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April 14, 2006

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VIA E-MAIL AND U.S. FIRST-CLASS MAIL

Rignolda Djamaluddin, Ph.D
KELOLA
JL. Santo Josp No. 66
Manado
INDONESIA 95115

COPY

RE: *Development Program of Coastal Environment Curriculum for Primary School in Bunaken National Park, North Sulawesi Province, Indonesia*
– **Our Request Number: 145**

Dear Rignolda:

We have received your application for funding from the PADI Foundation. Your application has been reviewed by the Board of Directors and, after careful consideration, the PADI Foundation will fund your project in the amount of \$5,000. No portion of these funds may be applied to overhead or other indirect expenses.

In return for our funding, we would like you to provide us with a short report (two or more pages), including what you accomplished and an accounting of how the funds provided have been used. In addition, we strongly encourage you to disseminate the information and results you develop. The Foundation would appreciate it if you would acknowledge our support whenever publishing the results of your project (e.g., "This project was supported [in part] by funds from the PADI Foundation."). The PADI Foundation is a separate and distinct entity unrelated to PADI and its affiliates.

If the foregoing terms are acceptable, please sign one copy of this letter and provide us with your social security number or taxpayer identification number. A check for the full amount of our funding will be sent out immediately upon receipt of the signed copy of this letter. *Unless you specifically request otherwise at the time you return the signed copy of this letter, the check will be made payable to you, individually. If you would prefer a wire transfer of the funds awarded, please provide all of the necessary information, including the name of the account holder, account number, name and address of the bank, and S.W.I.F.T. code, when you return the signed copy of this letter.*

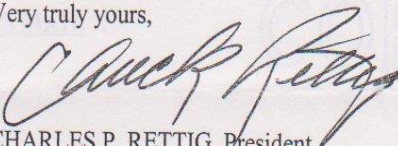
Rignolda Djamaluddin, Ph.D
KELOLA
April 14, 2006
Page 2

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Although we will seriously consider any future projects or future generations of the above-referenced project, your receipt of the enclosed funds is unrelated to any decision by the Foundation to fund such future projects.

Best wishes on your project.

Very truly yours,

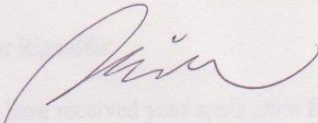


CHARLES P. RETTIG, President

CPR/sht
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THE ABOVE TERMS ARE ACCEPTABLE.



By: _____
RIGNOLDA DJAMALUDDIN, Ph.D.

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REPORT

Development Program of Coastal Environment Curriculum for Primary School in Bunaken National Park, North Sulawesi Province, Indonesia

Request Number : 145

1. INTRODUCTION

In regarding to natural resources conservation in Indonesia, environment education becomes the key factor to be developed. Many facts indicate that natural resources have been exploited in not sustainable ways. This results in natural resources degradation everywhere in the Country.

Pressure on coastal and sea environment are also in alarming level. The last surveys indicate that some 75% of coral reefs over the Country are under heavy pressure. Most of them are in very bad condition. Similar condition experiences by mangrove ecosystems. More than 50% of these ecosystems have been converted to shrimp ponds, cutting clear, and other purposes. Degradation of coastal and marine environment has contributed significantly to decreasing of fish population and biodiversity of other coastal and sea organisms.

A number of reasons may be considered as the reason behind the destruction of coastal and sea resources. First, these resources are managing in not sustainable ways. Second, most of coastal people are living under a normal economic standard. They are very poor and depending upon their life on natural resources, whilst they have no other alternative sources of income. Third, many coastal people are lack of formal and informal educations.

Since May 2006 KELOLA with the support of PADI FOUNDATION has started a Project of “Development Program of Coastal Environment Curriculum for Primary Schools in Bunaken National Park, North Sulawesi Province, Indonesia”. This project is developed to help primary schools in constructing a practicable and effective coastal environment curriculum. With full support from local primary schools the project has been successfully implemented.

2. GENERAL OBJECTIVE

In general, this program aims to produce an effective and practicable coastal environment curriculum. The curriculum will help primary school teachers in lecturing subject of coastal environment in their schools. School children following the lecture will get a comprehensive understand of coastal resources in general, or at least the coastal resources in their villages.

3. SPECIFIC OBJECTIVE

This program is designed to gain the following two specific objectives, as follows:

1. To construct and demonstrate an effective coastal environment curriculum for primary schools;
2. To improve school children knowledge in understanding coastal environment and its conservation value.

4. PROJECT AREA

This project is implemented in the primary schools at Bunaken National Park, North Sulawesi Province, Indonesia. Six schools representing three villages of Rap-rap, Nain and Tiwoho are involved in this program. Locations of these three villages within the Park are depicted in Figure 1.



Figure 1. Bunaken National Park and locations of three villages involved in this program.

5. PROJECT TEAM Pelaksana Program

The following is the structure of the project team:

- Rignolda Djamaluddin, PhD (Project Coordinator)
- Helda Rapar (Staff of KELOLA; Tiwoho Village Coordinator)
- Ahmad Basoan (Staff of KELOLA; Nain Village Coordinator)
- Edmusndus Serin (Staff of KELOLA; Rap-rap Village Coordinator)
- Decky Tiwow (Staff of KELOLA; Field Coordinator)

6. PROJECT OUTCOMES

In general this project has been implemented successfully. The project is integrated in the schools' program, and fully support by the schools' management (school leaders and teachers). Teachers involved in this project are very active and enthusiastic to the project implementation, as well as the students.

a. Profile of Schools

It is a common condition that supporting facilities of schools in remote areas is so inadequate. More isolated a school more poor its facilities. Among the three villages, Nain is more isolated village, following by Rap-rap and Tiwoho respectively.

Nain Island is located to the North of Manado City. It takes about two hours to reach this Island by boat. Two primary schools on this Island are involved in this project, SD Negeri and SD Inpres Tampi. Although a number of teachers are registered in these schools, but only few of them are actively teaching. The schools' activities are usually hampered due to the absence of responsible teachers. The schools are not supported with adequate teaching facilities.

In comparing to other two villages, Rap-rap is relatively bigger village in the context of population. This Village is located in the south part of Bunaken Nasional Park, approximately 35 km from Manado City. It takes 3 hours from Manado City by car. Two primary schools in this Village are involved in the project, SD Negeri and SD Inpres. Teachers in these two schools are actively teaching, although the teaching facilities are limited. Libraries are available but not supported with sufficient and newest reading materials.

It is different from other Villages in this project, Tiwoho is located only 12 km from Manado City. Its easy access to the City makes this Village is relatively more developed than others in the context of information and infrastructure. Two primary schools involve in this project, SD GMIM and SD Inpres, are relatively well managed. All teachers are staying in the Village and they are active at all school days.

In brief, the table below shows general condition of the six schools involved in this project.

Tabel 1. General condition of the six schools involved in this project.

Name of Village	Name of School	Number of Student per Class		Number of Teacher
		Year	Number	
Rap-rap	SD Negeri	Year 3	24	10
		Year 4	16	
		Year 5	32	
		Year 6	20	
	SD Inpres	Year 4	24	4
		Year 5	21	
Year 6		18		
Tiwoho	SD GMIM	Year 4	7	9
		Year 5	7	
		Year 6	12	
	SD INPRES	Year 4	15	7
		Year 5	16	
		Year 6	14	
Nain	SD Negeri	Year 4	15	7
		Year 5	26	
		Year 6	21	
	SD Inpres Tampi	Year 4	7	4
		Year 5	5	
		Year 6	7	

b. Handbook of Coastal Environment

It is a general problem that teachers have insufficient knowledge of coastal environment. They are not specifically prepared with such knowledge because coastal environment is only a minor subject (local subject) in the National Curriculum. Local school's initiative is of importance in developing local subject indeed.

It was revealed in the previous discussion with school teachers that a handbook is crucial to be provided. The handbook covers all teaching materials of coastal environment that include four main aspects, as follows:

- Participative mapping;
- Identification techniques for fish, coral, mangrove, sea grass and seaweed;
- Coastal and marine ecology in general (fish, mammal, coral, mangrove, sea grass and seaweed, mollusk);
- Sustainable usage concepts and community-based coastal resources management (traditional roles, eco-tourism, mangrove rehabilitation, etc.).

It took almost three months, from May to July 2006, for the project team to complete the handbook. Content of the handbook is designed in a simple format with a lot of pictures to help teachers in understanding any information, concepts and ideas inside. An art designer was involved in the creation of the handbook. All schools in this project receive original form of the handbook.

c. Syllabus

In creation the subject syllabus, the project team has been working intensively with a number of involved teachers in this project. The syllabus should meet any requirements outlined in the Competence-based National Education Curriculum of 2004.

In the National Education Curriculum there is a local subject. Local schools are given authority to manage local subject based on local condition. In practice, most of local schools in the coastal areas of North Sulawesi Province are not included coastal and sea environment in their local subject due to lack of teaching materials and teachers capacity. It is very common for local schools in this Province to lecture terrestrial plants cultivation and local cultures in their local subject.

The syllabus of coastal environment has to be integrated in the local subject. Time allocation for the subject is some 40 – 60 minutes per week, not including field activities. It is considered that the subject is appropriate for students in Year 4 to 6.

Within three months, from July to September 2006, the project team and teachers representing each school were working intensively to formulate the syllabus of coastal environment for students in Year 4 to 6. In detail, the whole syllabus that covers four major aspects can be seen in Appendix 1. The following is the syllabus of practical and simple research methods for fish, coral, mangrove, seaweed, and sea grass.

Syllabus: Simple and practicable research methods for fish, coral, mangrove, seaweed, and sea grass

Standard of competence: recognising simple and practical research methods as well as any tools used in researches for fish, coral, mangrove, seaweed, and seagrass.

Basic Competence	Learning Result	Indicator	Teaching Material	Class / Year
Simple and practical research methods for fish, coral, mangrove, seaweed, and seagrass	Recognising various research methods used for fish, coral, mangrove, seaweed, and sea grass	<ul style="list-style-type: none"> Explaining various research methods used for fish, coral, mangrove, seaweed, and sea grass 	Texts, Pictures / Photos, Films, simple field survey tools	5
		<ul style="list-style-type: none"> Re-writing various research methods used for fish, coral, mangrove, seaweed, and sea grass 		6
Various tools used in simple and practicable researches for fish, coral, mangrove, seaweed, and sea grass	Recognising any tools used in research for fish, coral, mangrove, seaweed, and sea grass	<ul style="list-style-type: none"> Explaining any tools used in research for fish, coral, mangrove, seaweed, and sea grass 		5 – 6
		<ul style="list-style-type: none"> Re-writing any tools used in research for fish, coral, mangrove, seaweed, and sea grass 		6

d. Curriculum Implementation

All schools are interesting to implement the curriculum. But, they need a kind of recommendation from the Office of Education to formalize the process. It is actually not a problem because the Education Office of North Minahasa Regency fully supports the project, and provides an official supporting letter of the project implementation.

With the help of the project team, each school arranges its team of teachers to manage the subject. Ideally, each class/year has a responsible teacher, so that each school may have three teachers of year 4, 5 and 6. However, this ideal condition is only the fact in SD Negeri at Rap-rap Village. Other schools provide only two teachers in lecturing the subject in three classes.

In the beginning of the curriculum implementation, the project team was working with involved teachers to integrate the subject in the school's timetable for two semesters. Serious discussion had also been focussed on several aspects of teaching materials and supporting facilities. Because some teachers were not confident in lecturing several teaching materials, they were supervised by a team member of the project during in class and out class activities.

With the exception to schools in Tiwoho Village, schools teachers in two other Villages experience some difficulties in lecturing the subject. It was the fact in the previous three months of the curriculum implementation. During this period of time, the project team involved intensively in some schools activities to support school teachers. In contrary,

students were enthusiastic in responding the subject, and this situation contributed significantly to the smoothness of the curriculum implementation process.

In class activities are made interactive. Material presentations in form of texts, pictures, photos, and films are interesting for students. They respond actively to the lecture, making many questions and statements. Students seem to be familiar with any aspects in the subject. Active response of students to the lecture facilitates teacher in lecturing process.

Out class activities are more interesting. Students are enjoyable and participate actively in observing coastal environment and organisms they found. Their local knowledge and closed relationship to coastal environment in combination with knowledge they get in the class push them to know more detail of coastal environment and organisms within it. Two hours in the field seem to be not enough for students in observing marine organisms and practicing related research methods. Primary schools in Tiwoho Village use after school time to give more time for students in the field.

Evaluation on students' understanding to the subject is conducted at the end of semester period. Teachers with the help of the project team provide assignments to be tested in the subject examination. The following are examples of assignments given in the test:

Year 4 in Rap-rap:

1. Coral is a type of:
 - a. Animal
 - b. Mammal
 - c. Vegetation
 - d. Turtle
2. What is the difference between branching and massive corals?

Year 5 in Nain Island:

1. What is the local name of *Dugong*?
 - a. Nyoa
 - b. Tukuruga
 - c. Dugong
 - d. Kura-kura
2. What do you know about coral fishes?

Year 6 in Tiwoho:

1. Mangroves are of important for coastal environment, except:
 - a. Protecting coastal line from
 - b. Shelter for fish
 - c. Fishes' spawning ground
 - d. Killing fishes
2. Explain the importance of coral reefs in the coastal environment.

Results of the test for the four schools are summarised in the following table.

Table 2. Results of test

Name of School	Class/Year	Result of Test in Average (range: 1 – 10)
SD Negeri in Rap-rap	Year 4	6.0
	Year 5	7.5
	Year 6	7.5
SD Inpres in Rap-rap	Year 4	6.5
	Year 5	7.0
	Year 6	7.5
SD GMIM in Tiwoho	Year 4	7.5
	Year 5	8.0
	Year 6	8.3
SD INPRES in Tiwoho	Year 4	7.5
	Year 5	8.0
	Year 6	8.0
SD Negeri in Nain	Year 4	6.5
	Year 5	6.0
	Year 6	6.0
SD Inpres Tampi in Nain	Year 4	7.0
	Year 5	6.5
	Year 6	7.0

7. EVALUATION

Evaluation of the project implementation is conducted regularly at three months interval, and it is focussed on progress and obstruction of the project implementation. On February 28, 2007 a seminar was conducted to evaluate comprehensively the whole process of the project implementation. This seminar was held in the Coastal Community Resource Centre at Tiwoho Village.

In general, schools at Tiwoho Villages have no problem in implementing the curriculum. Four teachers, two of each school, have enough capacity in lecturing the subject. The coastal environment curriculum has been integrated successfully in the local subject. Within two semester periods the subject is lectured normally, that is once a week.

In the first three months of the project implementation, the two schools in Rap-rap experienced difficulty in lecturing the subject. Teachers needed some times to understand fully the teaching materials and to arrange the new subject in the schools' regular schedule. Under supervision of a member of the project team the subject can be implemented greatly by the teachers from the two schools.

In Nain Island, the two schools have a considerable obstacle in implementing the new subject due to several teachers are not involving actively in the schools' activities. To implement the subject, a member of the project team takes a role in teaching the subject for some classes. The two schools can only make two times lecturing of the subject per month. This situation is clearly not in line with the syllabus of the subject.

The schools' perception is that the coastal environment curriculum is of significance to integrate in the local subject. The successful of the curriculum implementation in the schools may improve local community knowledge on marine and coastal environment

that is helpful for long-term achievement of sustainable management of marine and coastal resources.

The availability of teaching materials and supervision of the project team during the implementation of the project contributes significantly to the improvement of teachers' knowledge on marine and coastal environment. Teachers' are more confident in lecturing the subject. The quality of teaching of the subject is getting improved with the presence of teaching supporting materials in form of pictures, photos and films.

Each teacher has special approach in lecturing, but several ideal conditions such as interactive discussion and participative student involvement has to be created in the class. In several occasions the environment in the class was relatively awkward due to the disobedience of such two ideal conditions by the class teacher.

Field observation or field work is of significance in the curriculum implementation. Through this out class activity students may practice the knowledge and information they get in the class in the natural condition. It is usually that the out class activity may take time, so that it is better to manage the activity at the end of the school' day timetable.

Generally, the syllabus of the subject is applicable. With the exception to the schools in Nain Island, other schools are capable to actuate all aspects set in the syllabus. All lecturing materials can be finalised on time, and these are acceptable for students at above average level.

8. RECOMENDATION

Before introducing the curriculum to coastal primary schools in the North Sulawesi Province, the following activities need to be carried out:

- a. Teaching materials completion and publication: a small team will be working specifically in completing the teaching materials and publishing it.
- b. Teacher capacity building: teachers representing various schools from coastal areas in the Province will be joining in a three months program of coastal curriculum provision.
- c. Workshop on the curriculum: a two days workshop has to be conducted to assess the whole related aspects of the curriculum.