VIETNAMESE STEM EDUCATION
HIGHLIGHT ON THE PATHWAY

Bangkok, 27/05 – 30/05/2019

General Information

- Population size: **92.695 mil** *(14/8/17)*
- Number of students from Grade 1 to Grade 12: **15,923,718** *(2017)*
- Main language instruction: **Vietnamese**
- Main foreign language(s) taught: **English, French, Chinese, Russian**
- High school graduation rate: **97.94** *(2016-2017)*
- % of high school leavers who pursue tertiary education: **41%** *(2016-2017)* *(*)*
- Student gender ratio: **96.23%** *(2017, F/M)*
- Teacher-student ration: **1/18.7** *(Prel.2017-2018)*

STEM Curriculum

- Currently, though STEM is not part of the national general education curriculum, it is encouraged to develop in school curriculum
- **In the new general curriculum, STEM is one of important parts of the national K-12 curriculum** (It will be launched in 2020-2021 school year)

Most Recent Innovation Curriculum

- “New General Education Curriculum” has been introduced in 2019, and will be launched in 2020-2021 school year. It is applied for primary and secondary education.
- With modern inspiration, a great change in curriculum: integration subjects at primary and lower secondary, optional subjects at higher secondary schools.
- STEM, career orientation, practical and start-up orientation have been more clearly identified

Most Recent Innovation Curriculum

- Competencies development orientation and 21st century's skills have been focused: Critical and creative thinking, computer skills, problem solving, collaborative learning *etc.*
- Practical and authentic learning, especially connected to local context, has been addressed
- Educational organization, third party to promote STEM education has been encouraged

STEM in Curriculum - Challenges

- Skillful and experienced teachers in creating and implementing STEM subjects
- Differences between assessments for general graduation and assessments for STEM competencies
- Perceptions of stakeholders (pupils, parents, *etc.*) towards STEM and career orientation for pupils

Suggested Solutions

- Training teachers for STEM implementation nationwide
- Supporting teachers in implementing STEM Education with numerous methods
- Using assessment results of STEM competencies as parts of general education exams
- Developing career orientation for pupils to change perceptions of stakeholders towards STEM careers

K-12 Teacher Information

- Percent of teachers with Master's Degree and above: **87.295%**
- Percent of teachers with Bachelor's Degree: **12.66%**
- Percent of teachers teaching at least one STEM subject (*i.e.* Science, Engineering, Technology, Mathematics): **No exact information.**

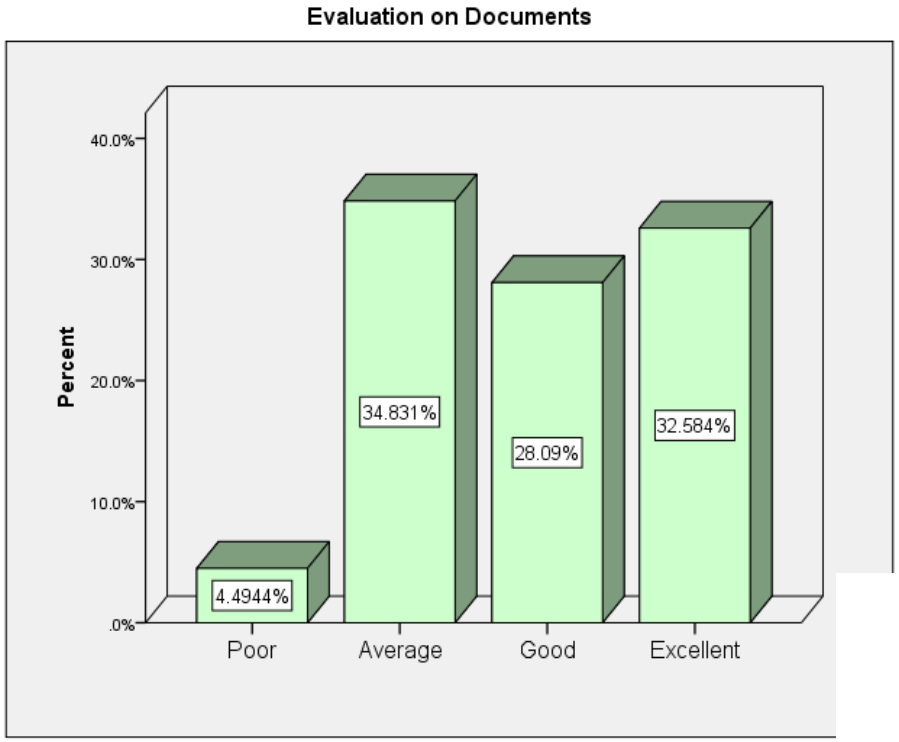
K-12 Teacher Training Programmes

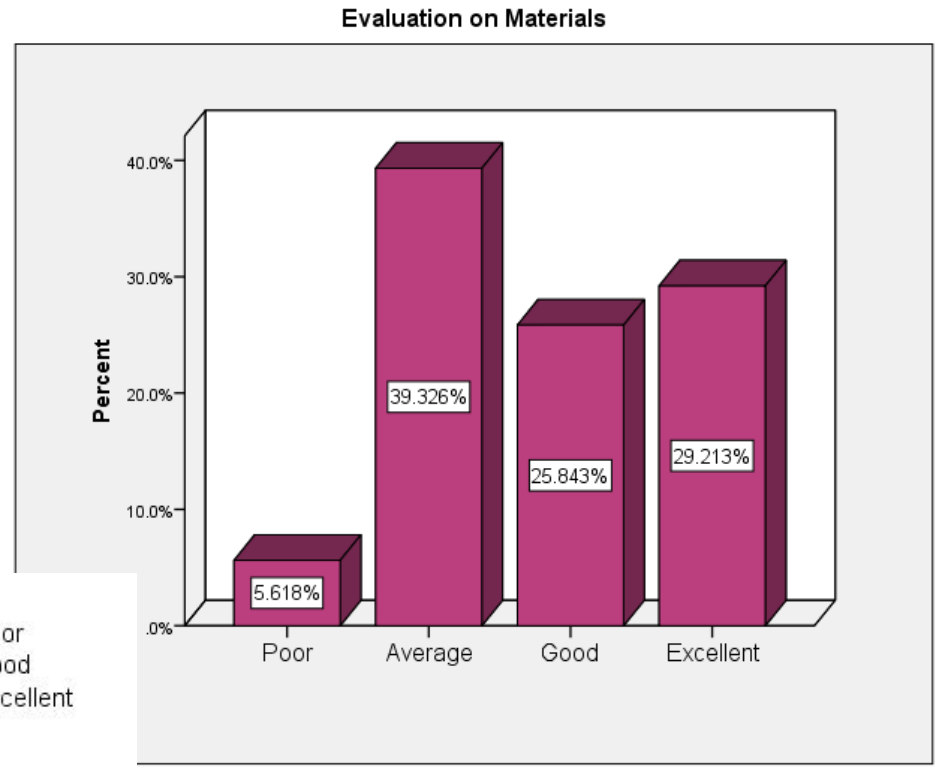
- **Development and Implementation of STEM Subjects in Secondary Schools**
  - ✓ 4 days face-to-face training and a month for online training and support
  - ✓ Changing perceptions of in-service teachers; Enhancing skills for creating and implementing STEM subjects
  - ✓ Offline and online training methods

Strengths versus Weaknesses of Programmes

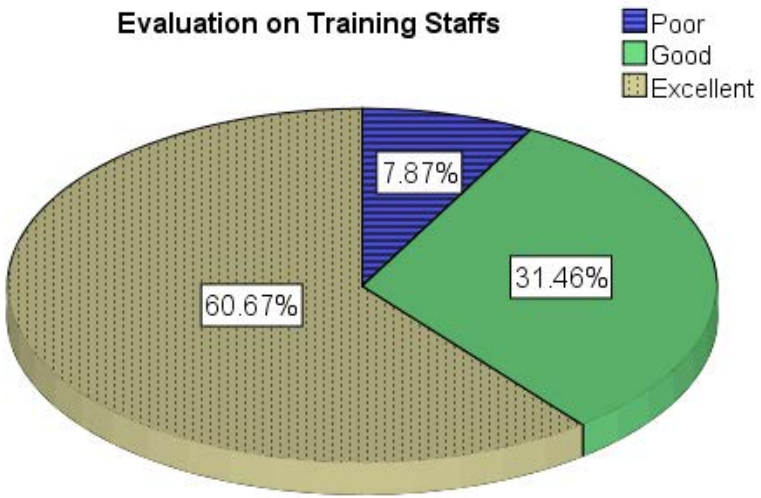
Strengths of these programmes	Weaknesses of these programmes
- Teachers have experienced both practical and theoretical activities which enable them to build a lesson plan for a STEM topic to apply in the subject they are teaching - Programme content based on results of pre-test survey so it fit the teachers' need - Continuous support after training helped teachers to improve their lesson plans before applying in their own classes.	- Training programme was not at teachers' place, which caused difficulty for teachers to prepare materials for their projects. - Teachers focused on Science, the role T, E, M elements are still blurred $\Rightarrow$ Further training will be processed and more materials will be provided so that teachers could expand their topics, especially integrated topics which link different subjects

Training Courses Snapshots





Some feedback from the training course in Hai Phong city.



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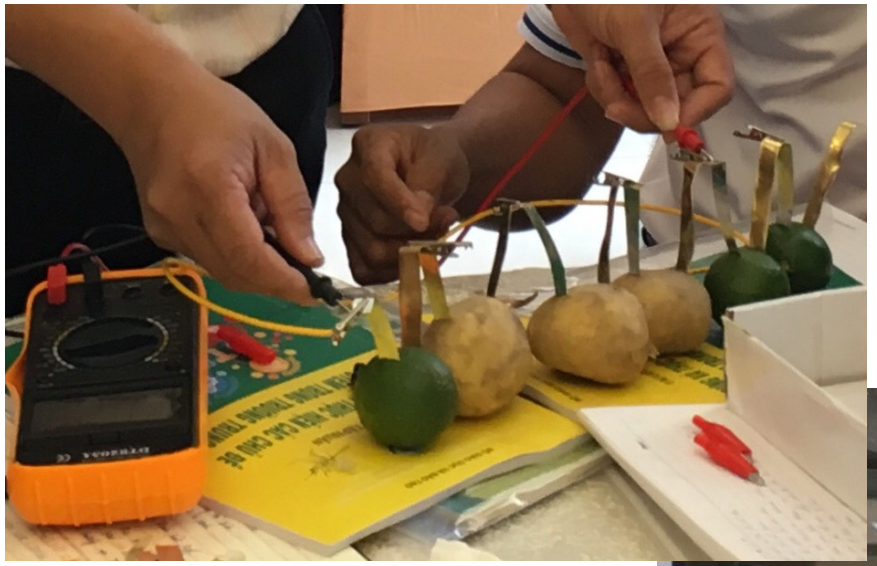

Features of Programmes

- Programmes specifically tailored for STEM educators
- Teachers have access to regular professional development programmes supported by Second Secondary Education Development Program (SESDP2)

Obstacles teachers face

- Lack of experiences in creating and implementing STEM subjects
- Lack of experiences in evaluating pupils via STEM subjects
- Limited investment in physical facilities for STEM subjects implementation

Proposed Solutions

- Extending training courses for teachers and school administrators (both online and offline)
- Increasing supports for teachers and schools via methods (building STEM community, STEM subjects resources; advising improvement of STEM subjects designed *etc.)*
- Investing capital and materials for highly practical STEM projects
- Broadcasting STEM accomplishment to schools and educational community

STEM Education: Implementation Progress

- Vietnam is somewhere between level 2-3, learning closer towards 3
- STEM Education plays an important role in the new general curriculum
- SESDP2 (as an official representative for MOET) has been implementing and supporting for STEM education extensively and intensively

THANK YOU !