

Colorado School of Mines Curriculum Development Project for St. Denis Senior Secondary School, Makondo, Uganda

EXECUTIVE SUMMARY

Over the past two years, the National Science Foundation (NSF) Ugandan Curriculum team has been developing science lesson plans, along with related software and instructive lab exercises, to help improve the quality of science instruction at St. Denis, a small secondary school in rural Uganda. The lesson plans were developed in accordance with the Ugandan National Educational Standards and were designed to address the unique challenges which are faced by the students at St. Denis (e.g., AIDS epidemic, poverty, rural location).

In May of 2008, the first set of lesson plans were sent to St. Denis. After reading the team's initial work, teachers at St. Denis gave their recommendations for improvement in the lesson plans. The teachers were mostly concerned with two areas: information depth and the allotment of time. They requested that the lesson plans cover information at a deeper level and fit the forty to eighty-minute class periods. As soon as these recommendations were received, in October of 2008, the team has been addressing these concerns.

The team initially faced with many ways to proceed in improving the lesson plans, particularly in terms of creating a sustainable product. Ugandan lesson plans tend to be written in a way slightly different from American lesson plans. The former requires more information about the subject, while the latter favors instruction for the teacher's actions. A combination of these types of lesson plan was decided on. The ability for the product to be used in the future also posed many alternatives. With the recent construction of a computer lab at the school, a computer-based sustainable system was decided on; a system similar to LON-CAPA was chosen over alternatives such as interactive applets. This software system is fully and easily expandable by both teachers and students, allowing for the software to be better suited for St. Denis's use. The lesson plans are similarly available in expandable electronic format. Because St. Denis's computer lab has internet access, online hosted interactive applets were suggested in many of the lesson plans.

As St. Denis is monetarily poor, the fiscal aspect to the project is very important. With this in mind, lab exercises with local and inexpensive materials were developed. Furthermore, the transmittal of the physical lesson plans will coincide with a shipment of a large number of books to St. Denis in October of 2009. These will likely arrive before the beginning of the January trimester in the Ugandan school year. All the software being developed can be run on open source and free software packages, such as OpenOffice.org, which is easily accessible to St. Denis.

With these considerations taken into account, the team recommends the following steps be taken. Before the proposed shipment date of October 2009, the 50-75 lesson plans should be further edited to ensure accordance with St. Denis's recommendations. Furthermore, the associated labs and software should be extensively tested, and should be expanded if time permits. The team is willing and excited to work on these proposed steps over the coming months, to ensure the best possible product is sent to St. Denis.