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"Bhuyakha": Experimental Animated Documentary Installation about Endangered Freshwater Fish of Sentani Lake

Abstract

Indonesia is ranked first in Asia and second in the world for freshwater fish species biodiversity. In a Developing country such as Indonesia, industrial and economical development process, often cause negative effects for the environment's ecosystem and its surroundings. The freshwater ecosystem, where there are loads kinds of fish, is the most susceptible point to be damaged. One of the regions that is get the impact is Sentani Lake. Sentani Lake is a lake where has plentiful of endemic freshwater fish. To solve the problem, comprehension about the importance of maintaining freshwater ecosystem in Sentani Lake is needed. Media designing includes data retrieval, analyzing data, experimenting and designing visualization. Based on the process, results are obtained to make the animated documentary Installation media about Lake Sentani's endemic fish. To create this animated documentary, deep research and observation towards the object study are needed in order to present work, which fits with facts in the field. The concept was designed by creating an animated documentary to produce an installation media that was called as "Bhuyakha". The story presented by using a projection mapping technique which creates an immersive condition through conceptual development and technical aspects within interactive video was able to give an understanding information, impression, and message about endemic freshwater fish in Sentani lake.

Keywords: installation, digital animation, documentary, endemic

1 Introduction

As a developing country, Indonesia is trying to improve the national welfare by doing development in all aspect throughout the archipelago. Frequently, The unbalanced development process gives negative effects to the environment. Due to excess of construction and human activities nearby, one of the most vunerable natural environment is the freshwater ecosystems which is consist of varioust kind of freshwater fish. This problem can threat all kind of freshwater fish and reduce their population. There are around 8500 kinds of fish in Indonesia and it was just 45% from the total of fish in the world. Some of them around 1300 species are freshwater fish.[1]

One area that have been heavily damaged is Sentani Lake. Sentani Lake is the main source of freshwater fish main at Jayapura District in Papua Island, eastern Indonesia. In this lake, there are 4 kinds of endemic fish . First, The largetooth sawfish (Pristis microdon). Its appearance is quite hideous with 17-22 teeth like a saw on each side of its snout and size that could reach 6,6 meters. Actually, The largetooth sawfish is saltwater fish that had been adapted to freshwater. This fish is the one and only freshwater shark in the world that almost extinct. Second, Sentani Snakehead fish (Oxyeleotris heterodon). The size of the big one could be as big as calf of an adult. Because of its high proteins content, this fish usually use as an offering for mother who had just given a birth by the locals. Sentani rainbow fish (Chilatherina sentaniensis) and red rainbow fish (Glossolepis incisus). Their maximum size is about 15cm. Because of their beautiful appearance, rainbow fish become one of the most attractive freshwater decorative fish . The endemic fishs are endangered due to pollution, sedimentation, excess use of lake, lack of maintenance, bad development, etc. Villagers housing development is one of main contributor in polluting it.

Despite its critical condition, the problem in Sentani Lake has not been realized by most of Indonesian people. This paper explain an experimental approach to socialized the issue to the people, particularly young generation. An animated documentary technique is used to convey the message about destruction that is happened around Sentani Lake. Animated documentary can provide new insight and solution in presenting something in a narrative and imaginative ways [2]. To increase viewer engagement, the animation in presented through an spatial installation design using projection mapping technique. Projection Mapping is one of the newest video projection techniques that are used to turn almost any surface into a dynamic video display [3]. Projection mapping, as a visual narrative media that has an eventful messages, can create sensation and also attract the visitors so they can understand the contents of the video. The installation allows the viewer to feel impression of entering a virtual realm. Content of this installation is a visual narrative story about endemic freshwater fish and the environment of Sentani lake. The story has some sequence of events that was set intentionally and will tell according to them [4]. This installation was created by exploring various experimental narrative techniques which is suitable to the story.

2 The Concept of Animated Documentary Installation

Poor growth and development around Sentani Lake cause a negative impact to the lake. This installation aims to convey about the critical condition of the lake through a experimental multimedia design media. The approach is used to bring visitors directly feel about the condition of the lake that is presented in the form of installation with video mapping techniques. The installation design was created through several experimentations related to the narrativity, medium and the built materials. The goal is to create an immersive experience. Immersive experience will give the visitor some signature experience that cannot be felt in the any other place [5]. Installation can bring visitors to interact and feel the state of Sentani lake.

3 Designing the installation

3.1.Exploration about screen and ballons

For get experience from kind of media, we did some observations about screen and ballons before the designing process the installation. A case study of Screen from video called "Ron Arad's Curtain Call" and the baloons observation from video call "Cheryl Pope / Up Against" on youtube.

Figure 1 Screenshot video ""Ron Arad's Curtain Call" [6]

Figure 2 Screenshot video "" Cheryl Pope / Up Against" [7]

3.2.Installation concept

This installation inspired by Sentani Lake environment that became more polluted as explained earlier. Therefore, in this installation, the audiences are expected to feel the condition directly and interact with objects in it. The installation consists of balloons which presented as surface of the water and U-shaped screen to display animation about the state of lake (See Figure 3). Interactions are happened in a form of touching on the screen by two audience simultaneously who will change the visual of the installation. Simultaneous touch imply that something changes must be done together. Interaction will give visitors some sense of feeling about changes in this installation.
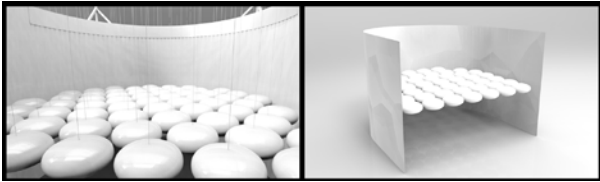
Figure 3 Ballons and U-shaped screen

Visual display was shown by using a exhibited video mapping technique in this installation. This technique used by various artists and advertising to give more dimensional impression, optical illusion , and all static images will seem more real [8]. In the process, the projection mapping are created by blending art, technology, and also any other visual elemen.

4 Description

The animated documentary project, which called as Bhuyaka, are originated from the elements of typography which was added with the tail of a dragon and the effects of water as an visual illusion (See Figure 4). This interpreted an overview of the state of water. The animation title are presented by using modified 'universe'-type font and also adding a number of elements to give an enough impression of contemporary decorative. Turbulence Effect was chosen to impress about closeness of water to life and people activity around Sentani Lake.

Figure 4 Bhuyakha logo

5 Concept

Installation is designed for story-telling purpose and also involve visitors to participate in the story. Visitors is positioned as people who are "inside" the lake, so they can see the incident that was happened on land and in the lake. This installation try to bring the immersive experience to the visitor, therefore the message is presented in visual form, the sound is used as complement.

Figure 5 Pieces of "Bhuyakha" animation

The animation is divided into several structures. First, story notifies the origin and process of the formation of Sentani Lake. The story tells about inhabitants of Papua New Guinea who travel by riding a dragon to seek a new territory to occupy. But, in journey, the dragon became fatigue and fall in the Nusantara Region which called the Sentani Lake at that moment. Right after that, the dragon's body turned into the land. Second, Problems emerged in the story when the number of residents and settlements has increase significantly with no regard to the state of lake until damaging the lake. Third , solution for problems, the installation showed interactive video by involving visitors to change the Sentani Lake that has been wrecked and tainted (See Figure 5).

6 The Technical Aspect of Animated Documentary Installaton "Bhuyakha"
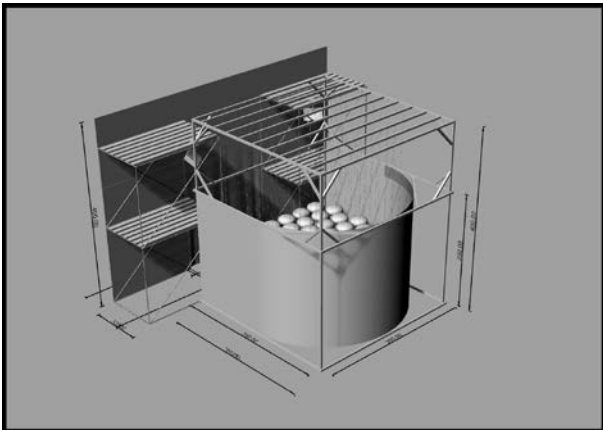

Figure 6 3D Sketch of Animated Documentary Installation of 'Bhuyakha'

Bhuyakha is an animated documentary installation shaped like the letter 'U' when viewed from top with dimensional width 3.5 m , length 3.5 m , and height 4 m as shown by sketches above (See Figure 6). This installation used a hanged-ballon that was organized to form a floating object, then video mapping is projected as a top-view of the lake which interpret as upper-side of water surface and under the water surface which was used to see fish and aquatic herbs. There are several effect that can be visualized, first, top-view of the lake when visitors stand, second, bottom-view or a state of deep the lake when visitors sit in the installation (See Figure 7). These two parts represents two things that is mutually related to each other (See Figure 8). Overall, the installation represent the condition of the Sentani Lake in the form of installation which inflict immersive impression.
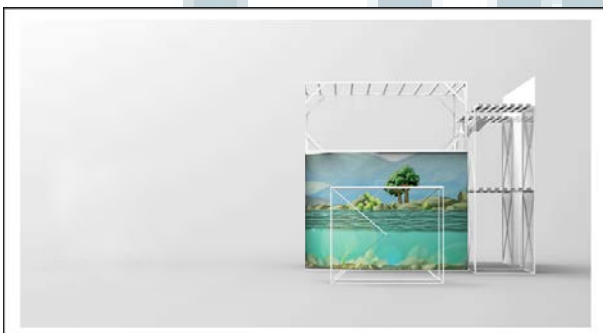

Figure 7 top-view and bottom-view in the installation

Figure 8 3D Sketch of two parts representation

6.1. Two Dimension (2D) visualization

Two Dimension (2D) visualization of fish in animation is made by using software photoshop. Fish animation created using cinema4d software by giving "rigging" in assets 2D. There are 4 kinds of endemic fish that were shown in animation such as, Largetooth Sawfish, Rainbow Fish, Red Rainbow Fish, and Sentani Snakehead Fish. Fish motion are visualized after several study to motion of the fish. This animation lasts five minutes (See Figure 9).
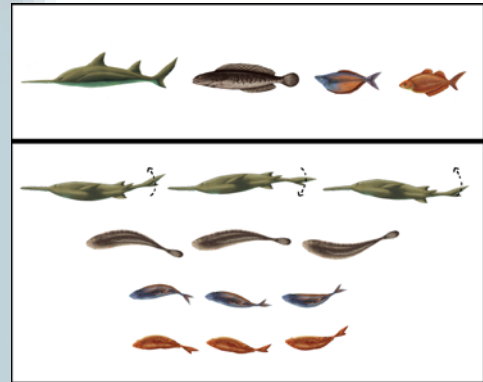

Figure 9 Fish 2d visualization and Fish motion

6.2. Layout System of the Bhuyakha installation

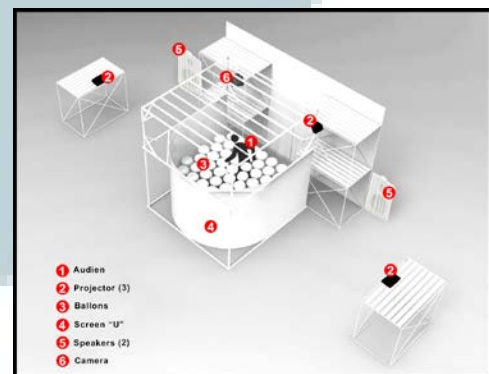The layout system represents the position of audience inside the installation. (See Figure 10).

Figure 10 Layout system of the installation

6.3. System Configuration

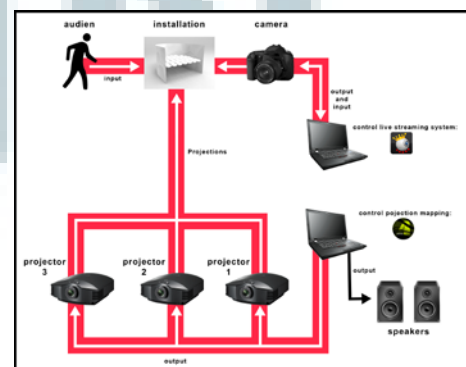A flowchart presenting the overview of the system design is shown below (Figure 11).
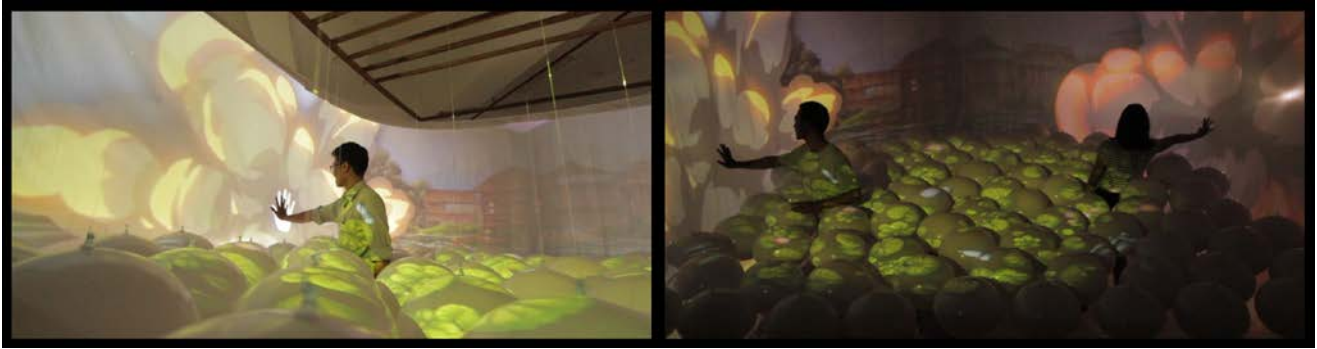

Figure 11 Flowchart System

Figure 12 Interactive scene in this installation

6.4. Interactivity

There are interactive scene in this installation where visitors also participate in the story. When the state of the lake display is changed to being damage, 2 symbols 'hand' will be emerged on the screen so the visitors can simultaneously push the symbol and see a change of visual display in this installation (See Figure 12). Visitors as a figure in the installation will respond to visual change in animation documentary about fish endemic the Sentani lake.

Bhuyakha installation was able to fill the space effectively because visitors can feel lake condition directly so it will give immersive impression. Technical Installation uses projection mapping in projecting visualize animation of endemic fish in the Sentani Lake.

A concern to tell a the story is the basis of the installation development which could deliver content story well. A method of execution, overall, uses the digital to ease process data into the animated and motion graphics.

7 Conclusion

Due to pollution, sedimentation, excess use of lake, lack of maintenance, development that are not going well, and any kind of damage occurring in Sentani Lake, they make population of endemic fish reduced. Research is conducted to solve the problem through experiment by studying literature and analyze about the Sentani Lake so the experimental research results of endemic fish in the lake can be obtained. This installation is a visual narrative with a story that regularly and having laden with the contents of the message is important answer these problems. Projection mapping technique can create sensation to the people who see it in order to attract attention. Installation was made immersive to bring the audiences directly goes into the story. Visitors are given an opportunity to feel directly to the state of lake sentani, with the concept of the two-part condition. Visitors can interact directly and visually changes the condition of this installation. Animated documentary installation about endemic fish of the Sentani Lake are able to convey a message information effectively about the state of the Sentani Lake.

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