

# Implementation of environmental management in raising environmental awareness of students at Bandar Bakau Nature School in Dumai City, Indonesia

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## ABSTRACT

Environmental education is a process that aims to shape behavior, values and habits to respect the living environment. The approach of this research is a descriptive-qualitative study carried out using a survey method for environmental management based on the School of Nature. This research is intended to evaluate the School of Nature-based environmental management. Evaluation research is a process carried out in order to determine policies, consider positive values of a program's benefits, and consider the processes and techniques that have been used to conduct research. The implementation of environmental management for the community of Bandar Bakau Nature School conducts Participatory-Based Mangrove Conservation. making mangrove nurseries which are carried out routinely almost every week, the Bandar Bakau City School of Dumai City has planted mangroves in an area of 8 ha, which manages 50,000-70,000 mangrove stems. Participatory-based environmental activities by maintaining and maintaining school buildings and environments by school residents. In increasing students' environmental awareness, the Dumai City Bandar Alam Nature School develops extracurricular activities in the form of mangrove cultivation / nursery activities, the Dumai City Bandar Alam Nature School also participates in environmental action activities, establishing partnerships in the framework of environmental protection and management with various parties.

*Key words* : School of nature, Mangrove conservation, Participatory

## Introduction

Destructive behavior towards nature indicates the occurrence of human moral degradation of nature at all ages. Moral degradation in question refers to attitudes or behaviors that care about the environment (Reflita, 2015). The 2012 Environmental Care Behavior Index is still in the range of 0.57 from the absolute number one. This indicates that the Indonesian people have not fully behaved in an environmentally conscious manner in running life (KLH, 2013).

The impact of destructive behavior on nature is increasingly felt. The earth underwent major environmental changes. Environmental changes are manifested in the problem of environmental damage (Irwan, 2005). High concentrations of greenhouse gases due to human activities that can cause climate change due to the high content of chlorofluorocarbons (CFCs) in the atmosphere that damage the ozone layer, forest damage, extinction of various species of flora and fauna, and erosion. So that these problems do not continue there needs to be an effort to reduce and stop environmental degradation.

The World of Education provides awareness to school residents and the community about the importance of environmental education. Indonesia's environmental education has been carried out since 1975.

In 1996 a Memorandum of Understanding was agreed between the Ministry of Education and Culture and the Office of the State Minister for the Environment. In line with that, the Secondary Basic Education Department of Education and Culture encourages the development and stabilization of the implementation of environmental education in schools through upgrading of teachers, community service, beautiful school programs, Nature Schools and others.

To accelerate the development of environmental education, the Adiwiyata Program is conducted. This program is also carried out by the government, non-governmental organizations, and universities. environmental education programs are carried out in the form of seminars, workshops, workshops, teacher upgrading, development of educational facilities such as the preparation of integration modules, reading books and the Making of Natural Schools

School of Nature is a School that makes nature as a source and place of learning. In nature schools students learn through habituation activities. Nature schools offer an outdoor learning method that will bring children closer to a state of beautiful, natural, and pure. Through this education, children are given the opportunity to recognize God's creation, interact intensely, understand, behave, and feel the reciprocal effects of what he has done on his environment. Studying in nature learns with nature, learns with nature, brings its own atmosphere that affects the minds, hearts and souls of students when studying.

The development of environmental education in the last few years has increased, for school education and non-school education, but there are still many things that need to be improved. Thus, environmental education activities carried out starting from pre-school level, basic education, secondary education, to higher education through various forms of activities can provide optimal results

## Materials and Methods

This research was conducted at the Bandar Bakau Nature School located at Nelayan Laut Ujung Pang

kalan Sesai, Dumai Barat Subdistrict, Dumai City, began in November 2016. As the object of this study were school residents at the Dumai City Bandar Bakau School of Nature consisting of Principals, Teachers / volunteers, Students, communities, canteen mothers and other personnel involved and concerned about the environment.

This research is a descriptive-qualitative study carried out using a survey method on the management of the Natural School-based environment. Qualitative research is research that can provide complex details about the phenomenon or situation of a condition that has not been disclosed through direct observation that starts from the field and ends with a new theory or concept, Ibrahim (2015).

This research is intended to evaluate the School of Nature-based environmental management. According to (Arikunto, 2002). evaluation research is a process carried out in order to determine policies, consider positive values of a program's benefits, and consider the processes and techniques that have been used to conduct research.

The research data were obtained by observation, interview, documentation and questionnaire techniques. Observations were made on environmental conditions, nature school activities and other activities related to nature schools. Interviews were conducted in-depth with informants namely the Principal, teachers, students and the community living in the School of Nature and School Residents locations where the students received formal education as well as direct documentation in the field which was then analyzed. Questionnaire delivered to teachers and students. This questionnaire is used to capture data that has not been obtained with other techniques, then analyzed.

## Results

The Bandar Bakau Bandar Alam Nature School is a non-formal educational institution that organizes a series of educational activities oriented towards saving the environment. some of the activities they have held include the School of Nature with a focus on the curriculum of mangrove sustainability, mangrove cultivation and greening.

In learning activities have four grade levels, ranging from grade zero to grade three. In class zero learning is more dominant playing while learning like a children's park, students are taught to paint mangrove trees and animals that live in mangrove

forests. Next students are able to paint specific mangrove roots, stems and leaves. In class one the students were taught "getting to know the names and uses of mangroves, especially those living in the Bandar Bakau Nature School area, also being introduced to the benefits of mangroves both economically, socially and ecologically. In second grade students are equipped with the ability to understand the characteristics of mangroves, explain the morphology, anatomy and physiology of mangroves, their ecological status and functions and their ecological interactions. In the third grade students' activities are to recognize mangrove seedlings, to know and explain the mangrove rehabilitation system, to know and practice how to get good seeds to be used as seedlings, to make seeds, plant, maintain and properly cultivate mangroves.

The school community makes mangrove nurseries which are carried out routinely almost every week, planting mangrove seedlings in areas that are still bare or where the density of trees is still rare, maintaining the seeds they plant. When there are reforestation activities around the Bandar Bakau Nature School by government agencies, private parties or certain schools or campus organizations, it can also be individuals, so the citizens of the Bandar

Bakau Nature School also take part in these activities. Since 2003 the Bandar Bakau Nature School has produced hundreds of thousands of mangrove seedlings. The seedlings are used primarily for reforestation of the Bandar Bakau mangrove area and are also sold and partly donated to those in need. In detail, it can be seen from Table 1 the distribution of mangrove seedlings produced by the Dumai City Bandar Bakau Nature School.

## Discussion

The establishment of the Bandar Bakau Nature School was due to concerns over the condition of the Dumai City mangrove forest. At that time 8 Ha of the mangrove bandar mangrove forest was heavily damaged because it was exploited by parties who did not care about the environment. With the vision of returning the Bandar Bakau area to a shady and beautiful area, the initiator of the Dumai City Nature School continues to conduct mangrove conservation education for its students and open itself to be a facilitator for mangrove caring people who want to plant mangroves in the mangrove area of the Bandar mangrove forest. This is done considering the current condition of mangroves is decreas-

**Table 1.** Distribution of mangrove seedlings produced by Bandar Bakau Bandar Alam School City of Dumai

Number	Agency / Unit / Activity	A lot (stem)
1.	Reforestation of the Bakau Airport area of 8 Ha	53,648
2.	Bengkalis district government (Greening the island rupert several times and other areas)	10,000
3.	RokanHilir district government (greening of Pulau Nyamuk)	5,000
4.	Greening after the tsunami in Aceh	2,000
5.	Greening of individuals, community organization groups, education units and campuses	5,000
6.	West Sumatra Provincial Government	2,000
7.	Greening TPI Purnama Dumai	1,500
8.	Greening at Pelintung Dumai	3,000
9.	SABB-PABC experiments on sandy (Beting-rupert)	500
10.	Greening Students of UNRI 2016 KKN in Sei Sembilan	1,000
11.	Greening Students of UIN 2017 KKN in Sei Guntung Medang Kampai	1,000
12.	Wilmar Dumai Ltd.	12,500
13.	CPI Dumai Ltd.	12,500
14.	Nagamas Dumai Ltd.	7,500
15.	Pertamina UPT Dumai Ltd.	10,000
16.	IVO Mas Dumai Ltd.	5,000
17.	Sinarmas Ltd.	7,500
18.	SDS Dumai Ltd.	7,500
19.	Indopalm Dumai Ltd.	5,000
20.	Patra Niaga Ltd.	3,000
	Total	<b>155,148</b>

Source: Primary Data

ing because of a lot of pressure (Bengen, 2000). Apart from that, considering the importance of mangrove functions as a protector of ecological and conservation processes (Rahmayani, 2015). In maximizing the function of the mangrove, the Bandar Bakau Nature School organizes mangrove education, cultivating mangroves and greening. These activities are not only carried out by themselves but also involve other environmental groups. Until 2018, the Bandar Bakau Nature School has produced 155,148 mangrove seeds which have been distributed to various places and needs with various concepts. Internally, the Bandar Bakau Nature

School has conducted mangrove greening activities and also involved other environmental groups. At least 53,648 mangrove seedlings were planted in the area of Bandar Bakau Nature School, in detail can be seen in Table 2 below

Participate in environmental action activities. Establish partnerships in the context of environmental protection and management with various parties. The Bandar Bakau Bandar Alam Nature School has collaborated with other parties, including the Dumai City Government, the Dumai City Fisheries Office, the Dumai City Environment Agency, Pelindo Ltd, CPI Ltd., University, parents of stu-

**Table 2.** Reforestation activities of mangrove planting in the area of the Bandar Bakau Nature School in Dumai City

Number	Mangrove Planting Participants	A lot (stem)
1	SABB-PABC City Students in Dumai City	20,000
2	Dumai City Government	1,000
3	Dumai City Fisheries Service	15,000
4	Dumai City Forest Service	250
5	Riau Forestry Education and Training Center	250
6	Dumai Police	20
7	Cawako Tree	1
8	DPRD Dumai City	30
9	TK Aisya I, Dumai	20
10	SMPN 1 Dumai	200
11	Pramuka SMPN 1 Dumai	20
12	The Graduation Tree of SMAN 1 Dumai	100
13	Warek I Rektor UNRI	1
14	PSIK Faperika UNRI	100
15	Dumai College of Technology	100
16	KK UIN Suska 2016-2017	20
17	IAITF Dumai	200
18	BEM AKRI	1,000
19	UNRI Student Research Tree	3
20	Joint Environmental Activist / Mapala Concern from 2009	9,000
21	IK DPRD Dumai City	15
22	GOW Dumai City	10
23	Toyota Dumai	1
24	Pelindo Dumai	200
25	Hijab Asyafir Dumai	1
26	PT. CPI Ltd.	5,000
27	PT. Wilwar Dumai Ltd.	1,000
28	PT. United Indonesia Ltd.	50
29	PT. United Indonesia cab. Dumai Ltd.	50
30	Revilona (Finalist Putri Indonesia from Dumai) Tree	1
31	Ultah Gianes Bunga Karismatik Tree	1
32	Milad Hanifaturrahmi Tree	1
33	The 46th Ulta Tree Kartini	1
34	Oplet Driver Tree (Muh. Yusuf)?	1
35	Hj. Yanti Kemalasari Tree	1
	Total	<b>53,648</b>

Source: Primary Data

dents, community, media and alumni, but the cooperation is not yet in the form of cooperation, only in the form of participation or donors are not permanent or incidental. Some of these partners have a role as resource persons to improve environmental learning, get support from people associated with schools, businesses, government, non-governmental organizations, universities, other schools to improve efforts to protect and manage the environment in schools, increase the role of parents of students in building partnerships for environmental learning and efforts to protect and manage the environment and provide support to improve environmental protection and management efforts.

### Conclusion

The implementation of environmental management in Dumai City's Bandar Bakau Nature School is as follows; a). Environmentally Friendly Policy. b). Implementation of an Environmental-Based Curriculum in the form of Educators have competence in developing environmental learning activities and students undertake learning activities on environmental protection and management. c). Participatory-based environmental activities in the form of carrying out planned environmental protection and management activities for school residents and es-

tablishing partnerships in the context of environmental protection and management with various parties. d). Management of Environmentally Friendly Supporting Facilities in the form of Availability of supporting infrastructure that is environmentally friendly and improving the quality of management of environmentally friendly facilities and infrastructure in schools.

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