Regional Symposium on STEM Education

Country Report of CAMBODIA

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Location of Cambodia

Cambodia is located in Southeast Asia. It shares borders with Vietnam to the east, Laos to the North, Thailand to the west, and the ocean coast to the Southwest.

The capital city of Cambodia is **Phnom Penh**.
The total area is 181, 035 square kilometers.

1. General Information

Country	CAMBODIA
Population size	16.48 million (May 18, 2019)
Size of K-12 population	4,318,093 (F: 2,091,922)
Main language of Instruction	Khmer
Main foreign language (s) taught	English or French
Schooling survival rate	70.32%
Schooling gender ratios	1.24 (2018-2019)
Teacher-student ratios	34.0 (2018-2019)

2. STEM Curriculum

- Our Curriculum has been conducting STEM since 2018
- In Lower Secondary School (Grade 7 to 9)
- Primary, Lower secondary, and upper secondary's curriculum has been revised in 2018
- It will introduce in 2020

2. STEM Curriculum (Cont.)

Curriculum innovation:

- New Generation School (sister coding, parent night show,…)
- National Institute of Education (NIE) (science fair)
- Third STEM AEAN Robotics competition in Indonesia
- Automatic water irrigation system in modern agriculture in Takeo

2. STEM Curriculum (Cont.)

- Schools are lacked of laboratory, materials to conduct experiment, computers, and electricity.
- ICT teachers do not teach at rural area
- STEM curriculum is not conducting yet at primary school

2. STEM Curriculum (Cont.)

- STEM curriculum should conducting at primary school first, then move toward lower Secondary school and upper secondary school

3. Teachers (K-12)

Total number of Teachers	112, 769 (2018-2019) F: 54,341
% of teachers with Master's Degree and above	1%
% of teachers with a Bachelor's Degree	16.23%
% of teacher with less than a Bachelor's Degree	66.46%
% of teachers teaching at least one STEM subject (i.e. Science, Engineering, Technology, Mathematics)	N/A

3.1 Teachers Training Programs

No	Level	Numbers of TTCs	Duration
1	Pre- school Teacher Training Center (PSTTC)	01	2 Years
2	Provincial Teacher Training Colleges/Centers (PTTCs)	16	2 Years
3	Regional Teacher Training Centers (RTTCs)	04	2 Years
4	Teacher Education Colleges (TECs)	02	4 Years
5	National Institute of Education (NIE)	01	1 Year

3.1 Teachers Training Programs (Cont.)

Teacher Training Centers	Teachers Training	Teachers Training Programs
PSTTC	Produces kindergartens teachers	❖ Trainees passed grade 9 and failed grade 12 in disadvantage areas. ❖ They passed grade 12 in urban areas ❖ They must train for 2 years at PSTTC.
PTTCs	Produces Primary School Teachers	
RTTCs	Produces Lower Secondary School Teachers	❖ They must pass grade 12 ❖ They must train 2 years at RTTCs
TECs	Produces Primary School and Lower Secondary School Teachers	❖ They must pass grade 12 ❖ They must train 4 year at TECs
NIE	Produces Upper Secondary School Teachers	❖ They must obtain Bachelor's Degree ❖ They must train 1 year at NIE

3.2 Future Direction of Teacher Training Program

- Two RTTCs and PTTCs have been upgraded to TECs by formula 12 + 4 in 2018
- From 2020, PSTTCs, PTTCs, and RTTCs will upgrade from **12+2 to 12+4**
- From 2020, NIE will upgrade from BA+1 to M+1

3.3 Strengths of Teacher Training Program

- ✓ Criteria for teacher recruitment has been improved.
- ✓ Most of NIE teacher trainers graduated master degrees.
- ✓ 56 teacher trainers of TECs have been trained for master's degrees.
- ✓ Upgrading Lower Secondary School Teachers by fast truck program (2 years)
- ✓ STEM curriculum has been applied to TTCs

3.4 Weaknesses of Teacher Training Program

- ✓ NIE will upgrade to M+1 in 2020 but most of Teacher Trainers hold only Master degrees
- ✓ No accreditation system for the training (no motivation)
- ✓ High rate of teacher movement (quality is not solved)

3.5 Specifics Programs

- ✓ NIE's trainees will produce teaching materials to show their achievement during the science fair on the beginning of July
- ✓ MoEYs will celebrate the science fair every year and encourage teachers and student to join.

3.6 Professional Development

- ✓ Teachers join in-service training related to their major
- ✓ Teachers upgrade themselves by studying Bachelor and Master degrees.
- ✓ Teacher trainers join the short course training, seminar, and workshop relevant to their major.

3.7 Obstacle to teach STEM

- ✓ Teaching and learning materials are still lacking
- ✓ Some school do not have laboratory
- ✓ Some teachers cannot use ICT
- ✓ Lack of human resource to guide the experiment for STEM
- ✓ Lack of science textbooks both written in Khmer and English.
- ✓ Science teaching methodology is limited.

3.8 Obstacles overcome

1. Strengthening the capacity of science teacher trainer to conduct experiments.
2. Building science laboratory in each school
3. Developing human resource to produce science teaching and learning material
4. . Upgrading primary school teacher to become lower secondary school teacher.
5. Upgrading lower secondary school teacher to become high school teacher
6. Sending teacher trainers to study PhD.

4. STEM Education: Implementation Progress

Level 1	Level 2
✓ STEM education is subject-specific with emphasis on content knowledge ✓ No standard set of benchmarks or outcomes ✓ Little to no attempt to draw connections between learning and real-world issue	✓ STEM education is subject-specific with some attempt to incorporate **interdisciplinary problem-solving and applied learning** ✓ Some attempt to design benchmarks and outcomes, although these may be restricted solely to **the STEM subjects and specific education levels** ✓ Some attempt to organize extra-curricular programs to promote STEM and expose students to applied learning of STEM to real-world issues


Thank You for your attention!
អរគុណ ARKUN !