

# Scientific Knowledge Based Culture and Local Wisdom in Karimunjawa for Growing Soft Skills Conservation

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**Abstract:** *This study aims to reconstruct a new theory concerning the basic science of science based on local wisdom in Karimunjawa as a vehicle to grow Soft skills conservation . This study is a qualitative research ethnoscience with community and environmental settings in Karimunjawa Islands . The study subjects consisted of fishermen , tour guides , as well as the homestay owners . Retrieval of data through interviews, direct observation, and questionnaires. The data obtained and verified , is reduced , and conceptualization . The focus of research is the moral message of conservation that is placed on the bulletin board in the Karimunjawa National Park ; Mangrove forest, beach Karimunjawa . In this study also revealed the types of indigenous flora and fauna, as well as soft skills and habits of society Publications. The results of the study found that the value of soft skills such Karimunjawa community is working hard , persevering , mutual cooperation , religious , friendly , caring and nurturing environment . The results showed that the conservation of moral message posted on the bulletin board in the Karimunjawa National Park is the conservation of sea turtles, marine fish , marine life , and a variety of coral reef Karimunjawa results also found that local knowledge is still maintained in the plant community dewandaru, Setigi , kalimosodho, soft skills and love of the nation, caring environment, religious, friendly , work hard , and democratic.*

**Keywords:** Scientific knowledge, local wisdom, soft skills, conservation

## 1. Introduction

Karimunjawa Islands have become one of the National Park Marine Reserve since. Karimunjawa as marine reserves, the local communities have had the moral ethics, social, cultural, and scientific knowledge of local (indigenous science) as a typical local wisdom as a pattern of behavior in keeping the various marine environments, coral reefs, flora and fauna. Publications society has had a soft skills of conservation that is a pattern of behavior and habits to keep, maintain, and use the wealth of marine life and national parks Publications wisely. Local knowledge of the public about the conservation of soft skills should be preserved through science education in schools. But in reality based on observations in SMP karimunjawa bring unknown at this time, knowledge and soft skills scientific community based conservation culture and local wisdom in karimunjawa have not been studied and revealed, even used as a source of learning in science learning. This research aims to reconstruct the science of scientific knowledge based on culture and local wisdom as a vehicle to inculcate soft skills in the conservation of junior high school students or prospective science teachers. The soft skills are meant here conservation related to the sense of responsibility, care for the environment, as well as canta against a variety of marine life, flora, fauna, magrove, plant local wisdom and positive values contained in the Publications society.

Results of the research is a scientific description of scientific knowledge and soft skills-based conservation culture and local wisdom is useful in finding basic theory (grounded theory) related scientific reconstruction of scientific knowledge based on culture and local wisdom. The result is expected to enrich the scientific knowledge based on local

wisdom that includes soft skills of conservation for the future generations. Meaning conservation soft skills is noble behavior related maintenance, preservation, and utilization of natural resources wisely (Rosevelt, 1998). This research is interesting, because at the present time, Semarang State University (Unnes) known University of conservation since 2010. Thus a study to realize the conservation of soft skills and their application in learning is very important to do (Fathur Rokhman, 2015).

Qualitative research related reconstruction of scientific knowledge based on culture and local wisdom in Karimunjawa is very interesting, because a lot of people Karimunjawa islands have implemented various conservation behavior patterns of marine life, coral reefs, flora, and fauna in his life, but yet Formulated and terkonepkan in teaching materials to be used as scientific knowledge and science learning resources. Thus the results of the reconstruction of scientific knowledge based on culture and local wisdom are expected to contribute to the availability of learning resources science subjects at school. A related study of transformation, reconstruction of public knowledge into scientific knowledge is part of a research ethnosains highly evolved in Australia and Brazil (Battistie, 2006). In this research, the reconstruction of scientific knowledge based on culture and local wisdom to develop soft skills conservation. Understanding soft skills related to the conservation of an act of preservation, maintenance, and an attempt to realize the environmental conservation of the ecosystems, ethnobotany, and marine biota (Jegele and Duit, 2007). As for the focus of this study were (a) find the type of information or attribute of research on community knowledge and local wisdom that contain scientific knowledge, (b) to formulate some types of soft skills contained in the Community conservation

Publications and conservation message boards are mounted on location mangrove Forest, National Park Publications, or location Karimun Islands, where the conservation message can be conceptualized into scientific science knowledge in science learning.

## 2. Method

### 2.1 Location Research

The location of this research is Karimunjawa, as shown in the following map.



Figure 1: Map of Karimunjawa islands

In the study, the research team towards the island of Karimunjawa using ship transport ship Kartini of Semarang toward karimunjawa or otherwise with a long trip around 5 hours or may use air travel from Semarang to Karimunjawa and takes about 40 minutes



Figure 2: Ship Kartini to transport Semarang to Karimunjawa

### 2.2 Types and Methods of Research

This study is a phenomenological qualitative research (ethnography) is a study of organized systems of knowledge of their culture and local wisdom, particularly related phenomena and natural events. Qualitative research refers ethnography of Battiste (2005) and Creswell (2009). The research activities carried out through observations directed at the meaning of posts on the message board conservation information in the National Park and the coast of Karimunjawa. Data is also collected through observation of local wisdom in the name of the plant Mangrove forests in Karimunjawa, a variety of marine life, coral reefs, marine flora and fauna, and the behavior of public life in protecting and maintaining the environment in a national park Karimunjawa. In this study was also conducted interviews and observations of the life of the fishing community and home stay owners, and community leaders. Thus the subject of this study is the behavior of the conservation of the

fishermen, community leaders, home stay owners, teachers, and community leaders.

### 2.3 Instruments and Data Analysis Research

The main instrument of this study are researchers. Another instrument of this study was the observation sheet to be able to collect data as much as possible knowledge of local communities. Data obtained verification, reconstruction, formulation, and conceptualization and documentation so that a formalized scientific knowledge At this research data analysis conducted descriptive analysis. In the research was also carried out reconstruction of communities and indigenous knowledge into scientific knowledge.

## 3. Results and Discussion

### 3.1 Exploration Results Soft Skills at arena Conservation Research

In this research to obtain the necessary data to do interviews with indigenous resource persons namely Ghofur Publications (32 years) and Djoni Suswanto (45 years) as the indigenous people Karimunjawa and tour guides. Whereas to obtain a description of the data region and its characteristics analysis reinforced the island of Karimunjawa documentation data from interviews with with community leaders. Karimunjawa has 27 uninhabited islands of five islands and 22 uninhabited. In this study, which is used as the location of the research is the islands are inhabited village Karimunjawa and Kamujan. While the research was also conducted observation in which the island uninhabited islands Menjangan islands Besar and Kecil, Merica, Geleang, and Seruni.

The research team to reach the area and location of the research carried out by land about 30 Km in locations Karimunjawa National Park and rent a boat to travel to the uninhabited islands in the region Karimunjawa. Kamujan and uninhabited islands that In this research to reach the area and location of the research carried out by land about 30 Km in locations Karimunjawa National Park and hire a boat tour. In In the study the research object conservation related soft skills are information boards and local knowledge of plant species found in Karimunjawa National Park conservation area, the name for the marine flora and fauna, coral reefs, fish diversity, and the names of the plants in the mangrove forest. Results of exploration, observation at the location of this study, it was found messages conservation value of soft skills as presented in Figure 3

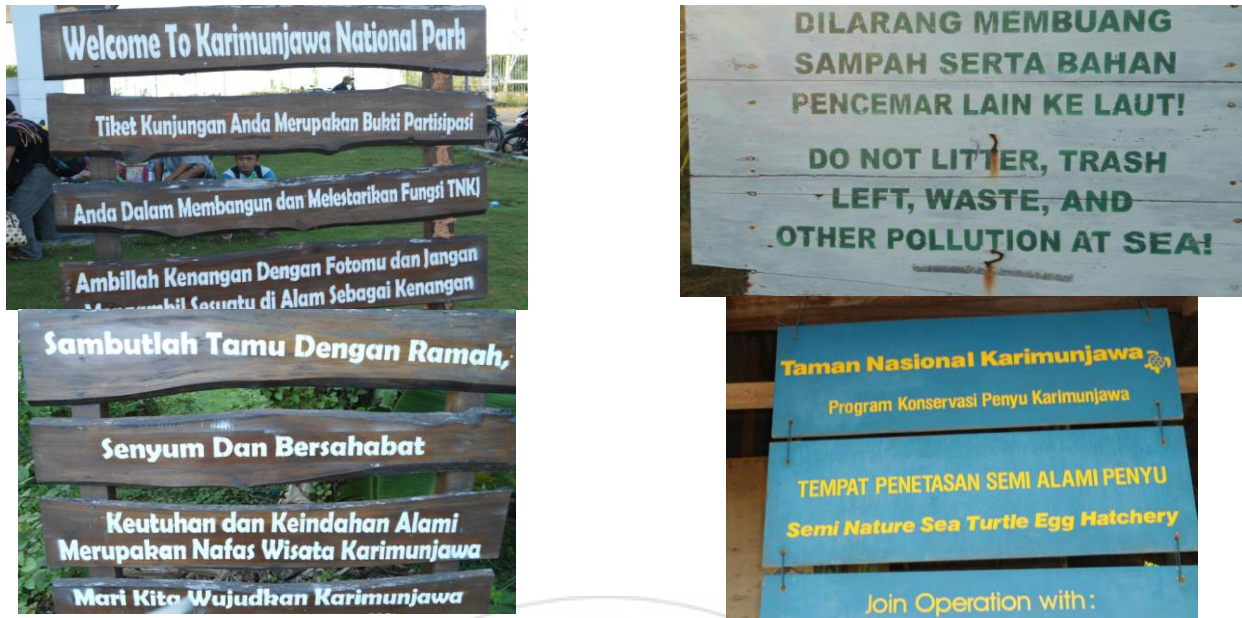


Figure 3: Board information regarding the conservation softskill

In Figure 3, further classified on category types of soft skills listed in tersebut information boards. Soft skills conservation classification results are presented in Table 1.

Table 1: Location of research, conservation messages and Classification softskill

No	Location Research	Conservation messages	Category Soft skills from Conservation.
01.	Dock Karimunjawa [Location of departure and decline in passenger ships].	<b>Indonesian:</b> Sambutlah tamu dengan <i>ramah Senyum dan bersahabat</i> <b>English :</b> Greet guests with a friendly Smile and friendly	Cultural and moral
		<b>Indonesian :</b> <i>Keutuhan dan keindahan alami</i> merupakan nafas wisata Karimunjawa <b>English:</b> Wholeness and the natural beauty is breath karimunjawa tour	Love of nature and care for the environment
		<b>Indonesian:</b> Mari kita wujudkan Karimunjawa sebagai <i>desa wisata yang ramah, bersih, dan nyaman</i> <b>English:</b> Let's make it happen karimunjawa as a tourist village friendly, clean, and comfortable	Love the people and care for the environment, and moral.
02.	Payment Counters [Information Board in Karimunjawa Payment Counters]	<b>Indonesian:</b> Terima kasih atas partisipasi anda <i>membayar tiket</i> masuk kawasan Taman Nasional Karimunjawa <b>English:</b> Thank you for your participation pay admission Karimunjawa National Park area	Love the people and the flora, fauna, and responsibility.
		<b>Indonesian:</b> Tiket yang anda bayar berguna untuk <i>menjaga kelestarian Alam dan Laut</i> Karimunjawa <b>English:</b> Tickets that you pay is useful to preserve the Natural and Marine karimunjawa	Care for the environment, forests, and marine
03.	Forest National Park Karimunjawa	<b>Indonesian:</b>	Care for the environment, moral, and



No	Location Research	Conservation messages	Category Soft skills from Conservation.
	[The information boards at several locations Forest National Park Karimunjawa]	Wujudkan Karimunjawa sebagai kecamatan yang aman, nyaman, tertib dan alami <b>English:</b> Realizing subdistricts karimunjawa as a safe, comfortable, orderly and natural	cultural
		<b>Indonesian:</b> Sambutlah Tamu dengan <i>ramah, senyum, dan bersahabat.</i> <b>English:</b> Greet the guest with a friendly, smile, and friendly.	Local wisdom, culture and moral
		<b>Indonesian:</b> Keutuhan dan Keindahan alami merupakan nafas wisata Karimu-njawa. <b>English:</b> Wholeness and the natural beauty is breath karimunjawa tour.	Care for the environment, moral and cultural
04.	Menjangan Besar Islands [Region Karimunjawa Island]	<b>Indonesian</b> Dilarang membuang sampah serta bahan pencemar ke Laut <b>English:</b> <i>Do not Litter, Trash Left, waste, and other pollution at Sea</i>	Care for the environment, conservation of marine life, coral reefs, and flora and fauna
05.	Mangrove forests [Kamujuan village]	<b>Indonesian:</b> Ambillah kenangan dengan foto-mu dan jangan mengambil sesuatu di Alam sebagai Kenangan <b>English:</b> Take your memories with photos and do not take anything in Nature as Memories	Care for the environment, flora, and fauna
06.	District Office Karimunjawa [The information boards at the District Office Karimunjawa].	<b>Indonesian:</b> Mari kita bangun Karimunjawa sebagai kecamatan wisata <b>English:</b> Let us wake up karimunjawa as tourist districts	Love the people and caring environment.
		<b>Indonesian:</b> Pengunjung adalah tamu kita, sambutlah dengan ramah dan ber-sahabat, dan hindari merusak objek kunjungan anda <b>English:</b> Visitors are our guests, welcome to the welcoming and friendly, and avoid damaging the object of your visit	Local wisdom, moral, cultural, and environmental care.
		<b>Indonesian:</b> Menata lingkungan, rumah, desa dan kecamatan rapi, bersih, indah <b>English:</b> Managing the environment, home, village and district neat, clean, beautiful	Love the people and care for the environment

The moral is presented Table 1, it is known that the notice board scientifically implies that the public and tourist visitors in Karimunjawa should have the character of politeness and courtesy of soft skills, moral and noble virtuous character, love the people and the environment, and responsibility. As for conservation should be noted and passed on to the

students the skills adalahsoft conservation of the marine environment, forests, water, and forest and marine life magrove. In the exploration and observation activities in some Karimunjawa islands, the research team sightings of marine life, coral reefs, flora and fauna, environmental and conservation messages are presented in Table 2.

**Table 2:** Recapitulation message in Area Conservation Research

No	Location and Research	Content of Soft skills conservation	Category of soft skills developed
01.	Great Menjangan Island	Turtles are protected, preserved, and utilized	Turtle Conservation.
02.	Islands Merica, Kerakal, Cemara	You want to dive: 1. Be careful in taking photos biota 2. Do not step on, hold the coral reefs, and stir stir the sand	Conservation of marine life, coral reefs, and loving environment
03.	Mangrove Forest (Listed in the forest along the National Park Conservation karimunjawa)	Forests are a source of clean water	Forest conservation and water
		Water absorption is a result of our forests	water Conservation
		If the forest is damaged, then the water was gone, extinct life	Forest conservation and water
		Let's keep our forests, now	forest conservation
	Forest magrove (Installed in the Mangrove forest)	Beware of fire hazard, clean environment to avoid burning, make sure you've extinguished cigarette butts before disposing.	Forest conservation and environmental care
		Mangrove sustainable sustainable life	Conservation of Mangrove forest
		Not a wise man that still damaging mangroves	Moral and cultural conservation
		Hutan Bakau <i>Hidup, ikan laut hidup, nelayanpun hidup.</i>	Mangrove Conservation and caring environment
04.	Waterfront Karimunjawa Islands	Mangroves for life, let us keep and maintain.	Mangrove Conservation and caring environment
		Once awake nature created in 1000 benefits	care for the environment
04.	Waterfront Karimunjawa Islands	Society to have a life treating you in? Far catch and take fish with bombs, potassium, and compressor.	Conservation of the environment and fish
		Bombs and potassium damaging coral reefs, fish heterogeneous small and large.	Conservation of coral reefs and marine fish
		Compressor damage health, paralyzed and die.	Conservation of the environment and health.
05.	National Park Conservation Forest in Karimunjawa	Sustainable Natural, Sustainable forest	The environment and forest
		Forest stand, the people happier	forest conservation
		At the forest readouts, treating the benefit readouts	forest conservation

In Table 2 are known for turtle conservation message, for example Turtle must be protected, preserved and utilized; so that scientific knowledge of turtles as local wisdom should be protected habitats and species. Turtle conservation through breeding turtles, and used wisely. Research results through observation in the study site, then found the message of conservation to protect and conserve, and utilize wisely to biota, coral reefs, large and small fish. Mangrove forest in Kemujanjawa Publications, then the character is a character developed visitor to love the environment and conservation of mangrove forests, mangrove as a place to live because the sea fish, and if marine fish live, then nelayanpun life. In this study, mangrove or mangrove plants must be conserved, meaning that tourist visitors and the community must participate preserve, maintain, and use the wisely. Messages soft skills in the conservation of mangrove forests from the observation written with a moral message as follows: Not a wise man that still undermine and cut down the forest. Results of observations in inhabited and uninhabited islands there are also environmental conservation message of love or environmental conservation is found in the seaside Publications, pepper, Menjangan, and Gosongan. The conservation message eg People want to live a thousand years? Avoid catching and take the fish with bombs, potassium, and compressors. Results of observation on the location of this research shows the importance of soft skills Mangrove forest conservation, conservation of national forests for all citizens, indigenous peoples Publications, tourist visitors, school children, and others.

### 3.2 Results and discussion Exploration wisdom Yoruba in Karimunjawa

In this research, exploration and discovery of the kinds of plants Local wisdom in Karimunjawa. The results of research in the various islands of Karimunjawa found indigenous plants contained in maritime Publications, for example Dewadaru plants and Kalimasada as shown in Figure 4.



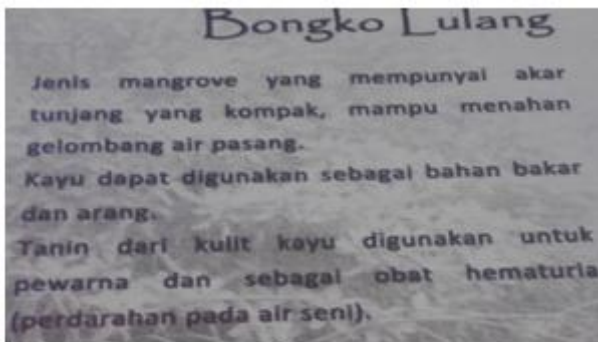
**Figure 4:** Plants dewadaru (a) flowering and fragrant smell in SMP Negeri 1 Karimunjawa and Kalimasada (b) as local wisdom (Source: Personal Documentation)

Results of observation to some maritime karimunjawa found three rare plant species and plant indigenous plants in karimunjawa namely Dewadaru, Kalimasada and Setigi. The third plant is typical plants and protected by society and the government. The results of interviews with some community leaders that dewadaru timber located in the Tomb of Sunan Nyamplungan located on the hilltops north Publications. At the gate there are two very large trees and by the people

know him as "the god of wood". According to public confidence that god has a sacred wood. Knowledge of the community believe that the gods who keep the wood in the house, then the individual is spared the threat of a thief or a bad person. Excess dewardaru timber is not a god of wood floating or sinking. According to scientific knowledge dewardaru excess wood is to have a specific gravity greater than the density of water, so drowning (Hadi Susanto, 2014). Results of research through direct observation to Mangrove forests are found indigenous plants Betah as presented Figure 5.



(a)



(b)

**Figure 5:** Plants Betah and Bongko in Mangrove Forest (personal documents)

In the study of the observations in Mangrove forest crops in addition found that local knowledge or Lumnitzera Betah littorea (Jack) Voigt, also found 18 species of plants indigenous to another, and 10 of them are presented in Table 3.

**Table 3:** Mangrove plants in the National Park Karimunjawa

No	Local Names (Indegenious Science)	Indonesian	Species name (Scientific knowledge)
1	Kerakas	Paku Laut	<i>Acrostichum aureum</i> Linn
2	Tingen	Tingen	<i>Ceriops decandra</i> (Griff)
3	Betah	Buta-but	<i>Excoecaria agalloca</i>
4	Duduk	Duduk	<i>Lumnitzera littorea</i> (Jack) Voigt
5	Setigi	Setigi	<i>Phemphis acidula</i>
6	Bongko	Bakau	<i>Rhizophora mucronata</i> Lmk
7	Dadap laut	Dadap laut	<i>Clerodendrum inerme</i> Gaertn
9	Gabusan	Bako-bakoan	<i>Scaevola taccada</i> (Gaertn)
10	Daun garong	Pecut kuda	<i>Stachytarpheta jamaicensis</i>

The results of the analysis are known documentation, the outline zoning Mangrove plants in conservation area from the sea to the land is of *Rhizophora apiculata*, *Rhizophora mucronata*, *Rhizophora stylosa*, *Brugueria gymnorrhiza*, *Brugueria cylindrica*, *Xylocarpus granatum*, *Xylocarpus molluccensis*, *Ceriops tagal*, *Lumnitzera littorea*, *Heritiera littoralis*, *acanthus ilicifolius*, *Acantus ebracteatus*, *Acrostichum aureum*, *acrosticum speciosum*.

### 3.3 Results Interview with Subject Research.

In this research, questions and answers to some sources as the subject of research on public figures Publications namely Sunan Nyamplungan. In this study, the scope of the questions related to the conservation of soft skills moral or positive teachings of Sunan Nyamplungan, Fishermen, and Tour Guide; where the data presented in Table 4.

**Table 4:** People's knowledge of Sunan Nyamplungan

No	Focus and Research Subjects	Soft skills of Moral Conservation
01.	Sunan Nyamplungan	Religious, intelligent, communicative, responsibility, honesty, tolerance, hard work, and love of the homeland and religion.
02.	Fisherman	Honest, hard working, caring environment Discipline, self, responsibility.
03.	Tourist guides	Friendly, polite, caring environment, responsibility, discipline, and love of the homeland.

Table 4 shows the soft skills and character of Sunan Nyamplungan ie religious leaders, responsibility, caring people, social leaders, and society as a role model. In this study, interviews were conducted at the same tour guide and Fishermen are Ghofur (32 years) obtained information about the values of the characters that appear to the Fisherman and the tour guide is a responsibility, hard work, independent, and creative. While the values of character possessed by a tour guide was friendly, honest, intelligent, creative, and caring environment.

### 4. Conclusion

Results of the analysis of research data shows the value of conservation and local wisdom contained in the community and region Publications are caring for and maintaining conservation values, and utilize biological resources, marine fish, marine life, seaweed, sea turtles, and a variety of coral reefs wisely. Another moral character contained in Karimunjawa society is to obey all the rules, written appeals within the bulletin board related to the conservation of forest protection and wildlife, beaches, and sacred places. In this study revealed local knowledge is still preserved as dewardaru, Setigi, and kalimosodo. It also found positive character values of community leaders (Sunan Nyamplungan) and fishermen, and tourist guides are religious fervor, hard work, responsibility, and love of the nation, care for the environment, independent and democratic.

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