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PEOPLE, RULES AND ORGANIZATIONS SUPPORTING THE PROTECTION OF ECOSYSTEM RESOURCES

Ministry of Education Lessons Learned Workshop for the Development of the Primary School Environmental Education Curriculum

June 2016

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Acronyms

AML	Arcelor Mittal Liberia
AYP	Advancing Youth Program
CDWG	Curriculum Development Working Group
CEO	County Education Officer
CI	Conservation International
DEO	District Education Officer
EE	Environmental Education
EPA	Environmental Protection Agency
FDA	Forestry Development Authority
FFI	Fauna and Flora International
IRD	International Relief and Development
LPT	Lesson Planning Team
MCSS	Monrovia Consolidated School System
MoE	Ministry of Education
NAEAL	National Adult Education Association of Liberia
NPS	National Primary School
NRM	Natural Resources Management
UNICEF	United Nations International Children's Emergency Fund

INTRODUCTION

Tetra Tech ARD was contracted by USAID in May 2012 to implement the People, Rules and Organizations for the Protection of Ecosystem Resources (PROSPER) program. The goal of the five-year program is to “introduce, operationalize, and refine appropriate models for the community management of forest resources for local self-governance and enterprise development in targeted areas.” That goal is to be achieved through the accomplishment of three major objectives:

- Expanded educational and institutional capacity to improve environmental awareness, NRM, biodiversity conservation, and environmental compliance
- Improved community-based forest management leading to more sustainable practices and reduced threats to biodiversity in target areas.
- Enhanced community-based livelihoods derived from sustainable forest-based and agriculture-based enterprises in target areas.

An important activity under the first objective is to support the development of environmental education content for Liberia’s primary school curriculum. PROSPER’s approach to this activity involves close collaboration with the Ministry of Education (MoE), which is responsible for national curriculum and education standards.

Activity 1.1: Collaboratively support the development and/or modification of primary formal and non-formal curricula to improve knowledge and understanding related to natural resources, their management, and the related responsibilities of government and citizens.

In cooperation with curriculum development specialists identified by the Ministry of Education, PROSPER developed seventy-two lesson plans for grades 1 through 6, covering the four main subject areas – Science, Social Studies, English and Mathematics. The lesson plans include detailed lesson descriptions, lists of resources, learning objectives, key concepts and methodologies for evaluating students’ understanding thereof.

The process to develop the environmental education curriculum involved multiple stakeholders including the MoE, EPA, FDA, and civil society organizations. On June 7, 2016, the MoE and PROSPER, with the assistance of a local facilitator, held a Lessons Learned Workshop to reflect on skills and experiences and to document best practices from this process. The workshop gathered relevant stakeholders to review best practices in curriculum development, examine the process used by the MoE in partnership with PROSPER to develop the lesson plans and distil from this examination a list of best practices and lessons learned. The participants were fully engaged throughout the day and accomplished the workshop outcomes.

CURRICULUM REVIEW METHODOLOGY

Two sources on international curriculum development were used in preparation for the Lessons Learned Workshop to develop a framework of best practices for use during the analysis of PROSPER's curriculum development process. First, the FAO's *Curriculum Development Guide* provides a comprehensive structure to the curriculum development process based on four guiding principles:

1. Students, as the learners, are the focus of the curriculum development process;
2. Curriculum materials are developed by teams of experts and learners;
3. A systematic approach using best practices maximizes the quality and effectiveness of curriculum development
4. Practices should be adapted and changed to fit specific circumstances, audiences, and environments.

With these principles as a guide, a curriculum development model with four phases (Figure 1) and twelve distinct steps (Figure 2) creates a development structure supported by best practices at each step. During Phase 1, the Planning Phase, an issue, problem or need for a curriculum is identified. Once the nature and scope of the issue has been broadly defined the members of the curriculum development team can be selected. The goal for this second step is to obtain expertise for the areas included in the scope of the curriculum content among the team members and develop an effective team. The third step in Phase 1 asks the curriculum development team to complete a needs assessment to identify how best to deliver the content to the targeted learners.

Figure 1

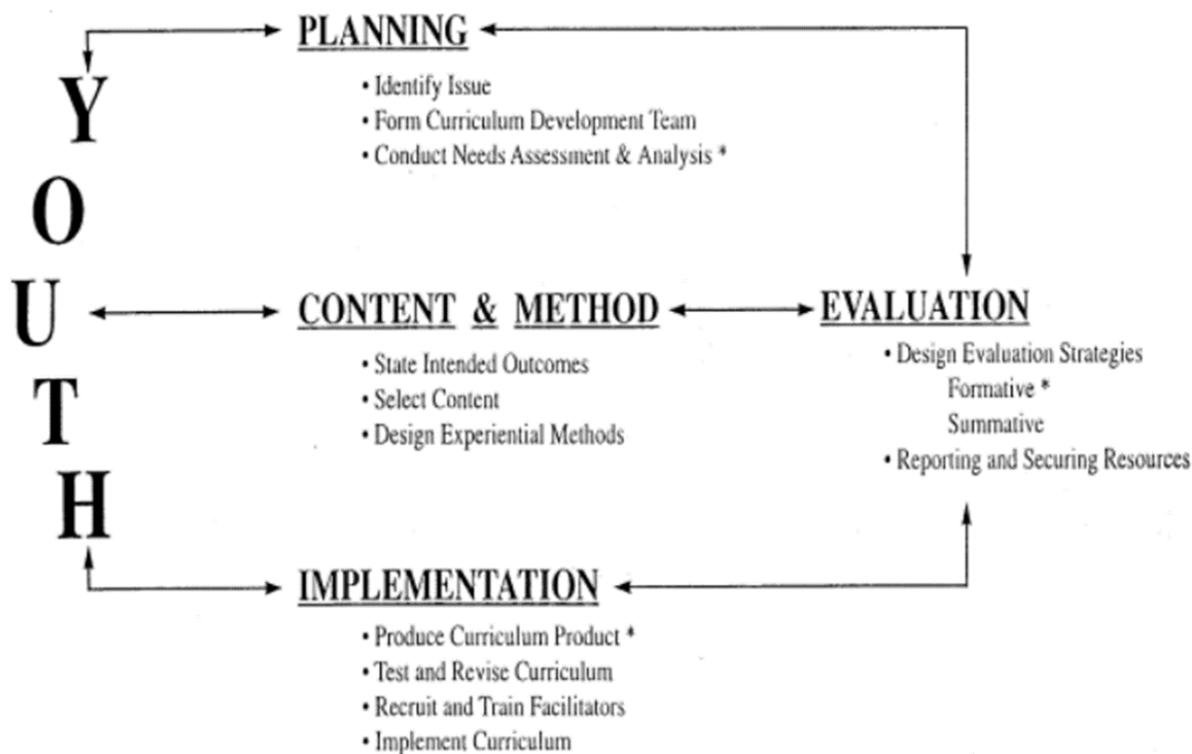
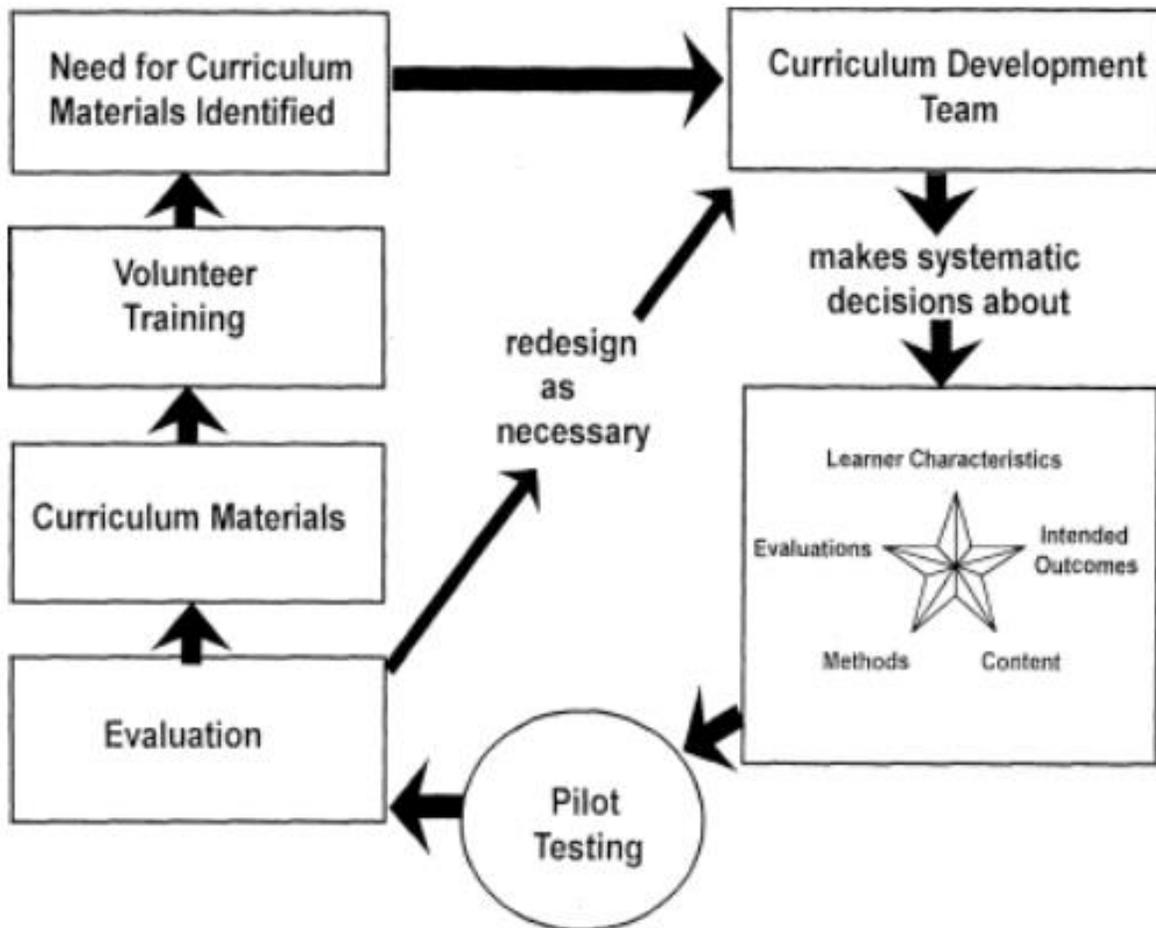


Figure 2



The second phase of the process with a focus on content and teaching methods contains three more steps. First, the curriculum development team must create clear outcomes that will guide the creation of the curriculum. Second, the curriculum development team selects the specific content that will support learners in meeting the educational outcomes. Finally, the last step in Phase 2 deals with the design of activities to help the learner achieve appropriate intended outcomes.

The implementation phase of the model moves the process through four more steps. First the curriculum teams must oversee the production of the curriculum and its accompanying materials. Second the process must test those materials and then make any revisions based on feedback from the test groups. Once the curriculum has been modified based on the suggestions from the testing session, teachers must be recruited to and trained to deliver the curriculum. It is a waste of resources to develop a curriculum if adequate training is not provided to the teachers who will be responsible for delivering the content. Finally, the curriculum must be implemented with a sufficient amount of planning to ensure its success and meet the goals established by the curriculum development team.

The final phase of the FAO's guide focuses on evaluation and reporting. The evaluation steps involves both formative and summative evaluations. Formative evaluations are used throughout the process and should be used continual to improve curriculum materials during their development. Summative evaluations are undertaken to measure and report on the outcomes of the curriculum. These

types of evaluations endeavor to reveal the impact of the curriculum on the learners and its success in meeting the outcomes created by the curriculum development team at the beginning of the process. Once these assessments are completed they must be reported to key stakeholders in order to measure the success of the program and solicit support for future curriculum development efforts.

The second source which supported the review of the curriculum development came from the article *Sustainable Development: A Case for Education*. The authors reviewed current best practices in the creation of environmental education and the creation of the environment education curricula from around the world. They distilled their findings into four key best practices in relation to the development of environmental education curricula:

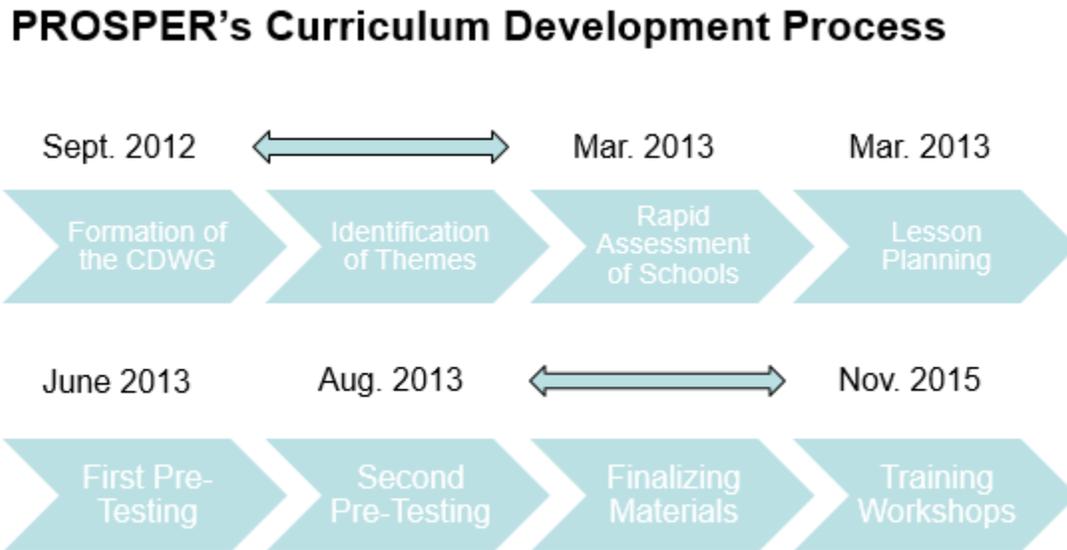
- Curricula are developed within a diverse network or alliances of partners in order to foster community support across a broad spectrum of society.
- Projects go beyond the accumulation of knowledge to behavior change behavior through active, participatory and experiential learning at school, at home, and in society.
- Active learning should be connected to local problem solving. Hands-on educational activities with a local focus create successful learning outcomes.
- Governments and/or ministries of education and the environment not only buy into learning for sustainable development initiatives, but provide leadership and resources”

Through their research they demonstrate how these four consideration are necessary components for the development of environmental education curricula throughout the world. These findings along with the curriculum development guidelines from the FAO formed the foundation of the curriculum review during the curriculum workshop.

PROSPER’S CURRICULUM DEVELOPMENT PROCESS

In preparation for the curriculum review workshop PROSPER reports concerning PROSPER’s curriculum development process were analyzed and interviews were conducted with key stakeholders (see Annex – Interview List) to gather details concerning the process. Once this information was reviewed, it became clear that the process could be divided into eight distinct steps (Figure 3). Key details from the PROSPER reports and interviews were organized to demonstrate their alignment with the curriculum framework developed by the FAO as well the four key components described in *Sustainable Development: A Case for Education*.

Figure 3



Formation of Curriculum Development Working Group (CDWG)

PROSPER began the process of curriculum development with the theory that if schools adopt and teach a curriculum focused on improving knowledge of natural resources in Liberia then students who are taught will make better decisions related to natural resource management because they will understand the consequences of poor management and have knowledge of options to improve Natural Resources Management (NRM). After consulting with Liberia's Environmental Protection Agency (EPA) and the Ministry of Education (MoE) the project discover that there was not an environmental education curriculum currently available for students in Liberia. As a next step, PROSPER worked with MoE to form the CDWG.

The group was formed in June of 2012 but the initial members wanted to include as many stakeholders as possible and by September 2012 the group included members from MoE, NAEAL, EPA, FDA, UNICEF, IRD, CI, FFI and Arcelor Mittal. The group decided that Mr. B. Dio Harris from the MoE should chair the group since the ministry would be in charge of the end product. The group decided on four goals for the environmental curriculum:

1. Instilling passion in children to explore their environment
2. Inspiring children to be creative, innovative and respectful in their thinking about the environment
3. Empowering children to influence others in their community and provide leadership to protecting Liberia's unique natural environment
4. Promoting integrity, openness, and gender equality for all students and the community at large.

Also, the group decided to only choose themes that fit within the national curriculum so that the lessons would not increase the prevailing curricula load levels in terms of content, teacher support materials, and the number of instructional hours required to deliver them. The team considered a number of different approaches to identifying themes for the curriculum but finally agreed to hire outside consultants to help identify and narrow the number of environmental themes for integration into the national curriculum. While this plan was put into motion members of the CDWG visited PROSER sites in Grand Bassa and Nimba counties to see firsthand the schools, teachers and students the curriculum would impact. One member of the CDGW, who was interviewed as part of the review process, described a visit to a

community where the people noticed that since cutting the trees for cultivation the creek now runs dry. For many members of the CDWG, these visits helped to solidify their belief in the value of the environmental education curriculum.

Identification of Themes

The CDWG decided that the logical process for this work would be to develop a list of themes organized by priorities, so that the CDWG, which had to approve the selection, could easily identify clusters of issues, as opposed to dealing with a wider disorganized array. The team identified the environmental elements found within each of the core subject areas, i.e., Science, Social Studies, Mathematics and Language Arts curricula. The CDWG hired two consultants to identify and evaluate the environmental themes in the existing MoE national primary curricula, and assist in the identification of national and international environmental curricula which could be used to enhance the MoE curricula. The analysis consisted of several steps:

1. Identify “environmental” elements in the current MoE National Primary School (NPS) curricula in science, social studies, mathematics and language arts;
2. Evaluate the elements in terms of objectives, activities and sequencing; and
3. Propose “preferred” curriculum elements, based on an analysis of external source curricula.

The two consultants prepared the themes for the CDWG and then asked each of the members to rate the environmental themes. Of the 51 themes identified by the CDWG, 27 were in the MoE curriculum, while the remaining 24 were recommended for integration. Therefore, almost half of the environmental themes considered as highly important or of high priority by the CDWG were NOT in the MoE NPS curriculum.

Following the prioritization of the environmental themes by the CDWG, a third consultant from Rutgers University supported the team by organizing the priorities even further. The third consultant arranged the themes from the CDWG by grade level for retrofitting into the MoE curriculum and then developed six lesson plans, one for each grade level, for submission to the Deputy Minister for Instruction of the MoE for approval. Many of the instructional suggests from the third consultant were creative and based on best practices but they either did not fit within the national curriculum or were not adaptable to the Liberian context. The CDWG decided to leave the exact placement of the environmental themes to the MoE and believed that the most sustainable approach would be to have Liberian teachers develop the lesson plans in collaboration with MoE officials.

For many of the members of the CDWG, approving the curriculum framework was the last time they participated in the curriculum development process. Members from the MoE were involved with the continued development of the curriculum but the full group did not continue to monitor the process. During some of the interviews, members of the original CDWG expressed frustration that they were not kept informed about the process and in some cases never saw the final product. When asked about this issue during interviews, PROSPER staff and MoE officials explained that working with the CDWG was difficult since many of the members changed positions within their organizations, left the country for new assignments, or switched organizations which no longer allowed them to participate in the group. Low attendance at the CDWG was a challenge to the process which convinced core members of the CDWG from PROSPER and the MoE to push the process forward on their own.

Rapid Assessment of Schools

While a team of Liberian teachers was assembled to begin the lesson plan writing process, the CDWG decided to conduct a rapid assessment of schools to see which sites would be the most appropriate for testing the new environmental education curriculum. The assessment was conducted within the PROSPER sites in Grand Bassa and Nimba Counties. Members of the CDWG were on the rapid assessment team and the MoE developed the following criteria for the assessment:

1. Staff strength
2. Staff qualifications
3. Teacher-availability
4. Willingness to use structured lesson plans for teaching
5. Availability of school structure
6. Basic school furniture
7. Availability of students
8. Mix of urban and rural schools

The survey revealed a number of findings. First, there were problems of consistency between prescribed texts and topics to be taught in the MoE curriculum. Also, teaching and learning materials were not available in the schools – textbooks, charts, posters, chalk, pens, pencils, notebooks/ copybooks. Most teachers and support staff are not in the MoE payroll, even those that have spent 10 to 15 years in the field and there were very few teachers that had undergone any form of formal teacher training among the schools. Finally, the school building infrastructure is very poor and the Market Day and Sande Society traditions were interfering with the schools system. Students do not attend schools on Friday because they had to help their parents to sell. Girls were taken to the Sande bush for about 8 months in the year and the boys replaced their mothers in the farms for most of that period.

The information from the assessment allowed the CDWG to select the school that would be part of the pre-testing phase of the curriculum development process. Also, all the information from the rapid assessment was shared with the lesson planning team.

Lesson Planning

After selecting the themes, the CDWG decided to create a Lesson Planning Team (LPT). The LPT was co-facilitated by the MoE and PROSPER and initially included four curriculum experts from the MoE, PROSPER members and a consultant. The group decided they wanted six Liberian teachers to help write the lesson plans. Thirteen volunteers were shortlisted by the MoE and interviewed in conjunction with the PROSPER education development team in February 2013, culminating in the selection of six primary school teachers who would become part of the LPT.

A 4-day orientation workshop was held in Kakata on lesson plan development and creating an integration process for the infusion of environmental themes into the national curriculum. The following steps characterized the process;

1. The environmental education curriculum framework produced by Rutgers University for grades 1-6 produced was reviewed for the integration process.
2. The national primary school curriculum was reviewed and environmental themes were identified.
3. Various lesson plan formats being used in Liberia's primary schools system were analyzed and a consensus reached for the development of a standardized format that was used to develop illustrative lesson plans with environmental themes.
4. Appropriate teaching and learning materials and teaching aids to support the classroom environment for each lesson plan were identified and described.
5. According to their core subject of specialization (Science, Social Studies, Mathematics and English), each of the six teachers developed an initial three lesson plans.

During an interview, one of the six teachers explained that their job was to harmonize the different lesson plan templates into one template that could be used in all subject areas and in a variety of school settings. Also, the teacher noted that everyone's opinion and perspective was respected during their collaboration period regardless of background or level of authority within the MoE. After a review of the national curriculum, the group quickly realized that it faced a number of challenges:

1. The national primary curriculum for Grades 1-6, in the core subject areas – science, social studies, mathematics and language arts – is very general. It is more of a list of topics to be covered by subject, marking periods and year.
2. It does not provide lesson plans, nor does it always have clear objectives for specific lessons with accompanying learning activities to provide support to the teacher in the classroom.
3. It provides no guidance to teachers for week-to-week nor day-to-day lesson presentations.
4. The curriculum sometimes suggests lesson teaching aids. For example, Science, Grade 3, Marking Period I refers to “an aquarium life” under materials, but it is up to the teacher to find the material

After the initial four day workshop in Kakata the LTP met twice a week to discuss their progress on the lesson plan development. MoE officials were pleased that the teachers were building the skills to develop these types of lesson plans and that the lessons were developed to meet the needs of the Liberian classroom with the information provided from the Rapid Assessment Team. The work of the LTP concluded with a one day workshop where the group finalized 72 lesson plans covering grades 1-6 spread through the four core subject areas. A workbook for students that matched the curriculum was recommended during the lesson writing process but it was not pursued by the group. At this point, the LTP decided that the materials were ready for pre-testing

First Pre-Testing

In order to pre-test the curriculum materials, two-day workshops were held in Tappita, Sanniquellie and Buchanan. The purpose of the pre-testing was to expose school administrators and teachers to the new lesson plans and gather their feedback to improve the 72 lesson plans developed by the Lesson Plan Team. In addition to school staff, the two County Education Officers (CEOs) from Nimba and Grand Bassa Counties, respectively; and three District Education Officers (DEOs), two from Nimba County and one from Grand Bassa County, respectively attended the pre-testing. The workshops allowed the curriculum planning team to discuss environmental and community forestry with the group, familiarize the teachers with the new lesson plan format, assess the groups understanding of the environmental themes in the lesson plans, and evaluate their ability to teacher environmental themes through the use of the lesson plans.

As the teachers were introduced to the new plan format, they were asked to review the lesson plans based on the following criteria:

1. **Suitability of Learning Objectives:** They were to consider the sub-topic being taught, the specific grade level and the time available for the teacher to achieve the objective(s).
2. **Teaching and Learning Materials/ Teacher’s Aid:** Participants were to consider the required materials for teaching the lesson for availability, suitability for illustrating the topics and accessibility. Teachers were further asked to suggest appropriate learning materials to help them illustrate their learning points.
3. **Outcome:** Participants were asked to check for consistency of the selected outcomes stated in the lesson plans with those of the national curriculum.
4. **Learning Points:** Consistency of learning points with the MoE curriculum and relevance of the environmental theme to the topic of infusion.
5. **Procedure:** Coherence and clarity of methods proposed to teach the lesson, with emphasis on how it supports the teacher to ensure that the students understand the lesson.
6. **Evaluation/ Assessment:** Participants were asked to check if the proposed evaluation questions helped to reinforce learning points

Demonstrations of the lessons were given to the teachers and then teachers were given opportunities throughout the workshop to provide feedback on the lesson plans, their content and their format. As a result of teacher feedback, the following changes were made to the lesson plans:

1. Learning points were enhanced to give teachers more background knowledge
2. Suggestions on how to activate the prior knowledge of students were added
3. Summary/Conclusion sections were added to the lessons
4. Suggested dialogue between teacher and students were written into the lessons, color coded into blue and red
5. More visual materials such as posters, charts and flashcards were developed to support the lessons
6. Conduct a second, but small scale field-testing of the revised lesson plans

This feedback was brought back and integrated into the new lesson plans. Once this was complete, the materials were ready for a second phase of pre-testing. A second phase pre-test workshop on the lesson plans was conducted with nine teachers and principals at the Barconnie Primary School in Grand Bassa County. Participants were drawn from three primary schools that took part in the larger-scale first phase pre-testing workshop.

Second Pre-Test

After the first pre-test, a consultant with experience in Liberian primary schools was contracted to revise the 72 lesson plans for consistency of content and readability. In September 2013, the same consultant was asked to lead a second phase pre-test workshop on the lesson plans that was conducted with nine teachers and principals at the Barconnie Primary School in Grand Bassa County. Participants were drawn from three primary schools that took part in the larger-scale first phase pre-testing workshop. Teachers were introduced to the new changes in the lesson plans since the last pre-testing and then were asked to review the lessons using the same criteria from the last pre-test workshop.

Overall, the consultant found that the materials received positive feedback from teachers and few changes has to be made to the lesson plans. After analyzing the results of the workshop the consultant proposed three different methods for piloting the materials to assess their impact on student learning. At this time, none of those proposals have been put into place by the MoE.

Finalizing Materials

Following the second pre-test, the decision was made that PROSPER would continue to work with the Curriculum Division of the MoE and with Rutgers University to develop and finalize teaching and learning materials, especially posters, for inclusion in the curriculum package. PROSPER's education team and the MoE curriculum specialists reviewed three levels of TLM drafts and provided comprehensive feedback to Rutgers through the development process. Also, the education team assisted the MoE to engage the EPA on the incorporation of the environmental education materials within their proposed development of environmental education curriculum for primary schools. Details of the curriculum development process were shared with EPA and samples of the lesson plans were provided to them.

However, the process of producing the TLMs turned out to be longer and more complicated than anticipated. This resulted in the hiring of an Animation and Illustration Company to support the process. Although Rutgers was given feedback on lesson plan materials, many of the materials produced were not applicable to the Liberian context. Also, the detailed review and feedback process consumed appreciable time, as it involved getting MoE curriculum specialists around the table. The entire process therefore took longer than expected. During the process of developing the TLMs, some modifications were unavoidable. This required that the curriculum development team reviewed and, where necessary, revise lesson plans to

match with their respective TLMs. The PROSPER Education Team organized work sessions together with four Curriculum Specialists from the Bureau of Curriculum Development of the MoE, in which they developed and implemented a process to match the curriculum materials. Lesson plans were matched with their respective TLMs, including modification of their respective “developmental activities” sections. Then the lesson plans and TLMs were compiled and made ready for printing. That exercise involved standardizing how materials were saved, while ensuring that there was clear description of how a particular lesson could be traced back to the specific subject, grade, marking-period, topic and sub-topic within the national core curriculum. Before finalizing and printing of the environmental education materials, 10 copies of each of the seven sets of booklets and posters were printed and submitted to the Ministry of Education (MoE) for final comments and inputs, and affixing MoE’s branding. Once this was complete, standard display versions of the Environmental Education curriculum materials were printed for use in the orientation of teachers.

November 2015

Three key events occurred in November 2015 which brought the curriculum development process to a close. First, PROSPER held a training of trainers (TOT) for the MoE preparing to facilitate the teacher training later in the month. The TOT had three important outcomes. First, it built consensus on the teacher training/orientation approach for the coming teacher workshop. Second, it led to an agreement on how the environmental themes were integrated into the national curriculum. Finally it oriented new MoE officials to the new curriculum and how it was created.

Once the TOT was complete, the MoE conducted an orientation workshop for teachers with support from PROSPER. The participants included County Education Officers (CEOs), District Education Officers (DEOs), as well as principals, female educators and classroom teachers drawn from each of the fifteen selected primary schools across PROSPER sites in Grand Bassa and Nimba with a total of 50 public school staff. The teachers were shown how to use the lessons including the posters, instructed in how to integrate the lessons into the national curriculum, and were given a set of the curriculum materials. The MoE Deputy Minister for Instruction, Dr. Romelle Horton, spent more than a half-day participating with teachers in one of the orientation sessions held in Buchanan to reinforce the support of the Ministry for this curriculum initiative.

In conjunction with the TOT and teacher orientation workshop, PROSPER, USAID and the MoE agreed there should be an official handover ceremony for the curriculum materials to the MoE. The ceremony included representatives of the Environmental Protection Agency (EPA), Deputy Minister of Education for Instruction and officials of the MoE, Acelor Mittal Liberia (AML), Fauna and Flora international (FFI), teachers of the Monrovia Consolidated School System (MCSS) who participated in the development of the initial drafts of the EE curriculum materials and members of the Liberian media. During the ceremony, the curriculum was officially delivered for distribution and use in schools throughout the country. After the ceremony, the Deputy Minister for Instruction specifically requested USAID-PROSPER’s support to the CDWG and MoE to facilitate monitoring of the curriculum implementation process for at least one semester. She also requested that PROSPER facilitate the movement of select MOE staff to enable them distribute the EE curriculum materials. At this time, PROSPER has not been able to the support this requests.

LESSONS LEARNED WORKSHOP

On June 7, 2016, PROSPER held a day long workshop to examine the process used to develop the environmental education curriculum. The overall goal of the Lessons Learned Workshop was to examine PROSPER’s curriculum development process described above and review how well the process aligned with best practices as well as identify any lessons learned. Participants from the original CDWG, the MoE, the six teachers who were part of the LTP, representatives from the EPA, USAID and PROSPER

were all invited to attend as well as representatives from NAEAL, CI, FDA, EPA, AYP and Arcelor Mittal. Although, many of those invited were unavailable due to work conflicts, 19 participants were able to attend the workshop (see Annex) which provided representation from the majority of stakeholder groups involved in the curriculum development process.

The workshop commenced with a review of the outcomes for the day's activities. By the end of the workshop participants planned to have:

- Reviewed each step of the curriculum development process for strengths and areas of improvement.
- Listed best practices and lessons learned from the process as a whole.
- Decided if the process met the goals established by the CDWG at the outset of the process.
- Provided suggestions for next steps in the process



Mr. Cole summarizing the curriculum development process.

Once this was complete, the facilitator described the methodology used to review the curriculum process and asked the participants to complete a Think, Pair, Share activity which required them to list the steps they would take in creating a curriculum for the Liberian context. This process allowed the participants to activate their prior knowledge in regards to curriculum development and it gave participants with less of a background in education the ability to grasp the basic structure of curriculum development. After the group was done sharing their ideas, Eugene Cole, the Deputy Chef of Party for PROSPER, presented a brief review of the

curriculum process that was initiated in 2012 and culminated in November 2015 with the handover of the completed materials to the Ministry of Education. He described how the process began with the formation of the CDWG and then explained the rationale behind each step of the process. This presentation allowed participants who had not participated in the process or only one segment of the process the ability to get an understanding of the steps that led to the creation of the 72 environmental education lesson plans. Also, it clarified some misconceptions concerning the process that participants may have had prior to the workshop and provided them the opportunity to recall many of the actions taken during a process that spanned three and half years.

After this review process was finished, the group began an examination of the entire process through the use of a Gallery Walk. PROSPER's curriculum process was divided into eight distinct steps (Figure 3). Eight tables containing a summary of each step and artifacts such as agendas, workshop participant lists, draft lesson plans and other items specific to each step in the process were placed around the room. The tables were organized in the same order as the eight steps in the process and clearly labeled. Each participant was given a capture sheet with nine guiding questions (see Annex) in order to focus their attention on specific areas of the curriculum development process. The participants were divided into groups of two or three and assigned to a table. They were given approximately ten minutes to read the summaries and review the artifacts at each station. After reviewing the materials at the station, the groups went through each of the nine guiding questions to see if the specific step offered any evidence that best practices were adhered to during the completion of that step. The groups continued to rotate through tables until they were given an opportunity to review the information



Participants completing the Gallery Walk activity.

and artifacts at each station. Once this was complete, the groups were asked to write their findings for each of the nine guiding questions on poster paper and presented the information to the group as a whole.

With a firm grounding in the methodology of the curriculum review and a comprehensive understanding of the actions taken during each step for the curriculum development process, the participants began an activity which asked them to review how closely the development process followed best practices. In order to complete this task, each participant was given a Vote with Your Feet (see Annex) questionnaire which they were asked to complete individually. The questionnaire directed the participants to respond to statement with a number ranging from 0 (Not at all) to 4 (Completely). Once they were done responding to the questions (see Table 1), the facilitator indicated that the numbers 0 to 4 were posted on pillars around the workshop area.

Table 1: Summary of Vote with Your Feet responses

Best Practice Statements	0	1	2	3	4
To what extent did the process meet the requirements of the Planning Phase?				4	8
To what extent did the process meet the requirements of the Content and Methods Phase?			2	5	5
To what extent did the process meet the requirements of the Implementation Phase?	1		2	5	4
To what extent did the process meet the requirements of the Evaluation Phase?		2	6	2	2
To what extent did the process overcome its challenges?			4	5	3
To what extent did the process build capacity within the Liberian education sector?		3	2	2	5
To what extent did the process meet the goals established by the Curriculum Development Working Group?				7	5

For each of the best practice statements in the questionnaire, participants walked to the numbered pillar that matched their selection. Once there, the group at each number were asked to discuss the reasons for their response and then select a speaker to explain their reasoning to the entire group.

Each group was given a chance to share their ideas and for some questions there ensued an extended conversation concerning that particular topic. The data from Table 1 indicates that the majority of the participants agreed that best practices were observed during the first three phases of the of the curriculum development process. Also, there was strong agreement that the CDWG met the four goals it set of itself at the beginning of the process. However, there was less support for the process when it came to the Evaluation Phase. A number of participants noted that the process lacked a summative evaluation plan. Although a consultant had proposed three different ways to pilot test the materials, PROSPER left the distribution and monitoring of the curriculum up to the MoE explaining that further participation in the process was outside its scope of work as a natural resource management project. Also, a number of the participants argued that the success of the curriculum could not be measured since the materials have only been distributed to those teachers who attended the November workshop and no formal pilot testing has been implemented to validate the curriculum.



Partners exchanging ideas for next steps.

Once these discussions were concluded, the participants were asked to complete an activity to capture their opinions concerning next steps for the curriculum. The activity, called Sage and Scribe, required the

group members to find a partner and each take a turn sharing their thoughts on the future needs of the curriculum process. Their suggestions included:

- The creation of a summative evaluation process including all stakeholders which monitors the implementation of the curriculum for at least one semester and then integrates the feedback into a summative assessment based on the CDWG goals
- Expansion of the test sites to include schools in other counties
- The creation of student workbooks to accompany the lesson plans
- An increase in the number of environmental issues discussed in the curriculum and the number of visual aids
- The production of a teacher's guide or locate a textbook to provide teachers with more background knowledge
- Organizing additional trainings for the teachers implementing the curriculum
- Creating an office within the MoE with a focus on environmental education
- Supporting the MoE in promoting the gains of curriculum to USAID and integrate the curriculum into future development programs

After sharing these next steps with the entire group, the workshop ended with closing remarks and workshop evaluation form. The feedback was positive and the participants left the workshop in agreement that the outcomes had been met.

SUMMARY

After reviewing PROSPER reports, interviewing key participants in the curriculum development process and examining the process during the workshop, it is clear that PROSPER followed a number of best practices in the creation of the environmental education curriculum. The project clearly identified the need for an environmental curriculum and sought out the assistance of key stakeholders throughout the formation for the CDWG. The CDWG set clear goals and parameters for the development of the curriculum materials. Working with consultants, the group facilitated a process which led to the selection of environmental themes that matched the national curriculum. Members of the group visited test sites and organized a rapid assessment process to understand the needs of students and capacity of the schools. The process oversaw the design of student centered lessons which make use of hands-on active learning methods integrating the students' surroundings and local environmental issues into the instructional model. Throughout the process there was the continually use of feedback from formative assessments such as the two pre-testing workshops and suggestions from the MoE to modify and enhance the curriculum materials. Most importantly, in terms of sustainability, the MoE played a leadership role throughout this process by chairing the CDWG, facilitating the LPT sessions, reviewing and approving each version of the lesson plans and leading the teacher training workshops. Also, the process made sure to included feedback from CEOs, DEOs and principals as well as MoE administrators from Monrovia. All of these actions, demonstrate the use of best practices throughout the creation of the environmental education lesson plans.

Although the overall structure of the curriculum development process did adhere to best practices, there are still areas of the process which could be improved. These "lessons learned" include:

- 1) The continued use of the entire CDWG which was formed initially could have provided valuable feedback to the process. Although the frequency of the meetings may have needed to be reduced and their input limited, the background knowledge of the combined group may have helped to improve the quality of the lesson plans and/or the efficiency with which they were produced.
- 2) A clear summative assessment strategy should have been put into place near the beginning of the process. Even if this final assessment did not include PROSPER, planning it out in advance could have given the MoE time to build support within the Ministry and seek out support from other projects in the non-profit community.
- 3) The use of international vendors needs to be carefully reviewed. The collaboration with Rutgers led to a number of delays and in the end resulted in the need to hire a local illustration company.
- 4) Establishing a streamlined approval process with members of the MoE at the beginning of the process could have saved some of the time lost while finalizing the lesson plan materials.

Although these modifications may have improved the process, it is important to remember that practices should be adapted and changed to fit specific challenges of the local environment. Between 2012 and November 2015 a number of personnel changes occurred within the participating non-profits as well as PROSPER, the administration changed at the MoE and the Ebola Crisis impacted the entire region. Even with all these challenges the process continued to adhere to best practices and produced a curriculum which met the goals initially established by the CDWG.

ANNEX- CURRICULUM REVIEW ARTIFACTS

INTERVIEW LIST

#	FIRST NAME	LAST NAME	SEX	POSITION	ORGANIZATION	Curriculum Development Process	CELL NUMBER
1	J. Emmanuel	Milton	M	Ass. Director	Ministry of Education	CDWG Member	0886473114
2	T. Doe	Johnson	M	EA	PROSPER	CDWG Member	0776871553
3	A. Melvin	Dorwison	M	Consultant	PPROSPER	LPT	0886448054
4	Eugene	Cole	M	DCOP	PROSPER	CDWG Member	0777459033
5	Pauline	Browne	F	Program Mngr.	AYP	CDWG Member	0777125033
6	Jehoshaphat	Dogolea	M	Program Mngr.	NAEAL	CDWG Member	0886575915
7	J. Nyenekon	Simujla	M	Teacher	Cathedral High School	LPT Member	0886466222
8	Patrick	White	M	Education. Officer	USAID	None	0777365073
9	J. Nyumah	Pongay	M	Teacher	F.M. Reid	LPT Member	0777063693
10	Julia	Saizay	M	Spc. Prgm. Off.	Ministry of Education	LPT Member	0777983805
11	B. Dio	Harris	M	Director	Ministry of Education	CDWG Member	0777198179
12	Anthonio	Jallah	M	Teacher	Ministry of Education	LPT Member	0886433580

WORKSHOP PARTICIPANTS

#	FIRST NAME	LAST NAME	SEX	POSITION	ORGANIZATION	COMMUNITY	CELL NUMBER
1	J. Emmanuel	Milton	M	Ass. Director	Ministry of Education	Monrovia	0886473114
2	T. Doe	Johnson	M	EA	PROSPER	Monrovia	0776871553
3	A. Melvin	Dorwison	M	Consultant	PPROSPER	Monrovia	0886448054
4	Eugene	Cole	M	DCOP	PROSPER	Monrovia	0777459033
5	Paul	Meadows	M	COP	PROSPER	Monrovia	0777459033
6	Jehoshaphat	Dogolea	M	Program Mngr.	NAEAL	Monrovia	0886575915
7	Jarsa	Okai	F	EI	EPA	Monrovia	0886466222
8	Alvin	Poure	M	Envirn. Supt.	AML	Monrovia	0777926989
9	Keith	Metzner	M	Envirn. Officer	USAID	Monrovia	0777355073
10	Marc	Douglas	M	Project Dev. Off.	USAID	Monrovia	0777465897
11	Joao	Queiroz	M	NRM Advisor	USAID	Monrovia	
12	J. Nyumah	Pongay	M	Teacher	F.M. Reid	Monrovia	0777063693
13	Julia	Saizay	M	Spc. Prgm. Off.	Ministry of Education	Monrovia	0777983805
14	Alexander	Kingston	M	NRM Spc.	USAID	Monrovia	0777198179
15	Tenneseo	Brohdoryen	M	Acting Asst. Min.	Ministry of Education	Monrovia	0886774337
16	Jackson	Nobeh	M	DL – EDOA	PROSPER	Monrovia	0776871561
17	Nelson	Browne	M	Secretary	Ministry of Education	Monrovia	0777776029
18	Reuben	Duo	M	Director	Ministry of Education	Monrovia	0886474774
19	Anthonio	Jallah	M	Teacher	Ministry of Education	Monrovia	0886433580

WORKSHOP AGENDA

Curriculum Development Working Group Workshop

Lutheran Church of Liberia (LCL) compound, 7 June, 2016
WITH SUPPORT FROM USAID/PROSPER

Outcomes:

By the end of the workshop, participants will have:

1. Reviewed each step of the curriculum development process for strengths and areas of improvement.
2. Listed best practices and lessons learned from the process as a whole.
3. Decided if the process met the goals established by the CDWG at the outset of the process.
4. Provided suggestions for next steps in the process

Time	Activity	Facilitator	Notes
08:00 – 09:00	Registration of Participants and Breakfast		
09:00 – 09:05	Opening Prayers	Volunteer	
09:05 – 09:10	Welcome Remarks	Paul	
09:10 – 09:20	Self-Introduction	Participants	
09:20 – 09:40	Purpose, structure and methodology of workshop	Andrew	Power Point
09:40 – 10:10	Think-Pair-Share: What are the critical steps in developing a curriculum for Liberian students? <ul style="list-style-type: none">• Participants reflect individually for 5 minutes• Partners share responses for 10 minutes• Partners share with the group for 10 minutes	Andrew	Power Point Capture Sheets
10:10 – 10:20	BREAK		
10:20 – 12:00	Gallery Walk: <ul style="list-style-type: none">• Overview of the curriculum development process (Eugene, 15 minutes)• Participants are paired and assigned to a station (5 minutes)• Participants rotate from station to station. They review the summary of that development step and analyze it for lessons learned/best practices (12 stations/10 minutes per station)	Eugene/ Andrew	Power Point Capture Sheets for Gallery Walk Station Materials

12:00 – 13:00	LUNCH		
13:00 – 13:40	Gallery Walk: <ul style="list-style-type: none"> • Complete last 4 stations 	Andrew	
13:40 – 14:40	Group Presentations: <ul style="list-style-type: none"> • Partners take 15 minutes to list their findings on poster paper • Each pair presents their findings to the group (45 minutes) 	Participants	Poster Paper
14:40 – 15:00	COFFEE BREAK		
15:00 – 16:00	<u>Vote with Your Feet:</u> <ul style="list-style-type: none"> • Participants complete a Process Evaluation Form independently • Group shares their responses by moving to their responses posted around the room and then explaining their position to the group 	Andrew	Process Evaluation Form (Based on the goals established by the CDWG and research article on curriculum development)
16:00 – 16:50	<u>Sage and Scribe:</u> <ul style="list-style-type: none"> • Participants are paired and respond to the question: “If you were leading the curriculum development process, what would be your next step?” • Pairs present to the group 	Andrew	Sage and Scribe capture sheet
16:50 – 16:55	Closing Statements and workshop evaluation	TBD	Workshop evaluation form
16:55 – 17:00	Closing Prayer	Volunteer	

GUIDING QUESTIONS FOR THE GALLERY WALK

- 1) List evidence that the process took the time to assess the characteristics and needs of the students and communities?
- 2) List evidence that the Curriculum Development Working Group set clear goals and objectives for the curriculum?
- 3) List evidence that the process set clear summative evaluation methods?
- 4) List evidence that the process used formative evaluation methods to continually improve the curriculum.
- 5) List evidence that the process had a clear strategy for selecting environmental education themes, linked them to learning objectives and incorporated active learning strategies?
- 6) List evidence that the Ministry of Education played a leadership role throughout the entire process?
- 7) List evidence that the process sought out the advice and expertise of various education sector groups and academic institutions?
- 8) List evidence that County Education Officers (CEOs), District Education Officers (DEOs), School Administrators, Teachers and Students were involved in the process.
- 9) List any lessons learned you identified during your gallery walk.

VOTE WITH YOUR FEET RESPONSE SHEET

Directions: Independently respond to the following questions using the scale below:

0 = Not at all 1 = little extent 2 = moderate extent 3 = large extent 4 = completely

- 1) To what extent did the process meet the requirements of the Planning Phase? (Identify the issue, Form a Curriculum Development Team, Conduct a Needs Assessment) _____

- 2) To what extent did the process meet the requirements of the Content and Methods Phase? (State Intended Outcomes, Select Content, Design Experiential Learning Methods) _____

- 3) To what extent did the process meet the requirements of the Implementation Phase (Produce the curriculum product, Test and Revise Curriculum, Recruit and Train? Teachers, Implement Curriculum) _____

- 4) To what extent did the process meet the requirements of the Evaluation Phase? (Design Formative and Summative Evaluation Strategies) _____

- 5) To what extent did the process overcome the challenges listed below? _____
 - a. Members of the Curriculum Development Working Group were constantly changing due to changes in positions and organizations
 - b. Outside consultants struggled with adapting materials to Liberia's rural educational setting
 - c. There were problems of consistency between prescribed texts and topics to be taught in the MoE curriculum
 - d. Teaching and learning materials were not available in the schools – textbooks, charts, posters, chalk, pens, pencils, notebooks/ copybooks
 - e. There were few teachers that had undergone any form of formal teacher training among the schools surveyed

- 6) To what extent did the process build capacity within the Liberian education sector? _____

- 7) To what extent did the process meet the goals established by the Curriculum Development Working Group (CDWG)? (see below) _____

The group chose the following as the goals of the curriculum:

 1. Instilling passion in children to explore their environment
 2. Inspiring children to be creative, innovative and respectful in their thinking about the environment
 3. Empowering children to influence others in their community and provide leadership to protecting Liberia's unique natural environment
 4. Promoting integrity, openness, and gender equality for all students and the community at large.

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