



USAID
FROM THE AMERICAN PEOPLE



Save the Children

ENHANCING AND ADVANCING BASIC LEARNING AND EDUCATION IN BOSNIA AND HERZEGOVINA – ENABLE BIH

ANNUAL NARRATIVE REPORT

For the period September 1, 2017 – September 30, 2018

Submitted November 15, 2018

This document was produced for review by the United States Agency for International Development. It was prepared by Save the Children.

**ENHANCING AND ADVANCING BASIC LEARNING AND EDUCATION IN
BOSNIA AND HERZEGOVINA**

Cooperative Agreement No AID-168-16-00001

Table of Contents

LIST OF ACRONYMS	5
EXECUTIVE SUMMARY	6
ABOUT THE PROJECT ENABLE-BiH	8
1. Purpose of the Project	8
SECTION I	11
1. Project Activities and Results	11
1. Final Meeting of the STEM Extended Working Group.....	11
2. Public Consultations for STEM Documents.....	12
3. Public Consultations for PPDM Documents.....	12
4. Finalization of STEM and PPDM Documents.....	13
5. Activities of the Project Advisory Board.....	14
6. Proof-reading and Design of the Pre-final STEM and PPDM Documents.....	15
7. Advocacy Activities.....	16
8. Extension of the ENABLE-BiH Project	17
9. Promotional Campaign	19
10. Summary of the Key Activities in the Fourth Quarter.....	21
11. Important Meetings, Presentations and Public Event	22
12. Public Event for the ENABLE-BiH Phase I and II.....	25
13. Training for STEM-PPDM Trainers/Mentors.....	25
14. Replication STEM-PPDM Trainings for Teachers in 12 STEM Model Schools	31
15. STEM Roll-out in Model Schools.....	36
16. Developing and Signing Memorandums of Understanding (MoU).....	37
17. Challenges and Lessons-Learned.....	38
18. Development of STEM Web-application and Web-site	41
19. Networking and Promotional Activities.....	42
20. Impact Analysis for the ENABLE-BiH phase II.....	43
21. Activities of the Project Partner “EXIT” Centre.....	44
2. Monitoring and Evaluation	48
C. Monitoring and Evaluation.....	48
3. Project Operations	51
a) Human resources.....	51
b) Procurement	52

SECTION II – MAJOR ACTIVITIES PLANNED FOR NEXT QUARTER.....	53
Success Stories.....	55
ANNEX I – Quality Benchmarks Table.....	61
ANNEX II – ENABLE MEAL plan 2018 – Results	79
ANNEX III – Indicator Performance Tracking Table (IPTT).....	83

LIST OF ACRONYMS

APOSO	Agency for Pre-Primary, Primary and Secondary Education of BiH
BiH	Bosnia and Herzegovina
CCC	Common Core Curriculum
ECCD	Early Childhood Care and Development
ENABLE	Enhancing and Advancing Basic Learning and Education
EU	European Union
EWG	Expert Working Group
HEA	Agency for Development of Higher Education and Quality Assurance of Bosnia and Herzegovina
IE	Inclusive education
INGO	International Non-Government Organization
LO	Learning-outcomes
LoE	Level of Effort
MEAL	Monitoring, Evaluation, Accountability and Learning
MIS	Management Information System
MoCA	Ministry of Civil Affairs
MoE	Ministry of Education
MOU	Memorandum of Understanding
NWB	Northwest Balkans
OSCE	Organization for Security and Co-operation in Europe
OTC	Operational Teaching Curriculum
PAB	Project Advisory Board
PISA	Program for International Student Assessment
PPDM	Pedagogy, Psychology, Didactics and Teaching Methods
RS	Republic of Srpska
SAA	Same as above
SAR	Special Administrative Region
SC	Save the Children
SLO	Student Learning Outcome
STEM	Science, Technology, Engineering and Mathematics
TE	Teacher Education
TIMSS	Trends in International Mathematics and Science Study
ToT	Training-of-Trainers
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WG	Working Group

EXECUTIVE SUMMARY

The USAID funded Enhancing and Advancing Basic Learning Education in Bosnia and Herzegovina (ENABLE-BiH) project completed its second year of implementation in September 2018, and this annual report summarizes the key successes and highlights observed during this period.

Most notable of these is the finalization of the STEM and PPDM documents. These key project documents are approved by all 16 members of the Project Advisory Board, as well as by representatives of the key educational institutions at all levels of the BiH governance. While the final STEM and PPDM documents are achievements in and of themselves, the overall process of developing these deliverables resulted in the following equally important outcomes:

- Developing the STEM and PPDM documents was a highly participatory process, including several key education stakeholders from across the entire country. This has created a cadre of future advocates and champions necessary for the continued advocacy of the STEM and PPDM implementation;
- The STEM and PPDM documents contribute to the establishment of a policy framework within which future BiH educational reforms can be implemented. For instance, the PPDM Standards were officially adopted by the Ministry of Education, Science and Youth of the Sarajevo Canton and decision was announced as of July 26th, 2018 in the Official Gazette of the Sarajevo Canton.
- These documents have introduced a pioneer approach that the local education authorities and expert community recognizes as unique, comprehensive and cross-disciplinary.

The project also conducted communications and advocacy activities to increase its visibility among key stakeholders. The project held 13 highly influential bilateral meetings with all BiH Ministries of Education to present the project, advocate for the recognition and adoption of the STEM and PPDM documents, as well as subsequent STEM integration into current curriculum and regular education.

As a result, high-level decisions-makers and policy-planners, primarily ministers of education across the entire country, gained a deeper understanding of STEM education and its potential effects on the BiH economy. Institutional support letters were solicited from the ministries, confirming their support to the implementation of STEM-PPDM educational programs and their integration in the current teaching plans and programs.

The project also launched a promotional campaign between May and July around the importance of STEM, and the need to integrate it with the current education system in order to achieve a knowledge-based economy in BiH moving forward. The campaign was successful and resulted in the project receiving widespread recognition.

Another highlight from the project's second year is that the scope and duration of the project was extended to encompass a Phase II implementation through September 2020. Phase II primarily focuses on rolling-out the STEM program in 12 selected model schools in five areas (the Sarajevo Canton, Herzegovina-Neretva Canton, the Republic of Srpska and the Brcko District). It is envisioned that the roll-out will reinforce **1.)** STEM implementation **2.)** Improving and/or extending STEM teaching based on the feedback from the field and practice **3.)** Better linkages between pre-service and in-service education **4.)** Improving STEM-PPDM education across all levels, and **5.)** Better responding of the education system to real market needs and thus contributing to the country's gradual economic progress.

Towards this goal, the project conducted a 10-day Training for STEM-PPDM Trainers/Mentors on June 18-22, 2018 (Part I) and July 09-13, 2018 (Part II). The training equipped key educational professionals and field practitioners with an in-depth understanding of STEM, concrete methods for implementing and integrating STEM into the current curriculum as well as practical tools and guidelines to replicate STEM in the classroom environment. The training was well-received and participants appreciated the high-quality STEM/PPDM resources, noting that these are critical for them to successfully replicate this training in 12 STEM model schools between August to October 2018.

As a result of the training, teachers in 12 STEM model schools have been educated on STEM and that STEM programs have begun being implemented, in 7 out of 12 model schools, for the 2018/2019 school year. The ENABLE-BiH project team has also begun conducting several technical-consultative meetings with Ministries/Departments of Education, management of STEM model schools, STEM-PPDM trainers/mentors and teachers in STEM model schools (in the Sarajevo Canton, Herzegovina-Neretva Canton and Brcko-District) to discuss and agree on the modality and frequency of STEM roll-out. Coordination teams that include representatives of the Ministry/Department of Education, model schools' management, ENABLE-BiH team member – Education Implementation Specialist together with SC technical representative – Program Development and Quality Director, and two trainers/mentors, will closely monitor and provide support and guidance to STEM implementation.

Multi-partite Memorandums of Understanding have also been discussed with the project partners and should be signed at the beginning/mid October 2018. They will precisely define rights and obligations of each signatory (Ministry/Department of Education, model schools and Save the Children). Also, the procurement of the STEM equipment for 12 model schools that will facilitate STEM teaching and learning has been initiated.

Finally, the project team took part in preparation of the impact analysis aimed at examining the results of the ENABLE-BiH project and the effects of the STEM program in schools on students. Preparation of the methodology was conducted by the Centre for Development Evaluation and Social Science Research (CDESS) contracted by the USAID, to which SC gave inputs and suggestions. SC has submitted the request for the approval of the methodology to the Ministries/Departments of Education in four STEM model areas and request for conducting

the research at schools. The impact analysis is to provide baseline for the students' interest and proneness towards STEM, as well as mid-line and end- line along with finding how ENABLE-BiH contributed to this interest.

ABOUT THE PROJECT ENABLE-BiH

1. Purpose of the Project

The ENABLE-BiH project began in September 2016 and ends in September 2020. The overall purpose of the project is to contribute to the improvement of learning outcomes in primary and general secondary education in BiH. Specifically, Phase I of the ENABLE-BiH was intended at helping BiH students acquire key competences necessary to participate in the knowledge-based economy, and become future drivers of the economic development of the country. Building on the program's phase I objective, phase II implementation will focus on advancing USAID's goals of improving STEM education in Bosnia and Herzegovina by implementing the new Operational Teaching Curriculum in schools and rolling out new standards and guidelines for improved STEM teaching methods in pre-service university programs.

The identification of two key components, Science, Technology, Engineering and Mathematics (**STEM**) and Pedagogy, Psychology, Didactics and Teaching Methods (**PPDM**), on which ENABLE-BiH is based, is a result of the need to change the approach to learning and teaching students in primary and general secondary education in BiH which historically has been based on lecturing, memorizing and reproduction. There is a need to shift to modern and innovative education approaches.

The need to shift the educational paradigm is particularly important when it comes to those areas that directly affect the life-long learning. The dynamic combination of cognitive and meta-cognitive skills, knowledge and understanding, communication, intellectual and practical skills, and ethical values enable individuals to actively participate and work in the STEM subjects, and respond to the needs of a growing STEM industry and labor market.

The education process where students are the center, requires changing teachers' roles from those who "teach lessons" to those who facilitate learning. This will improve learning by encouraging students to develop a higher level of thinking, independent learning and problem-solving skills; ensure better engagement of students in the learning process and more quality interaction with their peers, teachers and learning content. It will also enable students to independently conduct research, inquire and find answers, think critically and apply what they have learned. By increasing teachers' PPDM competencies they will better use teaching methods and active approaches to gain knowledge, skills and attitudes and to improve learning outcomes.

Therefore, the primary purpose of ENABLE's PPDM pillar is to increase and harmonize quality standards and to align training programs for future teachers in the pedagogical group of subjects during their initial training at teachers' faculties, and other faculties whose graduates receive additional pedagogical training to work as teachers in primary and secondary schools, and to increase quality of the educational-pedagogical process and learning outcomes in BiH.

*In **Phase 1** of the project a policy framework for STEM-PPDM was set through development of key documents:*

STEM:

- Draft Operational Teaching Curriculum (OTC) for STEM proficiencies (Science, Technology, Engineering and Mathematics) based on the Common Core Curriculum defined on Learning Outcomes
- Operational Guidelines for the Implementation of the OTC for STEM proficiencies
- Teacher Training Manual

PPDM:

- Standards for PPDM – Pedagogy, Psychology, Didactics and Methodics
- Operational Guidelines
- Resource Manual for PPDM University Professors

***Phase 2** of the Project focuses on implementation in STEM-PPDM through the following activities:*

- Training for STEM-PPDM Master Trainers / Mentors
- Replication of STEM-PPDM trainings in 12 model schools in 4 model areas (the Sarajevo Canton, the Herzegovina-Neretva Canton, the Brcko District, and the Republic of Srpska)
- Equipping 12 model schools with modern STEM equipment to support teaching and learning in a practical manner
- Establishment of cooperation with three STEM universities in BiH (Faculties of Natural Sciences and Mathematics in Sarajevo, Mostar and Banja Luka)
- Equipping 3 STEM universities with STEM-PPDM equipment to support their becoming university centers of excellence
- Establishing cooperation with business sector with the aim of providing pupils and students with internship opportunities to gain practical experience in the job arena

- Organization of STEM fairs to demonstrate STEM achievements from both education and business sector and as a forum for linking education and business

Phase I

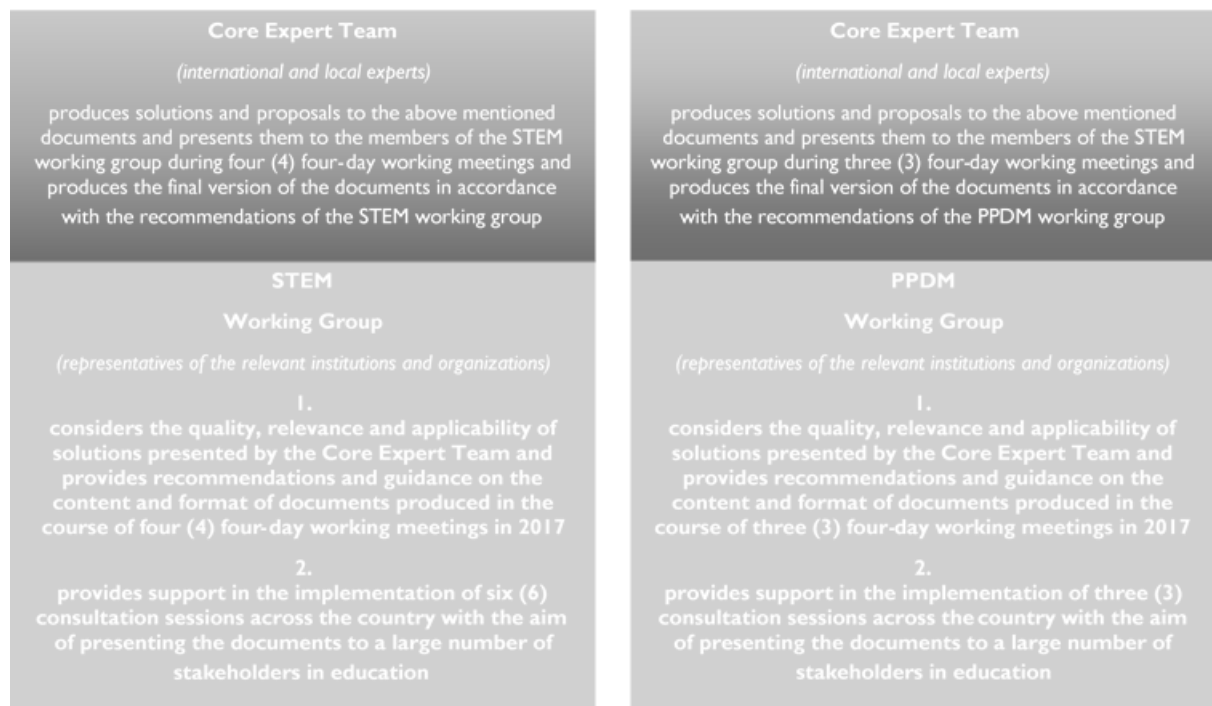


The overall Purpose of the ENABLE-BiH project
 Contribute to the improvement of the learning outcomes. ENABLE-BiH will ensure that students in BiH master the key competencies necessary for the participation in knowledge-based economy and become agents of economic development in the future.

The Project Purpose will be achieved through:

- Developing Draft Operational Teaching Curriculum (OTC) for STEM proficiencies based on the Common Core Curriculum (CCC) defined on the learning outcomes;
- Operational Guidelines for the Implementation of the CCC for STEM proficiencies;
- Teacher Training Manual
- Developing Standards and Operational Guidelines for PPDM – training and education in Pedagogy, Psychology, Didactics and Teaching Methods;
- Framework for Training Program and Certification of the University Professors in the Educational Modules.

Roles and Responsibilities of the Expert and Working Bodies



Next steps

3. Working groups present the final results to the ENABLE-BiH Project Advisory Board for consideration, further promotion and submission of the draft documents for adoption by the relevant institutions

4. Publication and distribution of all developed documents

5. Training for 73 trainers from all over Bosnia and Herzegovina for implementation of OTC for the STEM proficiencies

Phase II¹

Training for STEM-PPDM Master Trainers/Mentors
Replication of STEM-PPDM trainings /Introductory STEM training in 12 model schools in 4 model areas (the Sarajevo Canton, the Herzegovina-Neretva Canton, the Brcko District, and the RS)
Roll-out of STEM program at model schools
Mentorship for 192 teachers in 12 STEM Model Schools
Equipping 12 model schools with modern STEM equipment to support teaching and learning in a practical manner

Establishment of cooperation with three STEM universities in BiH (Faculties of Natural Sciences and Mathematics in Sarajevo, Mostar and Banja Luka)

Equipping 3 STEM universities with STEM-PPDM equipment to support their becoming university centers of excellence

Establishing cooperation with business sector with the aim of providing pupils and students with internship opportunities to gain practical experience in the job arena

Organization of STEM fairs to demonstrate STEM achievements from both education and business sector and as a forum for linking education and business

SECTION I

1. Project Activities and Results

1. Final Meeting of the STEM Extended Working Group

During the final, fourth meeting of STEM Work Group, held on October 24-26, 2017 in Sarajevo, the WG discussed the pre-final versions of Draft Operational Teaching Curriculum (OTC) for STEM competencies based on Common Core Curriculum defined on Learning Outcomes. Since the participants were already familiarized with the methodology that had been used in developing STEM OTC and agreed to it, the major part of the meeting was dedicated to analyzing the content and the structure of Implementation Guidelines and Teachers' Training Manual.

It has been agreed that Implementation Guidelines summarize valuable information for teachers and for policy makers and that it is important to cover information on knowledge-based economy and importance of STEM education, description of a new educational paradigm for BiH implementation of STEM OTC in the planning and programming of teaching activities, implementation of the STEM OTC in the preparation of annual and monthly plans etc. All these chapters provide answers to teachers and policy makers on why and how to reorganize curriculum and the teaching process in order to help students develop STEM competencies.

¹ The number of 73 educational professionals to attend the Training for STEM-PPDM trainers-mentors in June/July 2018, was initially 25 (as planned per the original Project Application); upon the cost extension it was increased by 48, totaling 73. The activity of organizing and implementing ToT actually occurred in the overlapping period of the Project Phase I and II.

It was agreed that the purpose of the Manual – to provide teachers with comprehensive explanation of STEM approach and useful tools and examples ready to use – was accomplished by introducing chapters such as connections between current curricula and CCC, detailed explanation of STEM and STEM OTC, best STEM practices, how to design and implement effective planning, collaboration between teachers, how to link learning content with learning indicators from CCC etc. In addition, the Manual would contain STEM projects developed for each of four educational levels. Members of the extended STEM Working Group agreed to submit their proposals for STEM lesson plans and STEM projects after the meeting and in that way to enrich the variety and quality of proposed material as well as local ownership over the documents.

2. Public Consultations for STEM Documents

In the period from November 29th to December 27th 2017, all six planned STEM consultative sessions were held. Although initially planned to involve about 120 participants in these consultative sessions, it has been shown that interest in STEM and reform changes in education is considerably higher so the sessions have been attended by 345 educational professionals. The STEM documents were presented to a wide auditorium comprised of: professional associates and advisers from Ministries of Education and Pedagogical Institutes; management of primary schools and gymnasiums; teachers of lower grades of primary schools, STEM subjects' teachers from upper grades of primary schools and from gymnasiums; university professors of STEM disciplines and their students; representatives of corporate sector and STEM companies.

Through consultations such a wide and relevant audience was provided the opportunity to give their inputs and feedback on the documents that was greatly valued to further improve the quality and usability of the documents, in particular as a number of inputs came from the perspective of teaching practice and classroom reality. The attendees were presented the STEM documents and prompted to utilize these resources for making gradual changes to the obsolete teaching methods that are still predominant at BiH schools. Reaching out to a numerous professional community raised awareness and understanding of STEM and increased number of supporters and advocates for the STEM implementation.

3. Public Consultations for PPDM Documents

Three planned PPDM consultation sessions were held in Tuzla, Sarajevo and Banja Luka from December 2017 to February 2018, at the Universities of Philosophy. At each session one expert from the core PPDM expert team presented the three main PPDM documents:

- PPDM Standards
- PPDM Operational Guidelines
- Resource Manual for PPDM University Professors

Even though the sessions were organized to enable the participants to provide feedback and suggestions for the documents' improvement, there were none, but the documents were greatly complemented and assessed as essential policy documents and comprehensive guidance to improve university education, both at Teachers' Faculties and Academies as well as faculties and departments of all other disciplines. It was unanimously agreed that now after the documents exits they should be used and advocacy efforts should be intensified so that they are adopted by the Ministries of Education and universities and equally used across the universities. Particularly strong was support and emphasized need for the application of the PPDM Standards in the Sarajevo Canton which certainly contributed to their official adoption in this Canton as of July 26, 2018.

4. Finalization of STEM and PPDM Documents

Key outcomes of finalization of the STEM and PPDM documents/project deliverables could be summarized as follows:

1.) Policy framework for the implementation of STEM within regular primary and general secondary education has been set providing a solid foundation and pivotal guidance for necessary educational reforms in BiH. The STEM framework provides a thorough guidance how to connect 6 STEM disciplines between or among each other, how to connect them to the relevant KBE sectors, and how to link education to economy from an early stage of schooling and enable deeper understanding of where educational content fits in real life and why its adoption and application are significant. It gives an array of the links between education areas, components, indicators and outcomes and how they help achieve quality STEM education and its long-term benefits for the economy of the country. Particular attention was paid to creating documents and STEM framework that would later be implementable in practice, with a number of concrete examples ranging from community-based STEM projects, STEM weeks, lessons, experiments and investigations that can immediately be applied by using the existing curriculum content.

2.) Policy framework for the improvement of the PPDM university courses has been set providing clear directions on what improvements in high education to embark. PPDM deliverables - Standards and Operational Guidelines and Resource Manual for PPDM University Professors were created combining international practices and local context, setting a strong foundation for the improvement of university education, both in PPDM subjects themselves and other disciplinary subjects, making BiH education closer to international standards, enhancing students educational and work mobility and increasing overall quality of the BiH initial education and its reflections on the teaching process and its quality in primary and secondary schools. PPDM Standards were officially adopted by the Ministry of Education, Science and Youth of the Sarajevo Canton and decision was announced as of July 26th, 2018 in the Official Gazette of the Sarajevo Canton.

3.) STEM and PPDM deliverables were created in a participatory, comprehensive and multi-perspective manner, with a strong local ownership by the relevant educational institutions. Highly participatory process which included relevant educational stakeholders from across the entire country and all levels, created a pool of future advocates and champions, who would have a decisive role in advocacy for the implementation of the STEM and PPDM documents by the competent authorities.

4.) STEM approach developed and promoted through the ENABLE-BiH project has been recognized by the educational authorities and expert community as comprehensive, real STEM which provides meaningful correlations among all STEM disciplines, not only focusing on one discipline. It connects STEM disciplines in an interdisciplinary, multidisciplinary and transdisciplinary manner required to tackle the modern-world challenges.

5.) STEM documents have been uniquely founded on knowledge-based economy and provide clear links between the education content and economy sectors. The guiding principle of knowledge-based economy which pervades all the STEM documents and that was built in the foundation of each document is rather a novelty and not known to be a guiding principle of other STEM approaches and methodologies. As such, the STEM policy framework can serve as an example to look upon by other similar initiatives in the region and wider.

5. Activities of the Project Advisory Board

The meeting of the PAB scheduled for February 26, 2018 where the draft STEM and PPDM documents were to be finally discussed and approved by the PAB members was cancelled due to bad weather conditions and requests of the PAB not to hold the meeting that day. Therefore, the PAB members provided their opinions on the documents in writing. *As a key outcome, the PAB members, as appointed institutional representatives, approved and institutionally recognized their content which was the critical and last step prior to designing and printing the documents.* Below are some of the opinions provided by the PAB members and their respective institutions.

- **Ministry of Civil Affairs of BiH:** ENABLE-BiH project significantly contributes to the process of changing the educational paradigm in BiH by redirecting the teaching process to building student competencies in a way that guides the development of a society and knowledge-based economy. STEM approach is a framework that confirms demand for new approaches in teacher education, and these demands are placed before 21st century teachers as they point out the interdisciplinary connection of different scientific and professional areas. The produced documents provide a fundamental framework for the process of building STEM-based education systems in the process of CCC implementation, and point out the links of learning outcomes with specific areas of knowledge-based economy.

- **Ministry of Education and Culture of the Republic of Srpska:** OTC for STEM Proficiencies based on CCC defined on Learning Outcomes; Operational Guidelines for Implementation of OTC in STEM Proficiencies; Teachers Training Manual that provide the basis for studying natural sciences through an interactive approach, as well as strengthening the STEM competencies and skills, is a relevant approach, as students are able to better understand what they learn and to later apply their acquired knowledge and skills in everyday life. Moreover, STEM competences also influence the motivation of both teachers and students and their achievements.
- **Agency for Development of Higher Education and Quality Assurance:** After reviewing the documents, we believe that the goal of the ENABLE-BiH project will be achieved, which means that it will contribute to the improvement of learning outcomes in primary and general secondary education and that students in BiH will master the key competencies necessary for the participation in knowledge-based economy and become the carriers of economic development in the future.

6. Proof-reading and Design of the Pre-final STEM and PPDM Documents

All STEM and PPDM documents were proofread by the teams of proofreaders for Serbia/Croatian/ Bosnian which was a lengthy process due to the quantity of the materials. After the first round of proofreading the STEM and PPDM experts revised the proofread documents and had intensive communication with proofreaders to agree on the final corrections and modifications. Upon the proofreading, all the documents were designed. The project team then once again revised all the documents prior to their cataloguing and printing.²

² Due to an extensive number of pages, time that would be needed to catalogue the documents and receive donor's approval of the documents, printing has been postponed to October, 2018 with a written approval of the AOR.



7. Advocacy Activities

In February and March 2018, SCNWB conducted a series of bilateral meetings *with all Ministries of Education* to present results of the ENABLE-BiH project, to advocate for the adoption, recognition and integration of STEM in formal education as well as to discuss possibilities of implementation in certain model areas. The ministers were rather well informed on the project, its goals and project activities by the technical staff and PAB members that were involved in development of STEM and PPDM documents and provided institutional inputs and guidance. Ministries recognized the need for STEM education particularly due to obsolete programs and teaching methods that evolve around memorization and facts-reproduction while far great real-life application, problem solving and creative thinking approach is needed. **As the outcome of these meetings, Ministers provided institutional letters of support by which they expressed support to the adoption and integration of STEM education in existing programs as well as subsequent implementation.**

SC also secured to present the project at another high-level forum, the Coordination of the Ministries of Education of FBiH, where SCNWB Country Director, Ms. Andrea Zeravcic, Program Development and Quality Director, Ms. Fatima Smajlovic, and prof. dr. Muharem Avdispahic, STEM Core Expert Group Member, presented the project and provided additional clarifications to the present Ministers of Education again lobbying for the implementation of STEM and PPDM program and standards.

8. Extension of the ENABLE-BiH Project

The ENABLE-BiH project received official extension as of April 16, 2018. The submission of the concept note for the project extension was based on substantial evidence, arguments and clear need for piloting of STEM and PPDM as inevitable stage and process if any changes are to be seen in education and if models of dependable and functional practice are to be established. Namely, during the activities of developing STEM and PPDM documents and policy framework in the first project year, the members of the STEM and PPDM core expert group and extended WG recognized STEM and PPDM as key drivers of positive and vital changes in education, but also continuously reiterated the need for finding a modality and resources to implement and translate them into practice.

Based on its long-standing experience and work in the education area, Save the Children had a considerable record of practice proving that tangible results of an intervention are not possible without implementation, testing of one model within the teaching process and reality of a classroom. It is through implementation that most reliable feedback is received, lessons are learned, and inputs for course-correction are gathered or an intervention is validated for continuation and/or scaling-up). Due to this experience and clear understanding of the STEM-PPDM's pivotal place in the future economic development of BiH, Save the Children had robust interest and commitment to secure STEM-PPDM implementation through project continuation.

Therefore, it submitted a concept-note for the ENABLE-BiH project extension as of December 30th, 2018. After several rounds of consultations with the USAID, Save the Children submitted a revised concept note for ENABLE-BiH Phase II along with answering USAID Issues Letter and providing Institutional Letters of Support as of March 17th, 2018. On April 16th, 2018, the project received an extension through 2020 to implement Phase II of the scope which primarily enabled roll-out of the STEM program in 12 selected model schools in five areas (the Sarajevo Canton, the Herzegovina-Neretva Canton, the Republic of Srpska and the Brcko District). Project Phase II presents a stepping-stone for:

- 1.) STEM implementation and enabling students to acquire knowledge and competences STEM foresees – integration of knowledge in STEM disciplines, practical and hands-on experiences, application of knowledge through real-life scenarios and case studies. Such an education should equip students with initial skills to embark on further education in STEM and later on a career in a STEM industry.

2.) Improving and/or extending STEM teaching based on the feedback from the field and practice through continuous monitoring of the STEM implementation and close cooperation with Ministries of Education, management of the model schools and STEM-PPDM trainer/mentors.

3.) Better linking between and harmonizing of pre-service and in-service education through advocacy efforts for adoption and application of the PPDM Standards across all universities; and direct cooperation with Faculties of Mathematics and Natural Sciences in Sarajevo, Banja Luka and Mostar that would gradually become STEM university centers of excellence, promote STEM and work on establishing cooperation among individual STEM departments, eventually building joint STEM programs such as Master or PhD STEM Programs.

4.) Better responding of the education system to real market needs and thus contributing to the country's gradual economic progress. With this aim, cooperation with business sector, primarily STEM companies and industries is foreseen to allow pupils and students gaining a first-hand insight and practical career orientation that would prompt them taking STEM as their later profession.

5.) Supplementing formal STEM education through provision of STEM courses at one Technological Park which would also serve as a demonstration how can formal teaching be improved and made more engaging, practical and more oriented towards real-life application of knowledge.

Phase II of ENABLE-BiH presents carefully thought-out and complete STEM-PPDM ecosystem which brings together key stakeholders and sectors – primary, secondary and university education, business sectors and NGOs/informal education institutions, paving the trajectory for their mutual cooperation as equally important elements in building successful STEM education and industry.

The commencement of Project Phase II before the end of the Phase I and overlap of several key activities also brought noticeable challenges for SC and ENABLE-BiH project team that will be elaborated in the section Challenges and Lessons Learned.

Furthermore, since STEM and implementation of learning outcomes are its strategic and long-term programmatic orientation, Save the Children has been actively seeking other funding opportunities to support and scale-up its STEM intervention. SCNWB has been a lead in applying for funding to the EEA Grants and Norway Grants³, together with Save the Children Albania, Save the Children Romania and a partner from Croatia, the association for the

³ The EEA Grants and Norway Grants represent the contribution of Iceland, Liechtenstein and Norway to reducing economic and social disparities and to strengthening bilateral relations with 15 EU countries in Central and Southern Europe and the Baltics. There are 32 program areas within different sectors ranging from environmental protection and climate change to civil society and research.

promotion of digital fabrication “FabLab”. SC submitted the concept note for funding in July 2018, and invitation for submission of full applications is expected in January, 2019.

The preparation of the application has showed that in the region there are no similar STEM interventions like the one designed, promoted and now piloted within the ENABLE-BiH project which is focusing on the integration of STEM into the regular, formal education system, into the existing curriculum; and which advocates for a STEM as an interdisciplinary, multidisciplinary and transdisciplinary approach founded on finding meaningful correlations among the STEM disciplines, integrating this knowledge and applying it to solve real-life problems. Therefore, developed STEM-PPDM policy framework and documents are unique and novel not just in BiH, but in the region and could be a solid foundation for other countries to build their STEM programs on.

Moreover, Save the Children has been closely following other interventions in the area of STEM or one segment of STEM, that could be linked and harmonized with ENABLE-BiH. Therefore, SC has been initiating cooperation with the UK Embassy and British Council that is starting “21st Century Schools” project (that aims to provide teacher, school principals and students with practical coding, critical thinking and problem-solving skills) as a part of SC approach and advocacy for aligning alike interventions and efforts of various stakeholders aimed at achieving greater impact in the area of education and other areas of the SC work.

9. Promotional Campaign

With the aim to promote activities of the ENABLE-BiH project and raise public awareness of the gaps of the current education system and teaching methods that are not adequately preparing students for the next stage of their education and job market, as well as to raise understanding of STEM and its advantages for both BiH education and economy, SC started promotional campaign of the project.

In cooperation with Advocacy and Communications Department, the ENABLE-BiH project team developed Communication Strategy defining key messages, target audiences and time-frame-work. Various promotional materials have been developed - an animated infographic and video, posters, teaser, leaflets to ensure effective promotion and greater outreach of different target audiences.

Promotion of the ENABLE-BiH project started as of May 11th, 2018 and ended July 05th, 2018. Promotion of the ENABLE-BiH project started with a press release to media and publishing of the animated infographics and video-clip available at:

<https://www.youtube.com/watch?v=dbsCzHtAYos&feature=youtu.be>

<https://www.youtube.com/watch?v=-8-Fgga0tIw>

Following the press release four media appearances occurred:

On May 14th, 2018, ENABLE-BiH Project Manager, Tatjana Slijepcevic, was guest at ALFA TV in the afternoon program where she spoke about the project and next planned steps. The interview is available at:

<https://alfa.avaz.ba/emisije/378132/save-the-children-kroz-reformu-obrazovanja-dovrhovitog-ucenja>

On May 16th, ENABLE-BiH Project Coordinator, Sanja-Gena Handzar, was guest at BHRT in the afternoon show “U programu ste” where she also spoke about the project and importance of STEM for education and economy of BiH. The interview is available at:

<http://www.bhrt.ba/bht1-emisije/u-programu-ste-bht1/u-programu-ste-16-05-2018/> (27th minute)

On July 5th, 2018, SCNWB Country Director, Andrea Zeravic, and professor Muharem Avdispahic, a member of the STEM core expert group, were guests in the morning program at N1 TV where they spoke about STEM curriculum and its foundational idea that four disciplines are integrated in a unique education paradigm based on real-life interactions and disciplinary correlations. They spoke about the novelty and innovation STEM would bring to BiH education, starting with 12 model schools where the STEM program will start from 2018/2019 school year. The interview is available at:

<http://ba.n1info.com/Video>

On July 10th, 2018 Tatjana Slijepcevic, was again guest at ALFA TV in the afternoon program where she spoke about the next phase of the project in particular STEM piloting in 12 model schools: The interview is available at:

<https://alfa.avaz.ba/emisije/395018/slijepcevic-zahvaljujuci-prakticnom-znanju-mladi-lakse-dolaze-do-posla>

10. Summary of the Key Activities in the Fourth Quarter

Several key activities took place in the fourth quarter of the project implementation (July-September) contributing to the project's progress.

Towards this goal, the project conducted a second block of 10-day Training for STEM-PPDM Trainers/Mentors on July 09-13, 2018 (5-day/Part II). The training equipped key educational professionals and field practitioners with an in-depth understanding of STEM, concrete methods for implementing and integrating STEM into the current curriculum as well as practical tools and guidelines to replicate STEM in the classroom environment. The training was well-received and participants appreciated the high-quality STEM/PPDM resources, noting that these are critical for them to successfully replicate this training in 12 STEM model schools between August to October 2018. As a result of the training, teachers in 12 STEM model schools have been educated on STEM and that STEM programs have begun being implemented, in 7 out of 12 model schools, for the 2018/2019 school year (last week of September 2018).

The ENABLE-BiH project team has also begun conducting several technical-consultative meetings with Ministries/Departments of Education, management of STEM model schools, STEM-PPDM trainers/mentors and teachers in STEM model schools (in the Sarajevo Canton, Herzegovina-Neretva Canton and Brcko-District) during August and first –half of September 2018 to discuss and agree on the modality and frequency of STEM roll-out. Coordination teams that include representatives of the Ministry/Department of Education, model schools' management, ENABLE-BiH team member – Education Implementation Specialist together with SC technical representative – Program Development and Quality Director, and two trainers/mentors, will closely monitor and provide support and guidance to STEM implementation.

Multi-partite Memorandums of Understanding have also been discussed as of mid-August with the project partners and should be signed at the beginning/mid October 2018. They will precisely define rights and obligations of each signatory (Ministry/Department of Education, model schools and Save the Children). Also, the procurement of the STEM equipment for 12 model schools that will facilitate STEM teaching and learning has been initiated in August 2018.

Finally, the project team took part in preparation of the impact analysis aimed at examining the results of the ENABLE-BiH project and the effects of the STEM program in schools on students. Preparation of the methodology was conducted by the Centre for Development Evaluation and Social Science Research (CDESS) contracted by the USAID, to which SC gave inputs and suggestions. SC has submitted the request for the approval of the methodology to the Ministries/Departments of Education in four STEM model areas and request for conducting the research at schools. The impact analysis is to provide baseline for the students' interest and proneness towards STEM, as well as mid-line and end- line along with finding how ENABLE-BiH contributed to this interest.

11. Important Meetings, Presentations and Public Event

On July 16, 2018 John Pezzullo, Congressional Liaison Specialist from the USAID's Bureau for Legislative and Public Affairs visited Save the Children to learn about the education sector in BiH, ENABLE-BiH project and STEM implementation and programs the USAID supports in the country. From Save the Children, Finance and Support Services Director, Zlata Artukovic-Milisa, Advocacy Specialist, Aleksandra Babic-Golubovic, and ENABLE-BiH Project Manager, Tatjana Slijepcevic, were present at the meeting (Country Director, Andrea Zeravcic, and Program Development and Quality Director, Fatima Smajlovic, could not attend the meeting due to earlier scheduled business trips and field visits).

During the meeting, Mr. Pezzullo was presented with general situation in BiH education and major challenges, complex governing structures that are slowing down or blocking the reforms, key stakeholders, involvement of the international community in this area etc. He was presented the portfolio of the Education Program at SC NWB, structure of the ENABLE-BiH project, so far achievements within STEM and next planned activities. In addition to discussion of the most relevant issues in the area of education, written input was provided for Mr. Pezzullo. The following were identified and suggested to be addressed and incorporated into the future interventions in education:

- The future interventions that the USAID or other international donors support should be based on strong evidence and include in-depth baselines, impact analyses, longitudinal studies so as to measure impacts, changes and improvements and provide substantial, reliable and scientific information whether an intervention should be continued, improved, scaled-up or terminated;
- Interventions in early learning and education should be one of the priorities in education and they should also incorporate STEM adjusted to early age so that STEM related knowledge and skills are gained at this crucial stage of child development and learning;
- Interventions should be designed in a way to initiate and nurture development of relevant expert communities and even more importantly communities of proven and dependable practices;
- Interventions need to be focused on strengthening formal system structures, building a critical mass and demanding educational authorities to take a proactive approach, to plan strategically, to have long-term commitment and ensure sustainable systemic changes;
- The interventions should be long-term with a minimum duration of 3 years, optimally 5 years in order to tackle education challenges related to the existing non-alignment of the education and business sector/market requirements, to create stronger and more direct links between pre and in-service education, and vertical harmonization of different education levels – preschool, primary, secondary and university level, as well as to provide massive capacity building and licensing of the education cadre which requires substantive time and resources;

- Replication and scaling-up of good and proven practices and models should be an integral part of interventions;
- Consolidation, harmonization and coordination of the of the international community support and efforts needs to be continued in order to ensure quality, relevant and accessible education;
- Evaluation of STEM practices in the pilot areas, their improvement and revision; scaling up and innovating STEM in the current model areas and new areas, advocating for the revision of the current curriculum in accordance with student learning outcomes and STEM Operational Teaching Curriculum; and establishing STEM university programs (undergraduate and graduate – MSc or PhD).

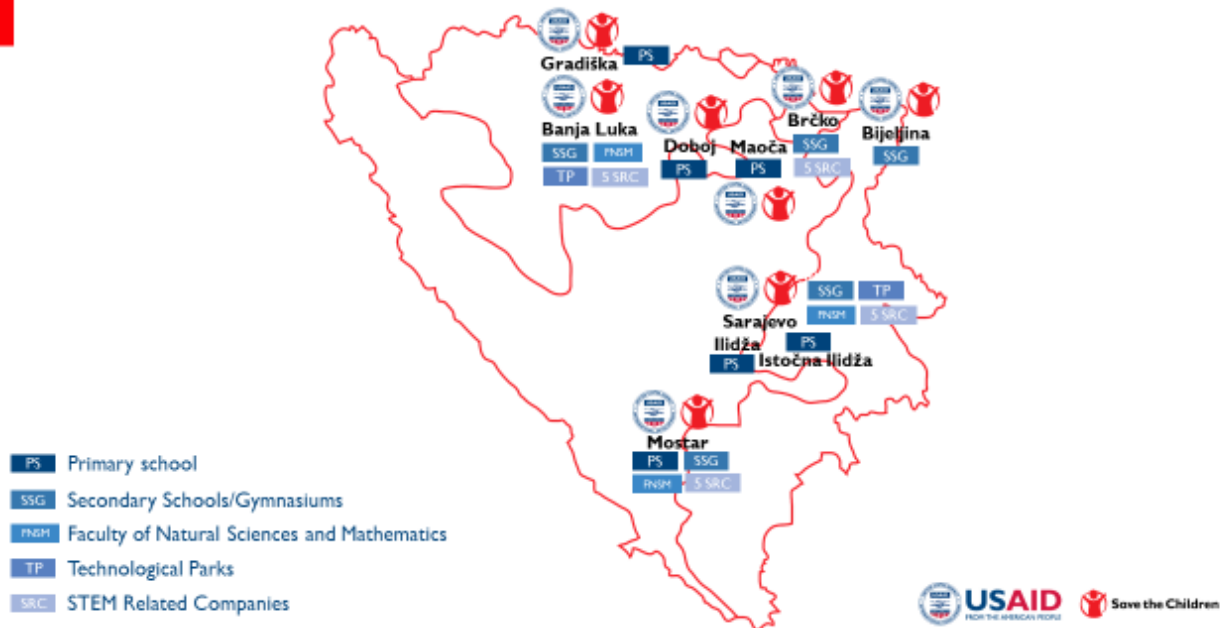
On September 25th, 2018, SCNWB Country Director, Andrea Zeravcic, Program Development and Quality Director, Fatima Smajlovic and Project Manager, Tatjana Slijepcevic, provided a presentation on the current status of the ENABLE-BiH project and STEM roll-out to the US Ambassador and USAID Mission Director and their colleagues.

The presentation provided information on the achievements within the ENABLE-BiH project so far i.e. the process of setting the policy framework for the implementation of STEM in primary and secondary schools and improvement of PPDM teaching at the university level, stakeholders from all the governance levels who took part in this process, as well as the very nature of the ENABLE-BiH project as one of few, state-level initiatives tackling the very essence of the educational reform – promoting CCC based on learning outcomes and supporting its implementation.

The preparatory activities for the STEM roll-out were summarized including: Training for STEM-PPDM trainers/mentors, replication of STEM-PPDM trainings in 12 Model STEM schools, procuring STEM equipment and equipping the schools.

The locations of the STEM model schools were also presented, showing proportional distribution among the model areas (the Federation of BiH – the Sarajevo Canton and Herzegovina-Neretva Canton), the Republic of Srpska and Brčko District) as well as balance between urban and peri-urban areas.

A MAP of ENABLE BIH Phase II - Intervention Sites



It was explained that STEM Teaching Matrix was defined in 7 out of 12 Model Schools and that STEM coverage should be approximately 25% of regular education process in 2018/2019 academic year which would include STEM lessons/projects/school clubs and programs/events-fairs, competitions; the composition of the STEM coordination teams was explained as well as system for tracking and evaluation of the intervention success.

Also, challenges were addressed, the critical ones being (non)implementation of the CCC defined on learning outcomes and revision of the current teaching plans and programs in accordance with CCC; resistance to change and reforms by different educational stakeholders, in particular field practitioners who need guidance and support; presumed difficulty of holding Ministries of Education accountable for the recognition of STEM model schools and replication of this modality as well as a number of project initiatives that are being presented as STEM, but actually focus on only one part of STEM unlike ENABLE-BiH which has developed and promoted comprehensive approach including all six STEM disciplines existing in the BiH curriculum (Math, Geography, Biology, Chemistry, Physics and IT).

The whole presentation is available here:



ENABLE-BiH PPT.pptx

Following the presentation, SC received a valuable information, from the US Embassy Cultural Attaché, Ms. Marissa Smith, about the Embassy Science Fellow, Kelly A. Witter, from the Environmental Protection Agency who is highly knowledgeable about STEM and various

STEM educational programs and trainings and who will be in BiH for three months at the beginning of 2019. The project team expressed interest in meeting the Fellow and organizing a meeting with the STEM/PPDM trainers/mentors so that they directly learn about up-to-date STEM practices and teaching strategies, and discuss some kind of online meetings so that the pool of trainers/mentors and project team can continuously be exposed to recent developments in STE(A)M and transfer some of them to the BiH schools.

12. Public Event for the ENABLE-BiH Phase I and II

According to the initial project application, two public events were planned at the end of the Project, September 2018 to present the project results and STEM and PPDM documents. Due to the project extension until September 2020, and Phase II that will focus on the implementation, a public event/conference will be organized at the beginning of the third project year (probably mid-December, 2018 as the appointment of the new Ministers after the elections are yet to happen, which is particularly important due to the recent change of the Minister of Education and Culture of the Republic of Srpska and appointment of the new minister that should be end of November). The public event will be used to present the activities and outcomes of Project Phase I and announce the planned activities of Project Phase II. The event should gather an array of relevant educational professionals, stakeholders, policy planners and field practitioners – Ministries of Education, Pedagogical Institutes, academia, business sector, relevant local and international NGOs, schools, media, parents' associations etc. which work in the area of education or have a keen interest in educational reforms. It is expected that through this forum wider target audiences will be reached, and provided with deeper understanding of the project outputs – created STEM and PPDM documents and policy framework as a comprehensive and solid foundation for embarking on the necessary changes and improvements in BiH education across all levels. The forum should facilitate identification of new supporters of the STEM programs and PPDM standards who would recognize their necessity and potentials and utilize these resources in the actual teaching process.

13. Training for STEM-PPDM Trainers/Mentors⁴

The STEM expert core team composed of the leading BiH experts and university professors in STEM disciplines developed the methodology, structure and content of the Training for STEM-PPDM Master Trainers/Mentors. The ENABLE-BiH project team provided thorough guidance to the expert team on how to structure the training due to its experience and direct insight in the needs of the educational professionals that would attend the Training for Trainers (primary and general secondary school teachers, advisors from the Pedagogical Institutes, APOSO representatives etc.).

The key materials used for the preparations of the training were previously developed STEM documents based on which presentations as well as a number of practical tasks and workshop activities were developed.

⁴ This activity was conducted in the overlap period of the project Phase I and II.

On April 24, 2018 Public call for Training for STEM-PPDM Master Trainers/Mentors was announced and it was opened until May 14, 2018. Upon the closure of the public call, a total of 122 applications were received. Save the Children internal selection committee revised all the applications paying attention primarily to the quality of applications, subject that an applicant is teaching as well as the level of education where an applicant is teaching (lower primary school, higher/subject primary school or secondary school) as well as the area where the applicant is coming from as a slight preference was to be given to the applicants coming from the future STEM model areas – the Sarajevo Canton, Herzegovina-Neretva Canton, Brcko District and the Republic of Srpska (in order to facilitate later replication training as well as two-year mentorship program).

The number of applications from the Republic of Srpska was not as planned even though the project staff intensively lobbied with the STEM WG and PAB representatives and wrote to the Minister of Education and Advisor for the Preschool, Primary and Secondary Education (also member of the STEM WG) to appoint the missing candidates from the model schools in the Republic of Srpska.

Instead of the planned 73 training participants, 42 persons completed the training. The first part of the ToT was completed by 48 participants, but six of them did not want to continue the training due to foreseen trainers'/mentors' duties and symbolic fees that could be offered. The project team will organize additional training to reach the planned number of STEM-PPDM trainers/mentors (73) and ensure teachers in model schools have relevant mentors for the subject they teach.

Training for STEM-PPDM Trainers/Mentors took place in Sarajevo, from June 18-22 (first part) and from July 09-13, 2018 (second part) at hotel "Hollywood". *The key outcome of this 10-day Training for Trainers was that a group of qualified educational professionals from the STEM model areas gained deeper understanding of STEM-PPDM, relevant knowledge how can STEM be translated to practice within the current BiH education system and skills necessary to conduct replication trainings and further train teachers in 12 STEM models who will roll-out STEM program from September 2018.*

The overall goals of the training were:

1. To introduce the training participants to the STEM concept and approach to education
2. To introduce the training participants to the links between STEM and knowledge-based economy
3. To enable ToT participants to conduct replication trainings
4. To enable ToT participants for successful mentoring of teachers in STEM model schools

The specific goals were:

1. To introduce the training participants to the Common Core Curriculum Based on Learning Outcomes for Natural Sciences, Mathematics and Information-communication Technologies
2. To introduce the training participants to the Operational Teaching Curriculum for STEM Proficiencies based on Common Core Curriculum Based on Learning Outcomes
3. To understand the concept of formative monitoring and assessment
4. To introduce the participants to PPDM group of subjects and basic andragogic teaching principles

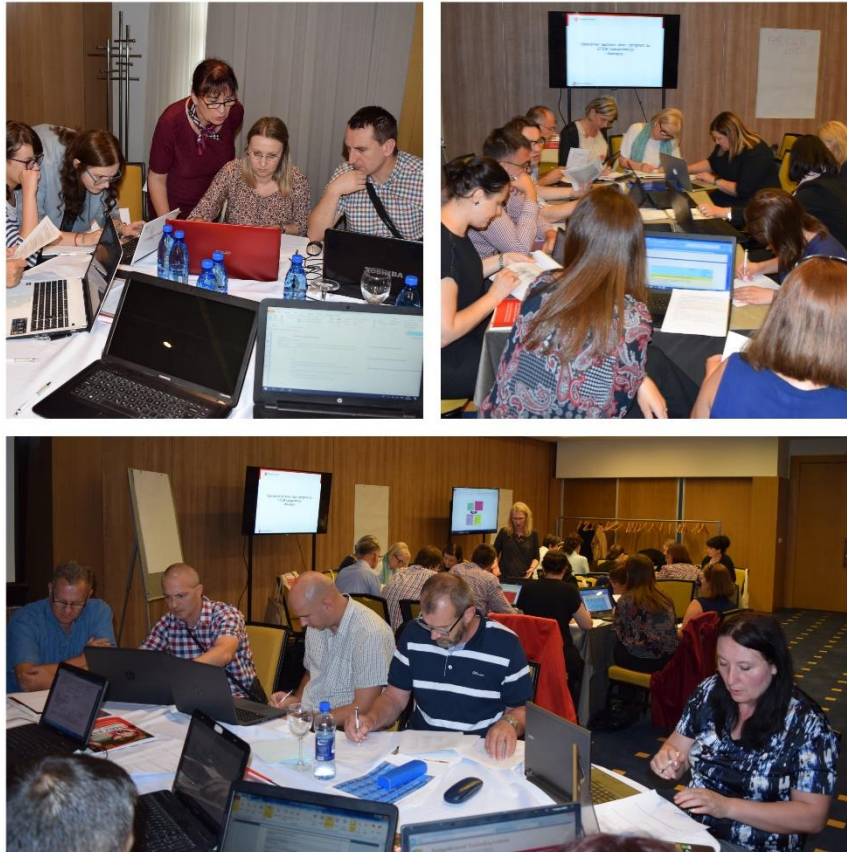
The following topics were addressed and elaborated during the 10-day Training for Trainers accompanied with a number of practical examples and exercises by which the ToT participants could test their understanding and newly gained knowledge, discuss it in pairs or groups, or receive clarifications and feedback by the STEM-PPDM core group experts:

Introduction to STEM – STEM concept and approach were presented with a particular emphasis on the need to change and shift the educational paradigm in a way that teaching and learning process is directed towards building students' competences, knowledge and understanding, knowledge application, critical analysis, independent thinking and communication skills. It was explained that the key goal of the STEM OTC was to enable transition from content-based learning which requires memorization and reproduction towards learning outcomes, as well as to provide guidance how the school-gained knowledge and skills can be applied in real-life situations.

Presentation of the Common Core Curriculum based on Learning Outcomes – the APOS0 representative and member of the STEM Working Group presented the Common Core Curriculum, the process of its development, the content (areas, indicators, learning outcomes), the way to use and interpret different sections of the CCC, Bloom's taxonomy, the meaning of different colors used in the documents etc. CCC for the relevant STEM subjects and disciplines was also presented and was supplemented with a workshop where the participants analyzed the Common Core Curriculum per specific disciplines in order to gain practical understanding of the structure, usage and purpose of this document.

Presentation of the OTC for STEM Proficiencies in general with KBE sectors, Presentation of the OTC for STEM proficiencies per individual subjects and Analysis of the OTC per individual subjects – the process of development of the STEM OTC was presented, pointing out that the document was based on the previously developed CCC per individual STEM subjects and how these were mutually correlated where there were natural and logical links. Particular attention was devoted to explain a unique feature of the STEM documents i.e. their being based on KBE. It was explained that 10 KBE sectors were identified so as to include those economy sectors for which BiH has the potentials and resources as well as the ones that are becoming more relevant and marketable at the regional and international level. It was presented how the entire content of all developed STEM documents was pervaded with KBE

concept and provided explanations how a certain educational unit belonged to a KBE sector and how it contributed to this very sector. In order to ensure deep and comprehensive understanding of the STEM OTC, separate presentations of the STEM OTC per individual STEM subjects were provided to training participants along with a practical exercise and analysis of that very STEM OTC.



Group work during the STEM-PPDM Training for Trainers

Inter-subject correlations – The importance of logical and meaningful correlations among the STEM subjects was explained along with methodology for development of the inter-subject correlation matrix. Upon this introduction, the training participants engaged in a practical exercise to develop the matrix, which was then presented and discussed among the groups that were providing inputs and suggestions for possible improvements.

STEM Lesson Planning – This module was given a special attention to considering that lessons are the basic and key unit of the teaching process in the BiH education system. Therefore, the training participants were first presented with the template for the preparation of the STEM lesson based on learning outcomes and the check list for the analysis of the STEM lesson preparation. Following the theoretical part, the participants analyzed STEM lesson plans previously developed by the STEM experts and presented findings of their analysis to the whole group with recommendations how certain lesson plans could be improved so that they better reflect the curriculum and classroom dynamics. The exercise showed the value of the

input by the teachers and field practitioners directly engaged in the teaching process at school. The ToT participants then analyzed and self-assessed the STEM lesson preparation they completed prior to coming to the ToT, incorporating new knowledge and inputs from their colleagues and experts. The final part of this module was development of a new STEM lesson plan in smaller groups, its presentation to the whole group and discussion of its content and implementability.

STEM Approach to Project Teaching – Considering that STEM projects of various complexity and duration are among key modalities in STEM teaching when it comes to international practice, this module was also given substantial attention and time, as the STEM projects were to be a part of the STEM teaching in BiH. The template for the STEM projects was first presented. The training participants then analyzed STEM projects for different grades that were created by the STEM core experts and members of the STEM extended group, looking for a well-elaborated sections as well as those that could be further improved. Upon this, the participants analyzed and self-assessed STEM projects they created, discussed them in smaller groups and then presented to the entire group which provided comments, compliments and suggestions for changes or improvements.

Formative Assessment – The novelty of STEM teaching requires different approach and methodology of assessment, i.e. formative assessment. At the beginning the difference between formative and summative assessment was explained, formative assessment being used to monitor students' learning with the aim to provide ongoing feedback that can be used by teachers to improve their teaching and by students to improve their learning, while summative assessment evaluates students' learning at the end of an instructional unit or period by comparing it against some standard or benchmark. The formative assessment matrix prepared by the STEM core experts was then presented, and the ToT participants individually developed this matrix in accordance with the selected learning outcomes included in the STEM project, with selecting relevant methods and techniques for monitoring and assessment. The work was continued in groups with the aim to integrate these methods and techniques from different subjects within a STEM project.



Group work during the STEM-PPDM Training for Trainers

PPDM Module – Considering that PPDM is an inevitable part of successful STEM teaching, that these two components go hand-in-hand and that the STEM and PPDM documents developed within the ENABLE-BiH project supplement each other, a part of the ToT was allocated to PPDM. During the PPDM sessions the following topics were addressed and discussed: “The Role of Teachers in the Process of Educational Changes” here an important question was how much teachers are ready to change, adjust to the changing educational paradigm, technological development and market requirements which STEM brings along? The need and role for the continuous and life-long learning was elaborated. Basic andragogy principles and methods were presented and discussed, considering that STEM-PPDM trainers/mentors will be training and mentoring adults i.e. their fellow teachers which requires different approach and methodology than teaching children. The training participants were also engaged in an exercise to self-evaluate their mentorship potentials as well as to create a tentative mentorship plan for the coordination and mentoring process.

Simulation Sessions – Last part of the ToT was devoted to simulating the sessions that would comprise the Replication Trainings that the ToT participants would deliver at 12 STEM model schools in August/September 2018, for a total of 192 teachers that would implement STEM program from the school year 2018/2019. They rehearsed delivering presentations and leading practical group work and exercises for the following topics: What is STEM and how does it fit into the current curriculum; Presentation and workshop for the Common Core Curriculum,

STEM OTC and KBE sectors; Development of the Inter-subjects Correlation Matrix; Presentation of the STEM lesson template, preparation of the STEM lesson, correlation of one STEM subject with other relevant STEM subjects and units, and evaluation of the STEM lesson; STEM Project teaching, with the presentation of the STEM project template and evaluation of already developed STEM projects; and Formative Assessment which included presentation and workshop for development of formative assessment matrix.

In this way they practiced delivering the training and received feedback from the experts and their peers and got better prepared for the actual execution of the replication trainings in model schools. The simulation sessions were complimented by the ToT participants who said that they showed them strong parts of their trainers' experience and approach, as well as those that need to be improved so as to ensure clear and appropriate knowledge-transfer to teachers in model schools.



Participants of the Training for STEM-PPDM Trainers-Mentors

At the end of training, time was allocated for questions and reflections by the project team, core STEM experts and participants. The whole training was filmed by a professional team in order to produce an online-training. This was done due to the fact that online training and teaching is increasing standard and practice in education, and so that training participants could go back to revise certain parts of the training, and that educational professionals who have not attend the training can also use the material and implement STEM in their schools. This could potentially ensure greater outreach and conducting STEM out of model schools only.

14. Replication STEM-PPDM Trainings for Teachers in 12 STEM Model Schools⁵

Replication STEM-PPDM trainings for the teachers who will conduct STEM program from school year 2018/2018 took place from August 28 to October 6, 2018 in 12 STEM model schools in Sarajevo, Mostar, Doboj, Bijeljina, Gradiška, Banja Luka and Brčko District. The trainings were prepared and executed by a total of 42 STEM-PPDM trainers/mentors who completed a 10-day training in June and July 2018. The secondary model schools were required to appoint at least 12 STEM subject teachers for the training participation (2 Mathematics, 2

⁵ This activity was conducted in the overlap period of the project Phase I and II.

Chemistry, 2 Biology, 2 Geography, 2 Physics, 2 IT teachers), while the primary model schools were required to appoint at least 4 lower-subject teachers and 12 STEM subject teachers, a total of 16 teachers.

*As the **key outcome** teachers were trained to conduct STEM lessons within the existing curriculum as well as STEM projects. They were provided with documents, guidance, concrete tools, examples and templates to implement STEM lessons, as a basic unit of the teaching process, and to later advance STEM teaching with implementing STEM projects. They were initially introduced to the mentorship process that will be crucial for successful STEM implementation in the first year of the roll-out.*



Replication training for the Primary and Secondary Model Schools in the Brčko District

The replication trainings lasted for five days. The schedule and content was created by the core STEM-PPDM experts and it was simulated by the ToT participants during last two days of the Training for Trainers. It covered topics and modules of the ToT that were adjusted to five-day replication training and smaller groups. It included the following content and topics:

General Introduction to STEM – Within this session it was presented what STEM is, how can STEM approach improve teaching and learning process, and why it is needed in the BiH education system. The (non) participation of BiH in international tests (TIMMS and PISA) was presented and compared with neighboring and other countries, singling out Slovenia that made considerable progress in its education and international tests scoring in the last decade.

Examples of good STEM practices were given and it was briefly presented what could be the way to implement STEM within the current BiH system and what reforms would be necessary.

Common Core Curriculum and STEM OTC – The documents and their key content were presented and analyzed through an interactive workshop so that the teachers would practically learn how to use CCC. Presentation of CCC based on learning outcomes for individual STEM subjects was an introduction to presenting the STEM OTC which was based on the CCC for STEM subjects defined on learning outcomes. The process of developing STEM OTC was explained along with links to identified KBE sectors and how educational content and curriculum were connected to certain areas of economy. The module included presentation of the Inter-subject matrix together with an exercise of finding correlations within one subject. The next task was to develop the correlation matrix among the subjects during an interactive workshop, discuss it in a pair or group, and then present it to the whole group to receive feedback and input for possible improvements.

STEM Lesson Plan – The template for a STEM lesson preparation, the actual STEM lesson preparation and a check list were presented so that teachers could evaluate one STEM lesson plan/preparation. They were looking for correlations and ways they were linked, proposing possible improvements or highlighting particularly good correlations. The teachers were then given a task to prepare a STEM lesson plan for the subject they teach, present it to others and discuss the innovative methods and techniques used or those that were omitted, but would be applicable to STEM lesson planning. The next step was to design a STEM lesson preparation but with stronger correlations with other subjects, through group work and cooperation with other STEM teachers.



Replication training for the Primary and Secondary Model Schools in the Herzegovina-Neretva Canton, Mostar

STEM Project Teaching – The project teaching and its relevance for STEM was presented, along with the template for STEM projects and the check list for the evaluation of STEM projects. The teachers then analyzed already-prepared STEM projects to understand how the project activities were related to learning outcomes. They were analyzing projects looking for the possible ways for improvements. The next activity was designing new STEM projects, first individually and then in groups, which was followed by presentations, group discussions and group input and feedback on the relevance of the projects, their alignment with the curriculum or community problems, and ways the project could be extended or improved to meet all requirements of a quality STEM project.



Training participants of the replication training in Gymnasium “Filip Višnjić” Bijeljina

Formative Assessment – The difference between formative and summative assessment was explained, with the emphasis that one is not better than the other, but that they should both be used, that they complement each other and that they serve different purposes at different occasions. Following the presentation of the matrix for formative assessment, the teachers got engaged in an exercise for development of matrix for formative assessment per learning outcomes for one subject. Then a matrix for formative assessment per learning outcomes in one STEM project was developed along with and accompanying activities for monitoring and assessment. The ways and tools for monitoring and assessment of STEM projects were discussed and aligned per subjects. Time-frame for monitoring and students’ assessment during a STEM project was also developed.



Replication trainings in two locations in the Republic of Srpska, Primary Model Schools in East Ilidža and Gradiška

Monitoring and Mentoring Process – The basic andragogy principles and methods were explained, and key differences when it comes to adult and children teaching and learning. The teachers were explained that during the next two years they would have the mentorship support by the STEM-PPDM trainers/mentors in conducting STEM program, but that more details would be agreed with the ENABLE-BiH project team, presented and discussed during the technical-consultative meetings that would follow upon the replication trainings.

15. STEM Roll-out in Model Schools⁶

Following the STEM-PPDM replication trainings, the project team conducted several technical meetings with Ministries/Departments of Education, management of STEM model schools, STEM-PPDM trainers-mentors and teachers in STEM model schools to discuss and agree on the modality and frequency of STEM roll-out. Two meetings took place in the Sarajevo Canton, as of September 7th and 14th, in the Brčko District as of September 19th and Herzegovina-Neretva Canton, Mostar as of September 20th.

These meetings were used to provide additional clarifications to the participants and agree on the way the STEM will be started in schools in the last week of September, how it will be conducted later, to clarify the coordination and communication modality i.e. introduce coordination teams that will include representatives of the Ministry/Department of Education,

⁶ The beginning of the STEM roll-out occurred in the overlap period on Project Phase I (i.e. last month of Project Phase I) and Project Phase II.

model schools' management, ENABLE-BiH team member – Education Implementation Specialist together with SC technical representative – Program Development and Quality Director, and two trainers/mentors.

The STEM-PPDM trainers/mentors had meetings with teachers in model schools and agreed on the first STEM classes that were conducted in September and they also developed the work plan for the first semester/year that is currently being revised by the ENABLE-BiH project team.

STEM Teaching Matrix has been defined in 7 out of 12 Model Schools (the technical meeting in the Republic of Srpska has been postponed until after the elections). STEM is to have a coverage of approximate 25 % of regular education process in 2018/2019 school year through: STEM lessons **integrated in the regular teaching process** (this will include both preparation and execution of the STEM lessons), projects, school clubs and other educational programs, events, fairs and competitions.

The first STEM class in the Ninth Primary School in Maoča, Brčko District was conducted on September 23, 2018. The leading STEM subject was IT and the topic was "FILE EXPLORER – creating, copying, transferring data, renaming and deleting files and folders".

The class was correlated to Mathematics and Geography. The pupils used the educational network "Edmodo" to get prepared for the class. They have chosen the names for the excursions sites they would like to visit "Denmark" and "Lithuania" and had a task to create in the folder "Documents" folders with these names and to make sub-folders for photos and data. In the "Photos" folder they copied photos they made or found. In the folder "Data" they created a textual file and entered numerical values of the surface of the excursion sites and a number of students that could step on the surface ($\frac{1}{4} m^2$ for each student).

At the end of the class they had to delete the folders. In addition to the formative assessment table, the summative results and grades were given to students. Pupils were satisfied with the grades and said that the lesson was very interesting and engaging. Teachers of Technical Education and Chemistry were present at this class too. They received a very practical and on-the-spot insight into the execution of a STEM class, saying that it clearly demonstrated the need and way to connect STEM subjects, applying concepts to a real-life situation and making pupils more motivated and enthusiastic to participate in the class.

16. Developing and Signing Memorandums of Understanding (MoU)

Memorandum of Understanding (MoU) is a standard tool of Save the Children for establishing and confirming cooperation and partnership with the partner institutions and organizations. The MoU is intended as a framework document for collaboration and used to establish areas of mutual interest and ways of working. It is a statement of intent between Save the Children and

a partner institution/organization and is not intended to create a contract, give rise to legal rights and obligations or create any legal relations whatsoever. The MoU does not preclude each organization from working independently with other organizations and networks in Bosnia and Herzegovina engaged in humanitarian relief and development efforts.

For ENABLE-BiH Phase II Multi-Partite MoUs have been developed, discussed with the project partners/MoU signatories (Ministries of Education and Model Schools) and revised based on their inputs and feedback. The MoUs are currently being finalized, undergoing last round of legal and technical proofreading prior to their signing and formalization that is planned for the first week of October, 2018.⁷

17. Challenges and Lessons-Learned

The second year of project implementation was not without noticeable challenges that were affecting the implementation of the project activities. As a first and constant challenge, the specific and complex administrative-governing structure of BiH should be voiced. The bureaucratic apparatus of 14 Ministries/Departments of Education at the State, Entity, Cantonal and District level, where the only state level bodies, Ministry of Civil Affairs of BiH and Conference of Ministers of Education of BiH, along with the Federal Ministry of Education and Science, have merely coordination role and can only issues recommendations, while the executive authority belongs to the Entity level of the Republic of Srpska, Cantonal and District level is a tremendous challenge in itself. Such a dispersed and complex organization makes impossible having unilateral or at least balanced approach, strategies and investments in the education sector.

Two state agencies, APOSO and HEA, also have authority to only provide recommendations for implementation of policy documents and strategies by the Ministries and Universities. When it comes to APOSO, it is, among others, responsible for developing common core curricula in pre-primary, primary and secondary education, but not its implementation which is the responsibility of the Cantonal and Entity/RS Ministry of Education. Common Core Curricula were developed and adopted in 2003 by all Ministries of Education, the adoption automatically implied all subsequent changes to CCC. Therefore, when in 2012 revisions of CCC defined on learning outcomes started, it was considered adopted by all MoEs. Recently, APOSO completed CCC defined on learning outcomes for all subject areas and education levels. However, implementation of CCC is greatly missing and it is not a priority on the agenda of the relevant Ministries of Education. At the recent meeting of the Federal Ministers of Education in July 2018, the interest was expressed for the implementation of learning outcomes, which would require revision of teaching plans and programs and teachers' capacity building for which strong commitment, know-how and resources are lacking. The international community and INGOs working in education were inviting educational authorities to embark

⁷ The exception to this is the Ministry of Education and Culture of the Republic of Srpska where the technical meeting initially scheduled for September 27, 2018 was postponed after the elections. This meeting will be used to sign the MoU and agree on the modalities of STEM roll-out in five model schools in the RS.

on these processes and were trying to coordinate and join efforts, but the change remains rather slow.

Save the Children is one of rare, or even only organization, that works on defining and implementing learning outcomes in cooperation with the Ministries of Education, Pedagogical Institutes, and schools (for the Literacy, Mathematics and now Natural Sciences and IT through STEM).

The very fact that CCC for Natural Sciences, Mathematics and IT have not been implemented and that a great majority of educational professionals, field practitioners and teachers did not receive any training or informative seminar on the content and purpose of these documents, posed a significant challenge in creating STEM Operational Teaching Curriculum and accompanying documents that were founded on CCC for Natural Sciences, Mathematics and IT. A number of complaints and objections was received by the STEM extended working group, participants of the STEM consultative sessions, participants of the Training for STEM-PPDM Trainers/Mentors and participants of the STEM-PPDM replication trainings as many of them were not familiar with CCC. A frequent complaint was that the introduction of STEM into BiH schools would be too early and that firstly individual CCC defined on learning outcomes should be implemented and form a basis for the integrative STEM approach.

Save the Children responded to this challenge by primary involving the APOSO representatives in all activities – meetings of the STEM WG, public consultations, ToT to present and explain the content, purpose and way of using CCC, while the ToT and replication trainings also included a CCC workshop so that future STEM-PPDM trainers/mentors and teachers at the model schools could gain practical knowledge and understanding how to use CCC defined on learning outcomes. Also, STEM OTC was presented by the STEM core expert group as the way to implement learning outcomes for Natural Sciences, Mathematics and IT at once through integrated STEM teaching which is easier and more natural due to number of correlations among these subjects which facilitate their teaching and learning.

As previously mentioned, extension of the ENABLE-BiH and overlap of the activities of the Phase I and Phase II posed challenges for SC and project team. Primarily the Training for STEM-PPDM Trainers/Mentors (June 18-22, 2018 first part and July 09-13, 2018 second part) was conducted in the period of the end of school year, then annual leaves as well as exam period for the STEM-PPDM expert team that delivered the training. The period of ToT was one of the reasons that number of interested candidates did not even apply as they could not attend the training in this period. This was one of the reasons, that 48 participants (instead of planned 73) could be selected to attend the training. Another challenge was experienced as several ToT participants did not want to continue the training due to symbolic fees offered for the STEM-PPDM replication trainings and mentorship engagement. The project team will organize additional training to reach the planned number of STEM-PPDM trainers/mentors (73) and ensure teachers in model schools have relevant mentors for the subject they teach.

The period for the replication trainings, the last week of August/beginning of September was also objected to by 2/3 of the training participants as the period between the ToT and replication trainings was deemed to be too short as well as inconvenient due to preparatory activities at schools during last week of August/beginning of September. 2/3 of the ToT participants were demanding that replication trainings are conducted in January, 2019 so that sufficient time would be allocated for the preparations and execution of the replication trainings as well as other preparatory activities needed for introducing novelty and changes STEM brings in the teaching process.

Although Save the Children was fully aware that this time was needed to conduct all preparations in a quality, comprehensive manner including all relevant stakeholders and institutions, conducting several rounds of technical-consultative meetings, reaching common understanding among all involved parties and developing detailed STEM implementation plan and mentorship plan and program; developing, negotiating and signing Memorandums of Understanding, it followed the project application time-line and conducted the replication trainings in 12 STEM model schools the last week of August/beginning of September. Parallel activities needed to take place - preparing, negotiating and signing MoUs with Ministries/Departments of Education, starting the procurement of STEM equipment, and technical-consultative meetings with the MoE representatives, model school management, STEM-PPDM trainers/mentors and teachers in model schools in order to start the STEM roll-out last week of September 2018.

During these technical-consultative meetings the project-team was faced with resistance of 1/3 of teachers in model schools in the Sarajevo Canton, Herzegovina-Neretva Canton and Brcko District who deemed that STEM implementation would require significant additional work, time and preparation asking for the reimbursement for this additional effort, as seen by them. As no fees could be provided through the project, the project team had intensive negotiations with the Ministries of Education and school management to find the modality how the teachers in STEM model schools would be compensated – through recognition of STEM teaching as professional training which would ensure credits needed for professional advancement, financial compensation, excluding them from some activities such as clubs etc. These different modalities were incorporated in the MoUs signed by MoEs, model schools and Save the Children.

The process also showed that STEM/PPDM trainers/mentors need substantial support and guidance to conduct the mentorship process. Separate meetings and intensive communication have therefore taken place with the trainers/mentors, and the coordination teams will be put in place to coordinate and monitor STEM implementation. They will include representatives of the Ministry/Department of Education, model schools' management, ENABLE-BiH team member – Education Implementation Specialist together with SC technical representative – Program Development and Quality Director, and two trainers/mentors.

The project team, in particular Program Development and Quality Director, has developed STEM implementation matrix that still needs to be negotiated with the model schools so that STEM is integrated in substantial portion of the teaching plans and programs.

Finally, it proved to be very challenging to hold the Ministries accountable for STEM implementation regardless of their written commitment and agreement to the list of criteria for STEM model schools. While in the Sarajevo Canton, the Herzegovina-Neretva Canton and the Brcko District it was agreed that STEM would be integrated into regular curriculum and teaching, the Ministry of Education and Culture of the RS has already proposed that STEM is implemented through clubs and additional classes, at least in the beginning. This will be further discussed at the meeting with the Minister and focal point for STEM implementation which is to take place second week of October.

Integration of STEM into regular education will be complex and challenging process which will require close monitoring and involvement of the project team to ensure its quality implementation and achievement of the planned results.

18. Development of STEM Web-application and Web-site

Along with electronic version of the OTC for STEM proficiencies based on CCC, STEM web-application has also been developed. The application is being developed by the US project partner, 21PSTEM that has already done similar STEM web-applications within their other projects, ENABLE-BiH project team and an IT expert from the local STEM expert group.

The web-application should ensure easier navigation among different parts of the STEM curriculum, maintaining a strong and direct connection with KBE. The web-application should enhance STEM education and its outreach among the schools and teachers, and make their teaching easier as well as enable them to exchange examples of good practice and experiences in teaching STEM. It should allow registered users to upload content and share relevant materials among themselves thus enriching STEM related resources.

The web-application will serve as a key platform and resource for STEM/PPDM and will provide support to wide audiences – educational professionals across all levels, academia, field practitioners, policy planners and decision-makers as well as business sector. In addition to the online STEM OTC, the web application will provide the STEM and PPDM documents developed within ENABLE-BiH phase I, information and news about the project, space for teachers' interaction and cooperation, as well as for the parents. While key target audiences are based in Bosnia and Herzegovina, it is deemed that such an online platform can be of service and benefit to the wider region (the neighboring countries in particular) as an example of good practice and guide how STEM can become a part of the regular and formal education systems.

19. Networking and Promotional Activities

Save the Children took part in the regional conference for educators “Teachers in Action” organized by the Centre for Educational Initiatives “Step by Step” and presented ENABLE-BiH project on August 26, 2018. The project generated quite an interest in the audience and there were a number of questions on the modalities for the STEM implementation in model schools, support the schools will receive, access to the produced STEM and PPDM materials as well as possibilities for expanding the intervention and including more schools.



On September 28, 2018, Save the Children took part in “The European Researchers’ Night” with the ENABLE-BiH Project, as this year theme of the event was “Let’s STEAM”. This year “The European Researchers’ Night” year had a mission to show that science pervades every aspect of our lives and that science is fun. It aimed to celebrate the creative side of science as well as the creative process of scientific achievement.

ENABLE-BiH project team, together with STEM-PPDM trainers from the Sarajevo Canton, designed and presented an interactive STEM workshop which brought together all STEM disciplines thus illustrating comprehensiveness, fullness and scientific foundation of STEM. The theme of the workshop was crime investigation through a DNA analysis which was done through practical and engaging demonstration adjusted to the audience of different age.



20. Impact Analysis for the ENABLE-BiH phase II

During finalization of the concept note for the ENABLE-BiH II, upon recommendation and request of the USAID it has been agreed that impact analysis will be conducted with the aim to examine the results of the ENABLE-BiH project and the effects of the STEM program in schools on students.

The main goals of the evaluation are to answer the following questions:

1. Cause and effect

- What is the effect/impact of the ENABLE-BiH project on the interest of students in STEM subjects and career?

2. Descriptions and formatives

- What were the characteristics of the teachers who took part in the STEM program?
- What were the obstacles to conduct the program?
- To what extent was the program conducted in accordance with the plan?
- How was the program perceived by the beneficiaries, educational and other institutions in BiH?
- How did key stakeholders perceive advantages and disadvantages of the program and approach?

- How beneficiaries and educational institutions think about replicating program in other schools?
- Were there any differences in time and intensity of implementation in model schools?
- If the answer is yes, were there different outcomes?

The purpose of the evaluation is to answer the questions related to impact, performance and costs. Therefore, the evaluation will consist of three linked evaluations that will have specific methodology and approach.

Save the Children provided Mr. Oruč with details about the project, documents and information needed for a desk-review as well as information about next activities relevant for designing methodology and conducting the baseline. It also provided inputs and suggestions on the methodology and proposed questioner.

SC has submitted the request for the approval of the methodology to the Ministries/Departments of Education in four STEM model areas and request for conducting the research at schools. The overall evaluation will be conducted in close cooperation with Save the Children which is a partner to educational institutions relevant for the research i.e. Ministries / Departments of Education and schools.

21. Activities of the Project Partner “EXIT” Centre

Overall objective of the project is to increase STEM literacy among students in age range from 10-24, so that all have the opportunity to learn deeply and think critically in science, math, engineering and technology, develop a passion for it and hopefully pursue a job in a STEM field.

„EXIT” Center has established a total of 20 STEM courses, out of which the following are currently running: LEGO Mindstorms, LEGO WeDo 2.0, Makeblock Robotics II (Ultimaker) and Fun Math. Four other courses have been completed and now new groups are being formed for a new round of courses, these are: Chemical Kitchenette, LEGO WeDo 2.0, Coding Through Gaming, Thingy Games: Brainworks. Out of planned 12 STEM courses 20 have been established, but only 8 had attendees. Out of planned 150 students, a total of 164 students have been trained through full-length STEM courses.



Other STEM courses that have been prepared, but await to have sufficient number of applicants are: 3D Studio Max, Arduino Basic, Arduino for Kids, Stop Motion Animation, Python Basic, 3D Printing, DIY beauty photography, YouTube academy, IT for grandparents, Game development, Chemistry of 21st century and Little Bits.

Nearly 1000 students have been reached, out of planned 400, through two main promotional events “Meet The Trainer” and “ROBOChats”. “EXIT” Center managed to establish cooperation with 8 IT companies (out of planned 5 companies), 3 faculties (out of planned 2) and 5 schools/educational centers with the aim of developing joint programs and initiatives; carrying out activities for promotion and presentation of STEM programs; exchanging knowledge and experience with teachers, in particular STEM ones; increasing interest in STEM disciplines; promoting and presenting successful young people in the field of new technical, scientific and other achievements. “EXIT” has also established a mini STEM Development HUB for adult members which is now being used by 33 persons, out of planned 16.



However, certain delays and discrepancies occurred in the implementation of the “Robokids” project. As informed on July 2nd, 2018, Save the Children was contacted by the Swiss Agency for Development and Cooperation (SDC) which was also funding “Robokids” since upon the submission of “EXIT” semi-annual report they got concerned about certain parts of the report and possible conflict of interest, as well as due to delays and discrepancies from the work plan. SDC and Save the Children agreed to conduct a joint financial review (paid from other funds than ENABLE-BiH). An independent audit company “Grant Thornton” from Banja Luka was hired to conduct this review.

After Save the Children and SDC provided comments to the Auditor’s Independent Report, it was revised and sent to the “EXIT” Center management for their comments. “EXIT” management agreed to follow the recommendations provided in the report. It was pointed out that:

- The “EXIT” Center has to insure the highest level of transparency in order to avoid any further critical situations;
- The “EXIT” Center will continue reporting on a monthly basis on the progress of activities and against the set bench-marks;
- The “EXIT” Center will address the recommendations in the Audit Report to ensure that the remaining time of the project is implemented according to these recommendations;
- The “EXIT” Center will contact the audit company for any remaining open issue with regards to the findings and provided recommendations.

“EXIT” requested a no-cost extension in order to further promote its activities, and ensure new courses participants and members of the Center which is critical for its sustainability. The no-cost extension has been approved, with reiterated request and expectation that “EXIT” establishes more intensive and structured cooperation with the Ministry of Education and Culture of the Republic of Srpska and schools aimed at promoting STEM and presenting possible modalities how can STEM be a part of regular education.

2. Monitoring and Evaluation

C. Monitoring and Evaluation

Save the Children implemented its monitoring and evaluation activities in compliance with the approved Monitoring and Evaluation Plan.

- **STEM pillar:**
 - **Name of Activity Result Measured:** Activity Sub-Purpose 1: Draft Operational Teaching Curriculum for STEM proficiencies based on Common Core Curriculum prepared for endorsement and operational preconditions created for teachers' Pedagogy, Psychology, Didactics and Teaching Methods (PPDM) to be introduced.
 - **Name of Indicator:** Stage reached on the milestones for draft OTC for STEM proficiencies based on CCC being endorsed by the Conference of Ministries and recommended for application by relevant educational institutions (out of total of 5 stages)
- **Stage 1.** Involves the development of Conceptual - methodological framework for draft OTC for STEM proficiencies based on CCC with accompanying Implementation Guidelines and Teacher Training Manual (STEM Framework). The first stage is considered completed following the acceptance of the framework by the extended Working Group (40+), additional revisions of the expert core team as well as Save the Children, as the foundation for further development of these three documents.
 - **Status:** Completed.
- **Stage 2.** Involves the review and revision of the STEM Framework by the extended STEM working group that will meet additional 3 times to discuss and work on an improved draft of the Framework, which will be submitted to the Project Advisory Board (PAB) for review. The Stage is considered completed once the PAB has approved the draft Framework as ready for the next stage.
 - **Status:** Completed.
- **Stage 3.** This stage involves the draft STEM Framework to undergo a consultation process with a wider stakeholder community. This involves 6 country-wide consultation sessions during which the stakeholders will provide inputs. Furthermore, the PAB will also provide inputs for the formulation of the Framework. The third stage is considered completed once the PAB reviews and agrees to the final draft of the Framework.

- **Status.** Completed.
- **Stage 4.** During this stage the final draft of the STEM Framework will be submitted to the MoCA to be presented to the Conference of Ministers of Education for consideration.
 - **Status:** Through bilateral meetings with the Ministers of Education, SC received individual recognition of the STEM OTC as well as support and interest for the subsequent work by the Ministries for the STEM OTC integration in the existing curriculum.
- **Stage 5.** The stage is considered completed once the MoCA and the Conference of Ministers recommend the draft OTC for STEM proficiencies based on Common Core Curriculum (with accompanying documents Operational Guidelines and Teacher Training Manual) for the adoption and implementation to all the lower levels of educational institutions.
 - **Status:** In February 2018, SC had an official meeting with the Ministry of Civil Affairs, the only state-level institution that has a coordinating role among the Ministries of Education at lower levels and other educational institutions in BiH and a SC long-standing strategic partner, which as a part of the Project Advisory Board approved the content of STEM and PPDM documents⁸ and advised public presentation of the documents at a public event that will be organised under the MoCA patronage in the second half of October/November, 2018. Since it is very unlikely that the Conference of Ministers of Education will take place by the end of 2018 due to elections and lengthy process of the Government establishment, the public event will be used to present the documents, have them recommended by the MoCA and start their dissemination.
- **PPDM Pillar:**
 - **Name of Activity Result Measured:** Activity Sub-Purpose 1: Draft Operational Teaching Curriculum for STEM proficiencies based on Common Core Curriculum prepared for endorsement and operational preconditions created for teachers' Pedagogy, Psychology, Didactics and Teaching Methods (PPDM) to be introduced
 - **Name of Indicator:** Stage reached on the milestones for PPDM Standards and Operational Guidelines being submitted for endorsement and training program and certification for university professors /teaching assistants developed (out of total of 4 stages)

⁸ All 15 members of the PAB provided written approval of the STEM and PPDM documents.

The process is defined by the following four stages that should lead to the achievement of the result.

- **Stage 1.** Involves the development of the Conceptual-methodological framework of the first two documents *Standards for PPDM* and *Operational Guidelines for PPDM* related courses by the Core Expert Team consisting of international and local experts and university professors specialized in Pedagogy, Psychology, Didactics, Teaching Methods who will bring together international and local expertise on initial teacher education and requirements for university professors, which are reviewed and accepted by extended working group (20+) and accepted by this working body as the foundation for further development of these 2 documents. Representatives of HEA are represented in PPDM Working Group as well as in the PAB.
 - **Status:** Completed.

- **Stage 2.** This stage involves the draft *Standards for PPDM* and *Operational Guidelines for PPDM* related courses to undergo a consultation process with a wider stakeholder community. This involves 3 country-wide consultation sessions during which the stakeholders will provide inputs. Furthermore, the PAB will also provide inputs for the formulation of the Framework. The third stage is considered completed once the final draft has been written and agreed on by the PAB.
 - **Status:** Completed.

- **Stage 3.** During this stage the final draft of the *Standards for PPDM* and *Operational Guidelines for PPDM* related courses will be submitted to relevant stakeholders for consideration and endorsement.
 - **Status:** The PPDM Standards have been adopted in the Canton Sarajevo and the decision was published in the Official Gazette No 31, as of July 26, 2018. This provides solid foundation for HEA to recommend Standards to other universities in BiH that SC will further advocate for.

- **Stage 4.** Upon finalization of the draft *Standards for PPDM* and *Operational Guidelines for PPDM* related courses, the third document will be developed: *Outline Training Program and Certification for PPDM Related Courses* for university professors/teaching assistants. The stage is considered completed once the Outline Training Program and Certification for PPDM Related Courses material is submitted to The Agency for Development of Higher Education and Quality Assurance.
 - **Status:** Based on the inputs of the core expert team, in particular local team, this output was renamed and modified to Resource Manual for PPDM

University Professors. The manual has been finalized and this can be considered completed.

In addition, SC MEAL Specialist, Project Manager and Project Coordinator developed the following tools so as to enhance monitoring and evaluation:

- **Quality benchmarks** of service delivery and outputs/outcomes based on the relevant reference values that will ensure quality of the activities. The quality standards were regularly applied and monitored (prior to, during and subsequent to each of the conducted activities) and Quality Benchmarks Table was regularly updated serving as a tool to closely monitor, evaluate and improve the next activities if needed and maintain the required standards.
- **Indicator Tracker** was developed to monitor lower-level output/outcome indicators and achievement of the targets. Indicator Tracker was used and updated regularly for these purposes.
- **The Story of the Month template** was developed and it was used during the meetings of the STEM and PPDM working groups to collect comments and impressions from the participants.
- A special **evaluation form** was developed for each meeting of the STEM and PPDM working groups in accordance with the standard SCNWB procedures and filled out by the participants on the last day of the STEM and PPDM meetings.

All of the above was regularly used and applied to monitor and evaluate progress of the activities under the STEM and PPDM pillars of the project.

3. Project Operations

a) Human resources

The ENABLE-BiH project team consists of SCNWB Director for Program Development and Quality (25% work-time) who provides strategic, technical and partnership advice, guidance and support; Project Manager (100% work-time), Project Coordinator (100% work-time) and Project Assistant (100% work-time). Project Coordinator, Sanja-Gena Handžar, has resigned her position on May 28. In accordance with Save the Children procedures a vacancy was published and the call ended on June 28, 2018.

After receiving applications and completing preselection phase of the SC recruitment process, it was concluded that even though there were a number of applicants who were invited for a written test it was not possible to identify a strong candidate who would be able to take over and engage in the planned implementation activities. Therefore, SC started to identify the best possible resources within the organization that would be able to meet the needs and

expectations of the project and provide the necessary support in ENABLE-BiH II – Implementation Phase. It was decided that a SC internal candidate to best fit the position was Mr. Dario Lipovac, who was highly knowledgeable and experienced in education sector, in particular number of activities and processes related to Implementation that are to follow within ENABLE-BiH II, and who could readily engage in the full project implementation. The AOR was informed on this decision in writing as of July 25, 2018.

On September 27, 2018, the Project Manager, Tatjana Slijepcevic, resigned the position due to private reasons and plan to move to Belgrade, Serbia, which was followed by her written notice on October 5, 2018. SC NWB immediately informed SC US, which further informed the USAID. In accordance with the SC procedures the Project Manager vacancy will be announced.

b) Procurement

The procurement in this year included procurement of proofreading services, hotel for the organization of Training for STEM-PPDM master trainers/mentors and hiring the company for recording and editing the ToT. In September procurement of the STEM equipment for model schools has also been initiated. Considering specificities of this equipment, vast offer in the market, but also a need to provide schools with the most relevant and up-to-date equipment, experienced experts from Croatia have been involved in advising the project team on the equipment selection and developing specification for the procurement request. While procurement of 3-d printers, Arduino Kits, Education WeDo Basic Set, LEGO Mindstorms Education Set could be procured through direct quotations, multimedia equipment (projector, projection canvas, LED TV and Bluetooth speaker) and laptops had to be purchased through a public tender due to the amount. In addition to the STEM equipment, adjusted furniture will also be procured for the model schools. In this way, a specialized STEM classroom/lab will be established to facilitate STEM teaching and learning in each of 12 model schools.

Due to its extensive experience in procuring STEM equipment and knowledge on up-to-date and quality STEM equipment, the Association for the Promotion of Digital Fabrication, “FabLab” from Croatia was involved in this process and provided thorough guidance and advice in identification and selection of the STEM equipment that would responds to the needs of STEM teaching at schools.

The procurement has been conducted in accordance with Save the Children and donor’s procedures and requirements.

SECTION II – MAJOR ACTIVITIES PLANNED FOR NEXT QUARTER

PROJECT ACTIVITIES

No.	Activity
-----	----------

- | | |
|---|--|
| 1 | Cataloguing, printing and distributing Operational Teaching Curriculum for STEM proficiencies based on Common Core Curriculum, Implementation Guidelines and Teacher Training Manual |
| 2 | Cataloguing, printing and distributing Standards and Guidelines for the PPDM related courses as well as Resource Manual for PPDM University Professors |
| 3 | Designing the system of STEM-PPDM mentoring to be provided by STEM-PPDM trainers/mentors to teachers in model schools to facilitate the mentorship support and STEM roll-out |
| 4 | Monitoring STEM roll-out and providing regular support and guidance to MoE and STEM-PPDM trainers/mentors |
| 5 | Finalizing and signing Memorandums of Understanding with project partners (Ministries of Education and model schools) |
| 6 | Preparation and organization of a public event to present the achievements of Phase I of the project and announce the upcoming activities of Phase II |
-

MONITORING AND EVALUATION

No.	Activity
-----	----------

- | | |
|---|---|
| 1 | Finalizing the revised M&E Plan and updating BH Perform Platform in accordance with the revised M&E plan and indicators for Phase II of the project |
| 2 | Use the management information system (MIS) for data storage, management, and analysis, and disaggregate data according to gender, age group and location |
| 3 | Periodic spot-checks by SC MEAL Specialist on activity tracking sheets to ensure accuracy |
| 4 | Regular monthly meetings of the MEAL Specialist and Project Manager to assess if all the activities are conducted in accordance with M&E/MEAL plan |

PROJECT OPERATIONS

No.	Activity
1	Monitor project expenditures against the projections to make sure they are in line with budgeted amounts
2	Payment of the final instalment to the US project partner
3	Regular communication and coordination with the project partners (MoEs and model schools)
4	Updates of the webpages and/or social media on the relevant events and/or project activities

Success Stories

Story I

1. INTERVIEWEE'S POSITION:	STEM-PPDM Trainer/Mentor
2. TOWN/COUNTRY:	Maoča
4. GENDER:	Male
5. DATE OF INTERVIEW	September 14, 2018

6. THE STORY

„Learning is like rowing upstream, not to advance is to drop back “, said Lao Ce long time ago. This spark of wisdom proved to be true this time too, during the STEM replication training for the teachers of The Ninth Primary School and Gymnasium, in Maoča, Brčko District.

At the beginning no one knew what exactly to expect from the training and everyone was slightly confused, maybe even dissatisfied that they had to attend yet another training. But then, professor Avdispahić opened the training, calmly, patiently and confidently, bringing into the training its long-standing pedagogical experiences and great positive and encouraging energy. Immediately after the first session the atmosphere was greatly changed and you could tell that the training would be a success. The participants understood that STEM was not any kind of revolution, but evolution or advancement of knowledge.

We all remembered things that we learned at the university while we were getting education for this honorable profession. Did not we learn that there had to be correlations among the subjects? The difference is that now we are not doing correlations for the sake of form and theory but we are looking for correlations in a specific group of subjects that comprise STEM.

At the beginning of this training we asked ourselves why do I need all of this? Well, that is exactly what children are asking themselves every day while we are reading to them or asking them to reproduce a lesson from Geography, Mathematics, Physics, Chemistry that they learned by heart and without understanding it.

The first day of the training passed in a great atmosphere and this atmosphere continued for the rest of the days. Participants were asking many questions and inviting each other to cooperate, you could even feel competitiveness among the groups while they were doing group exercises and presenting them to the others. I was very surprised that during the coffee breaks, male participants did not talk about football and comment on a football match, but they were

talking about STEM. Everyone was doing their homework diligently and devotedly; they were taking materials home to complete what they did not complete during the training. It has been a long time since I saw such enthusiasm in school!

Participants were choosing topics, they were doing their lesson plans first for the subject they teach and then they would correct them in cooperation with their colleagues looking for correlations among the subjects. People started thinking like this: if I used to ask myself why do I need this, and we know that pupils will ask us the same question, we need to be able to give them an answer. I have to be ready for the upcoming challenges and for this I have to learn and obtain new knowledge.

I would really like to thank to the people and professionals who provided us with the training, both Training for STEM-PPDM Trainers/Mentors and replication training for teachers in STEM model schools. I would like to thank them for sharing their knowledge with us, as well as for the financial and technical support they provided. Save the Children is a proven friend to children, and to all of us who work with children and who care about securing brighter future and education for children.

I would like to share one more spark of wisdom by Albert Einstein: „Education is what remains after one has forgotten what one has learned in school.” The STEM methodology and approach has great chances and potentials to bring children much better education and pleasant team work for the teachers.”

Story II

1. INTERVIEWEE'S POSITION:	STEM-PPDM trainer
2. TOWN/COUNTRY:	Sarajevo
4. GENDER:	Male
5. DATE OF INTERVIEW:	September 19, 2018

6. THE STORY

Education adjusted to and harmonized with knowledge-based economy has no alternative. STEM education offers exactly this. Global economy is rapidly changing due to fast technological progress in STEM industries.

If BiH wants to start developing faster in order to catch up with the economic developments across the globe it must adjust its education to the market needs. Therefore, educational

institutions at all levels need to be encouraged to integrate STEM practice and experiences in the current educational system in order to improve life quality of the BiH citizens.

For the progress of the BiH economy it is necessary that pupils and students obtain functional and applicable knowledge which is the very essence of STEM. Development of STEM awareness includes everyone from the school gardeners to those who are creating educational content and policies. Save the Children embarked on a journey to develop preconditions for the introduction and integration of STEM in BiH education.

I was one of the STEM-PPDM trainers/mentors who took part in the replication training in Third Gymnasium in Sarajevo and my impressions were excellent. The teachers were amazed, they have knowledge, interest, will and eagerness to implement STEM, but they need support, capacity building and guidance to implement all novelties STEM brings. STEM also requires life-long learning of all participants of educational process, both horizontally and vertically. Research show that countries that achieved fast economic growth recognize advantages and importance of STEM, they invested in STEM and based their entire education system on STEM. These countries have chosen quality and progressive cadre and gave them autonomy in creating STEM policies, principles and operational procedures. There is no reason that BiH also does not apply these positive experiences in its country context.

However, in BiH there is no wide, strategic and systemic orientation towards creativity and innovation in preschool, basic, secondary and higher education, as well as life-long learning, development of science and research, and support to creative industries and enterprises. I would like to take this opportunity to thank to Save the Children and their donor, USAID, for the support to implementation of STEM in primary and secondary schools.

Story III

1. INTERVIEWEE'S POSITION:	STEM-PPDM Trainer/Mentor
2. TOWN/COUNTRY:	Banja Luka
4. GENDER:	Female
5. DATE OF INTERVIEW:	September 09, 2018

6. THE STORY

STEM is education in natural sciences, technology, information technology and mathematics, it includes all educational activities through different educational stages in both formal and non-formal sense. STEM is based on interdisciplinary approach and as such is highly needed in our schools so that students obtain key skills and competences for their advancement in modern environment. Therefore, it is necessary to change the current education paradigm based on the content towards learning outcomes and inter-subject correlations which is exactly what STEM approach enables. I completed the Training for STEM-PPDM trainers and conducted replication trainings in two model areas. I met great professionals who possess good communication skills, pedagogical competences and are ready to work in group and embrace novelties and modern streams in education.

Their engagement in the training and exercises and their feedback confirmed their openness to improve their knowledge and master key competences that are inevitable for active participation in knowledge-based economy and becoming a bearer of the future economic developments.

I see great potentials in this project as it provides unique foundation for introducing STEM in model schools. I do hope that very soon there will be many more schools where STEM program will be piloted. I am very sorry that the school that I work at has not been selected for a model school, but on the other hand I am glad that there will be STEM schools in BiH from which we will be able to learn and transfer their STEM experiences to other schools throughout the country.

Story IV

1. INTERVIEWEE'S POSITION:	STEM-PPDM trainer
2. TOWN/COUNTRY:	Mostar
4. GENDER:	Female
5. DATE OF INTERVIEW:	10. 09.2018

6. THE STORY

I would like to use this opportunity to share my impressions and observations in regards with the training for STEM-PPDM trainers/mentors and my general opinion on the STEM program envisaged within the project "Enhancing and Advancing Basic Learning and Education in Bosnia and Herzegovina".

I became part of this project by accident, since my colleague talked me into applying to a call for STEM-PPDM trainers/mentors. I have been working in the education sector for more than 20 years and it is my opinion that something is wrong with the education system in BiH. It is exactly the same as it used to be when I was a pupil. The only difference is that text-books are thicker, pupils less motivated and teachers lost their enthusiasm for teaching.

However, all good things in life happen when you least expect. Through internet search I have found out that there is a completely different approach to natural sciences, without too much papers, but with a continuous and dynamic interaction between students and teachers, and most importantly independent engagement of students through research and knowledge application and testing.

I loved the quote of "Science is more than a school subject, or the periodic table, or the properties of waves. It is an approach to the world, a critical way to understand and explore and engage with the world, and then have the capacity to change that world..."

I believe that STEM approach is very important for BiH education. In the world that is becoming more and more complex, where success is measured not only by what you know, but what can you do with your knowledge, it is more important than ever for the youth to obtain skills and knowledge to solve challenging problems, to gather and assess evidence and give meaning to information. These are skills that students are obtaining through STEM. And this is exactly what this project is offering.

The youth should think about innovation, research and leadership so that they can live independently and solve life problems, create sustainable small businesses and contribute to

the society. BiH has so many potentials the youth could use. Instead of this we have been facing serious brain-drain for years. I deem that for this to stop, educational reform based on STEM is imperative as it gives opportunity for a society to progress and has satisfied citizens.

I am truly grateful for the opportunity to be a part of this project that I am already implementing in my school and which already gives results. It is projects like this that give me hope that future for this county and its children will be better and brighter.

ANNEX I – Quality Benchmarks Table

Quality Benchmarks in 2016 and 2017 Project: ENABLE (USAID)						
Quality Benchmarks	Achievement			Major constraint/ issues/ gap (to be filled if achievement is partly met & not met)	Recommended improvement	
	Met	Partly	Not met			
Project Management						
Finalize recruitment of key staff and procurement of office equipment						
Benchmark 1						
ToR prepared and published (Coordinator and Assistant)	x					
Benchmark 2						
SCI standardized recruitment process finalized	x					
Benchmark 3						
Project manager, Project coordinator and Project assistant recruited	x					
Project Management						

Set up Expert Working Group for STEM and Expert Working Group for PPDM						
Benchmark 1						
The selection of the STEM and PPDM expert group was conducted via a public call.	x					
Benchmark 2						
Working group members are selected upon specific documented criteria (motivation letter, CV, face to face meeting etc.).	x					
Benchmark 3						
The Working group members are informed at least 5 days prior to the first day of meeting and joining.	x					
Benchmark 4						
PPDM Expert working group consists of 2 members and STEM expert working group consists of 8 members.	x					
Project Management						
Set up a Coordination Mechanism for ENABLE -Project Advisory Board (PAB) with relevant B-H institutions (MoCA, APOSO, HEA, Federal MoE, MoE RS) to ensure ownership over the intervention and hold regular periodical meetings						
Benchmark 1						
PAB members are selected upon specific documented criteria.	x					
Benchmark 2						
The PAB members are informed at least 5 days prior to the first day of meeting and joining.	x					
Benchmark 3						
	x					

PAB consists of members from relevant institutions: MoCA, APOSO, HEA, Federal MoE, MoE RS						
Project Management						
Prepare and sign MoUs with APOSO and HEA and other governmental and institutional partners (cantonal ministries of education and Universities/Schools)						
Benchmark 1						
Partners selected based on agreed criteria for selection.	x					
Benchmark 2						
Partners are given minimum information about the project/activity in sent letters and during the meetings.	x					
Benchmark 3						
MoU's are in line with current laws and legislations as well as international standards.	x					
Benchmark 4						
All relevant actors are informed in timely manner about contents of the document	x					
IR 1: IR1: Develop operational teaching curricula for Mathematics based on existing Student Learning Outcomes and the Common Core Curricula						

Set up a Working Group for STEM based OTC development with relevant sub-groups for 3 triades (9 grades) and secondary general education (up to 40 participants)						
Benchmark 1						
Working group members are appointed upon specific documented criteria (all members are officially recommended by relevant institutions).	x					
Benchmark 2						
Working Group for STEM based OTC development consist of at least 32 participants (80% of planned)	x					
IR 1: IR1: Develop operational teaching curricula for Mathematics based on existing Student Learning Outcomes and the Common Core Curricula						
Fact-finding mission by US experts partner to carry out a series of meetings with stakeholders and gather information from the ground						
Benchmark 1						
Provide relevant documentation to STEM and PPDM experts from the partner consulting firm from the US, Miske Witt & Associates	x					
Benchmark 2						
Hold at least 10 meetings with min. 30 stakeholders	x					
Benchmark 3						
Determine the state of the STEM curriculum and classroom teaching practices in BiH	x					
Benchmark 4						
Key findings are summarized.	x					

IR 1: IR1: Develop operational teaching curricula for Mathematics based on existing Student Learning Outcomes and the Common Core Curricula						
Organize and hold 4 Periodical Meetings STEM WG						
Benchmark 1						
Clear roles and responsibilities are defined and agreed regarding meetings	x					
Benchmark 2						
All relevant actors are informed in timely manner	x					
Benchmark 3						
Written records are filed and include: • Attendance list • Issues discussed • Action points agreed on • Persons responsible for action points	x					
Benchmark 4						
Record decisions taken in the meeting	x					
Benchmark 5						
Decision on date and venue of the next meeting shall be taken	x					
IR 1: IR1: Develop Operational Teaching Curricula for STEM based on existing Student Learning Outcomes and Common Core Curricula						
Draft STEM based OTC for 3 triades (9 grades) and secondary general education						
Benchmark 1						
No similar materials in place	x					

Benchmark 2						
The document developed based on clear needs with clear contributions from the end-users after making sure that no similar materials existing at the CO or with similar language	x					
Benchmark 3						
Curriculum related materials prepared	x					
IR 1: IR1: Develop Operational Teaching Curricula for STEM based on existing Student Learning Outcomes and the Common Core Curricula						
Send draft STEM based OTC to PAB and relevant stakeholders for review						
Benchmark 1						
Relevant official letter prepared	x					
Benchmark 2						
Relevant package of documentation prepared	x					
Benchmark 3						
List of PAB members and stakeholders prepared	x					
Benchmark 4						
STEM based OTC sent to 100% of PAB members and relevant stakeholders for review	x					
IR 1: IR1: Develop Operational Teaching Curricula for STEM based on existing Student Learning Outcomes and the Common Core Curricula						
Organize and hold at least 6 consultation sessions with wider groups throughout the country to discuss the draft OTC and identify adjustments needed						

Benchmark 1						
Clear roles and responsibilities are defined and agreed regarding consultation sessions	x					
Benchmark 2						
All relevant actors are informed in timely manner	x					
Benchmark 3						
Record attendance in the consultation session	x					
Benchmark 4						
Record recommendations taken in the consultation sessions	x					
Benchmark 5						
At least 6 consultation sessions held	x					
IR 1: IR1: Develop Operational Teaching Curricula for STEM based on existing Student Learning Outcomes and the Common Core Curricula						
Review, adjustments and finalization of draft OTC						
Benchmark 1						
Draft OTC reviewed, adjusted and finalized as a result of SC and the core expert WG organized 6 consultation sessions throughout BiH to discuss and identify necessary modifications and adjustments	x					
Benchmark 2						
No similar materials in place	x					
IR 1: IR1: Develop Operational Teaching Curricula for STEM based on existing Student Learning Outcomes and the Common Core Curricula						
Develop Implementation Guidelines						
Benchmark 1						

No similar materials in place	x					
Benchmark 2						
The document developed based on clear needs with clear contributions from the end-users after making sure that no similar materials existing at the CO or with similar language	x					
Benchmark 3						
Guidelines related materials prepared	x					
IR 1: IR1: Develop Operational Teaching Curricula for STEM based on existing Student Learning Outcomes and the Common Core Curricula						
Develop Manuals for Teacher Trainings						
Benchmark 1						
No similar materials in place	x					
Benchmark 2						
The document developed based on clear needs of the target group of professionals after making sure that no similar materials existing at the CO or with similar language	x					
Benchmark 3						
Manual related materials prepared	x					
IR 1: IR1: Develop Operational Teaching Curricula for STEM based on existing Student Learning Outcomes and the Common Core Curricula						
Submission of STEM based OTC, Implementation Guidelines and Manuals for consideration to relevant authorities and endorsement						
Benchmark 1	x					

Draft STEM OTC, Implementation Guidelines and Manuals developed in cooperation with all relevant stakeholders.						
Benchmark 2						
All relevant authorities identified.	x					
Benchmark 3						
Document disseminated to at least 90% of targeted relevant authorities	x					
Benchmark 4						
Material is systematically disseminated to all relevant authorities based on detailed list prepared.	x					
IR 1: IR1: Develop Operational Teaching Curricula for STEM based on existing Student Learning Outcomes and the Common Core Curricula						
Layout, printing and distribution of the OTC, Implementation Guidelines and Manuals						
Benchmark 1						
Design, Printing and Layout of promotional materials meet the satisfactory contents of the SC standards for branding	x					
Benchmark 2						
List of materials produced are present at Save the Children						
Benchmark 3						
Save the Children keeps track of distribution of materials						
IR 1: IR1: Develop Operational Teaching Curricula for STEM based on existing Student Learning Outcomes and the Common Core Curricula						
Final event to present draft STEM based OTC and accompanying documents						

Benchmark 1						
Venue identified						
Benchmark 2						
Venue is readily accessible by all group members						
Benchmark 3						
Save the Children staff present at the final event						
Benchmark 4						
Agenda of the event is sent to the participants 7-10 prior to the event						
Benchmark 5						
Written records are filed and include: • Attendance list • Media attendance list • Photos						
Benchmark 6						
% of the attendants of the event out of the number expected is more than 80%						
Prepare a brief report within 10 days after the completion of the event						
IR 1: IR1: Develop Operational Teaching Curricula for STEM based on existing Student Learning Outcomes and the Common Core Curricula						
Roll-out the ToT to at least 30 professionals from across B-H (two 5-day trainings)						
Benchmark 1						
Participation is inclusive for all	x					
Benchmark 2						
Pre and Post training evaluations are distributed to participants	x					

Benchmark 3					
Experienced/professional trainer(s) is hired for all training programs	x				
Benchmark 4					
Standard package of reading materials that are used adequately and are provided to all participants in training programs	x				
Benchmark 5					
Participants are informed at least 7-10 days prior to the training	x				
Benchmark 6					
A check-list for standard steps and procedures is prepared and followed	x				
Benchmark 7					
% of the attendants of the training out of the number expected is more than 80%					
Benchmark 8					
Information about training objectives and expected outcomes provided at the first session	x				
Benchmark 9					
Agenda of the training is sent to the participants at least 7-10 days prior to the training	x				
Benchmark 10					
Prepare a brief report within 10 days after the completion of the training which includes feedback on the trainer, trainings, and pre and post results	x				
Benchmark 11					
Evaluation forms of the training collected and its results included in the training report	x				

IR2: Design Standards and Operational Guidelines for Implementing PPDM-related courses across all teacher studies programs						
Set-up WG for PPDM related courses with relevant sub-groups (up to 20 members)						
Benchmark 1						
Working group members are selected upon specific documented criteria.	x					
Benchmark 2						
The Working group members are informed at least 5 days prior to the first day of meeting and joining.	x					
Benchmark 4						
PPDM WG consists of up to 20 members.	x					
IR2: Design Standards and Operational Guidelines for Implementing PPDM-related courses across all teacher studies programs						
Fact finding mission by US experts/PPDM partner to carry out a series of meetings with stakeholders and gather information from the ground						
Benchmark 1						
Provide relevant documentation to PDM experts from the partner consulting firm from the US, Miske Witt & Associates	x					
Benchmark 2						
Hold at least 10 meetings with min. 30 stakeholders	x					
Benchmark 3						
Determine the state of the STEM curriculum and classroom teaching practices in BiH	x					

Benchmark 4						
Key findings are summarized.	x					
IR2: Design Standards and Operational Guidelines for Implementing PPDM-related courses across all teacher studies programs						
Organize and hold 3 Periodical Meetings of PPDM WG						
Benchmark 1						
Clear roles and responsibilities are defined and agreed regarding 3 Periodical Meetings of PPDM WG	x					
Benchmark 2						
All relevant actors are informed in timely manner	x					
Benchmark 3						
Record attendance in the meeting	x					
Benchmark 4						
Record decisions taken in the meeting	x					
Benchmark 5						
Decision on date and venue of next meeting shall be taken	x					
IR2: Design Standards and Operational Guidelines for Implementing PPDM-related courses across all teacher studies programs						
Draft Standards and Operational Guidelines for PPDM related courses including recommendations for integration of Standards and Operational Guidelines in all relevant courses/modules						
Benchmark 1						
Drafted Guidelines are developed based on nationally and internationally recognized standards	x					

Benchmark 2						
US experts developed a platform as a foundation for developing Standards and Operational Guidelines for PPDM across all teacher studies programs	x					
Benchmark 3						
No similar materials in place	x					
Benchmark 4						
The document developed based on clear needs with clear contribution from the end users after making sure that no similar materials existing at the CO or with similar language	x					
Benchmark 5						
PPDM related materials prepared	x					
IR2: Design Standards and Operational Guidelines for Implementing PPDM-related courses across all teacher studies programs						
Send Standards and Operational Guidelines to PAB and relevant stakeholders for review						
Benchmark 1						
Relevant official letter prepared	x					
Benchmark 2						
Relevant package of documentation prepared	x					
Benchmark 3						
List of PAB members and stakeholders prepared	x					
Benchmark 4						
STEM based OTC sent to 100% of PAB members and relevant stakeholders for review	x					

IR2: Design Standards and Operational Guidelines for Implementing PPDM-related courses across all teacher studies programs						
Organize and hold at least 3 consultation sessions with widergroup in relevant locations (universities) to discuss the draft Standards and Operational Guidelines and identify adjustments neded						
Benchmark 1						
Venue identified	x					
Benchmark 2						
Venue is readily accessible by all group members	x					
Benchmark 3						
Save the Children staff present in consultation sessions at least twice	x					
Benchmark 4						
Written records are filed and include: • Attendance list • Issues discussed • Action points agreed on • Persons responsible for action points	x					
Benchmark 5						
Minutes from previous consultation sessions is read to all members in the meeting	x					
IR2: Design Standards and Operational Guidelines for Implementing PPDM-related courses across all teacher studies programs						
Submit PPDM Standards and Operational Guidelines to relevant stakeholders for consideration and endorsement						

Benchmark 1 PPDM Standards and Operational Guidelines developed in cooperation with all relevant stakeholders	x					
Benchmark 2 PPDM Standards and Operational Guidelines developed based on nationally and internationally recognized standards	x					
Benchmark 3 All relevant stakeholders identified	x					
Benchmark 4 Document disseminated to 100% of targeted relevant stakeholders						
Benchmark 5 Material is systematically disseminated to all relevant stakeholders based on detailed list prepared.						
IR2: Design Standards and Operational Guidelines for Implementing PPDM-related courses across all teacher studies programs						
Layout, printing and distribution of Standards and Operational Guidelines for PPDM						
Benchmark 1 Design, Printing and Layout of promotional materials meet the satisfactory contents of the SC standards for branding	x					
Benchmark 2 List of materials produced are present at Save the Children						
Benchmark 3 Save the Children keeps track of distribution of materials						
Benchmark 4						

Implementation of actions done as per agreement with Save the Children						
IR2: Design Standards and Operational Guidelines for Implementing PPDM-related courses across all teacher studies programs						
Final event to present Standards and Operational Guidelines for PPDM related courses						
Benchmark 1						
Venue identified						
Benchmark 2						
Venue is readily accessible by all group members						
Benchmark 3						
Save the Children staff present in final event						
Benchmark 4						
Agenda of the event is sent to the participants 7-10 prior to the event						
Benchmark 5						
Written records are filed and include: <ul style="list-style-type: none"> • Attendance list • Media attendance list • Photos 						
Benchmark 6						
% of the attendants of the event out of the number expected is more than 80%						
Prepare a brief report within 10 days after the completion of the event						
Benchmark 7						

% of the attendants of the event out of the number expected is more than 80%						
IR2: Design Standards and Operational Guidelines for Implementing PPDM-related courses across all teacher studies programs						
Resource manual for PPDM university professors						
Benchmark 1 Manual developed in cooperation with all relevant stakeholders.	x					
Benchmark 2 Manual developed based on nationally and internationally recognized standards	x					
Benchmark 3 All relevant universities identified	x					
Benchmark 4 Manual submitted for approval of relevant stakeholders	x					

ANNEX II – ENABLE MEAL plan 2018 – Results

Results		Indicators	unit	Baseline	Target	Achieved Year 1	Target Year 2	% acheived Year 2	Acheive d Overall	% acheived Overall	
	1	# hired staff members (Act. PM 1.1.)	persons		3	3	0	N/A	3	100.00%	
	2	# of expert working groups (STEM) - (Act. PM 1.2.)	groups		1	1	0	N/A	1	100.00%	
	3	# of expert working group members (STEM) (Act. PM 1.2.)	persons		8	11	0	N/A	11	137.50%	
	4	# of expert working groups (PPDM) (Act. PM 1.2.)	groups		1	1	0	N/A	1	100.00%	
	5	# of expert working group members (PPDM) (Act. PM 1.2.)	persons		2	3	0	N/A	3	150.00%	
	6	# of PAB established (Act. PM 1.3.)	PAB		1	1	0	N/A	1	100.00%	
	7	# of PAB members engaged (Act. PM 1.3.)	persons		16	16	0	N/A	16	100.00%	
	8	# of MoUs prepared (Act. PM 1.4.)	document		20	19	0	N/A	19	95.00%	
	9	# of MoUs signed (Act. PM 1.4.)	document		20	18	0	N/A	18	90.00%	
1.1	Draft Operational Teaching Curriculum for STEM proficiencies based on Common Core Curriculum is developed, along with Implementation Guidelines and	1.1.1	# of Working Group for STEM based OTC development with relevant sub-groups for 3 triades established (Act. R 1.1.)	groups		1	1	0	N/A	1	100.00%
		1.1.2	# of prepared and sent requests for the appointment of extended STEM working group members (Act. R 1.1.)	document		30	30	0	N/A	30	100.00 %
		1.1.3	# of Working Group for STEM based OTC members (Act. R 1.1.)	persons		40	44	0	N/A	44	110.00 %

	Teachers Training Manual	1.1.4	# STEM WG meetings organized (Act. R 1.3.)	meeting		4	4	0	N/A	4	100.00 %
		1.1.5	# of participants (STEM WG meetings) (Act. R 1.3.)	persons		40	44	0	N/A	44	110.00 %
		1.1.6	# of STEM based OTC drafted versions (Act. R 1.4.)	document		4	4	0	N/A	4	100.00 %
		1.1.7	Draft STEM based OTC sent to relevant stakeholders for review (Act. R 1.5.)	document		16	16	0	N/A	16	100.00 %
		1.1.8	# of consultation sessions with wider working group throughout the country to discuss the draft OTC organized (Act. R 1.6.)	consultation sessions		6	6	0	N/A	6	100.00 %
		1.1.9	# of Implementation Guidelines developed (Act. R 1.8.)	guidelines		1	1	0	N/A	1	100.00 %
		1.1.10	# Manuals for Teacher Trainings developed (Act. R 1.9.)	manuals		1	1	0	N/A	1	100.00 %
		1.1.11	# of printed materials (STEM)	materials		600	0	600	0.00%	0	0.00%
		1.1.12	# of professionals trained (Act. R 1.2.9)	persons		25	0	25	57.53%	42	57.53%
1.2	Standards and	1.2.1	# of WG for PPDM related courses with relevant sub-	groups		1	1	0	N/A	1	100.00 %

Operational Guidelines for implementing PPDM related courses across all teacher studies programs developed		groups established (Act. R 2.1.)								
	1.2.2	# of WG for PPDM related courses members (Act. R 2.1.)	persons		20	30	0	N/A	30	150.00 %
	1.2.3	# of Periodical Meetings of PPDM WG (Act. R 2.3.)	meeting		3	3	0	N/A	3	100.00 %
	1.2.4	# of participants (PPDM WG meetings) (Act. R 2.3.)	persons		20	30	0	N/A	30	150.00 %
	1.2.5	Draft Standards and Operational Guidelines for PPDM related courses including recommendations for integration of Standards and Operational Guidelines in all relevant courses/modules (Act. R 2.4.)	document		2	2	0	N/A	2	100.00 %
	1.2.6	# of Standards and Operational Guidelines sent to PAB and relevant stakeholders for review (Act. R 2.5.)	document		2	3	0	N/A	3	150.00 %
	1.2.7	# of printed materials (PPDM)	materials		600	0	600	0.00%	0	0.00%
1.1 and 1.2		# meetings within STEM and PPDM fact finding mission activity organized (Act. R 1.2. & Act. R 2.2.)	meeting		13	13	0	N/A	13	100.00 %

Campaign	1	# of people reached with Facebook Ads - promote posts	persons		380000	0	380000	5.41%	20569	5.41%
	2	# of people reached with Google Display Network	persons		1100000	0	1100000	0.00%	0	0.00%
	3	# of people reached with Youtube Video ads	persons		17000	0	17000	264.25%	44922	264.25%
	4	# of TV appearance	TV appearance		1	0	1	400%	4	400.00%

ANNEX III – Indicator Performance Tracking Table (IPTT)

INDICATOR NUMBER AND NAME	DEFINITION	UNIT OF MEASURE	DISAGGREGATION	OVERALL ACTIVITY BASELINE	REPORTING PERIOD FY2017		REPORTING PERIOD FY2018		...	LIFE OF ACTIVITY		Explanation of Deviation in Comparison to Targets					
				Date	Value	Calculation base for the reporting period, if applicable	Calculation base value, if applicable	Target	Actual	Calculation base for the reporting period, if applicable	Calculation base value, if applicable		Target	Actual	End of Activity Target	% Target Achieved	
Stage reached on the milestones for OTC for STEM proficiencies based on CCC being endorsed by the Conference of Ministries and recommended for application by relevant educational institutions (out of total of 5 stages)	This indicator measures progress towards 5 milestones. This indicator has specific, observable and measurable characteristics that can be used to show progress towards achieving these milestones. It's directly related to measures of success. FIVE milestones have been developed to help track progress towards the target over the next two years	Simple Number	TOTAL	09/2016	0			2	0			3	0		5		
Stage reached on the milestones for PPDM Standards and Operational Guidelines being submitted for	The indicator measures the Activity progress in assistance to BiH Education Institutions in developing the Standard and Operational Guidelines for PPDM related courses, which includes the	Simple Number	TOTAL	09/2016	0			2	0			2	0		4		

endorsement and training program and certification for university professors/teaching assistants developed (out of total of 4 stages)																
Number of key stakeholders from relevant education institutions involved in development of draft Operational Teaching Curricula for STEM proficiencies based on Common Core Curriculum and Implementation Guidelines	Involved, includes persons directly included in development of Draft Operational Teaching Curricula for STEM proficiencies based on Common Core Curriculum and Implementation Guidelines, thus persons from WG and from relevant BiH institutions (MoCA, APOSO, HEA, cantonal MoEs, MoE RS and FBiH, Department of Education in Brčko District)	Person	TOTAL	09/2016	0			40	0			0	0	40		
			Male	09/2016	0			19	0			0	0	19		
			Female	09/2016	0			21	0			0	0	21		
			TOTAL	09/2016	0			40	0			0	0	40		
			Countrywide	09/2016	0			40	0			0	0	40		
Number of documents related to draft Operational Teaching Curricula for STEM proficiencies based on Common Core Curriculum developed (OTC, Implementation	Documents developed means document has been prepared and developed by relevant ENABLE BiH Working group and approved by the PAB	Document	TOTAL	09/2016	0		3	0			0	0	3			
			BIH	09/2016	0			3	0			0	0	0		

Guidelines, Teachers Training Manuals)															
Number of teachers/educators/teaching assistants/representatives of relevant education institutions trained	Training program for educational professionals (for roll-out the new Operational Teaching Curricula for STEM). To be trained requires that trainees meet competition requirements of the structured training program as defined by the ToT program offered. To be counted here training must be specific ToT and people trained are counted here.	Person	TOTAL	09/2016	0			0	0			25	0	25	
			Male	09/2016	0			0	0			14	0	14	
			Female	09/2016	0			0	0			13	0	13	
			TOTAL	09/2016	0			0	0			25	0	25	
			Federation BiH	09/2016	0			0	0			13	0	13	
			Republic of Srpska	09/2016	0			0	0			10	0	10	
			District of Brčko	09/2016	0			0	0			2	0	2	
Number of key stakeholders from relevant education institutions involved in development of	"Involved" includes persons directly included in development of adjusted curricula for preservice education of teachers in PPDM and Operational Guidelines, thus persons from	Person	TOTAL	09/2016	0			20	0			0	0	20	
			Male	09/2016	0			9	0			0	0	9	

Standards and Operational Guidelines for implementing PPDM-related courses across all teacher studies programs			Female	09/2016	0			11	0			0	0		11		
			TOTAL	09/2016	0			20	0			0	0		20		
			Countrywide	09/2016	0			20	0			0	0		20		
Number of documents related to teachers' PPDM education/training developed (standards guidelines, training outline, and/or training material)	Documents developed means a document has been prepared and developed by relevant ENABLE BIH / PPDM Working group and approved by the PAB		TOTAL	09/2016	0			3	0			0	0		3		
			BIH	09/2016	0			3	0			0	0		3		
Number of other teaching and learning materials (TLM) provided with USG assistance	TLMs are the aids used by educators to help in teaching/instructing effectively. In particular, 400 of PPDM	TLM	TOTAL	09/2016	0			0	0			1.000	0		1.000		
			Countrywide	09/2016	0			0	0			1.000	0		1.000		