

*A Story of a School Development Program in the Heart of Borneo,
Kalimantan-Indonesia*

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Abstract

The purpose of this research is to portray the changes in schools during the implementation of Education for Sustainability Program (ESD) in The Heart of Borneo (HoB)-Kalimantan. During 2008-2013 WWF-Indonesia developed ESD program by conducting training and mentoring for schools among 10 regencies in HoB, Kalimantan area. There are 34 schools are under WWF-Indonesia supervision. The schools obtained assistance in form of training for school improvement and the value of education for sustainable development. Within 4 years, WWF-Indonesia has been running the program, there are many changes occurred in the schools. Using the quality criteria regarding the quality of teaching and learning process, this study describes the changes happened in schools such as the use of variety of learning approaches, the use of local resources for teaching and learning and the development of teaching philosophy among teachers.

Keywords: education for sustainable development, teaching and learning, school

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Introduction

Borneo, the third largest island in the world, is well known for its rich natural resources, such as forest, coal, gold, and oil. Mario Rautner (2005) on his report on Status of Forest, Wildlife and Related Threats on the Island of Borneo, stated that Borneo is *a land of plenty*. In other words, it is a rich land that has a lot of things. The threat that was mentioned by Rautner refers to the loss of its biodiversity from time to time. For instance, based on the data from satellite observations, World Wide Fund for Nature (WWF) reported 56% or about 29,000 kilometers of protected forest in Borneo has been cleared for oil palm plantations and land conversion (Rautner, 2005). To maintain Borneo island, and to ensure the governance of the island conducted effectively, three countries (Indonesia, Brunei Darussalam and Malaysia) in the area of Borneo island signed an agreement to undertake positive activities to keep it safe. The agreement was signed in 2007 and called the Heart of Borneo (HoB).

During 2008-2013, WWF followed-up the agreement by developing Education for Sustainable Development (ESD) program to conduct training and mentoring for schools among 10 regencies in the HoB area, namely: Katingan, Murung Raya, Gunung Mas, West Kutai, Sintang, Melawi, South Barit, Kapuas Hulu, Nunukan and Malinau. In each regency, the schools were built and assisted by WWF-Indonesia prior to be the learning center for other communities and schools around the areas and to inculcate the values of ESD as part of the effort to save national natural resources.

There are 34 schools in total that are under the guidance of WWF-Indonesia. During a period of time, the assisted schools were receiving assistance in the form of training for school improvement, and the value of education for sustainable development. The ESD program in the HoB was done through the implementation of *the whole school approach*. The whole school approach is a strategy to systematically improve all aspects of school quality. Within 4 years, WWF-Indonesia has been running the HoB program conducted in several schools in Borneo. By all means, there are many changes occurred in the schools. The aim of this study is to portray the changes in schools during the implementation of Education for Sustainability Program (ESD) regarding teaching and learning in schools.

Literature Review and Related Work

The Whole School Approach in Education for Sustainable Development

The Whole School Approach basically aims to integrate the principles of sustainable development in formal education in a holistic manner. In other words, schools introduce the sustainable development principles not only through teaching and learning, but also through the operation and governance of the school, the involvement of stakeholders and the society, long-term planning, monitoring and evaluation, as well as involving the whole-school community to participate actively for sustainable development (Hargreaves, 2008). According to Steele (2012), the implementation of the whole-school-approach will result in teacher and students involvement to solve real life issues and problems; provide opportunities to achieve the objectives of curriculum; endorse the involvement of school community; less consumption of the natural resources; improve school facilities; reduce school procurement of new tools and resources; and expose school a role-model for local

community. The ESD program in the Heart of Borneo (HoB) was done through the implementation of the whole school approach. The whole school approach is a strategy to systematically improve all aspects of school quality in area of school culture and ethos; teaching and learning; pupils; community; school estate and monitoring and evaluation. Changes are likely to occur in school system who implemented the whole school approach. To describe the changing phase in an organization in the school, Larson (2011) uses these three phases:(1) mobilization phase, the phase when the new school begins to reorient within the school system; (2) implementation phase, the phase when the school implements the changes that were made; (3) institutionalization phase, when the school system has changed and the innovation has likely to become the regular routine in the school. According to Larson, those three phases will occur at different times and involving different people. If the institution has reached the institutionalization phase, it will be encouraged to produce new thoughts or perform a new mobilization that lead to the next phase.

The whole school approach highlights teaching and learning as one of important aspect in the success of Education for Sustainable Development. It cannot be denied because school has enormous role in sustainable development. In 2002, the United Nations proclaimed the Decade of Education for Sustainable Development 2004-2014. The idea was all countries should adopt this perspective and develop a teaching characterized by a multidisciplinary and holistic approach. Thus, pupils were to be encouraged to develop critical thinking and hold responsibility in the school. Teaching and learning in school should result in understanding about the current condition of the earth which are biodiversity loss and growing ecological footprint; also produce actions competence for sustainable development such as acquiring skills and knowledge to participate in the development society, increase knowledge to change our way of life etc.

In response to this, WWF (World Wide Fund for Nature) introduced six pillars that Education for Sustainable Development (ESD) is based upon. These pillars are rooted from the UN Decade of ESD and underlying the characteristics of learning for sustainable development. They are (1) Lifelong learning means learning should provide an opportunity to rethink and think a new way for adopting new strategies, valuing the process instead only focusing on result; (2) Learners in focus means allowing individuals to create their own knowledge as result of learning and interaction with others; (3) Holistic approach means teachers should be able to promote interdisciplinary and subject integration and also able to link issues of ecological to other issues e.g. social justice and economic sustainability;(4) Democratic work methods means students should be given the opportunity to influence school or local communities by providing certain skills such as proposing questions, formulate and analyze questions etc.; (5) Different perspectives mean teachers should teach critical thinking collaborative and cooperative learning. Also using schools, local educational institutions, surrounding community and nature as learning resources; and (6) Reflection means teachers should teach and practice reflection skills.

The six pillars are also in line with the quality criteria regarding the quality of teaching and learning process developed by Breiting et.al (2005) for ESD schools. Breiting et.al (2005) explained nine areas that cover the quality criteria regarding the quality teaching and learning process. They are (1) Areas of teaching-learning approach; (2) Area of visible outcomes a school and in local community; (3) Area of perspectives for the future; (4) Area of ‘culture of complexity’; (5) Area of critical thinking and the language of possibility; (6) Area of value clarification; (7) Area of action-based perspective; (8) Area of participation and (9) Area of subject matter. These areas are developed based on the idea that sustainable development is not a fixed matter.

It is a quest for improving our daily life and communities that benefits people now and in the future and also minimizing our negative environmental impact. Therefore, it requires citizen to be proactive, creative and able to combine theoretical knowledge with practical innovations and ideas. Consequently, teaching and learning approach in school should be able to develop those skills by creating student-centered learning, giving students opportunities to grow their own ideas, values and perspectives and experiencing experiential learning. Teachers should create learning environment that enable students to cultivate those skills for instance by integrating subject taught in the classroom with issues in the local community, encouraging cooperative and experiential learning and introducing ESD issues through engaging activities

Methodology

This study was conducted in three provinces in Kalimantan namely (1) Central Kalimantan included Katingan and Murung Raya district; (2) East Kalimantan included West Kutai district and (3) West Kalimantan included Sintang Melawi district. A number of respondents involved in the study were recommended by WWF-Indonesia with some considerations such as the level of progress of schools and convenience access to visit the school location. The following table is a description of respondents.

Table 1: Kinds and Number of Respondents

Group of Respondents	Central Kalimantan	East Kalimantan	West Kalimantan
School	2	3	2
Teacher	25	20	6
School Principal	6	3	2
Local Society	13	15	-
Governmental representative	-	5	-
Students	12	18	10

The method of data collection was conducted through questionnaires, interviews, document analysis of students' work and school observations. The instruments were developed from quality criteria of ESD schools (Brieting et.al, 2005) and WWF Report of Sustainable School (WWF-Sweden). This study is aimed to portray changes in teaching and learning in schools. Descriptive analysis (of percentage) was performed to gain a true sense of changes in teaching and learning. The purpose of analyzing descriptive data was to gain insight regarding teaching and learning.

Meanwhile, participants' responses on open questions will add up to the whole discussion on quality criteria of teaching and learning process.

Result, Analysis and Discussion

Quality Criteria Regarding Teaching and Learning

The characteristics of teaching and learning for sustainable development consist of 6 cornerstones: (1) lifelong learning; (2) learners in focus, (3) holistic approach; (4) democratic-works methods (5) different perspectives, and (6) reflection. These six cornerstones become the basic rationales in explaining the quality of the learning process in WWF-Indonesia assisted schools in the Heart of Borneo program. These six cornerstones are reflected in form of interaction between teachers and students, the use of various teaching methods and the integration of ESD issues in teaching and learning.

During the implementation of the program, the changes were seen among WWF-Indonesia assisted schools. In the teaching and learning process, some of the teachers at the school started to use inquiry and exploration approach, such as using the surrounding ecosystem as the learning resources. The frequency of the inquiry and exploration usage can be seen on the results of the questionnaire given to the teachers. The responses were as follows.

- East Kalimantan: Always (58%); Often (5%); Rarely (5%), while the rest of the respondents did not respond to the questions
- Central Kalimantan: Always (24%); Often (52%); Rarely (20%).
- West Kalimantan: Always (50%); Often (25%); Rarely (25%)

The data in the three regions showed that most of the teachers who applied the inquiry-based learning or exploration were Science teachers. However, different results were found in West Kalimantan. Indonesian Language teacher and social Studies teacher were also applied those approaches. Here some comments from students about their experience of the inquiry-based learning

When the gravity lesson, we dropped the pen and the paper to see which one of those fell down faster.

We were asked to find anything around us according to our initial, then we made a poetry out of it.

For example, global warming. We saw the in-focus first then we were asked to explain it by ourselves.

Inquiry-based learning and exploration approach were widely used by the Science teachers because the topics allow teachers to discover extraordinary learning resources around the school. Science teachers were one of the many involved in the workshop held by WWF-Indonesia. Most likely they applied the approaches in the classroom after the trainings. Therefore, it was easily for them to apply activities. Thus, it appears that they could superficially implement the activities they have got from the training.

Besides applying some learning approach, teachers also introduced students to issues related to education for sustainable development, such as economic, environmental and social issues. The responses of teacher questionnaire were as follows.

- East Kalimantan: Always (58%); Often (21%). But the teachers did not explain the issues discussed in the classroom.
- Central Kalimantan: Always (24%); Often (44%); Rarely (16%); No answer (8%). Among other issues discussed in the classroom were about water, global warming, and traditional shifting cultivation, illegal logging and others.
- West Kalimantan: Always (25%); Often (75%), ESD issues were not explained further.

Those responses indicate that teachers have introduced or integrated ESD issues into teaching and learning. This was also supported by finding based on students' interview. They said that teacher often take them to the river nearby school area to have the firsthand experience in seeing the water quality condition, observing the plants, recycling the waste, and others.

The environmental issues are the most frequently discussed issues and mostly referred learning resources in the classroom. In addition, the utmost instructional practices in the classroom were also related to the environmental issues. This is generally given that Education for Sustainable Development (ESD) is ingenerated from Environmental Education. Likewise, a lot of people who support Education for Sustainable Development are mostly Environmental Education activists. Correspondingly, it is equitable that environmental issues become the introduction to convey the ideas of Education for Sustainable Development. Thus in the future, the essential thing to do is to promote and to integrate environmental, social, and economical issues as shaft of ESD.

The implemented strategies to integrate ESD issues need to be supported by various teaching methods. The result of the teacher interview gave the insight of the teaching methodology they have used to teach ESD related issues. Teachers in East Kalimantan and Central Kalimantan asked students to observe the environment around the school or their neighborhood areas. Over 63% of teachers in East Kalimantan, 100% in West Kalimantan and 71% of Central Kalimantan claimed that they had started using the school yards as an instructional media in the teaching and learning process. This was also supported by the students' interview.

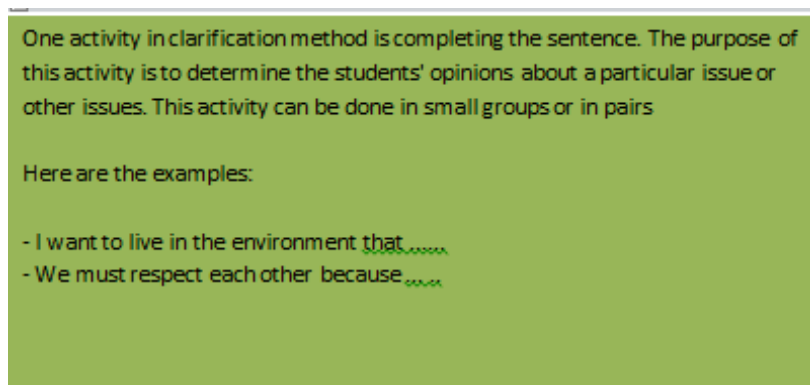
However, some students perceived that most of the teachers never gave the concrete examples about the lessons that could be seen from their everyday life. For instance, connecting issues in social, economics, and cultural that are recently heard among the society. In West Kalimantan, about 33% of the students stated that teachers often conducted those activities. A group of students in West Borneo stated that teachers put on the example of the mining companies in their region where illegal logging occurred and made the areas became arid and hot. Furthermore, students in Central Borneo claimed that only a few teachers who put on such examples, such as by getting students learning outside of the classroom to see the examples in the field on local-content subject (environment). Here are some of the statements of the teachers:

Teaching and learning process no longer becomes monotonous. In the past, the teaching and learning process was always conventional in the classroom, now not anymore. In learning about the plants, for example, now we bring the students to go directly to see the nature. Previously, we had never thought to do so. Today, this can also done to teach all subjects, not limited to teach science alone.

In 6th grade, I already started practicing, teaching math in so much fun, where students do not only sit. For example, in learning about fractions, I invited the students to play, or I use the real money ... the class becomes more alive and fun.

Teachers no longer ask the students to write on the board, while the they leave the classroom and go outside to do other things.

The implication to the teaching and learning was that most teachers encouraged students to go outside of the classroom to observe the surrounding environment. There was nothing wrong with such way. However, not all issues can be taught by the same way. Indeed, there is no learning method specifically designed for teaching lessons related to ESD issues. However there are several methods of learning that can be used in ESD, such as value clarification method, forum games, role playing, study cases, problem-based learning, debate, discussion, problem solving and storyline. These possible methods can be introduced to teachers, through training so that they can enrich their teaching methodology in the classroom.



One activity in clarification method is completing the sentence. The purpose of this activity is to determine the students' opinions about a particular issue or other issues. This activity can be done in small groups or in pairs

Here are the examples:

- I want to live in the environment that
- We must respect each other because

Box 1. Examples of ESD Learning Methods

The interaction between students and teachers in all three regions showed interesting phenomenon. The results observed in three regions, namely Central Kalimantan, West Kalimantan and East Kalimantan showed that most of the students have high self-confidence. It was showed by their prompt respond to answer questions during the interview and the attitude shown during the visits in the classroom. Students' behavior and attitude in the classroom indicated that teachers gave students an opportunity to express their abilities, both as an individual and in-groups, in the classroom. Activities such as group work, opportunity to choose and ask questions helped students to grow those attitudes and behaviors.

The result of interviews and questionnaires in the three regions showed 63% of students said they often work in groups. The result was also supported by the teacher questionnaire:

- East Kalimantan: Always (58%); Often (32%).
- Central Kalimantan: Always (60%); Often (36%); Rarely (4%).
- West Kalimantan: Always (25%); Often (75%)

Another factor that supports changes in the school was the teachers. In some schools it appears that the teachers who were active or are involved in the training of WWF-Indonesia has shown a different quality than the others. For instance, teachers now use variation of the methods or approaches in the teaching and learning process in the classroom. Ideally, in one school, every teacher has the same quality. The absence of a mechanism to associate the dissemination of the training results to the other teachers has caused differences in teachers' skills or abilities. Thus, it is necessary to formulate the effective dissemination mechanism of the training results in each school to make the mentoring program sustainable.

In addition to the dissemination mechanism of the training results in the school, other fundamental thing to be acknowledged by the teachers is to have the teaching and learning documents or commonly known as lesson plans. By recording the lesson plans to be used in the classroom, the teachers can learn new things, which is hopefully to be interesting and innovative. It was not surprising in several schools under WWF-Indonesia assistance; there were only a few teachers who attempted making different teaching and learning approaches. Those were the teachers who happened to attend the training. These teachers also were only teachers who developed the lesson plans. The lack of supervision of the school boards to the teachers has led most teachers failed to record the lesson planning

Conclusion and Future Work

This study sought to portray changes happened in schools during the implementation of Education for Sustainability (ESD) program in The Heart of Borneo (HoB)-Kalimantan. The results of the study informed that several schools have shown a great progress in integrating ESD issues in the teaching and learning, but generally the issues that were raised were the issue of the environment and did not really rely on many affective aspects (values, moral) of the activities that were carried out. Some teachers also were using variety teaching methods and utilize schools' surroundings as learning resources. ESD program has made a major contribution to improve teachers' professional development and at the end influencing school qualities.

There are few things that need to be improved in the process of learning and teaching related to ESD in schools such as developing teaching methodologies that are suitable to integrate ESD issues, various assessments, and the integration of the local issues. Moreover, with the implementation of new curriculum 2013, many changes will occur in the teaching and learning process in the school. Thus, it needs to be considered to give the schools the training planning. Training materials should be developed in stages, in accordance with the level of its complexity. It is also suggested that the

school provides the time to have a mentoring program for the teachers, so the development can be seen. In addition, schools can involve other parties, such as NGOs, school communities, etc. in identifying local issues in their respective areas. This was seen as successful act in helping the schools to enrich local issues (in addition to environmental issues).

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