

## **KOREAN CORPORATIONS FOR SOUTHEAST ASIAN STEM EDUCATION PROJECT DESCRIPTION**

It is the intention of the SEAMEO Regional Centre for STEM Education (SEAMEO STEM-ED) to create a school capacity-building project that utilizes selected supplementary STEM learning materials and tools from South Korea for adoption by schools in Southeast Asia with considerable subsidies or no cost. Through partnerships with nine South Korean STEM learning material development companies, the Korea Trade-Investment Promotion Agency (KOTRA), and EduPark Co., Ltd., an education resource company in Thailand that facilitates the partnerships with Korean companies, the “Korean Corporations for Southeast Asian STEM Education (KOSEA-STEMED)” project will be launched as an international collaborative project. The regional project will field-test STEM learning resources produced by the Korean companies, promote the adoption of those materials shown to be effective in Thailand and eventually in other countries in Southeast Asia, and seek funding from Korean conglomerates operating in the region to support the localization, field-testing, and evaluation of the learning resources and subsidize the procurement of proven materials for disadvantaged ASEAN schools. The project will be scalable as it progresses and more partners and stakeholders join the project during its developmental phase. The project will be an important component of the Centre’s school capacity building program in SEAMEO countries.

### **BACKGROUND**

The purpose of this project is to strengthen the capacities of schools through the utilization of high-quality, effective, educational resources by the schools in need throughout the region, enabled by subsidies from private companies. This will provide participating schools that lack the means to procure quality resources with access to STEM learning tools and resources that have been proven to be effective in the Southeast Asian context in enhancing critical thinking, problem-solving, and other relevant student skills. This will increase the selection of quality learning resources available to these schools to supplement the standard curricula. This support will be beneficial to many disadvantaged schools in the region that cannot afford to purchase quality materials on their own. The project will bridge this gap and provide these schools with high-quality, supplemental STEM learning resources from South Korea at subsidized prices or no cost to them.

In addition to its enviable position as the most innovative nation for six consecutive years, as measured by the annual Bloomberg Innovation Index from 2014-2019, South Korea has the highest robot density in its manufacturing sector. With its reputation of high technological advancement, South Korea can offer technical support to countries in Southeast Asia especially in the areas of educational technology. The country’s success in this sector is evidenced by a large number of EdTech startups which have developed promising learning platforms and tools.

The project will bring together international partners and stakeholders in a collaborative partnership that will benefit all parties. While students in disadvantaged Southeast Asian schools will obviously benefit from access to high-quality, supplemental learning resources, the Korean companies producing these resources will be able to expand their market reach into the

region while Korean conglomerates operating in the region will have a ready outlet for their social investment in this CSR initiative that can potentially create goodwill for their brands among hundreds of thousands of student throughout Southeast Asia.

## **OBJECTIVES**

- Field test available STEM learning materials and tool kits from South Korean partner companies and select those that prove effective in improving learning outcomes;
- Translate and localize the selected learning resources to fit the local context in Southeast Asia;
- Promote the effective learning resources for adoption by schools in the region that lack financial resources and need support;
- Train STEM teachers from participating schools to be adept in the use of the selected learning resources;
- Study the impact of the materials on student learning and skill development in order to explore how the materials can be best utilized to maximize their effects on student outcomes;
- Demonstrate that an international collaborative project like this can be effective in bringing together private and public partners to support social development where the financial resources are needed;
- Promote evidence-based programs and practices among educators in the region;

## **SCOPE OF THE PROJECT**

The model will first be developed and field tested in Thailand, and the scope of the project will eventually be expanded across Southeast Asia. The learning resources (please see Annex I for available resources) in the project will be made available to those schools across the region in need of support, and evidence of the project's performance and impact will be made available to policymakers across the region.

The project will be developed and implemented in three different phases as follows:

Phase 1: Localize and field test (Year 1) – In this phase, the project will localize and field-test the learning materials in Thailand and assess their effectiveness. The STEM educational products from the South Korean partners will be localized to match the curriculum standards and learning contexts in Thailand. Teacher guides and student manuals will be translated. The project will work with the Ministry of Education and local administration authorities to select a limited number of disadvantaged schools that need support to join the project. STEM teachers from these schools will be trained to use the localized materials. The project will work with KOTRA to engage Korean conglomerates with a presence in Thailand to provide CSR support to the project and invest in the localization of the learning resources, and field testing these resources to assess their effectiveness. While the learning resources are being used in the pilot schools a rigorous study conducted by an independent research team will be carried out in order to assess the impact of the learning units and materials on student performance and skills development. The research findings will be used to select effective learning resources for implementation in the next phase.

Phase 2: Regionalize (Years 2&3) – SEAMEO STEM-ED will present the study findings to regional educators and will engage education ministries and agencies in the region to join the capacity-building project in their countries. Again, the project will work with KOTRA to engage Korean conglomerates with operations in these countries to fund the localization of learning materials and the field testing of localized resources in pilot schools in each country. The project will focus on underserved schools that need support. Training of trainers will be provided to master teachers from educational and training institutions in each country on the delivery of learning activities using these learning materials. STEM teachers from selected schools will be trained by these master trainers to use the learning resources in their schools. Ongoing support and monitoring will be provided to these schools to ensure effective adoption and utilization of the resources and to help them overcome any challenges. During the pilot implementation, the information on teacher practices and student outcomes will be documented for impact evaluation. Success stories will be captured and disseminated publicly to encourage a wider adoption of the learning resources.

Phase 3: Scale up (Years 4&5) – When educators in the region have observed the changes in student outcomes from the pilots of the materials, the project will be expanded by the collaborating government agencies in these countries either through their own funding or continued partnerships with South Korean conglomerates in the project. Regional educators will share effective practices using the South Korean learning resources at conferences and on virtual platforms.

## **DELIVERABLES**

The expected deliverables for the project will be:

1. Localized STEM learning resources adapted from South Korea;
2. The development of teachers for effective delivery of instructional practices using the localized South Korean learning resources;
3. Research studies conducted by independent teams of researchers on the learning resources' effectiveness;
4. Productive and mutually beneficial CSR initiatives by South Korean donors that benefit educational development in the region.

## **EXPECTED BENEFITS**

The benefits are expected to be:

1. STEM teachers trained in the delivery of proven STEM learning resources will be able to deliver high-impact, instructional practices in their classrooms which will result in observable improvements in their student performance;
2. Master teachers trained in each country will train teachers in participating schools and help support the regionalization and scaling up of the project to cover more schools in each country and bring wider benefits to students across the region;

3. An improvement in student outcomes in STEM subjects and related skills will enable them to contribute to their countries' productive workforce and become valuable assets for economic and social development In the longer term;
4. An increase in STEM-literate adults who will make critical educational decisions for the advancement of educational development in their countries.

## **STAKEHOLDERS AND BENEFICIARIES**

SEAMEO STEM-ED will engage relevant government agencies including the ministries of education in each country in the implementation of the project in order to select schools under their supervision that are in need of support. The Centre has signed a memorandum of understanding (MOU) with nine South Korean STEM learning material development companies, facilitated by EduPark Co., Ltd., and will work with KOTRA to engage South Korean conglomerates in the region to support the project as part of their CSR investment.

The initial beneficiaries will be students, parents, school leaders, and teachers, but in the longer-run, policymakers and communities will also benefit from the improvements in STEM education which can lead to increased social and economic development as the STEM-literate students enter the workforce.

## **PROJECT TIMELINE AND SOURCES OF FUNDS**

The project will begin in 2020 with the funding from SEAMEO STEM-ED's allocated government budget in combination with CSR investment donations from South Korean conglomerates in the region connected through KOTRA. The private sector funds will enable the project to localize learning resources from South Korea and field-test them in years one and two, and assess their effectiveness and expand the reach of the project region-wide in years three to five.

## ANNEX I: AVAILABLE SOUTH KOREAN LEARNING RESOURCES

Available STEM learning resources are grouped according to three groups of learners divided by their grade levels: Grade 1-3, Grade 4-6, and Grade 7-9. The available products are designed to improve student performance in mathematics, integrated STEM, use of social media, coding, and English as shown in the table below.

Grade	Math	Integrated STEM	Social Media & Content Creation	Coding	English
G1-3	PlayFacto				Phonics Concert
G4-6	<ul style="list-style-type: none"> <li>• PlayFacto</li> <li>• Concent board/ card games               <ul style="list-style-type: none"> <li>- [Battle of the numbers]</li> <li>- [B-Bingo]</li> <li>- [Number Let's Go]</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• CMS STEAM curriculum textbooks</li> <li>• Anssam STEAM curriculum textbooks</li> </ul>	TICKR	<ul style="list-style-type: none"> <li>• Kamibot</li> <li>• Albert</li> <li>• MODI</li> </ul>	
G7-9	<ul style="list-style-type: none"> <li>• PlayFacto</li> <li>• Concent board/ card games               <ul style="list-style-type: none"> <li>- [Battle of the numbers]</li> <li>- [B-Bingo]</li> <li>- [Number Let's Go]</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• CMS STEAM curriculum textbooks</li> <li>• Anssam STEAM curriculum textbooks</li> </ul>		<ul style="list-style-type: none"> <li>• Kamibot</li> <li>• Albert</li> <li>• MODI</li> </ul>	