



# The Application of Sculpture Art to Environmentally-Based Works of Art by Utilizing Plantation Wood Waste Materials

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**Abstract.** In the era of globalization, science, including art, occupies the same role, namely being able to penetrate synergies with various other sciences. In this case art relates to the natural environment, agriculture and plantations as well as tourism. In the era of the Ministry of Tourism and Creative Economy, the development of Tourism Villages is also rife as one of the advantages in developing the regional economy. The focus of the study of art development in this theme is how art can have added value when combined with the natural environment, plantations and tourism. Thus, the aim of this article is to realize the added value of sculpture in its application to the natural environment of plantations and local parishioners as a form of scientific development in the field of sculpture which is only done in class studios on campus. To realize this goal, the design thinking - practice-led research method is used with several stages of artistic exploration, aesthetic experimentation and analysis of the design of sculpture applications using the media of wood waste left over from logging on plantations. With applied sculptural works of art that have added value related to economic, social and natural environment aspects, as well as tourism.

**Keywords:** Wood Waste Materials, Sculpture Art, Environmentally-Based Works of Art

## 1 Introduction

Sculpture is one of the areas of expertise in the branch of Fine Arts. In the clump of scientific fields, Art is divided into Fine Arts, Performing Arts and Recorded Media Arts. Fine Art itself is divided into three branches, namely Fine Art, Craft and Design. The Fine Arts branch consists of Painting, Sculpture, Printmaking and Ceramic Art. In several tertiary institutions there are differences, for example, Ceramic Art is positioned

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in the area of the Craft branch of science, as well as graphic arts which is in the Design scientific cluster.

In the context of the development of Sculpture in relation to environmental themes which raise natural materials as a medium of expression, this is of course also a topic of discussion, namely the taxonomy of Sculpture which penetrates into the fields of Craft and Landscape. This development activity can be applied and utilized as a work of art that can be used as a regional tourist destination (Tourism Village).

In the era of the creative arts and tourism industries which are increasingly being developed by the government, this is also in line with cultural developments in the Era of society 5.0, namely with the rise of the world of social media in various circles and in various regions in Indonesia. Selegrams are a favorite activity among young people hunting for places and atmosphere for social media content. This environmental-themed public space sculpture is one of the opportunities that has a commodity for celebrity tourists.

This article is part of the results of research on the application of environment-based sculpture, which refers to the research priorities of Indonesia's economic transformation, especially on the Green Economy [1], [2], [3], [4], this research focuses on the creative industry of Art Products sculpture made from nature (wood waste). This topic is important to raise in this research, its relationship with the empowerment of Natural Resources [5], [6], [7], and Human Resources [8], [9], [10], [11]. The potential for raw materials from the natural environment, if managed properly, has economic opportunities that are able to drive high demand for the improvement of the community's economic welfare in a sustainable manner. The research theme of Sculpture made from nature is directly related to global issues related to the environment and the life cycle [12], [13]. In this context, every country has the responsibility to anticipate climate change, and protect nature from disasters. It is time for us to be wiser in protecting nature from disasters such as landslides which are caused by the large number of tree roots left over from plantation logging which are dug up and taken for firewood.

This research, which focuses on increasing the capacity and quality of Sculpture works, is expected to help realize the resilience of the people's creative culture and economy, especially in the Kuningan Regency area.

This research was carried out based on the findings of the following problems: a) The large number of leftover logs and unused felled branches in the community plantation area. The lack of knowledge about managing the potential of natural resources, artistic creativity, management, in processing these natural resources will have an impact on the development of village tourism through works of art based on the natural environment. b) Collaboration has not yet been established between elements of Hexa Helix (government, academics, business people, communities, media, tourism/buyers), especially in implementing Social environmental activism, and Economic environmental activism in handling potential natural materials in their own environment as raw materials for creation of works of art based on the natural environment.

The objectives of this research include: 1) creating environmental sculptural works of art that utilize materials from unused wood waste; 2) designing a sculptural work that is oriented towards improving the quality of the local environment to make it more

useful and have added value; 3) Making environmental sculptures based on natural resource development; Human resource development; Social environmental activism, and Economic-environmental activism through the Hexa Helix **Fig. 1**.



**Fig. 1.** Hexa Helix elements [14],[15]

The Tourists aspect, as a visitor, a user from the community who can carry out various other possible transactions, for example the presence of food and beverage vendors from local community groups because the place is indeed busy with visitors. Referring to the issues, focus, problems and objectives above, the urgency of this research is:

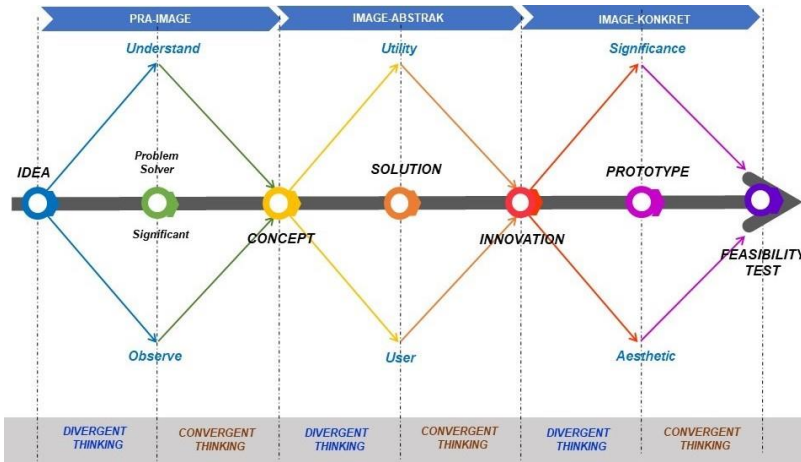
1. Maximum utilization of leftover wood stumps and unused felled branches in plantation areas on village land. Thus, it can increase knowledge about the governance of natural resource potential, artistic creativity, management, in the processing of these natural resources which will have an impact on the development of village tourism through works of art based on the natural environment.
2. Realizing cooperation between villages and parties in handling potential natural materials in their own environment as raw materials for making works of art based on the natural environment.

## 2 Methodology

This research refers to the Action Research and the Practice of Design model [33]. In realizing the research objectives that have been presented in the background above, the applied research - Practice-led Research (PLR) on sculpture with wood waste materials uses the Design thinking method: Art Exploration. In the exploratory stage, the researcher's actions determine the theme of the idea of creation, including the process of thinking, imagining, feeling, responding, and interpreting objects (materials and techniques). Continuing the process of building the concept of creation or creating art. From the results of the creation concept, the process of exploration/experimentation of forms

and work techniques is continued. At the stage of forming a work of art, namely the act of creating a form by combining elements resulting from various explorations/experiments. The technical action of forming a work requires the ability to determine unity and other parameters [34], and follow the guiding principles and rules of environment-based art [35], [36].

This research on the creation and presentation of art is an applied research in the form of creative art production (Interaction of Ethics and Aesthetics in Environmental Art) [37], which aims to produce sculptural works of art based on the environment from the results of the process of creating art by researchers, which will then be presented to the public space. public environment of the village to attract village **Fig. 2.**



**Fig. 2.** Chart of procedures and instruments for the Design Thinking method Applied Research Craft Creative Products Application of natural materials (chart drawn by Hendriyana [34])

Referring to Green Product-based artistic creative products [38], and Environmental Activism [39], [40], and Community participatory ecological art and education [41], [42], the application of technology developed from this research is the art of ecological modeling [43] and The Interaction of Ethics and Aesthetics in Environmental Art [44], which are adapted to the characteristics of natural materials (plantation cut wood waste) and existing areas/places as a model of a tourist village.

### 3 Result and Discussion

The results of this applied research are (1) The realization of environmental sculptural works of art that utilize materials from wood waste from remaining logging; (2) There is added value from one of the places in Kuningan Village, namely from the form of a plantation area and paddy fields into a recreation area; (3) Establishment of collaboration between several academic elements, government, community, local media, business actors through the Hexa Helix network with the activities of research partners that

intersect with natural resource development, human resource development, social environmental activism, and Economic-environmental activism .

From the experience of the process of implementing applied research in this field, it can be said that there is an awareness of the need for concern in maintaining a balance with nature. Whether that's by replanting forests that were deforested as a result of being cut down, or by making reasonable and not excessive use of plantation forests, for example, communities on the outskirts of plantation forests by collecting wood branches around the forest without cutting down existing trees. The use of these branches to be processed becomes more valuable, namely by making them works of environmental sculpture.

The phenomenon of the large number of logs left over from felled wood and the need to maintain a balance with nature has become one of the media to raise awareness of the importance of preserving the environment. The moral messages conveyed through this work are expected to contribute ideas in preserving the environment both directly and indirectly.

The issue of the environment as the theme of their work has actually been carried out by artists [18], such as the exhibition held at the Cemeti gallery which was attended by several artists. Alya Swastika as the curator of the Cemeti art house at the opening of the "Bocor" exhibition explained, "This exhibition is intended to convey environmental messages, we offer fellow artists to work on environmental issues" [19], [20].

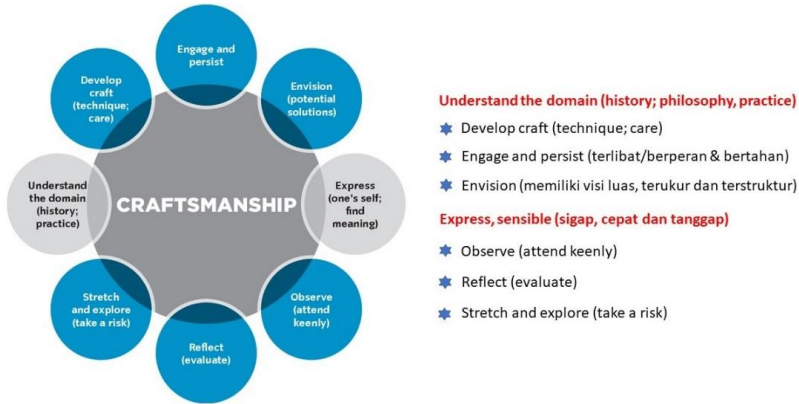
In terms of making works with environmental issues, researchers try to see the potential for raw materials that exist in every corner of the plantation forest land [21], how works with the theme of environmental issues can directly intersect with the main actors in environmental activities, both policy makers, villages, managers HPH and the general public [22]. One of these efforts is by presenting works that can directly touch and intersect with the community, namely being made in an environment where wood is cut down, besides that works can also become a tourist attraction for villages and can present a trading transaction system from culinary traders from the local community [23], thus social change based on art, tourism and the economy from this research can be realized [24], [25]. The economic aspect is expected to help develop IKM and start-up businesses that are motivated by the surrounding community [26], [27] [28], [29].

The following is the theory of Practice-led research on Environmental Sculpture Craft Products which is a framework of reference in the process in the field. Several elements of consideration that can be used as a guide in operational steps in the field are as **Fig. 3**.

#### **4 Discussions (Ideas of Design Concept)**

The stages in the process of making tree branches are to make several sketches of the idea of the shape in the form of a three-dimensional gunungan and oval shape, as well as compositional sketches of the gunungan and oval shapes. Furthermore, from the three-dimensional mountain and oval sketches, working drawings are made in the form of front view, side view, and three-dimensional framework/construction drawings to

strengthen the inner frame of the shape with dimensions of the width and height of the shape adjusted to the comparison to humans.



**Fig. 3.** Theory Chart of Design Thinking: Craft Preneurship IKM [30]

Before making an actual work (1:1 scale), a miniature or mockup of the work is made. Making mock-ups of works to simplify and serve as a form standard in producing works, in addition to benchmarking working drawings, visible drawings, in the process of making works of large size or works with a 1: 1 scale. the location between units of the three-dimensional shape created. The work mockup is made with a scale of 1:10, so that the enlargement of the work form will be precise and measurable according to the working drawings.

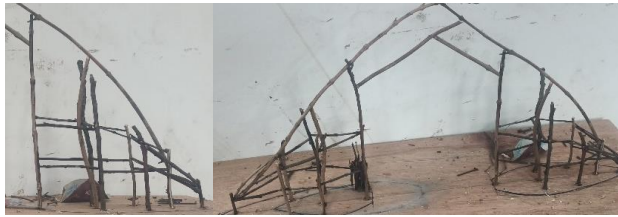
The production stage begins with collecting as many branches as possible from the remaining felled trees, then selecting the branches to be used for the work, then cleaning the branches by brushing them. In the process of forming, the benchmarks used are work mockups, working drawings, and design sketches that have been made before. In the form of the gunungan, the steps are started by making the inner construction of logs with a diameter of about 8 cm, and the length varies from 1 meter to 2 meters. Construction is made with benchmarks and sizes from the visible drawings and working drawings. After the construction is finished, then the small sticks are attached in a row and on top of one another, so that the branches cover the entire framework of the construction and form a mountain. For the oval shape, the first step is to make a box construction with dimensions and standards from the visible drawing and working drawings, after that the box construction is covered with branches on each side. After each side is filled with twigs, then the sides and back sides are stacked with longer twigs and tied at the meeting point of the top of the twigs, so that the twigs form an oval shape. In the oval shape on the inside of the top side of the box, it is made horizontally and arranged in a row with an arrangement of branches, which can serve as a seat.

The next stage is the finishing process, this process is the stage of tidying up the shape of the protruding branches, as well as branches that are too stacked, also in this stage the coating of wood varnish with resin material is carried out to protect the wood

from pests and weather, so that the wood is strong enough for some time when placed in the open exposed to rain or hot sun. The process is described in **Fig. 4** to **Fig. 9**.



**Fig. 4.** The branches to be used for the work are selected and cleaned by brushing.



**Fig. 5.** The inner construction is made of logs with a diameter of about 8 cm, and the length varies from 1 meter to 2 meters.



**Fig. 6.** Attachment of small twigs arranged in a row and overlapping.



**Fig. 7.** The box construction is covered with branches on each side. The top of the branch is made together



**Fig. 8.** The sides in the oval shape are made horizontally and arranged in a row with an arrangement of branches, which can serve as a seat



**Fig. 9.** The composition of the arrangement of mountains and oval shapes from branches

The process of making raw materials manually really needs a touch of mechanical technology that can speed up production and improve proven production quality, so that production targets in meeting the market can be predicted in terms of production capacity. The application of technology in the context of this research is not an investment in procuring/buying production machines, but how to design production support equipment that can simplify, speed up, format the same size precision when mass-produced based on the characteristics of materials, techniques and design forms. By presenting the application of appropriate technology that has an impact on the comfort of the work process for artisans, it is hoped that it can also provide motivation for the regeneration of local artisans among young people, so that the number of skilled workers, experts in regional handicraft products can continue to grow and be sustainable.

Environmentally-based works of art utilizing plantation wood waste materials are part of the tourism industry's products. The products of the tourism industry are all goods and services needed by tourists from leaving until returning to their residence. This tourism product is formed of the following elements:

1. Tourist objects and attractions in tourist destinations are key factors in attracting tourists to visit. The potential for environmental-based works of art is very promising if they are used as photo tourism objects with gramable content and relevant to the current conditions where some people switch professions to become social media celebrities.
2. Facilities provided at tourist spots as supporting and complementary facilities for tourism. In addition to the main products offered in the tourism industry, companion products will emerge in addition to the main products such as creating thematic



cafes, tourist lodges, bungalows within tourist attractions, and travel agents. By combining the artwork of wood waste processing, it makes the atmosphere more aesthetic and adds to its own experiential prestige in traveling.

3. Accessibility or affordability that connects the origin of tourists with tourist destinations at the destination to tourism objects.

## 5 Conclusion

The development of a sub-sector taxonomy of sculpture can be carried out by considering external aspects such as material context, natural environment and socio-culture. In relation to the socio-cultural aspect, the embodiment of this environment-based Sculpture accommodates the cultural trend of digital tourism (selegram), namely by providing an attractive place that can be used as a selegram destination. The embodiment of this environmental sculpture requires the involvement of academic elements, local government partners, business actors, communities, media and tourism. Thus, in an aesthetic context, the concept of creating environmental sculptural works involves elements that intersect with natural resource development; Human resource development; Social environmental activism, and Economic-environmental activism.

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