Exploration of Abrasion Beach Waste and Soundscape as Inspiration for Creating Musical Compositions

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Abstract. This study aims to develop a new approach to music-making based on waste exploration and natural sounds (soundscape) of Kuala Beach, Serdang Bedagai Regency. This study's methodology is qualitative in nature. Observation and documenting techniques are used in the data and information search process. The stages of preparation, data gathering, analysis, and processing, production, and concluding the research findings comprise the research process. The findings of the study show that the method of creating music and videos based on waste and soundscape of Kuala Merdeka Beach consists of a pre-production stage, namely recording various soundscapes and sound engineering from waste in Kuala Merdeka Beach, a production stage consisting of preparation, creating music compositions, and editing, and a pre-production stage consisting of mixing and mastering. The composition of the resulting music composition has four parts. The arrangement of music uses several editing techniques, namely cutting and deleting, copying, and dragging. While some of the effects used consist of delay, fade in / fade out, and panning.

Keywords: music composition, soundscape, waste, abration beach

1 Introduction

Kuala Merdeka Beach or more commonly called Kuala Beach is located in Bagan Kuala Village, Serdang Bedagai Regency, North Sumatra Province, Indonesia. Kuala Beach has white and clean sand. Although it has not been managed as a professional tourist attraction, it is often visited by local people and people from outside the area to just relax and take pictures with relatives. Kuala Beach is also the gateway to Berhala Island which is the outermost island of Indonesia in the Strait of Malacca, directly bordering Malaysia. As a coastal area, the majority of the people here are Malay and work as fishermen.

The occurrence of abrasion on Kuala Beach has caused the land area to decrease from day to day. According to Syafril, Head of Bagan Kuala Village, for 40 years of abrasion, Bagan Kuala Village has experienced abrasion of approximately 1.5 km. The lack of mangrove plants also triggers prolonged abrasion. This threatens the existence of local residents' houses which have the potential to lose their land. Another problem that occurs in the community is environmental pollution. The lack of public awareness of the environment such as waste and waste management makes the Kuala environment dirty with piles of garbage.

Researchers responded to this condition by trying to find a method of creating music through soundscapes and natural waste on Kuala Beach. The music created is instrumental music whose sound sources come from waste on the Kuala coast such as shells, tree branches,

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and sand that are designed in such a way as to become a music medium. In addition, researchers also utilize natural sounds (soundscape) of Kuala Beach such as the sound of wind, waves, and the rustle of mangrove leaves, which will be explored as a source of creating new music. The music created will be reinforced with visual videos that describe the abrasion situation that is currently occurring in Bagan Kuala Village. To further convey the educational message, the video will also be added with narration in the form of voice overs and written text. The results of this study will be utilized by the Bagan Kuala Village government and related agencies as educational media in every seminar event, internal meeting, visit to schools, or uploaded to social media.

1.1 Music Creation

To fully appreciate the creative inventiveness of each composer, who is unique in their approach to composition, it is crucial to comprehend and give particular attention to the process of making musical works. To do this, a thorough examination and study of the composition process is conducted in order to characterize and ascertain the creative thoughts of multiple composers. These composers then search for recurring patterns that serve as standards for composers when they create music. According to Reynold [1], a musical composition is created gradually over time in a way that undoubtedly differs for every composer: a combination of construction, discovery, and, admittedly, contrivance as well as pure, aimless stumbling. The process of finishing a musical piece involves a necessary (albeit not consistent) staging. According to what [1] stated, each composer goes through a gradual process when composing a musical composition, which naturally differs from composer to composer. According to Routledge [2] in his book The Art of Thought, the general stages are preparation, incubation, illumination, and verification. However, each creator will have variations and changes based on their preferences and what they think is convenient.

According to Sunarto [3], there are three components involved in creating art: knowledge, activity, and method. The element of knowledge that manifests as thought, a mental conversation process that employs abstract concepts about specific objects to create the abundance of knowledge that is possessed. The creative process of creating the format of artistic expression, which originates from ideas about knowledge in the form of abstract concepts about specific objects, involves the activity, busyness, and activity of the artist. Additionally, the method takes the shape of logical methods and tactics to conceptualize and actualize the goodness, beauty, and truth that are present in that thinking in order to transform it into an empirical, symbolic, and pleasurable form of creative expression.

Kholid, in the Journal of Art Studies and Creation [4] describes :

> *"The process of creating music into several stages: (1) Searching for Ideas, The creation process mainly begins with interest, passion or desire to create which then gives rise to an idea. From these ideas, various questions are finally obtained such as: "What", meaning what will be done. When it comes to what to do; (2) Concept, Concept is an elaboration of an idea that has been set; (3) Sound Exploration, Conducting sound exploration on each instrument that will be used, then the results of the exploration are then arranged according to the planned composition framework. Sound exploration is very necessary to further explain the character of the work worked on by the composer, because there is a possibility that the ideas and concepts do not match what we expect when expected in the form of sound. After the exploration process, it is then written in the form of a composition framework. The composition framework can be in the form of notation (staff notation, numbers or symbols) or memorization; (4) The process of applying and developing musical ideas from basic forms to more complete forms as well as harmonic arrangements (arrangements) with all their musical parameters. This needs to be considered for a balance in musical works, for example, in addition to considering the range of tones that can be played by each instrument,*

also about considerations regarding the development of motifs, structures, forms, dynamics, sound colors, including playing techniques that will be used on each instrument".

1.2 Soundscape

In principle, ecology in music is reflected in music in the ancient era of human civilization, where at that time humans were still dependent on nature with human life being cosmocentric. Music in the form of rituals is often considered a reflection of the universe, like the sound of waves rolling in the ocean and the roar of thunder in the sky. Greek society, as the embryo of musical knowledge in the western hemisphere, believed that music was a gift from the gods as a gift to mankind. The existence of music also makes a significant contribution to the development of science, as done by Pythagoras through his tetrachord research, in an effort to prove the truth of numbers as the reality of the universe. Thus we can see how music has the regularity of the system of the universe's provisions that make it intertwined in a cosmological system. Ecology is not against cosmology, but the presence of ecology is based on awareness, as stated by Varella and Maturana as cognition, which of course experiences development and independence along with the development of human knowledge from time to time. The concept of Varella & Maturana's cognition is based on Santiago's Theory of cognition, which is a process of knowing with the actual process of life.

According to Varella & Maturana in Capra [5], cognition is an activity involved in the self-cultivation and self-perpetuation of living tissues. Ecological awareness in music has actually been rooted in traditional societies, which are fully aware of the human need to maintain balance with the universe. However, in modern society this awareness no longer gets attention. Music is more focused on humans as organizers of culture, the dynamics of human life and feelings and in its development even forgets the essence of the naturalness of music itself.

One form of contemporary musical composition that is ecological is soundscape. This musical composition takes natural sounds as its underlying elements, such as the sound of raindrops, the sound of crickets at night, the sound of flowing river water, the sound of wind blowing in the mountains to the sound of human civilization in rural and urban areas. Although soundscape music follows standard composition guidelines, it incorporates sounds from the human environment to give listeners a sense of the sounds they are experiencing. The presence of soundscape has a natural and ecological meaning, which gives humans awareness to appreciate the environment in which they live and reside.

Fretes [6] stated that in order to create an environmental sound design or sonic environment and to maintain, preserve, and develop it within a systematic network of life, the ecological acoustic discipline known as "soundscape" places a high priority on the balance of sounds in the environment. R. Murray Schafer, a Canadian composer, author, music educator, and environmentalist who works in the field of ecological acoustics, coined the word "soundscape." According to Schafer [7], the word "soundscape" is derived from the word "landscape," which was coined by Petrarch, an Italian poet from the 14th century who climbed to the summit of a mountain to witness a view that had never been seen before and used the term to describe it. Schafer used the term "soundscape" to characterize the noises that people experience on a daily basis. Therefore, a view in the form of sound or noise in daily life might be referred to as a soundscape or sonic environment. Using sounds from the human world, soundscape music returns the sounds from the human environment to the listeners while adhering to standard composition guidelines.

[7] classifies natural sounds as in the following table.

Table 1. *Schafer's Classification of Natural Sounds*

Natural Sounds	**Sounds of Water**	**Ocean, Seas and Lakes**
		Rain
		Rivers and Brooks
		Steam
		Ice and Snow ...
	Sounds of Air	Wind ...
	Sounds of Earth	Trees ...
	Sounds of Birds	Sparrow ...
	Sounds of Insects	Flies ...
	Sounds of Seasons ...	Spring ...
Human Sounds	Sounds of Voice, Body ...	Speaking ...
Sounds & Society	Town, Urban, Factories, Domestic Sounds, Parks ...	...
Mechanical Sounds	Machines, Aircraft, Constructions ...	...
Silence and Quiet	-	-
Sound as Indicators	Bells, Horns, Telephones ...	...

The other researchers, Nakagawa [8], conducted research in Yogyakarta and linked soundscape to the cultural phenomena there. Nakagawa and Sutton revealed the everyday acoustic landscape heard by the people of Yogyakarta. In his study of Yogyakarta's everyday acoustics, [8] examined the sounds of the city's traders, such as the bowls of meatball vendors, the gongs of siomay vendors, the bells of small ice cream vendors, and the sound of bamboo gongs during night patrols. In his description of Yogyakarta's "miniature Javanese soundscape," Nakagawa said that the city's nighttime and daytime environmental sounds, which are also reflected in gamelan music, are linked to the anti-conflict culture and social standing that are fundamental to Javanese society as well as the feeling of community security. It is clear from this studies that a soundscape is closely associated with a specific area or culture.

2 Research Method

In order to gather data for this study, qualitative research techniques were employed, including literature reviews, interviews, documentation, and observation. According to Sarwono and Lubis [9], “observation is a method of data collection that is taken by directly observing and recording things that are needed to support the research being conducted. The observation method is used to identify the types of waste and soundscapes that can be used for music creation“.

After the data is collected and processed, the design process is continued with the following scheme

a. Pre-Production Stage: designing ideas and concepts, identifying and categorizing audio materials, compiling storyboards.
b. Production Stage: sound recording, creating music compositions
c. Post-Production Stage: music editing, mixing, and mastering

3 Result and Discussion

The process of making music and movies based on the noises and garbage in Kuala Merdeka Beach, Serdang Bedagai Regency, involves multiple steps. To answer the formulation of the problem in this study, the discussion will be divided into two parts, namely the music creation method and the video production method.

3.1 Pre-Production

The stages of music creation begin with the pre-production process. Researchers gather preliminary data for the production process during the pre-production phase. Researchers visit the abrasion area at Kuala Merdeka Beach, Serdang Bedagai Regency and then record the natural sounds (soundscapes) there to be processed as material for creating music in the studio.

A voice recorder was used to capture soundscapes at several locations, creating recordings in the mp3/wav audio format. The method of recording sound sources is carried out in two ways, the first is to record the soundscape naturally as it is, and the second is to record by engineering the sound of waste.

There are several types of dominant soundscapes that are characteristic of Kuala Beach. In describing the atmosphere of Kuala Beach, researchers recorded three types of soundscape sounds, namely wind, waves, and boat engines.

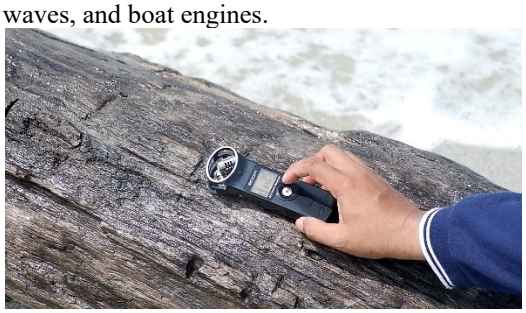

Fig. 1. Recording the soundscape of wind.

Fig. 2. Recording the soundscape of wave.

Fig. 3. Recording the soundscape of boat machine

Sound engineering is carried out on waste found on Kuala Beach, namely wooden twigs, dry mangrove leaves, shells, and beach sand. Sound processing relies on variations in rhythm and timbre with techniques of hitting, shuffling, crushing, shaking and shaking the existing sound material.

Fig. 4. Make rhythmic patterns from shells

Wooden twigs and shells are pitted against each other to produce a beating sound with various possible rhythmic patterns. While dried mangrove leaves, shells, and tree branches are crushed and mixed up and down to the left and right for 10-30 seconds to produce a friction timbre. Meanwhile, beach sand is put into plastic drinking bottle waste and then shaken up and down repeatedly to produce a distinctive soft rustle, and shaken with a repetitive rhythmic pattern.

Fig. 5. Beach waste sound exploration

Fig. 6. Sand rustle sound exploration

The soundscape recording results obtained in the pre-production process in the form of mp3/wav audio are collected in a folder as shown in the image below:

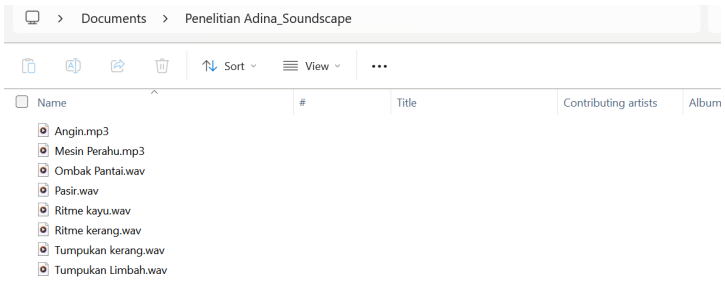

Fig. 7. Folder of soundscape collected

When classified based on the table created by [7], the collected Kuala beach soundscape data looks like the table below:

Table 2. *Classification of Kuala Beach's Natural Sounds*

Natural Sounds	**Sounds of Water**	**Beach**
	Sounds of Air	Wind
	Sounds of Earth	Twigs, mangrove leaves, shell
Mechanical Sounds	Machines	Boat engine

This sound material will then be processed in the studio using digital music software in the production process.

3.2 Production

The process of processing the discovered soundscape elements and fusing them together to create a new musical engineering is known as production. Preparation, arrangement, editing, and mixing-mastering are the steps that make up the production process.

Setting up the recording device as a creative medium is the first step in this process. The following instruments were employed in the composition process:

a. A PC with music recording software installed
b. Monitor speaker
c. Soundcard/audio interface
d. Headphones

Steinberg's Cubase 10.5 is the program utilized in this manufacturing process. Double-clicking the Cubase 10.5 desktop icon will launch the Cubase 10.5 software after the recording device has been neatly installed. A process box will then show up. Next, the dialog box labeled "Project Assistant" will show up. Choose "Empty" under "Others" and then click "Create" to begin a new project page. The researcher saves the first step of the procedure by pressing "CTRL + S" and names the folder "Soundscape Kuala Merdeka" to make it simpler to find. This ensures that the project is saved in a folder. The researcher then starts the process of coming up with original ideas by entering the wav audio soundscape into the Cubase 10.5 software. Click on the "Project-Import-Audio" option in the dialog box above. Next, choose one of them by going to the folder containing the soundscape data.

The exploration phase is the first step in the creation process. At this point, the researcher attempts to blend the current soundscapes together using a variety of potential tempo and length modifications. The appropriateness of the current sounds and timbres serves as the foundation for this mixing process. For instance, fusing the wood's rhythm with the shell's rhythm, or the crashing of the waves with the wind and sand of the beach. This is done so that when the listener of this music can feel the nuances of Kuala beach in their minds.

The editing process is an important part in forming the composition of the Kuala Beach soundscape music. The editing stage includes the cutting and deleting process to remove unnecessary parts, copying to increase the number of tracks as needed, and dragging to shift the track to match the desired timing.

The editing process used in the composition of the Kuala Beach soundscape music is as follows:

a. *Cutting*

   Cutting is used to remove unnecessary parts from one previously recorded soundscape recording track. For example, cutting the duration of the recording of the crashing waves or boat engines according to the desired nuance and duration.

b. *Copying*

   Some of the best track pieces such as the sound of wind and the rustle of sand that have been selected through the cutting stage are duplicated into several tracks that are repeated according to the required duration.

c. *Dragging*

   To create the sound of crashing waves that respond to the wind and boat engines, dragging is needed to produce the appropriate timing. Likewise, to produce the right interlocking between the rhythm of tree branches, shells, and sand, the dragging stage is needed.

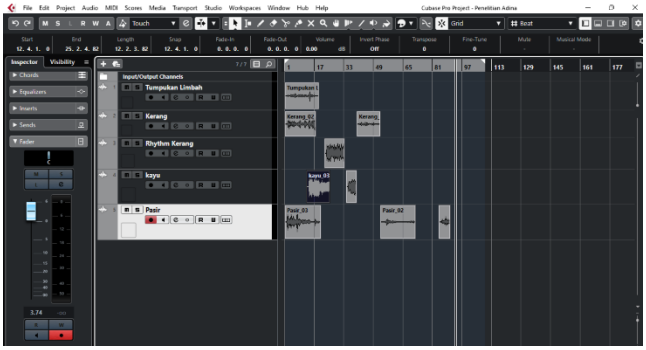

Fig. 8. The process of creating the Kuala Merdeka Beach soundscape music by software

After going through various exploration possibilities and editing, the resulting musical sequence is as follows:

a. The first part, the music begins with a soundscape of waves for 1 minute, then responds to each other with the blowing of the wind for 30 seconds, then followed by the sound of a boat engine for 30 seconds. The first two minutes build a calm atmosphere, as if the listener feels like they are on the edge of Kuala Beach.
b. The second part, the sound of dry leaves rubbing against waste from wood twigs and shells for 1 minute, builds a chaotic atmosphere depicting the situation of abrasion and environmental damage on Kuala Beach. Then greeted with the rustle of sand. This part runs for 2 minutes with variations of hard and soft, fast and slow.
c. The third part is a rhythmic play of wood twigs, shells, and sand. These three types of waste run at a fast tempo with their respective rhythmic patterns so that they form an interlocking pattern for 1.5 minutes.

The fourth part is the peak and closing part of this musical composition where all the sound elements are brought together. The rhythmic pattern of the third part continues and is followed by the crashing of waves, wind, mangrove leaves, and boat engines. This climax part lasts for 1.5 minutes and is closed with the rustling of sand in a plastic bottle in a fade out.

3.3 Post Production

The mixing and mastering phase marks the conclusion of the manufacturing process. The process of combining all of the recorded outcomes into a single result is called mixing. Frequency adjustment, adding effects such as fade in/fade out, right/left, reverb, chorus, etc., reducing noise, etc. to produce good audio quality on each track so that the recording results are more harmonious. The use of effects at the soundscape music mixing stage is intended to further build the drama of the resulting composition. The mastering stage, on the other hand, is when the equalizer, compressor, and volume of the recording that has already passed the mixing stage are adjusted.

Some of the effects used in the composition of this Kuala Beach soundscape music are as follows:

a. *Delay*

The delay effect is used for several sound components such as the crashing of waves and the rustling of sand. The use of the delay effect here is not too striking so as not to interfere with the original sound and override other sound components. The delay effect builds a more dramatic atmosphere.

b. *Fade in/out*
The fade in/out effect is used at each sound transition from one to another. The use of this effect is necessary so that the sound transition feels smooth.

c. *Panning*
The panning effect creates a wider sound space. Panning is placing each sound in a central position, left or right. In part 4, where all sound components are united, it is necessary to separate the sound positions. The crashing waves and wind are placed in the front central position. while the boat engine is positioned in the center slightly to the rear. The rhythm of the wooden branches is slightly to the left, the rhythm of the shells is slightly to the right, while the rhythm of the sand is in the middle. The rustling of the mangrove leaves and the rustling of the sand are placed in the far left and right corners respectively. This panning engineering makes the listening space of this music even more maximal.

4 Conclusions

The creation of music based on soundscape and waste from Kuala Merdeka Beach, Serdang Bedagai is one of the alternative approaches in the process of creating music. where a wide range of sound variations can be heard, inspiring the development of fresh concepts for more dynamic and valuable music. The results of the study indicate that the method of creating music and videos based on waste and soundscape from Kuala Merdeka Beach consists of a pre-production stage, namely recording various soundscapes and sound engineering from waste in Kuala Merdeka Beach, a production stage consisting of preparation, creating music compositions, and editing, and a pre-production stage consisting of mixing and mastering. The composition of the resulting music has a total duration of 7 minutes which is divided into four parts, namely the calm atmosphere of the sound of waves, wind, and boat engines for 2 minutes in the first part, the chaotic atmosphere of the rustle of mangrove leaves and the rustle of sand for 2 minutes in the second part, the rhythmic atmosphere of tree branches, shells, and sand for 1.5 minutes in the third part, and the combination of all of them for 1.5 minutes in the fourth part. The arrangement of music uses several editing techniques, namely cutting and deleting, copying, and dragging. While some of the effects used consist of delay, fade in/fade out, and panning.

References

[1] Reynolds, R., Form and method: composing music, New York: NY.The RothschildEssays, 2002.
[2] Routledge, W. G., The art of thought, London, UK: C.A. Watts & Co, 1926.
[3] Sunarto, B., Epistemologi penciptaan seni, Jogjakarta: Idea Press, 2013.
[4] Kholid, D. M., “Penciptaan seni karawitan : sebuah alternatif“, Dewa Ruci: Jurnal Pengkajian dan Penciptaan Seni, vol.3, no.2, pp. 364-368, July 2006.
[5] Capra, F., The hidden connections, New York: Doubleday, 2003.
[6] Fretes, D.D., “Soundscape: musik dan lingkungan hidup“ Jurnal promusika, vol. 4, no.2, pp. 117-125, October 2016

[7] Schafer, R. M., Our Sonic Environ ment and The Soundscape: The Tuning of The world, US: Destiny Books, Roches ter, 1994.
[8] Nakagawa, S., Musik dan kosmos: sebuah pengantar etnomusikologi, Jakarta: Yayasan Obor Indonesia, 2000.
[9] Sarwono, J., dan Lubis, H., Metode riset untuk desain komunikasi visual, Yogyakarta: CV. Andi Offset, 2007.