

REGIONAL STEM SYMPOSIUM 2019

27 – 30 May 2019, Thailand

The *Regional STEM Symposium 2019* is a 4-day gathering of educators and education officials from Cambodia, India, the Kyrgyz Republic, Mongolia, the Philippines, Singapore, Thailand, Uzbekistan and Viet Nam.

This symposium is intended as a means for experts and participants to present current perspectives on the opportunities and challenges facing STEM education, from theoretical and practical standpoints, and critically evaluate the role of STEM education in the broader socio-economic sphere.

SYMPOSIUM GOALS

Participants from the seven developing member countries are expected to use this symposium to evaluate their own countries’ existing approach towards STEM education, and consider the perspectives shared by other participants and experts. Participants will also be expected to develop a pilot programme that incorporates practical deliverables in curriculum design and teacher training, with the aim of elevating STEM education in their country.

In view of this, each country should send the following composition of participants:

	Objective(s) for participants
At least two Ministry of Education representatives	<ul style="list-style-type: none"> To recognise the value of incorporating STEM to equip students with 21st century core competencies, and To consider policies to review curriculum design and teacher recruitment/deployment to achieve the intended outcomes
At least two representatives from leading teacher training institutions	<ul style="list-style-type: none"> To design coursework and relevant professional development programmes to equip teachers of different levels of experience, with an appreciation for STEM education and specific pedagogies to better deliver the intended outcomes of STEM education

ORGANISERS



HOST



KNOWLEDGE PARTNERS



SYMPOSIUM PROGRAMME

Dates: 27 – 30 May 2019

Venue: King Mongkut's University of Technology Thonburi's Knowledge Exchange for Innovation Center, Bangkok, Thailand

Day 1: 27 May 2019, Monday

Time	Programme
9:00am	Welcome by Dr Brajesh Panth, Asian Development Bank (ADB)
9:05am	Welcome by Mr Chng Kai Jun, The HEAD Foundation (THF)
9:10am	Welcome by Assoc Prof Bundit Thipakorn, King Mongkut's University of Technology Thonburi (KMUTT)
9:15am	Welcome by Dr Poolsak Koseeyaporn, Office of National Higher Education, Science, Research and Innovation Policy Council
9:45am	Keynote: The raison d'être for STEM education in a changing landscape Prof Paul Teng, National Institute of Education International (NIEI), Singapore
11:15am	Coffee break
11:45am	STEM and gender Ms Maki Hayashikawa, UNESCO Bangkok
12:45pm	Lunch break
2:00pm	Country presentations Each country to present for 20 minutes using the template in the resources
3:40pm	Coffee break
4:00pm	Country presentations Each country to present for 20 minutes using the template in the resources
4:40pm – 6:00pm	Response panel Moderator: Prof Paul Teng, NIEI

Day 2: 28 May 2019, Tuesday

Time	Programme
9:00am	Visits to innovative Thai schools <ul style="list-style-type: none"> - Rung Aroon School - Darunsikkhalai School of Innovative Learning
12:00pm	Lunch talk: STEM education for sustainable development Dr Sumate Tanchaeron, KMUTT Social Lab
1:30pm	Incorporating STEM in the K-12 curriculum Presentations by: <ul style="list-style-type: none"> - Asst. Prof. Komkrit Chomsuwan, KMUTT - Dr Tan Mui Hua, Science Centre Singapore
3:00pm	Coffee Break
3:30pm	Incorporating STEM in the K-12 curriculum (cont'd) Presentation by: Dr Goh Chor Boon, NIEI
4.15pm-5:00pm	Incorporating STEM in the K-12 curriculum (cont'd) Roundtable chaired by Assoc Prof Bundit Thipakorn, KMUTT and Prof Paul Teng, NIEI

Day 3: 29 May 2019, Wednesday

Time	Programme
9:00am	STEM education frameworks for 21st century learning A/P Teo Tang Wee and A/P Tan Aik Ling, NIE
10:30am	Coffee break
11:00am	STEM instructional framework to promote integrated learning A/P Teo Tang Wee and A/P Tan Aik Ling, NIE
12:00pm	Preparing STEM educators in Thailand Dr Parinya San, KMUTT
12:30pm	Response panel Moderator: Dr Brajesh Panth, ADB
1:00pm	Lunch break
2:00pm	Breakout sessions Each country to develop a pilot programme that incorporates practical deliverables in curriculum design and teacher training, with the aim of elevating STEM education in their country
5:00pm – 6:00pm	Bringing Computer Science to life through Microsoft MakeCode and the micro:bit Ms Aleandre Kwan, Microsoft Philanthropies

Day 4: 30 May 2019, Thursday

Time	Programme
9:00am	STEM education and professional development: trends, challenges and lessons learned Dr Pratchayapong Yasri and Mr Wisarut Winyu-ekasit, Learn Education
10:00am	Capacitating teachers through competency-based ICT training programmes Ms Mel Tan, UNESCO Bangkok
10:30am	Coffee break
11:00am	Creating a holistic STEM lesson; lessons learn from teaching STEM to marginalised youths Ms Dawn Teo, PHi Life Center
11:30am	Empowering future ready youth Ms Aleandre Kwan, Microsoft Philanthropies
12:00pm	Response panel LearnEd, Microsoft Philanthropies, PHi Life Center, UNESCO Moderator: Mr Vignesh Naidu, The HEAD Foundation
12:30pm	Lunch break
1:30pm	Country presentations Each country to present for 15 minutes, followed by a 10-minute discussion
3:10pm	Coffee break
3:40pm	Country presentations (cont'd) Each country to present for 15 minutes, followed by a 10-minute discussion
5:00pm	Certificate presentation
5:45pm – 6:00pm	Closing remarks

REGIONAL STEM SYMPOSIUM 2019 SYMPOSIUM RESOURCES

Participants are to bring their laptops and materials for the symposium.

Day 1 Presentation Template

Participants are to discuss within their teams and with their ADB Country focal persons and prepare their slides in advance. Participants are to keep their presentations to 10 slides in 15 minutes and include the following information and chart their current stage of curriculum design (1.1-1.4).

Kindly provide references and information sources in the presentation.

1.1 General Information

Country:	
Population size:	
Size of K-12 population:	
Main language of instruction:	
Main foreign language(s) taught:	
Schooling survival rates (primary i.e. grade 6):	
Schooling survival rates (secondary i.e. grade 10)	
% of students who pursue tertiary education:	
Male:	
Female:	
Schooling survival rates (pre-tertiary i.e. grade 12):	
Schooling gender ratios:	
Teacher-student ratios:	

1.2 STEM Curriculum

Is STEM part of the national K-12 curriculum? If yes, please elaborate. If no, are you aware of any plans to include STEM in the national K-12 curriculum within the next 5 years?	
Name, and briefly describe, your country's most recent curriculum innovation? When was it introduced?	
Is there presently an emphasis on critical and creative thinking, use of ICT, problem solving, collaborative learning etc in the classroom?	
In your view, what are the perceived obstacles towards the successful integration of STEM into your national K-12 curriculum?	
How best can these obstacles be overcome?	
Any other information to share	

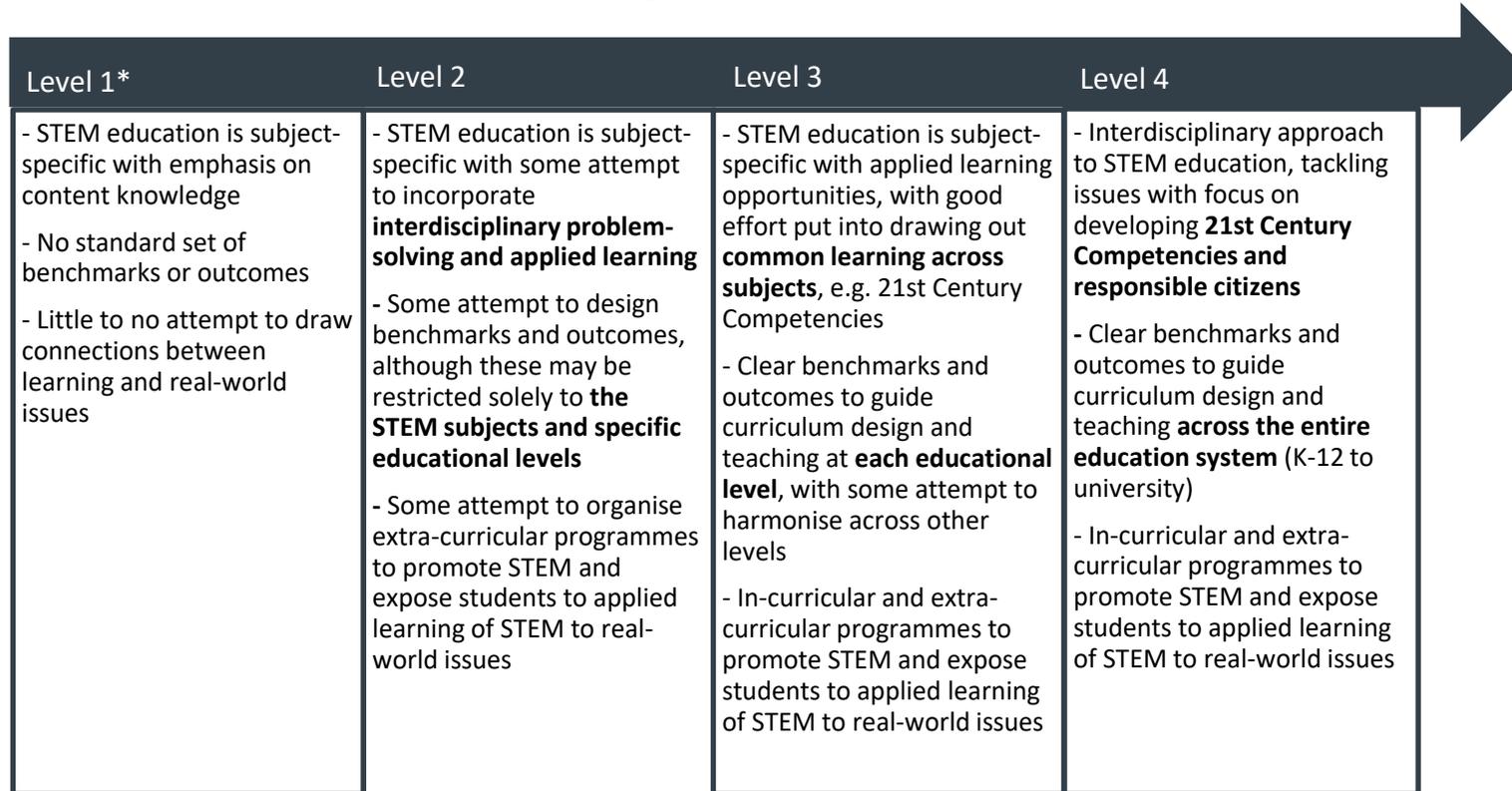
1.3 Teachers (K-12)

Total number of teachers:	
% of teachers with Master's Degrees and above:	
% of teachers with a Bachelor's Degree	
% of teacher with less than a Bachelor's Degree:	
% of teachers teaching at least one STEM subject (i.e. Science, Engineering, Technology, Mathematics)	
List down and briefly describe the key (official) teacher training programmes (Include details on its duration, notable features and instances of classroom exposure):	
What are the strengths of these programmes?	
What are the weaknesses of these programmes?	

<p>Is there a policy, standards or acts that assure the quality of the teacher training programme? If yes, please describe.</p>	
<p>Are there programmes specifically tailored for STEM educators?</p>	
<p>Do teachers have access to regular professional development? If yes, what are they? (frequency and duration, main providers, mode of training, etc.)</p>	
<p>In your view, what are the perceived obstacles towards preparing teachers to teach STEM and/or integrating STEM in their curriculum?</p>	
<p>How best can these obstacles be overcome?</p>	

1.4 STEM Education: Implementation Progress

Participants to chart their current stage of STEM curriculum design using the diagram below. The country can be on a continuum eg. Country A is somewhere between level 2-3, leaning closer towards 3.



*Some countries at the lower levels of implementation may still be addressing basic challenges such as insufficient resourcing, student and/or teacher attraction and retention, urban-rural or gender disparities, etc.