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Education Consortium for the Advancement of STEM in Egypt (ECASE)

QUARTERLY PROGRESS REPORT



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Education Consortium for the Advancement of STEM in Egypt (ECASE)

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Acronyms

21PSTEM	The 21 st Century Partnership for STEM Education
ACT	American College Testing (exam)
AIP	Annual Implementation Plan
AUC	American University in Cairo
BOT	Board of Trustees (school)
CGP	College Guidance Program
COP	Chief of Party
DCOP	Deputy Chief of Party
ECASE	Education Consortium for the Advancement of STEM in Egypt (USAID)
EGP	Egyptian Pounds
GILO	Girls' Improved Learning Outcomes Project (USAID)
GOE	Government of Egypt
HR	Human Resources
ICT	Information and Communications Technology
MAP	Management Assessment Protocol
M&E	Monitoring and Evaluation
MOE	Ministry of Education
MOHE	Ministry of Higher Education
NCEEE	National Center for Educational Evaluation and Examination
PARLO	Proficiency-based Assessment and Reassessment of Learning Outcomes
PAT	Professional Academy of Teachers (MOE)
PD	Professional Development
PMP	Performance Monitoring Plan
SCOPE	Standards-based Classroom Observation Protocol for Egypt
SEPUP	Science Education for Public Understanding Program
STEM	Science, Technology, Engineering, Math
STTA	Short Term Technical Assistance
TIES	Teaching Institute for Excellence in STEM
TFI	The Franklin Institute
TILO	Technology for Improved Learning Outcomes (USAID)
WL	World Learning
US	United States of America
USAID	United States Agency for International Development

1. Summary of activities

This Quarterly Progress Report illustrates the progress achieved through the implementation of the activities of the USAID- funded Education Consortium for the Advancement of STEM in Egypt (ECASE) Program, from January 1, 2014 to March 31, 2014. The report demonstrates in detail the work carried out by World Learning and its partners (21PSTEM, TIES, and TFI).

- **Professional Development (PD)** - For three weeks beginning in mid-January 2014, the partner organizations had an 18 member team on-the-ground in Cairo to support intensive training of new teachers in STEM pedagogy, the integrated curriculum- including capstones - and assessment approaches. These trainings are further described in the next sections. Feedback from these training sessions has been taken into consideration to prepare for enhancements to the curriculum with a Design Studio scheduled in June to enable the next iteration of the Integration Curriculum (v. 2.0). ECASE supported the training by working with new teachers on pedagogy and supporting humanities teachers in their own curriculum development, tied to the Integrated STEM Curriculum. It also supported training of the Semester 2 capstones and preparing the schools for the exhibition and grading.



- **Intel International Science & Engineering Fair- ISEF** - STEM students from both schools submitted a total of 49 projects to the Intel-ISEF Egypt Competition, resulting in 25 projects that made it to the ISEF Egypt Final Evaluation on February 23- 25, 2014. The STEM student projects represented 20 percent of the total of the project submitted to the competition. A group of students from the Maadi STEM School won the First Place Prize at the final competition in Cairo for their project ‘Water Desalination Using Nano-Technology’, and another group from the Maadi STEM School made it to the Second Place Prize at the final competition in Alexandria for their project ‘Water Purification.’ In addition, another 20 students from both schools won 12 different individual and honorable prizes from total of 20 prizes provided. The students have participated



with their capstone projects that they have already developed as part of the integrated STEM curriculum which facilitated their success at such a large and to participate in the

dynamic competition. The top prize teams will be representing Egypt and traveling to Los Angeles in the next quarter for the international ISEF competition.

- **Extra-curricular Activities** - In March 2014, the EiPIC program has been launched at both STEM schools. The program is an extra-curricular program dedicated to engaging the Egyptian youth in methods to capture intellectual property and bring innovative ideas to fruition. The launch was well received and several applications have been submitted as of the time of this report giving the student time to apply till April 15, 2014.

- **STEM School Design Blueprint** - ECASE worked to codify the STEM model through a STEM School Design Blueprint. The Blueprint is tied to the Egyptian STEM School Design Principles (previously crafted) and the partner work in the annual implementation plan (AIP). Codification of the STEM model through the Design Blueprint will enable a sustainable model and protocols for use by the MOE STEM Unit, the existing schools, and new STEM schools.

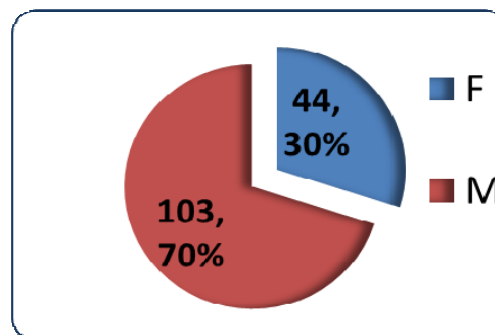


- **STEM Unit** – To be sustainable, all ECASE work requires the transfer of knowledge to an Egyptian cohort to enable on-going enhancement and sustainability of the USAID’s investment in STEM Model Schools. ECASE has had collaborative engagements with the newly established MOE STEM Unit to enable this transfer and local ownership of the STEM model. In addition, ECASE has provided trainings to the members of the Unit on the overall STEM design system and integration of the curriculum, including the role of capstones. In



addition, the team has been working with the Curriculum Sub-Group of the MOE STEM Unit to transfer knowledge and to enable localization and contextualization of the STEM curriculum in preparation for v 2.0.

- **Training** – ECASE project implemented several professional development sessions for new teachers at both 6th of October and Ma’adi schools. The MOE STEM Unit also held regular workshop sessions every Wednesday to build local capacity. The total number of trainees for the quarter is 147 participants (103 males and 44 females). The



full training report is attached (**Annex A**).

2. Activities leading towards accomplishment of Program objectives

2.1 Project Management

During the past quarter, the team focused on implementation of a wind-up plan, as directed and approved by USAID. While wind-up budgets were still under negotiation/finalization, the project team focused on implementing the wind-up plan in order to be in compliance. Late in the quarter (March 2014), World Learning received word that the project would “rewind” or go back to the original scope and include the opening of 2-3 new schools in September 2014. While this report focuses on the work done during the wind-up portion of the project, the team has spent a significant portion of time understanding the future scope of the program and the associated budget implications for each respective organization since that the project had experienced accelerated expenditures under the wind-up period. As such, it is anticipated that all partner organizations will need to re-negotiate scope and budget in order to accommodate additional schools as originally envisioned. These negotiations are underway, and a new AIP for the “rewind” is being created by ECASE for approval by USAID. It is anticipated that the work of the revised AIP for the remainder of Year 2 will be integrated tightly with the STEM School Design Blueprint and associated on-line portals. Specific activities and risks are contained in the following sections.

2.2 Project Activities

This section summarizes key accomplishments against the wind-up plan for each objective area (as redefined in the wind-up plan submitted and approved by USAID). All project activities are part of a larger iterative process and many aspects of individual activities overlap with other activities.

Objective 1: Complete Sustainable Curriculum and Assessments Processes and STEM Model System (formerly Objective 4)

During the last quarter, the project continued to provide support to the **integrated STEM curriculum completion and training (Activity 1)**. From January 19, 2014 – February 27, 2014, twelve consultants were in-country to conduct a variety of activities to support the curriculum implementation for v. 1.0 and to prepare for the evaluation and refinement of the curriculum into v. 2.0.

Activities included:

- Interviewing existing STEM teachers for their feedback on their first semester implementation of v. 1.0,
- Conducting teacher candidate interviews and assisting in the selection and assignment of teachers for the schools and assisting the principals in instructional leadership to support curriculum implementation.
- Co-conducting training for new teacher candidates for Semester 2 on Curriculum v. 1.0, which included preparing teachers for second semester mid-terms relating to learning

outcomes, training in the writing of lesson plans, and observing and supporting teachers in their implementation of the Semester 2 curriculum.

- Providing the groundwork for the evaluation and revision process by planning a Design Studio for Integrated Curriculum v. 2.0 with the newly formed MOE STEM unit.

During the training period, Curriculum Specialists from the U.S. conducted face-to-face training with the teachers. Much of the training had originally been planned for early September 2013 prior to the start of school this year, but was impossible due to the State Department ban on travel during the period of unrest. During their time at the schools and with the teachers, the Curriculum Specialists were able to develop personal relationships with the teachers, enabling much more effective virtual follow-up training sessions. In addition, Curriculum Specialists helped the teachers learn how to ingrate laboratory equipment (to the extent it was available) into unit and lesson plans and how to construct and manage laboratory investigations for their students. Finally, the Curriculum Specialists were able to see firsthand the challenges in the schools, leading them to a better understanding of how to adjust curriculum materials and structure trainings in the future. All these factors contributed to their more effective participation in helping teachers with pacing, developing assessments and ultimately helping in shaping the Integrated Curriculum v.2.0.

In this quarter, US Curriculum Specialist teams also monitored teachers' lesson plan development through Google Docs and were able to provide virtual mentoring to the teachers around their planning. Additionally, the US team was able to monitor the teachers' use of the PARLO tracker as evidence of their progress in achieving the learning outcomes. During this period, US Curriculum Specialists have begun to catalog the kind of textual adaptations that need to be made in order to provide the schools with materials that have more global and Egyptian contexts.

In anticipation of Curriculum v. 2.0, the U.S. physics team has already begun meeting to revise the physics scope and sequence. The work that they have done will be shared with the physics group of the MOE STEM Unit so that their collective work can be coordinated and MOE feedback is built into each stage of the v.20 revision process. This will ultimately happen with all STEM subjects, but because of the greater need in physics and the need to closely track the physics and mathematics curriculum, it was critical to begin this process even before the Curriculum Design Studio.

In the next quarter, ECASE will be conducting a Design Studio for the Integrated Curriculum v. 2.0. This activity will bring together teachers, students, members of the MOE STEM Unit and US Curriculum Specialists, to refine and adapt v. 1.0 as needed, to work on the process of contextualizing the curriculum, to ensure integration among subjects and between the subjects and the capstones, Fab Lab and advanced laboratories. This is a normal and planned for process in the design of curriculum. The project also will work to ensure a robust match between the learning outcomes and the text and laboratory materials. It is expected that preliminary revisions to inform Curriculum v 2.0 will be in place by the end of June to enable procurement to start for the new schools. The team will continue with Subject-Specific Contextualization task forces in collaboration with the publishers with the goal of having at least the first phase of contextualized materials in students' hands by the start of the school year in September 2014.

To support development of assessment instruments for student course-work and college admission (Activity 2), the project provided STEM baseline assessments to all grades at Ma'adi and 6th of October in the following subjects: chemistry, biology, physics, calculus, geology, and energy. The chemistry, biology, and physics tests were administered in November 2013 with the remaining tests being administered in December 2013. World Learning Egypt oversaw the latter administration. The chemistry, biology, and physics tests were all identical to the baseline tests given in the 2012-2013 school year, thus allowing comparison of student scores over time. Looking across the three repeated measures, students have progressed from year to year across the board and the third cohort of students (those currently in grade 1 at both schools), scored lower than the second cohort of students on the same tests last year. Geology and Energy tests are still being prepared for analysis. A database is being set up that includes all student data as captured through baseline assessments. A draft of this database was shared with World Learning M&E team.

During the last quarter the project supported the implementation of the summative exit exam for Grade 3 students at the 6th of October School. The Summative Exit Exam is a series of several assessments that include the following under the Assessment Group's Domain: 1) ACT (or other similar) Exam; 2) Test of Concepts; and currently (although this may change in subsequent years) 3) the end-of-semester exam.

I. ACT: In March, a contract was signed between ECSE Project and the ACT to purchase a practice ACT to be used as the University Readiness Test in June. The practice test is a previously-used form of the test, available for purchase in the US, but not in the public domain. The math and science sections of the test are to be translated into Arabic to meet the arranged agreement. A copy of the translated ACT is to be shared with the ACT once it has been created. The practice tests are not currently in hand, but a purchase order has recently been filed. Once the tests arrive, the World Learning Cairo office will start translation.



In March, meeting between the project staff with Grade 2 and 3 students to provide information about the ACT and to proctor a practice test so students can prepare. For Grade 2, the purpose of the practice test was preparation for standardized tests in general and more specifically was preparation for those students interested in going to international colleges. For Grade 3, the purpose was to help prepare the students for the University Readiness test. Nearly all Grade 2 and 3 students participated in the practice test. The practice tests have been graded and score reports for each student should be sent out early in the next quarter.

II. Test of Concepts: The assessment team spent the fall preparing for administration of a pilot test of the Tests of Concepts in the following subjects: applied mathematics, theoretical mathematics, biology, chemistry, environmental science, and physics. This preparation included

the following: a review of all relevant existing tests of concepts (e.g., the Force Concept Inventory) and any published research on them, particularly studies to determine the assessment's psychometric properties; gaining permission to use and alter existing instruments for the Egyptian context; critically reviewing items using internally developed rubrics for the creation of a bank of usable high quality items; mapping these items onto existing curricula; developing cognate items; obtaining multiple internal and external reviews of the draft assessments and subsequent revisions.

Egyptian pilot testing sites were obtained with the assistance of the MOE. Two experimental schools, The Future School and King Fahd School, were utilized for the pilot and agreements were made for this purpose. The agreement included a pre and post training session for the teachers. Pilot tests were administered in early March and are currently in the process of having student answers entered into databases for analyses of item functioning using Rasch modeling.



III. Mid-term Exams and IV. End of Semester Exams

Student mid-terms and end-of-semester exams are a portion of the framework for using a matrix of multiple items to replace the single-score Thanaweya Amma in determining college readiness. During this quarter, 21PSTEM supported teachers in developing multiple-choice mid-term exams tied to the learning outcomes. Mid-terms were developed by our staff and consultants with input from the STEM unit in the Egyptian Ministry of Education and from the teachers. An important side-effect of the mid-term development was improved communication among our curriculum designers, the MOE, and the teachers. Further, the mid-term had the indirect effect of fostering better understanding among the teachers of key ideas in the curriculum and thus of improving instruction.

During this period, the project also worked on Practical Labs, which are an additional part of the matrix of assessments replacing the Thanaweya Amma. The team developed a plan for administering a Practical Lab near the end of the school year in Grade 3. Project staff worked with the teachers and principals to explore the possibility of including Practical Labs as part of the mid-term at all grade levels. While implementation of Practical Labs as part of the mid-term this semester was not conducted, the exploration of this possibility laid the groundwork for doing so in future years.

Finally, the project began developing Item Pools of test items tied to the curriculum learning outcomes. Developing such pools will make future support of mid-terms and finals less labor intensive. More importantly, the availability of Item Pools will be critical to the long-term sustainability of the STEM schools, enabling the teachers and the MOE to continue operating efficiently after ECASE project support.

In further support of the curriculum, ECASE Project **continued to support capstone curriculum implementation and training for all grades (Activity 3)**. The US Capstone team met over two weekends in January 2014 to prepare for February 2014 onsite professional development and plan Capstone implementation for Semester 2. The planning began with a review of feedback on the Semester 1 Capstones from all stakeholders including: students, teachers, principals, Capstone Leaders, Partners, and external evaluators. Capstone rubrics were redesigned to include a fourth element of scoring as a result of the feedback to further differentiate the top levels of student work while maintaining data integrity with previous semesters. The second semester Capstones for Grades 1 and 2 were designed. A Grade 3 plan was designed for students to create interest-based Capstones either individually or in teams. Semester plans were developed using the engineering design process as a framework for implementation. Journal questions were written for all grades.

Capstone professional development occurred for both schools at 6th of October STEM School alongside pedagogy and integrated curriculum professional development. Capstone Leaders and principals participated in adaptation of the updated Capstone Materials to prepare for Semester 2 Capstone implementation and to engage the school-based Capstone Leaders in the Capstone design process. In addition, Capstone Leaders reviewed and updated journal questions for the semester. Capstone Leaders and teachers participated in a review of the language used in all rubrics in an effort to reduce ambiguity for teachers and students. All teachers participated in a Capstone simulation to engage teachers in the process, to understand Capstone components, and to know how to connect their discipline with the Capstone work. Capstone professional development concluded with a training session on journal grading for all teachers.

The Capstone Leaders, principals and the consultant support team produced Capstone Challenges that were well connected to learning themes and tested by the teachers to remove ambiguous wording. The Capstone Challenge for Grade 1, tied to Egyptian Grand Challenges of Alternative Energy, Public Health, and Industrial and Economic Development, reads as follows.

“To improve the use of alternative energy, design an energy system intended to reduce fossil fuel energy use in your school, your community or your house. For example, this system could reduce the energy consumption for a specific task (like cooling), improve energy transmission from the power plant to a community or home, or generate energy inexpensively for heating, cooking, pumping water or providing electricity. The design should balance considerations of: (1) the cost of implementing the solution versus the costs it saves, (2) the impact your solution has on the environment, and (3) effectiveness and reliability. Prototype a portion of the design.”

The Capstone Challenge for Grade 2, tied to Egyptian Grand Challenges of Population Growth, Urban Congestion, and Living in Arid Areas reads as follows.

“Investigate how nature has created solutions to problems. Examples include branching structures in trees that maximize surface area to catch sunlight, ants that use simple ways to reduce traffic congestion in their colony. Select a specific problem that results from exponential population growth, urban congestion or living in arid areas. Design a solution that is inspired by your investigation of nature to address the problem you selected, and prototype a portion of the

solution. Be prepared to explain how nature’s solution to a problem is related to your solution to a problem, even if it is a different problem. Be prepared to explain a rate that is affected by your solution. And finally, be prepared to explain the social impact your solution could have.”

After reviewing the results from last semester and consulting with the principals and Capstone Leaders, it was decided Grades 1 and 2 would reduce team size to three per team. Grade 3 could elect to form teams of three, two or even create an independent Capstone. Grade 3 also had the opportunity to design their own Capstone Challenges this semester – to recognize the greater level of independence for final year students. They have guidelines to follow to ensure their solutions address Egypt’s Grand Challenges and can respond to the rubrics with prototypes and posters.

ECASE project, along with the Capstone Leaders and Principals, used feedback from last semester to make one significant change to the rubrics. A new column was added to the upper end of the scoring protocol. This column was labeled “Distinguished” and results in a perfect score for this category. The criteria include levels of professionalism typically reserved for undergraduates, graduates or professionals. The other three columns labeled Accomplished, Developing and Pre-novice, were continued from the previous semester, with Accomplished resulting in a grade of “mastery” or “A” or 90%. This change is designed to give the students two categories to aim for rather than one. They can now aim for perfection, miss that mark and still gain a mastery level grade.

As the second semester begins, several teams from both schools used their Capstones from the first semester to enter Intel International Science and Engineering Fair (ISEF) competitions held at two locations in Egypt. The results were very encouraging. One girls’ team from Ma’adi won the Cairo competition and another group placed second overall at the Alexandria competition with both girls’ teams earning the right to participate in Intel’s Finals to be held at the end of May in California. In the same competitions, boys’ teams from 6th of October placed very well, including first and second prizes in Biochemistry and Biophysics, second prize in the Environment category and second prize in Public Health & Microbiology.

Ongoing professional development continues with Capstone Leaders through Capstone GTM (virtual-based tool, GoToMeeting) and email through each month. Going forward, the team plans to have two Capstone Team consultants onsite to coach Capstone Leaders and teachers on Capstone implementation, assess student progress, and support work. The weekly GTM with the Capstone leaders and email interactions will continue throughout the semester. Meanwhile, Capstone event planning and external evaluator recruiting will be completed in time for the May Capstone events. Professional development for all teachers will begin in June following the end of the school year.

Objective 2: Build the Capacity of STEM School Professionals through Sustained Training (formerly Objective 3)

In early January 2014, TFI spent a week on-boarding two new consultants for the purpose of **continuing STEM PD for New and Existing Teachers (Activity 4)**. Their training consisted of working with TFI staff, Science Leadership Academy staff and 21PSTEM staff who had conducted previous professional development, and learning the history of ECASE Project and

becoming familiar with the materials and procedures already in place. The new TFI consultants also revised and created new materials and presentations for professional development to be held later that month.

From January 19-31, 2014, ECASE consultants led professional development training for new teacher candidates. The training (including an introduction to active teaching and learning and the ECASE STEM school curriculum and assessment structure) was conducted by the project consultant. Twenty-two teachers attended the training with an average attendance of 19 each day (two IT teachers did not join the training until the second week). An evaluation of the training was conducted, and feedback was largely positive.

From February 2-13, 2014, professional development was successfully provided both to new hires and to current teaching staff from both schools at the 6th of October campus, the scope of work during these two weeks was primarily focused on supporting humanities teachers as they created lesson plans that incorporated inquiry-based learning for the upcoming semester and also providing continued support in pedagogy to teachers of all subjects. During this time, consultants interviewed teacher candidates and supporting the overall recruitment and vetting process.

In April 2014, the project is hosting a week-long retreat with all applicable ECASE partners to plan the four-week 2014 Summer Professional Development Institute (PDI). To prepare for this retreat, a key program stakeholder was conducted from across various organizations to gather feedback and to ensure inclusion of all ideas in the creation of a preliminary PDI framework, for use during the retreat.

ECASE project partners are working to combine the processes and procedures developed around the recruiting and hiring of STEM school teachers into a single Teacher Selection Handbook to guide the Ministry of Education's oversight of the schools as localization efforts continue. It is anticipated that the first version of this handbook will guide the process of identifying the necessary staff for the new schools expected to open in the fall. After those schools open, the handbook will be further refined, resulting in a permanent version, which will codify the process and procedures to be used as ownership of the schools transitions from the project leaders to local entities, including the MOE and PAT.

In efforts to provide **Principal leadership training**, on February 2-6, 2014, a five-day workshop was delivered to existing Principals and potential Deputy Principals of the two existing STEM schools. Eleven individuals participated in the daily activities. The workshops concentrated on research from the private sector on leadership as well as the Wallace Foundation's research on effective principals. The mode of instruction varied and included lectures, simulations, case studies, group activities and videos. Although based in current research on leadership, the activities included "how-to" sessions that highlighted skills needed to lead a faculty. Among the hands-on activities were: a six hour simulation on developing values, and core purpose with a faculty; case studies on student discipline, teacher behavior, and working with superiors; and creating an entry level plan. During the afternoon hours of February 6, 2014, formal 30-minute interviews were conducted with 10 candidates for the position of Deputy Principal. These interviews were analyzed and a report was sent to World Learning. On-going one-on-one

virtual coaching continues to be provided to each of the sitting STEM school principals. While this training is offered weekly, 6th of October seems to be more involved in participation. A visit is planned by TIES to offer greater on the ground support in April and a re-evaluation of the virtual training will be conducted and a path forward determined.

The ECASE project continues to **provide overall Fab Lab Training**. In the past quarter of the weekly Fab Lab meetings continued and provided the context for the development of training of the full student body at each school and the continuation of the training for the Fab Lab Managers and Capstone Leaders. Unfortunately, the Fab Lab manager at 6th of October, left or was released, leaving 6th of October with no in house Fab Lab support and no one to track student use of the Fab Lab. Ma'adi's Fab Lab manager continues to provide great support, but there is still very little student use as the Fab Lab manager has been unable to gain formal permission to start a training program from the principals. A formal student-training plan was developed this quarter and is ready to be implemented. In the absence of permission to use the school resources (rooms, materials, and time) to implement this formal training, the Fab Lab team worked with the Ma'adi Fab Lab Manager and a manager from Fab Lab Cairo to develop a plan to informally engage interested capstone teams at Ma'adi in the use of the Fab Lab for their projects. This plan will be implemented in the second quarter of 2014, pending principal and leadership approval. These managers also took advantage of a Grade 1 teacher absence to conduct some basic electronics training for the Ma'adi Grade 1 students. Due to the absence of Fab Lab Leadership at 6th of October, a group of 3rd year students stepped up to create a student training plan for their Fab Lab. This training program will be their capstone project and the Fab Lab team will be assisting them in the next quarter of 2014 in the development and implementation of the program to ensure the quality and safety of the program.

In addition to the work on student training, the Fab Lab team took advantage of the delay in the start of the school year to conduct two day training with the most of the teachers from 6th of October and Ma'adi. In this training, the teachers were exposed to the Fab Lab equipment and its capabilities and engaged in two design and build activities aligned to their capstone work involving the vinyl cutter and the laser cutter. Please see the attached documents and pictures. Despite some rough spots around learning the design program (e.g.



minimal experience by teachers with design software), this training went very well and the response from many teachers has been exciting. The Ma'adi Fab Lab manager reports that several teachers have approached her for more information and on how to integrate the lab into their classwork. One particular Math teacher wanted help in developing an assessment for her class in the Fab Lab. The project Fab team will provide support and work on collecting any existing curriculum into a database for the teachers to leverage. Also in this quarter, World Learning's STEM Specialist as well as 3 Egyptian ECASE staff began Fab Academy and continue to work through it as a cohort. The project Fab team also utilized opportunities with teachers in the US to workshop some of the training activities that will be used in student and

teacher training this summer.

To **prepare teachers to develop end of semester assessments**, ECASE provided multiple opportunities for teachers and MOE personnel to better understand how to develop high quality and high cognitive demand assessment items and instruments that are in line with the purpose and instructional philosophy of the STEM schools. A full-day professional development was provided for teacher prospects concerning the role of assessment in the schools, focusing on cognitive demand and test construction with multiple follow-up sessions for groups of teachers, a full-day professional development with Experimental school teachers on assessment, focusing on cognitive demand and test construction, assessment analysis approach for MOE staff and principals in two separate sessions, a training with teachers about assessment plans and approaches in semester 2, training to two staff members from each school as well as two staff members from ECASE's Cairo office and two members from the STEM Unit in a process for scanning student test answers into PDF images using the Remark Office OMR software to automatically read-in PDF images of students multiple choice answer sheets which will significantly reduce time needed to score exams and increase accuracy of scoring, and two separate development sessions with the MOE STEM unit to familiarize them with assessment plans overall and the approach to assessment design relevant to the end of semester and other exams.

During the quarter, **PARLO Tracker Training** was also conducted in Egypt. In February, teacher candidates were provided an overview of the system and how it functions. This training focused primarily on the gradebook, the differences between learning outcomes and evidence as well as the color scheme for evaluating students. Later in the month, all new and existing teachers were provided in-depth, step-by-step training on logging into the tracker system, accessing the gradebook, entering and evaluating evidence, evaluating learning outcomes and accessing an individual student's view. Follow up one-on-one sessions were held with teachers focused on logging in with their own credentials, verifying the data in the system, modifying student rosters and entering evidence. GTMs were scheduled for each school to further assist with utilizing the system to log student progress. The principals at each school were provided one-on-one training as a School Administrator in the system. This training included accessing individual teacher and student records as well as processing report cards to be sent home to parents. During the first week of school, students were provided their individual credentials and training on accessing their records in PARLO Tracker.

Moving forward, GTMs will continue to be scheduled with teachers to assist with logging information into the **PARLO Tracker System**. Teachers should receive additional Tracker training to include running reports, modifying class sections, reordering/removing/re-adding learning outcomes and evidence. If possible, additional on-the-ground support will be provided. STEM Unit accounts have been setup for this group but they have not received any training on the program. This face-to-face training is anticipated to occur in the next quarter. Continued support via GTM and over email will be given to all entities utilizing the software. Teachers need to be further trained on Proficiency Assessment and Re-assessment through Learning Outcomes (PARLO). Although they have been given some training, it is evident through their entries in Tracker that further training is necessary as teachers are learning a new way of evaluating their students.

Objective 3: Strengthen the STEM model of specialized high schools focusing on science, technology, and mathematics for gifted students (formerly Objective 2)

Per the wind-up order, **extra-curricular program planning and implementation (Activity 5)** for the majority of the quarter was focused on the EiPIC platform. With the “rewind” for next quarter, TFI will revisit its scope of work and, in collaboration with World Learning, determine which other extra and co-curricular programs to pursue. Top candidates include the development of student-created digital learning resources, such as a series of web videos that explain complex scientific concepts in an engaging and accessible manner. Other opportunities include US-based teacher trainings for one or two top faculty members who desire to offer extra-curricular mini-courses in subjects outside the scope of the STEM schools’ curriculum, such as neuroscience and astronomy. There may also be an opportunity for elective courses to be developed from the US-based teacher trainings, although that work falls outside of the ECASE scope of work.

In January, the framework was solidified for the Extra-Curricular Intellectual Property Innovation Center (EiPIC) program and began to develop plans to formally launch it at each of the two STEM schools. Audience-specific overviews of the program were created to facilitate broad outreach and published a brochure for potential mentors. In early March, the project launched the program locally at each school. The students were thrilled with the presentation and about the opportunities to learn about intellectual property presented through this program. Many students were eager to submit abstracts of their innovative ideas and did so on the same day that the program was officially “launched.” As of March 26th, 32 applications for EiPIC have been submitted by the students at the Egyptian STEM Schools. Topics include sustainable energy generation, water purification, anti-car crash systems, vaccines and other medical interventions, and software applications. The program’s capacity is limited to 50 students (25 from each school). Applications for EiPIC will continue to be accepted until April 15.

During a meeting with the Minister of Education, he expressed his enthusiasm for the EiPIC concept. He suggested that the pool of experts needed to support the mentorship element of the program be developed in collaboration with the Ministry of Scientific Research, which is administered under the authority of the Ministry of Higher Education. World Learning Egypt is taking the lead on arranging conversations between USAID and these ministries to advance efforts to develop a robust pool of local program mentors according to the recommendations of the Minister of Scientific Research.

Overall, activity is progressing well. However, one challenge is USAID’s recommendation that the pool of scientists and intellectual property experts needed to support the EiPIC program be cultivated locally, rather than drawn from North American professional networks. The program was originally envisioned to include a pool of scientists and intellectual property experts from North America, who would travel periodically to Egypt to meet directly with students and maintain ongoing communication through a variety of virtual platforms, including email and GTM. As a result of this shift, the ability to successfully deploy the EiPIC program is dependent on strong partnerships in Egypt. The first approach was to establish a network of mentors

through public-private partnerships. Meetings with a number of scientists have been held to discuss potentially engaging them as mentors for the STEM school students within the framework of the EiPIC program. ECASE met with six potential partners, representing both academia and industry, who received the proposed mentorship framework with enthusiasm. It was a very positive first attempt at engaging local expertise to shepherd the program. However, this small group will not be sufficient to serve the needs of all the students participating in the program. A much larger cohort will need to be developed. At that same time the Minister of Education issued a recommendation that the pool of mentors be culled from the Ministry of Scientific Research. As a result, ECASE and USAID need to play a larger role in deploying this program than originally planned.

From mid-April through May, ECASE will analyze the submitted EiPIC applications to understand the specific areas in which professional expertise is most needed within the pool of mentors and will begin to align individual applicants with mentors from this pool. The mentors and students will not have the opportunity to directly connect with one another until the beginning of next school year, however. To this end, solidifying the outreach strategy for potential partners is of primary importance. Successful advancement of the EiPIC program is reliant upon the establishment of a framework within the Ministry of Scientific Research to recruit and train the experts who will fulfill the mentorship needs required by the program. It is imperative that USAID connect with the necessary contacts within the Ministry of Higher Education to move the activity forward.

As part of the extracurricular work was described in the original program description, the project has been developing the framework for a suite of extracurricular mini-courses at Egypt's STEM schools. The first of these is focused on neuroscience. In partnership with the University of Pennsylvania Neuroscience Department, two versions are being developed: The first is an extra-curricular mini-course lasting 8 sessions (approximately 2 hours per session) that is an exploration into neuroscience (anatomy, physiology, psychology etc.). This course is designed for Grade 1 students; the second course is a semester-long elective for Grade 2 or 3 students and explores neuroscience deeper, with a focus on ethics. The purpose of these courses is to infuse neuroscience into student experience as a complement to their biology training through the curriculum. The elective has been successfully piloted at TFI's partner high school, Science Leadership Academy as well as two other Philadelphia area high schools, and the mini-course has also been well received by a number of pilot participants.

For the neuroscience courses (mini-course and elective) to be effectively offered in the Egyptian STEM schools, the teachers would need training. There is a great opportunity to take one teacher from each school or a committed university faculty who would want to teach the elective, and have them come to Philadelphia and do the boot camp to give them the neuroscience "chops" and get further PD from the TFI team for the mini-course (and the elective, if there is a desire to add this to the school curriculum). This would afford a few things:

1. A great extracurricular mini-course and/or elective for the STEM schools
2. Teacher training for Egyptian teachers who have committed to the STEM schools long - term
3. A sustainable model, as the Egyptian teachers would be able to continue to offer the

course and provide professional development for other life science teachers willing to teach these neuroscience courses

4. A great reward/opportunity for committed teachers to come to the US and participate in a program of this kind at the University of Pennsylvania
5. Potential to repeatedly offer this opportunity to others, as the program at University of Pennsylvania is offered annually

During this quarter the project supported 11 field trips to 8 different sites. The total number of overall students that participated was 221 boys and 510 girls. Some students attended more than one field trip.

Field Trips for the schools from January till March 2014				
Date	Number of Students	From	TO	Grade
25-Mar-14	125	October School	Institute of New and Renewable Energy	2
18-Mar-14	48	October School	Faculty of Engineering - Cairo University	3
25-Mar-14	48	October School	Faculty of Engineering - Cairo University	3
12-Mar-14	108	Maadi School	Zewil University	2
12-Mar-14	101	Maadi School	Institute of New and Renewable Energy	1
19-Mar-14	16	Maadi School	AMIDEAST	2
25-Mar-14	70	Maadi School	Exploratory Center	2
26-Mar-14	108	Maadi School	Geological Museum	2
26-Mar-14	52	Maadi School	Physics Research Center	1
26-Mar-14	49	Maadi School	Electricity station	1
30-Mar-14	6	Maadi School	AMIDEAST	2

ECASE briefed the MOE STEM Unit on the goals, progress and plans for the **Public Private Partnership (PPP) (Activity 6)** and clarified its role to the USAID. A comprehensive document on public private partnership (**Annex B**) was delivered at the beginning of the year, aiming to raise the awareness of the concept as well as use it as a seed for capacity building and transfer of knowledge to the Ministry of Education. The document aims to explain the fundamentals of PPP, the definitions, applications as well as the ‘how to’ of PPP. There is a dedicated section in the document for the extra-curricular activities which proved to be a crucial function of PPP to the schools. The document is to be used as a reference document as well as to be discussed with the MOE and other interested parties. A power point presentation of the document is ready to be discussed with the MOE for approval of activities as well as for synchronisation of efforts between the USAID and the ministry in the area of PPP.

The following is a brief on the stakeholder events and meetings that have been held throughout this quarter;

- **The Stakeholders' event on March 23** was organized for the STEM schools stakeholders aiming for all stakeholders to meet and discuss schools future. The event was held in October school and girl students from Ma'adi were invited. Both boys and girls presented their Capstone projects to a varied audience from private sector organizations –IBM, Cisco, Anova, Google- and universities including Nile University and The American University in Cairo. The Minister of Education, Dr. Mahmoud Aboul Nasr, along with other representatives from the ministry attended the event aiming to boost the PPP function.

- **Intel International Science & Engineering Fair (ISEF)** is a dedicated local fair to the STEM students that was arranged with Intel team to endorse the students' exceptional level. The local fair resulted in more than half the projects presented to compete on the Cairo fair eventually resulting in one group qualifying to the finals of ISEF LA 2014 in May; and more than twelve recognitions and prizes from a total of twenty. Another group competing in the Alexandria fair also qualified to the LA finals. Projects winning are 'Water Desalination Using Nano- Technology' and 'Water Purification',



- Through the cooperation with **INJAZ and Dow**; we were able to provide the Grade 3 students with a high profile entrepreneurship program aiming to give them enough knowledge to use in their practical life. The program tackles topics of high interest to the students such as intellectual property, finance, investment, marketing, boards and other topics. Worth mentioning the program was tailored to fit our students' interest and their capabilities. INJAZ provides the program while Dow finances the program. A milestone to the program is for the students to be able to create products from their Capstone ideas.
- A visit to the acting president Dr. Sherif Sedky at the **Zewail City** resulted in an invitation to the schools' students to visit the campus, raising some interest from students to join the Zewail University. During the meeting, university leadership promised that scholarships will be granted by the university provided the students meet the entry criteria. Several Grade 3 students are applying for admission.
- A meeting was held with the manager of **Naguib Sawiras'** personal CSR portfolio Mona Fayek, resulted in potential contribution in two scholarships to our graduating students; pending approval from the USAID as well as management logistics and coordination upon approval. Another introductory meeting at **CITADEL** that could be labelled successful, where Hisham Al Khazindar the managing director of one of the largest investment institute in Egypt, showed interest to visit and potentially support the schools. Last but not least, a meeting with Ghada Makady, the Director of CSR for **Coca Cola** was held with the aim to get her more involved with the schools activities to explore potential cooperation and real interest.

- **Partnerships and potential cooperation;**
Cisco: A partner for over a year now with plan to be finalized for year 2014 potential cooperation regarding;

- 1- Resume Cisco Academy in girls' school
- 2- Initiate Cisco Academy in boys' school
- 3- Girls ICT day invitation

- **Microsoft:** An approval on the activities has been received from the MOE; yet we will not proceed with the activities this semester and will start academic year 2014 – 2015.

The approved potential programs are as follows;

- 1- A spire Women Program: Inspiring talks in different topics – topics are to be revised by Microsoft following a meeting where the proposed topics were not agreed upon by ECASE.
- 2- Career Counselling Program: session on how to choose a career or major these could be given either by training the teachers or by directly working with the students; decision taken is to have these sessions directly addressed to students.
- 3- Youth Spark Program: coding and development competition. The winning program will be given a prize by Microsoft (Windows 8 tablet).

- **EMC2:** a partner for over one year now; ECASE staff visited them to explore cooperation opportunities; below is a list of the potential opportunities:

- 1- A financial contribution of an amount of 20 thousands US Dollars to technology hardware –still in discussion
- 2- Sessions by specialists in EMC2 in high tech topics such as big data
- 3- Financial and technical support to students Capstone projects activities

- **IBM:** this quarter IBM availed a speaker to the students (at the Ma'adi school) to address them in the topic of Nanotechnology. In our meeting in January we were able to agree on the below activities:

- 1- IBM Camp: for academic year 2014 – 2015 IBM will provide speakers in a variety of high tech topics
- 2- Provide mentors for the EiPIC program as well as other programs

To support **STEM school design model codification (Activity 7)**, ECASE has refined the STEM school blueprint to focus on sustainability. This blueprint contains the design features necessary for a sustainable and impactful STEM school in Egypt that can be led by school leaders and the MOE. Each design feature, in turn, contains several success indicators that will guide designers and operators alike to know what the features should look like. Each success indicator then has one or more actions that will lead to the desired outcome. A resource library provides tools and a place for evidence that demonstrates the actions have been completed, the success indicators have been met and the design features are in place.



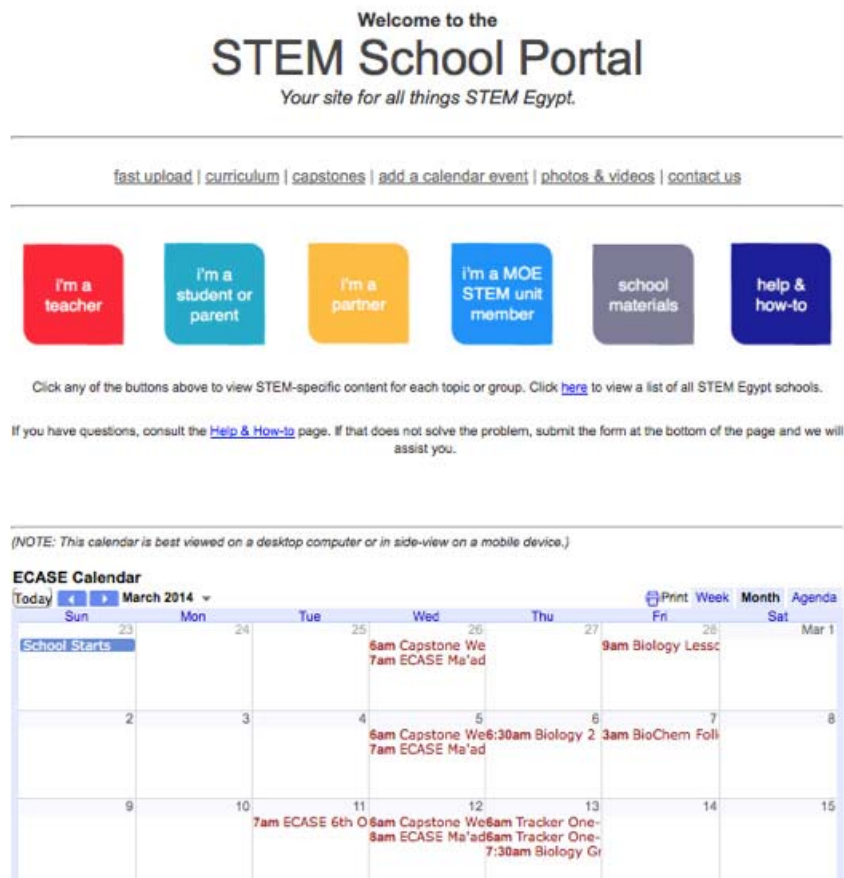
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The STEM School Blueprint Design Feature and Success Indicators were shared with the MOE STEM Unit in March in a presentation by TIES to demonstrate the systems approach to sustaining the Cairo schools and designing and implementing the future schools. Engagement and training with the MOE STEM Unit will continue next quarter to further refine success indicators and resources to ensure localization of the tool.

In the next quarter, the ECASE partners will examine the draft Blueprint and populate the resource section, adding tools, references and evidence. In June, during the Integrated Curriculum 2.0 Design Studio, the Blueprint will be used to inform the design features of the school and the success indicators around the integrated curriculum. The Blueprint will connect the key content, processes, and manuals to support development and sustainability of the STEM schools. As an example, the Capstone Leader Manual has been updated and available for use. The Capstone leaders at Ma’adi used this manual to supply reference materials to the other teachers and the students for the semester. This manual will continue to be edited based on the experience of the second semester and will be prepared for the next school year. A STEM School Manual, with a wider audience in mind, is currently being developed and will be finished in time for both schools to use as they take more ownership of the Capstone. This volume will also be useful for new schools just beginning the Capstone process.

To further support **codification and Model STEM School Sustainability (Windup Activity 7)**, the development of a front-end user interface for the ECASE Google Drive

was reevaluated at the beginning of January 2014. In lieu of creating multiple entry portals for different user groups, it was determined that a better use of project resources would be to focus on a single site to serve each user group in different ways, but from the same location. This approach is considerably more desirable given time constraints and limited resources for support, both now and in the future. In addition, using an open software resource, such as Google Sites, it most sustainable than creating a system that is dependent upon software licenses.



By using Google Sites as the platform on which this site is built, World Learning consultants and project staff are able to automatically replicate the same security and permissions as in the actual ECASE Google Drive. While some team members may have full access to the site and the ability to view all its content, other members — and the general public — will only be able to view specific pieces of information to be predetermined by the ECASE administrators.

A comprehensive "wish list" was drawn up to include all desired functionality and necessary data that the final portal will need to contain. This information was used to create a site skeleton from which the full site is being built. Presently, the site is continuing to be built in accordance with the skeleton, which is directly derived from the ECASE Google Drive and project participants. Throughout the building process, the site is periodically tested for mobile optimization and user experience. In the coming months, the site build will continue with the addition and refinement of custom elements and stakeholder-specific information. This site is being built to address users' unique needs and assist them with the tasks most relevant to their involvement with STEM. It is anticipated that the site will be launched in beta mode this summer with a small number of internal users, preceding the full launch to take place later this year.

Finally, in further efforts to support sustainability, it was determined by all partner participants providing on-the-ground training in Cairo that significant improvement to overall equipment inventory at the schools is *critical*. Nearly all books and resources delivered to the schools remain in boxes or locked in inaccessible rooms. Localization is required to support sustainability. Further, specialized equipment and kit components were held up for many months in customs due to import laws. In order to finally release equipment to the schools, several kit components required re-exportation or demolition for release of other equipment to the Egyptian STEM schools. In sum, an inventory management system is required to be designed and implemented for use at both schools and for transfer to new schools so that school staff is able to take ownership in the management of school resources and equipment (rather than depending on ECASE project staff to do this work for them). Further, the inventory management system must enable localization of activity components to support the curriculum and to avoid on-going purchasing from the US and other foreign vendors. At the time of this report, a proposal by It's About Time (IAT) is under review to enable the design and use of an inventory management system, as much of the equipment comes from this vendor and is tied to other IAT curricular resources. It is expected that a preliminary inventory management system will be created in the US with a visual inspection in Cairo. The inventory management and localization will be done in collaboration with the MOE STEM Unit. IAT also will provide further training to teachers regarding the recently released equipment from customs.

To further support **Model School Sustainability (Activity 8)**, to complete procuring essential infrastructure and services for existing STEM schools - Science Lab Equipment, Capstone Materials, Curriculum books & science kits, and IT infrastructure - 6 units of furnished Robot lab with cabinets and shelves in addition to 6 projectors, 6 desktops, 6 E-beams, 4 printers and 1 package of Vernier Equipment have been procured and installed in the 6th of October school. Regarding Maadi School, 1 Coral Draw Software has been installed there, in addition to 11 desktops, 10 projectors, 10 E- beams, 4 printers, 2 Cisco switched module and 1 package of Vernier equipment.

Objective 4: Increase student achievement in the STEM model (formerly Objective 1)

To support **Promote Student Achievement (Activity 9)**, ECASE continued evening English language classes offered to Grade 1 and Grade 2 to enable them to successfully participate and learn in an English medium classroom. For Grade 1, students are offered different English levels: Pre-Intermediate (those students promoted from the Basic Level, semester one), Intermediate (those students promoted from the Pre-Intermediate level). Different curriculum and learning objectives are set for the two levels with each based on integrated language skills covering the four English language skills: listening, reading, writing and speaking. New sections have been added including the “Vocabulary Development”. This section comes at the end of each week and covers different IBT, ITB, IELTS, idioms and phrasal verbs for students to improve their vocabulary sub-skill. The curriculum of all the English classes offered for Grade 1 and 2 include different gradual stages of critical thinking skills tasks and questions. The duration of the course for both grades is 9 weeks. The assessment strategies for Grades 1 and 2 cover vocabulary quizzes, portfolio, essay writing, language exercises, tests and end-of the course test. Two different packs are shared with the students and the teachers. The pack is offered twice during the second academic semester; the first one covers from week 1-week 5 and the second one covers from week 6-week 9. The first pack is for teachers which include the weekly plans, the material, the teacher’s manual (answer key for exercises) and appendix. The second pack is offered for students and it includes the same material and the appendix.

Grade 3 students are offered two levels: Conversation (those students who are promoted from the Pre-Intermediate and Basic level, Semester One) and Academic Skills (those students who are promoted from the Conversation level, Semester One). Different interactive themes are covered in the Conversation level. The lessons are designed in a way to include more communicative and interactive themes related to everyday language use. This has been promoted in the second semester based on the evaluation feedback collected in the final course evaluation for the first semester and the mid-term evaluation for the second semester. Two packs also are shared: one for the teachers and the second one for the students. The Academic Skills level curriculum is based on teaching different critical thinking skills covering the four language skills. In addition, the aim of the course is to cover the initial and essential language skills to prepare students for the TOEFL test preparation courses offered in Grade 3.

For the students who fail the English language levels in Grades 1 and 2 in the first semester, they are offered a Pre-Intermediate Remedial Course. Students who joined this course joined the General English courses last semester. The course objectives are tailored to the failing students’ needs and interests. It is also tailored for their language problem and weaknesses as identified in their grades and their teachers last semester in the progression reports. The nature of the course is different from the regular ones. Students meet only once a week for in-class session for two hours and the other two

Continuous support offered by the **College Guidance Program (CGP) (Activity 10)** to the students regarding admissions to local and international universities, applying to scholarship opportunities and other exchange programs. A total of **seven students have received their acceptances in universities in the USA such as; University of Nebraska, Wisconsin Madison University, University of Miami, University of Minnesota, University of Rutgers, University**

of Colorado Boulder, Pittsburgh University, University of Iowa, and Temple University. Some of the students have been accepted in more than one university, given the fact that the CGP has helped them to apply up to five different universities each. The program has assisted each and every student to prepare a set of documents required by the university such as the school profile, the transcript, the teacher recommendation letters, and the Mid- Year Progress Report, all these documents were couriered to the universities' admission offices.

On March 4th, a meeting was held at the AMIDEAST with MOE representatives to further discuss different means of collaboration to support the STEM students. Updates were given on the possibility that AMIDEAST manages a fund coming from a philanthropist providing scholarships to a specific number of STEM students. Negotiations are being held internally at the AMIDEAST, and it was promised that the CGP will be kept updated. Feedback was given regarding the interviews that have been held with the selected students at the Tomorrow's Leaders Program which offers scholarships to AUB and LAU. Six STEM students have been selected as Semi- Finalists and have been interviewed at the AMIDEAST for the final selection process.

As in the last quarter, the CGP announced the Tomorrow's Leaders Scholarships, it continues this quarter to spread the news, supporting and following up with the students on other programs such as; the Arkansas University Scholarships in the USA, the Competitive College Club Program, the TechGirls Program, and the Onsi Sawiris Scholarships. The TechGirls Program sponsored by the US embassy, to which more than 20 STEM girl students have applied, has accepted two STEM students from a total of twenty seven selected from Egypt, Algeria, Jordan, Lebanon, Libya, Morocco, Palestinian Territories, Tunisia, and Yemen. The program targets an age range of girls that have interest in technology and science and show leadership potential. Another program is the Competitive College Club, which provides assistance to its members in applying to the USA universities and in engaging in community services throughout the membership period. More than 400 applicants from all over Egypt have applied to this program with a total of 8 STEM students selected out of a total of 20 members granted with the CCC memberships.



Throughout this quarter, 37 admission applications and Mid- Year Progress Reports have been sent to all the universities. A General Guidelines- Issue I, for the Grade 2 Students has been developed for the students to use it to start their research on the universities. It contains various links and names of websites that will help them get better information and select the universities that best suit them. The sheet gives important notifications on deadlines for application by European countries, the USA and the Middle East; it also gives websites for the applications admissions such as the UCAS for the European universities, and the College Board and the Common App for the universities in the USA. (**Annex C**)

During the past quarter, two sessions were conducted with the Grade 2 students explaining the importance of starting early research on universities and especially that the European universities have an application deadline in October of each year. Also two sessions with the Grade 3 students following up with them on the process of admissions, either internationally or nationally, and getting more feedback from every one. Last but not least a questionnaire has been developed for Grade 3 students to keep track on their local admissions process. The purpose of this questionnaire was to collect important information about the majors the students want to apply to in local universities and the names of the universities where students have submitted applications. The results show that 26 students have and applied to the AUC, 28 to the GUC, and 7 to the BUE. As the main concern of these students is that they can't afford to pay for the tuition fees and they are hoping to get scholarships. The CGP has scheduled for a meeting with the Executive Director of Admissions at the AUC to be held in the first week of the next quarter to discuss the possibility to provide the STEM students some of the scholarships that the university already offers to the Thanaweya Amma holders. As for the GUC and BUE, meetings and discussions have been made last quarter and still responses are postponed as they still need some time to take a final decision regarding the issue of scholarships. In the next quarter, a College Guidance Manual for Egyptian STEM Schools will be developed and a sustainable support system for the schools associated with the MOE STEM Unit will be designed.

In efforts to engage the **National STEM Board (Activity 11)**, during preparation process of

Wind-Up plan, the idea of transferring all project experience to MOE staff led to the establishment of an MOE STEM Unit. In late December 2013, USAID and ECASE project began discussion with Prof. Mahmoud Abou El Nasr, the Minister of Education, about the idea of establishing ad-hoc unit to take over the responsibility of managing the STEM education in Egypt especially after end of the project to maintain the sustainability of the STEM System. The Minister extended his support for the idea. During the past quarter ECASE project conducted nine workshops with STEM Unit representatives. These



workshops were designed to provide the members with an in-depth understanding of each semester of the curriculum v. 1.0 in preparation for their work later this spring in the v. 2.0 Design Studio and other school leadership activities. These activities would include participation as judges in the capstones, leaders in the Curriculum Design Studio, participants in the task forces to contextualize the curricular materials. Further, the full STEM Model system and Blueprint were presented to the STEM Unit. The integration of activities across the project was well received by all participants. Further workshops will be conducted on the design and implementation of the Capstones. It is envisioned that MOE STEM Unit members may become involved, perhaps as co-facilitators, in training for new teachers going forward as it relates to the curriculum and capstones.

3. Challenges and Resolutions

A variety of challenges have arisen over the last year due to in-country instability, political fluidity, leadership changes in the MOE, and regular complications due to a project of great size and complexity. A list of these challenges and their associated corrective actions are highlighted below. Because the focus over the past quarter has to work from a wind-up plan for the work, several delays have occurred as related to the “rewind”, impacting the overall schedule and opening of new schools.

Major Challenges	Y2, Q2 Corrective Action	Status	Y2, Q3 Corrective Action Planned
Lack of inventory management system and equipment training at existing schools	Assess options for implementation of an inventory management system	In Process	Engage 3 rd party to implement system tied to both curriculum and training
Minimal localization of equipment and activities and contextualization of curricular materials	Assess options and build into V2.0 Curriculum Design Studio	In Process	Collaborate with Teachers and MOE STEM Unit to enable localization AND contextualization of equipment and curricular materials
Capacity and budget to support 3 new schools and on-going programmatic changes	Assess options, negotiate scope	In Process	Define specific requirements and scope for school openings in September of 2014
Localization of knowledge to enable sustainability	Collaborate with MOE STEM Unit	In Process	Formalize committees and actions of the committees to enable knowledge transfer and to enable further engagement
Teacher availability for training for existing and new schools	Collaborate with PAT	In Process	Launch teacher adverts immediately to assure readiness by summer 2014 trainings
Finding and building a critical mass of local Egyptian scientists and engineers to support EiPIC	Engage universities	In process	Work closely with WL to engage key professionals
Accessibility, training, and capacity for Fab Labs	Hire Fab Lab Manager for 6 th October	In process	Launch training program and assure fairness and equity to labs
General Unknowns that cause rework and added expense	None to Date	Ongoing	Maintain an agile team willing to work within the on-going fluctuations of the project

Annexes:

Annex A: Training Report: Events and Hours

Annex B: PPP Document of Codes

Annex C: College Guidance General Guidelines - Issue I

Annex D: Quarterly Meetings Minutes

Annex E: ECASE Event Pictures