
Local Wisdom of Lubuk Larangan in Subayang River as a Source of Learning Environmental Education

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Abstract: Riau Province has a diversity of local wisdom, including the local wisdom of Lubuk Larangan in Subayang River. This research was conducted to find out whether the local wisdom of lubuk larangan in Subayang River can be integrated as a learning resource environmental education for students. The study was conducted in Batu Songgan, Muarobio and Tanjung Belit Villages, Kampar Kiri Hulu Subdistrict, Kampar District, Riau Province in August-September 2018. Data collected are the local wisdom of lubuk larangan and environmental education curriculum through interviews, field observations, and documentation. Data analysis was a descriptive qualitative way to identify the potential for integrating local wisdom as a learning resource. The study results show that the people of Batu Songgan, Muarobio, and Tanjung Belit Villages have are local wisdom values in environmental management efforts. The Environmental Education Course has Sub-Learning Outcomes "Explaining various efforts in sustainable environmental management", as a lecture topic. All these components can be integrated with environmental education learning at the Riau University.

Keywords: *Environmental education, learning resources, local wisdom, Subayang river*

1. Introduction

Environmental education is one of the efforts to manage the environment which is a global commitment through the Environmentally sustainable development program (UNESCO, 2005) and the national commitment mandated (law) in Undang-undang No. 32/2009 about Environmental Protection and Management. The application of Environmental Education has been carried out at all levels of education, including those in tertiary education. Dagiliūtė et al., (2015) Universities can play an important role in the cultivation of environmental values for the community as a manifestation of the university's commitment to support sustainable development in the future.

One of the universities that have implemented environmental education is the Universitas Riau (UNRI). This application is done by making Environmental Education as a general skills course

which must be followed by all Teaching and Education Faculty (FKIP) students since 2016. The results of the evaluation of the implementation of environmental education course at FKIP UNRI in even semester (2016/2017) indicate the problems that faced by students in participating in this course is that students experience difficulties in mastering the theory that has been taught (27.3%). This is due to: (1) the theory taught in the classroom is not in accordance with field practices and environmental issues (22.7%) and (2) the limitations of learning resources that are relevant to the surrounding environmental conditions (21.9%) (Suwondo, et al., 2017)

A good learning is learning that integrates concepts of material taught in the lecture room, with the phenomena occurring in an environment through various data and field facts. Elaine et al., (2016) revealed that various studies have consistently concluded that learning that integrates environmental problems, in fact, can improve long-term knowledge retention and the application of real knowledge. Azizahwati, et al., (2016) describes one of the environmental problems that can be integrated with learning is local wisdom in an area.

Local wisdom is the values and knowledge of life and human behavior that develops in daily life through direct teaching from parents to their children and from ninikmamak to grandchildren (Hamidy, 2001; Saam and Arlizon, 2011). One of the local wisdom in Riau Province is the LubukLarangan on Subayang River. Lubuklarangan is still doing on today and is considered capable of supporting efforts to use and protect fish resources in a water body (Parwati, 2012).

Seeing the potential of the noble values found in the local wisdom of Lubuk Banned Sungai Subayang in environmental management and answering one of the problems of lecturing on environmental education, it is necessary to analyze the potential of local wisdom in Lubuk prohibition as a source of learning environmental education in universities.

2. Methodology

The study was conducted in Batu Songgan Village, Muarobio Village and Tanjung Belit Village, Kampar Kiri Hulu Subdistrict, Kampar District, Riau Province and in FKIP UNRI on August-September 2018. Research conducted with this survey method aims to identify potential local wisdom of lubuk larangan subayang river which can be integrated as a learning resource for environmental education courses at FKIP UNRI.

Data collected consists of primary and secondary data. Primary data in the form of data of local community wisdom in the management of subayang river waters collected through interviews, field observations and documentation. Whereas secondary data collected in the form of supporting data information on the local wisdom of lubuk larangan obtained from various sources such as journals, research reports, books, and other relevant and accountable sources.

Analysis of the data obtained was carried out descriptively. The components analyzed included data on local wisdom of the lubuk ban on the Subayang River, the Environmental Education Curriculum of the FKIP UNRI and an analysis of the potential for integrating local wisdom as a learning resource.

3. Result and Discussion

Local Wisdom of Lubuk Larangan Subayang River

Lubuk Larangan is a certain watershed as a restricted area for fish to be harvested for a certain period of time. Local wisdom Lubuk Larangan in Subayang River is located in Gema Village, Tanjung Belit Village, and Batu Songgan Village. Amount of Lubuk Prohibition for each village is one to two Lubuk Larangan. Determination of the number of Lubuk The prohibition on each village is determined by the condition of the river and the result of the agreement of all village communities represented by youth leaders, ninik mamak and village government officials. Parwati (2012) argues that there are three components that apply to Lubuk Bind's local wisdom, namely: myths, customary law provisions, and customary institutions. Local Wisdom Lubuk ban on Subayang River has environmental ecological, social and economic values. Ecological values can be seen based on water quality and diversity of vegetation and aquatic biota. Whereas, the social and economic value of the environment can be seen based on the subayang river water resource productivity data for the community.

The results of the Subayang River pollution index analysis showed good quality (lightly polluted). The analysis was carried out by calculating the Pollution Index value from the comparison of the results of measurements of physical parameters, inorganic chemistry, organic chemistry, and water biology (upstream to downstream) with Class I quality standards in Government Regulation (Peraturan Pemerintah) No.82 of 2001 about Management of Water Quality and Water Pollution Control (Figure 1).

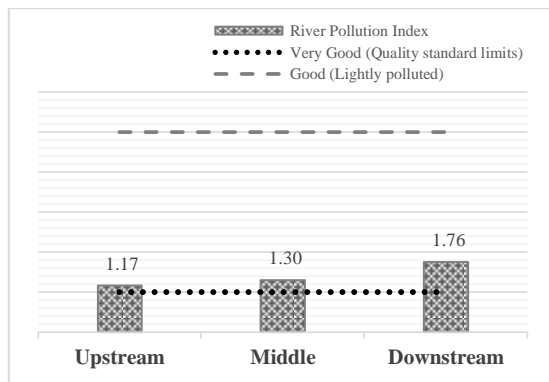


Figure 1. Results of the Quality Analysis of the Subayang River

The ecological conditions of the subayang river based on the vegetation, plankton and benthos diversity index are at moderate to high criteria (Table 1). Odum (1993) explains that the higher the diversity, the better the quality of the ecosystem. Diversity index (H') <1 was low (bad), diversity index 1-3 was moderate (moderate), and diversity index > 3 was high (good).

Table 1. Results of the Vegetation and Biological Analysis of the Subayang River Waters

Type	Species Total	Diversity Index (H')		
		S1	S2	S3
Vegetation	22	2,041	1,658	2,511
Plankton	81	3,342	2,670	2,946
Benthos	24	2,682	2,547	2,567
Nekton	72			

Remark:

S1 = Station 1 = BatuSanggan Village (Hulu)

S2 = Station 2 = Muarabio Village (Middle)

S3 = Station 3 = TanjungBelit Village (Downstream)

Subayang River has the value of freshwater fishery resources productivity (Table 2). The results of the analysis show that the value of the productivity of natural resources in the freshwater fisheries sector in the lubuk larangan is greater (6.92 times greater) compared to the catches of the people who are fishermen. Based on some results of previous studies which were compared with the results of community interviews, in the waters of Subayang River, at least 72 species of nekton were found.

Table 2. Total Productivity Value of Freshwater Fisheries Sector in the Subayang River

Description	Resources		Total
	Catches by Fishermen	Lubuk Larangan	
Productivity Value (Thousand IDR/year)	12,22	634.800	
Catches total (/year)	300		
Fishermen total	25		
Total Productivity Value Natural Resources (Thousand IDR/year)	91.650	634.800	726.450

* Prices and fees at the fisherman level in August 2015

Local communities in the Subayang River riparian have the value of the protective behavior to protect river and forest ecosystems. The types of community protective behavior include: (1) fishing with traditional fishing gear (fishing rods, nets, spears); (2) Planting retaining landslides on the edge or lip of a river; (3) Not cutting down riverbank retaining trees (bamboo, etc.); (4) Do not throw garbage into the river and do not leave garbage in the forest; (5) Opening land with non-burning techniques; (6) Do not catch prohibited fish; and (7) Not carrying out illegal logging.

Protective behavior in maintaining or conserving ecosystems arises due to an increase in the interests of the community in the environment. Communities that are very dependent on the maintenance of environmental quality will be more protective, this can be influenced by the limitations of science and technology. The local wisdom that develops in the community is a system of values and norms that prioritize aspects of sustainability and is the main capital of society in building themselves without damaging the social order that is adaptive to the surrounding environment (Saam, 2011). River management through the lubuk ban is a cultural heritage that upholds the value of the protection and preservation of aquatic ecosystems and social norms that are indispensable for the continuity of a good management order.

Lubuk ban's local wisdom from the community around the subayang river (Batu Songgan Village) can be divided into several components, namely: planning, utilization, control, maintenance, supervision and law enforcement efforts (Table 3).

Table 3. Local Wisdom of Local Community in the Management of Lubuk Larangan

No	Indicators of Environmental Management Efforts	Description of Local Wisdom Values
1	Planning	The local people have local knowledge in determining the prohibition area and optimal harvest time.
2	Utilization	The community maintains the preservation of river resources by prohibiting taking fish except on designated days and maintaining vegetation in watersheds.
3	Control	The existence of prevention efforts, deterrence, and recovery of the

		prohibition through prohibition.
4	Maintenance	The existence of conservation and conservation efforts through mutual cooperation to maintain the preservation of the river by using ethno-technology and believing in myths.
5	Supervision	Lubuk Larangan's supervisory system already has the structure and function of traditional management and leaders.
6	Law enforcement	The establishment of sanctions for people who violate the rules and customary laws that have been agreed upon.

Each village along the Subayang River has a tradition of maintaining part of the river area as Lubuk Larangan. Lubuk Larangan is defined as a river area where no one can take fish before being permitted by indigenous elders. Fish in Lubuk Prohibition can only be taken when harvesting together in a traditional event. This joint harvest event is usually carried out before welcoming Eid al-Adha, which is scientifically carried out before entering the rainy season. During the rainy season, the Subayang River usually overflows to an altitude of 2-4 meters above the dry season's daily water level. Usually, each village has 2 or 3 regions that are used as Lubuk Larangan. This tradition causes the existence of fish species along the Subayang River to be relatively protected and sustainable.



Figure2. Harvesting Activities of Lubuk Larangan at Batu Songgan Village



Figure3. Distribution of Harvesting Activities Lubuk Larangan at Tanjung Belit Village

Environmental Education Curriculum at FKIP UNRI

The subject of Environmental Education at FKIP UNRI discusses the concepts and applications of environmental education in life and learning. Identify various environmental problems both

at the local to global levels such as climate change, fires, pollution, forest and peatland degradation, as well as natural disasters such as floods, abrasion, landslides, and drought. Analyze various efforts in environmental management which include aspects of planning, utilization, control, maintenance, supervision, and law enforcement. The benefit of this course for students is understand various environmental concepts and be able to apply them in life and learning in accordance with the fields of knowledge they have. In general, the concept of material in environmental education courses can be grouped as follows.

Table 2. Overview of the Environmental Education Curriculum of FKIP UNRI

No.	Sub-Learning Outcomes Course	Lecture Materials
1	Explain the basic concepts and applications of environmental science	Basic Concept, Scope, position and principles and application of environmental science
2	Describe the characteristics of the ecosystem and various environmental problems both locally and globally	Ecosystems and various environmental problems at the global, national and local levels.
3	Explain various efforts in sustainable environmental management	Various environmental management efforts are in perspective: policies, environmental ethics, and local wisdom.
4	Make observations, analyze and find solutions to various environmental problems around	Case study observing environmental problems and formulating environmental management efforts

Integration of Local Wisdom Lubuk Prohibition as a Learning Resource for Environmental Education

The results of data analysis of the local wisdom of the lubuk ban on the subayang river and the environmental education curriculum at FKIP UNRI revealed that components that could be mutually integrated. Sub-Learning Outcomes Course that can be integrated is *"Explaining various efforts in sustainable environmental management"*. The material presented in this Sub-Learning Outcomes Course is various environmental management efforts in perspective: policy, environmental ethics, and local wisdom.

Environmental management policy mandated in (Law) Undang-undang No. 32/2009 about Environmental Protection and Management is carried out through: planning, utilization, control, maintenance, supervision, and law enforcement. The application of management efforts is also found in the local wisdom of the lubuk larangan on the subayang river (Table 3). In addition, specifically, in Sub-Learning Outcomes Course also has a special material that discusses various environmental management efforts based on local wisdom.

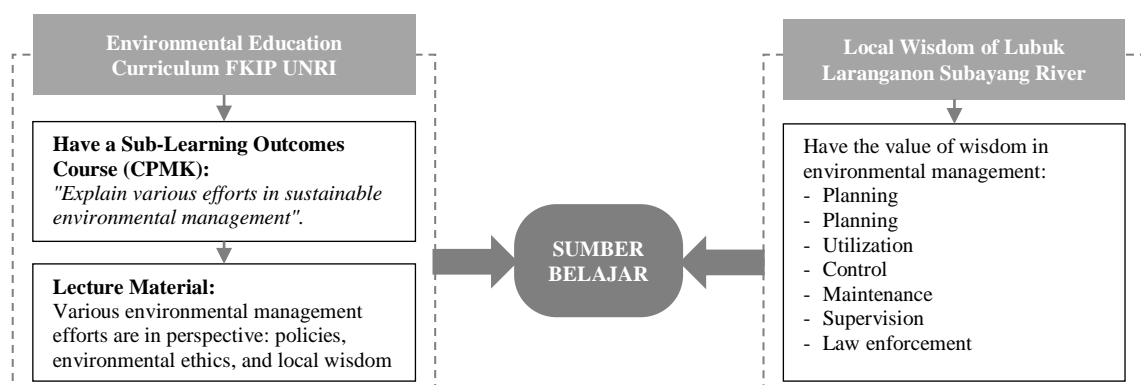


Figure 3. Analysis of Integration of Local Wisdom Lubuk Larangan as a Learning Resource for Environmental Education

The integration of local wisdom in learning can be packaged well into a learning resource in the form of teaching materials. According to Prabowo et al., (2016) teaching materials that are packaged by raising local potential have advantages over other teaching materials, which can present various data and contextual examples contained in the area around students. So that it adds to the knowledge and insight of students towards the importance of the environment for human life which in turn can foster a sense of ownership and responsibility for the sustainability of local potential in the region.

Triyanto (2009) explains that learning can be done by using surrounding problems as the first step in gathering and integrating new knowledge. Elaine et al., (2016) revealed that various studies have consistently concluded that learning based on surrounding problems can improve long-term knowledge retention and the application of real knowledge. Derevenskaia (2014) explains that learning to use local wisdom around allows students to learn ecology and biology disciplines more effectively and deeply. Such learning can form a systematic approach in observation and research, develop practical skills, and lift the psychology of students' sense of responsibility in the surrounding environment.

In addition, Law (Undang-undang) No. 20/2003 explains, the curriculum at all education levels can be developed with the principle of diversification in accordance with the education unit, regional potential, and characteristics of students. Curriculum element's that must be considered in the preparation, include: (a) increasing the potential, intelligence, and interests of students; (b) the diversity of regional and environmental potential; (c) regional and national development demands; (d) the development of science, technology and art; and (e) the dynamics of global development.

4. Conclusion

The research conclusion is that local wisdom can be used as a learning resource in Environmental Education Course. Integration is carried out in Sub-Learning Outcome Course "*Explaining various efforts in sustainable environmental management*", with various environmental management in perspective: policy, ethics, and local wisdom. The lubuk larangan on subayang river as a learning resource can be packaged in teaching materials that contain practical examples of environmental management efforts carried out by local communities, including planning, utilization, control, maintenance, supervision, and law enforcement.

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