Foreign Languages: 11%
- Business (Accounting, Banking, Finance, Management): 42%

Enrolled Student at Bachelor Degree by Sector for Academic Year 2017-2028

Increased by 1%/year compared to baseline 27% in 2017-2018

Skill Shortage

- Improve the quality of STEM Education

Skill Gap
Improving Skill Gap in HEIP

- Improving on T&L (New Programs, Curriculums->OBE, Teachers, Equipment and Infrastructure)

- Improving on R&D (Graduate Programs, Linkage with industry and policy)

- Improving on Governance (Quality Assurance and Accreditation, Other preparations toward to be autonomous university)
# STEM at Higher Education

## Increase TVET Enrollment

<table>
<thead>
<tr>
<th>Technicians</th>
<th>Engineering</th>
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<tbody>
<tr>
<td>Programs: 2 Years (12+2)</td>
<td>Programs: 4 Years (12+4)</td>
</tr>
<tr>
<td>Jobs: Machine Operations, Assembly Line Controller, Production, Construction</td>
<td>Jobs: Design and Construction, Quality Control, Management, Improvement,..</td>
</tr>
</tbody>
</table>

![Graph showing Associate Degree (%) and Bachelor Degree (%) over the years from 2007-2008 to 2017-2018. The graph indicates a steady trend for both degrees with slight variations.](image.png)
STEM at Higher Education

Promotion

How to make the programs becoming attractive?

- Employability

- Professionalism
  - BEC, ...

- Regional Mobility (FEIAP)
## Qualification of Engineering

<table>
<thead>
<tr>
<th>ASEAN</th>
<th>CAMBODIA</th>
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<tbody>
<tr>
<td>Minimum 120 credit hours (135 SLT) of which 80 credit hours (90 SLT) must be engineering courses</td>
<td>ITC is up to 150 Credits &gt; Minimum 120 credit hours. All bachelor programs needs minimum of 120 credits (CQRF)</td>
</tr>
<tr>
<td>Normally offered over 5-6 years</td>
<td>4-5 years</td>
</tr>
<tr>
<td>Final year project (6 CH)</td>
<td>Yes</td>
</tr>
<tr>
<td>Industrial training (8 Weeks)</td>
<td>3 months</td>
</tr>
<tr>
<td>Integrated Design Project</td>
<td>Yes</td>
</tr>
<tr>
<td>Minimum of 8 full-time academic staff</td>
<td>Yes</td>
</tr>
<tr>
<td>Staff:student ratio is 1:20 or better</td>
<td>Still high, but going to reduce due to new classroom construction</td>
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<tr>
<td>External examiner's report</td>
<td>Accreditation Committee of Cambodia</td>
</tr>
<tr>
<td>Programme Objectives, outcomes</td>
<td>-&gt; OBE</td>
</tr>
</tbody>
</table>
STEM at Higher Education

Qualification Framework and Accreditation (E&T)

Improvement and recognition

Qualification Framework (8 Levels)

Universities/Institutions under MoEYS

Universities/Institutions under MoLVT

Board of Engineering of Cambodia (BEC)

Accreditation Committee of Cambodia
Thank you for your attention