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Interreligious and Intercultural Studies

UNIVERSITAS HINDU INDONESIA, 15 FEBRUARY 2020 - DENPASAR, BALI

Community, Ecology and Religion: Interdisciplinary and Civic Engagements towards Sustainable Living



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Interreligious and Intercultural Studies
(ICIIS)

COMMUNITY, ECOLOGY, AND RELIGION
Interdisciplinary and civic engagement towards
sustainable living

15 February, 2020
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Editor:

I Ketut Ardhana, Dicky Sofjan, Made Adi Widyatmika

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4th International Conference of Interreligious and Intercultural Studies (ICIIS)

Community, Ecology, and Religion: Interdisciplinary and Civic Engagement towards Sustainable Living

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Messages from the Rector of Universitas Hindu Indonesia



Om swastyastu,

Welcome to Universitas Hindu Indonesia

It is a great pleasure to learn that the Universitas Hindu Indonesia (UNHI), Denpasar, Bali organize the 4th International Conference on Interreligious and Intercultural Studies “Community, Ecology, and Religion: Interdisciplinary and civic engagement towards sustainable living”. With the involvement of scholars and researchers from several countries, the conference expected to become an academic forum that addresses sustainable living.

Currently, in the modern world, every country faces various forms of pollutions that come with the advancement of technology, leading to the degradation of the environment. Indonesia, as well as other countries, needs to anticipate such threats, either by empowering the local wisdom or by using friendly energy. Indeed, the effort to minimize the pollution need any support from any parties. The Governor Regulation number 97 the Year 2018 for plastic uses limitation shows the government of Bali commitment to environmental preservation. Furthermore, studies of various disciplines are needed to support the implementation of this policy.

Hopefully, the conference becomes a medium for a global discussion and dialogue between formal institutions and local customary institutions to seek common ground for the contribution to a sustainable life.

Sincere gratitude to the ICRS and LIPI whom UNHI is collaborating with to make the proceeding book of conference possible. My best wishes for successful academics.

Om santih, santih, santih, Om

I Made Damriyasa
Rector of Universitas Hindu Indonesia

Messages from the Chair of Yayasan Pendidikan Widya Kerthi (YPWK)



Om swastyastu,

This gives me an immense pleasure to learn that Universitas Hindu Indonesia (UNHI), Denpasar, Bali organize an international conference on interreligious and intercultural studies, with great theme “Community, ecology, and religion: Interdisciplinary and civic engagement towards sustainable living.” With the academic involvement and support of ICRS and LIPI, this conference in Bali would open a new vista of cooperation among worldwide scholars with common issues in a sustainable environment.

Multiple concerns regarding environmental sustainability have become the main topic of conversation both in academic forums and in non-formal forums. The most prevalent issues include global warming, deforestation, renewable energy adoption, animal extinction and overfishing, and waste management. These problems require holistic and integrated solutions and strategies. Hence, the role of scholars and researchers from various fields of science expected to produce the latest solutions without leaving the traditional aspects.

Hopefully, this conference, which has collected more than 70 articles of research results and studies of scholars from several countries, can contribute to efforts to create a sustainable life. Thank you, and enjoy the 4th ICIIS.

Om santih, santih, santih, Om

I Ketut Ardhana
Chair of YPWK

Parisadha Hindhu Dharma Indonesia (PHDI) Chairman's Address



Allow me to convey my greetings to all of you in Balinese way
"Om swastyastu"

It is a great honor to be among scholars in this valuable forum, the 4th International Conference of Interreligious and Intercultural Studies, with its excellent theme "Community, Ecology, and Religion: Interdisciplinary and civic engagement towards sustainable living".

Balinese ancestors have produced a wealth of local knowledge in maintaining their relationship with the natural environment. They saw themselves, nature, and the relationship between the two from a religious perspective and a spiritual perspective. Harmony and balance between humans, nature, and the supernatural world consider as the essential principle or value in the cosmic order. This understanding influences their behavior, such as respect and maintaining good relations. The good relationship, that protects from harmful behavior, obeyed and maintained with various religious rites and ceremonies. All such knowledge, beliefs, understandings, or insights, as well as ethics, guide the behavior of Balinese people in the life of the ecological community. The concept of harmonious living among Balinese known as the Tri Hita Karana concept.

The advance of technology seems to change the behavior of Balinese, but somehow they still kept their harmonious relationship to God as well as to nature. Perhaps, one of the reasons is that the Balinese religiosity has been handed down from generation to generation in a beautiful way, through literature or other works of art. This elegant way makes the teachings of the ancestors inherent in the souls of the Balinese. Indeed, it is very interesting to be the object of academic study.

Through such scientific forums, we hope that traditional Balinese knowledge will be more widely exposed, even though many foreign scholars have studied Bali from its cultural aspects. Of course, it would be the boast of us if the noble teachings of Balinese ancestors could be known more widely, furthermore, applied for the good of humanity.

I believe that your participation in the conference will be an excellent opportunity for the local scholar, researcher, and culture holders to discuss various challenges and objectives regarding sustainable living. Hopefully, these academic forums could give more value to the local genius and local knowledge. Have a fruitful discussion to all of you. Thank you

"Om santih, santih, santih, Om"

Wisnu Bawa Tenaya
Chair of PHDI

CONTENT

Messages from the Rector of Universitas Hindu Indonesia	iii
Messages from the Chair of Yayasan Pendidikan Widya Kerthi (YPWK).....	iv
Parisadha Hindhu Dharma Indonesia (PHDI) Chairman's Address	v
CONTENT	vi
Environment Influences on Child Development	1
<i>Ida Ayu Gde Yadnyawati</i>	
Adat, Religion, and Globalisation: the Sustainable Living in Bali	7
<i>I Ketut Ardhana</i>	
Indigenous Religions and It Concerning the Sustainability of Nature.....	12
<i>Muhammad Saifullah Rohmana</i>	
Visual Cartoon "De Romon" as an Awareness Effort for the Importance of a Clean Environment. 17	
<i>I Wayan Swandi, Arya Pageh Wibawa, I Nyoman Larry Julianto</i>	
Religion and Youths in Sustainable City Development	25
<i>Dwi Any Marsiyanti</i>	
Genealogy Pura Agung Surya Bhuvana Jayapura, Papua	31
<i>I Wayan Rai S.¹, I Gusti Made Sunartha², Ida Ayu Made Purnamaningsih³, Ni Made Ruastiti⁴, Yunus Wafom⁵</i>	
Hindu Ecological Conception, from Ritual to Environmental.....	54
<i>I Gusti Ketut Widana, I Gusti Ayu Suasthi</i>	
Mainstreaming "Green Deen": Teaching Religion and Ecology to Religious Extension Officers in Indonesia	65
<i>Muhammad Wildan</i>	
The Ecological Crisis and Indonesian Muslim Organization Responses	70
<i>Indria Hartika Rukmana</i>	
Application of Subak Sengempel System to Become Ecotourism Based on Tri Hita Karana (Case in Subak Sengempel, Abiansemal District, Badung Regency	78
<i>Putu Fajar Kartika Lestari^{a,*}, Ni Putu Anglila Amaral^b</i>	
Community Participation in The Development of Tourism Village and Their Impact on The Community's Economy	85
<i>Dewa Putu Oka Prasiasa^{a,1,*}, Dewa Ayu Diyah Sri Widari^{b,2}</i>	
Effectiveness of Galuhayu Incense <i>Kluwih Flower (Artocarpus camansi)</i> , <i>Pandan Wangi (Pandanus amaryllifolius)</i> , Wood Powder as an Insecticide to Minimize <i>Aedes aegypti</i> Mosquito.....	90
<i>Ni Luh Gede Sudaryati^a, I Made Dwi Mertha Adnyana^{b,*}, I Wayan Suarda^c</i>	
Plastic Waste Regulation: Principles of Environmental Conservation in Ancient Balinese Texts and Their Adoption in the Awig-Awig Rules of Adat Villages	99

<i>Dewa Krisna Prasada^{a,1,*}, Ida Bagus Arya Lawa Manuaba^{b,2}</i>	
Conservation of The Endangered Amerta Jati Orchid (<i>Vanda tricolor</i>) in Nature Tourist Park of Buyan Tamblingan Bali	109
<i>I Gusti Ayu Diah Yuniti^{a,1}, Jhon Hardy Purba^{b,2}, Nanang Sasmita^{c,3*}, Liris Lis Komara^{c,4}</i>	
The Relationship between Yoga Holistic Healing Exercise with Level of Anxiety and Quality of Sleep in Elderly in the Working Area of Community Health Center (CHC) I of East Denpasar, Bali	117
<i>Govinda Vittala^{a,1*}, I N. A. Pradnya Wiguna^{b,2}, Zulfikar H. Wada^{a,1}</i>	
The Impact of Inclusive Environment on the Education of Special Needs Children	123
<i>Made Kerta Adhi^{a,1,*}, Anak Agung Purwa Antara^{b,2}, Ni Putu Meri Dewi Pendit^{c,3}</i>	
Megati Village Development Strategy as a Cultural-Based Agrotourism in Bali and Creating Sustainable Agriculture	130
<i>Ni Putu Sukanteri^{1,*}, Pande Komang Suparyana², I Gusti Ayu Diah Yuniti³</i>	
Quality Analysis of Service to the Level of Tourist Satisfaction in Water Development Object of Tegenungan District in Gianyar District Bali Province	136
<i>Ida Ayu Komang Juniasih¹, Wiryawan Suputra Gumi², Ida Bagus Radendra Suastama³, Falerino⁴</i>	
Subak: Violence in Agricultural Practise In Bali	141
<i>Euis Dewi Yuliana, I Made Sumarya, I Wayan Suija, Ni Putu Suwardani</i>	
The Dynamics of Chinese Ethnic in the Colonial History in Bali	150
<i>Sulandjari</i>	
Effect of 1500 m Run Training on Maximum Oxygen Volume (VO ₂ max)	159
<i>I Putu Astrawan</i>	
Sustainability of Bali Traditional Residential Architectural Practices in the Perspective of Bourdieu Capital Concept	167
<i>I Putu Gede Suyoga</i>	
The Relationship between Body Posture Against Dynamic Balance and Fall Risk in Elderly	172
<i>I Nyoman Agus Pradnya Wiguna</i>	
Community Perceptions and Behavior in Waste Management at Peguyangan Sub-district	177
<i>I Putu Sudiartawan^{1*}; Ni Ketut Ayu Juliasih²</i>	
Revitalization Kendran Village, Gianyar Towards Cultural Tourism Village	185
<i>I Kadek Pranajaya</i>	
The Typology of Banjar Hall in Legian Tourism Area, Kuta District, Badung Regency	191
<i>Cokorda Putra, AAA Made Cahaya Wardani, IB Wirahaji</i>	
Environmental Education Practices: Project-Based Learning through Recycling	204
<i>Gusti Ayu Dewi Setiawati, Desak Nyoman Budiningsih, Dewa Ayu Puspawati</i>	
Legal Pluralism in Forest Protection (A Comparative Perspective in the Bali Aga Customary Village, Bali Apanaga Customary Village and The Bali Anyar Customary in Bali)	208
<i>I Putu Sastra Wibawa</i>	

Useful Plant Species in Bukit Kangin Forest, Tenganan Pegringsingan Village, Karangasem: Analysis of Composition, Mapping, Diversity, and Utilization Based on The Socio Cultural	216
<i>Nyoman Wijana, I Gusti Agung Nyoman Setiawan</i>	
Eco-tourism Potential in Batik Laweyan Village	234
<i>Bambang Tri Wardoyo^a, Farid Abdullah^b</i>	
Ornament Commodification of <i>Tatah Bade</i> in The <i>Ngaben</i> Ceremony in Denpasar	252
<i>I Kadek Sumadiyasa</i>	
Harmonization of Balinese Community in <i>Bale Banjar</i> Environment Reactualized Function.....	265
<i>Made Novia Indriani, Made Adi Widyatmika, I Wayan Artana</i>	
<i>Vimâna</i> 's gravity-defying airship: Non-places, aeromobility and environmental concern in Baladeva Comics.....	281
<i>Leonard Chrysostomos Epafra</i>	
FATHER N. SHADEG.SVD: Local Figure and His Perceptions on the Balinese Culture.....	286
<i>Fransiska Dewi Setiowati Sunaryo,S.S,M.Hum</i>	
Urgency of Desa Adat Stipulation as A Form of Recognition of Customary Law Community Unit	294
<i>Gede Marhaendra Wija Atmaja</i>	
Utilization of Three Species <i>Ocimum</i> in Traditional Balinese Medicine, <i>Usadha Bali</i>	308
<i>I Nyoman Arsana, Anak Agung Komang Suardana</i>	
T-Shirt Design of the First Name Bali Ethnic: A Representation of Local Identity Images	320
<i>Gede Pasek Putra Adnyana Yasa</i>	
Body and Creation: Cosmic Relation in the Visual Art	325
<i>Dewa Gede Purwita*, I Gusti Ayu Nila Wijayanti</i>	
Sustaining Biocultural Diversity Through Writing: The Case of Lakoat.Kujawas	329
<i>Harriet Crisp</i>	

Environment Influences on Child Development

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ABSTRACT

The environment is a part of a child's life. In this environment the child lives and interacts in the chain of life called the ecosystem. The interdependence between the biotic and abiotic environment is unavoidable. That is the natural law that must be faced by children as living things classified as biotic groups. During the life of the child can not avoid themselves from the natural environment and socio-cultural environment. The interaction of these two different environments always takes place in filling children's lives. Both have a significant influence on the growth and development of children. The living environment is the environment in which children live. Environmental pollution is disastrous for children who live in it. Polluted air is pollution that can interfere with breathing. The air is too cold to cause children to cold. The temperature is too hot, causing children to overheat, musty, and not comfortable living in it. Therefore, the state of temperature and humidity affects the child's growth and development. Humans are homo socius creatures. Who tend to live with each other. Living in togetherness and mutual need will give birth to social interactions. Give and take each other is an activity that is always there in social life. What kind of environment influences children's development? In this paper will be discussed further the influence of the environment on children's development.

Keywords: influence, environment, child development

I. Introduction

Parents are the primary and first educators for their children. Why are parents (father and mother) called primary and first educators? Because it is the parents who caused the child to exist and after the child is born into the world, the first person he meets with is the parent as well. And it is the parents who will meet many of their children in daily life. " Thus the role of parents really determines the education of their children at home "(Sobry Sutikno, 2006: 21).

Children are part of a family that is socially and psychologically inseparable from the guidance and education of parents, the community, and educational institutions. The existence of coaching and education of children is an effort to shape children's creativity through both

science and skills. Parents in an atmosphere of family life must strive to create a climate that is conducive to the growth of the personality and creativity of children. (Bakhrul Khair Amal, in Sobry Sutikno, 2006: 22). Therefore, children's creativity can not be separated from parenting in the sense that the child's creativity is closely related to the parenting provided by parents.

Parents also play a role in fixing children's mental hygiene because it is the main prerequisite for the formation of a solid personality. In the next stage, this personality is the capital of children's adaptation to their environment which certainly has an impact on the welfare of the family as a whole.

The environment is a part of a child's life. In this environment the child lives and interacts in the chain of life called the ecosystem. The interdependence between the biotic and abiotic environment is unavoidable. That is the natural law that must be faced by children as living things classified as biotic groups.

During the life of the child can not avoid themselves from the natural environment and socio-cultural environment. The interaction of these two different environments always takes place in filling children's lives. Both have significant influence on children's growth and development.

The environment is the environment where children live to live and try in it. (Syaiful Bahri Djamarah, 2002: 143). Environmental pollution is disastrous for children who live in it. Polluted air is pollution that can interfere with breathing. The air is too cold to cause children to cold. The temperature is too hot, causing children to overheat, musty, and not comfortable living in it. Therefore, the state of temperature and humidity affects the child's growth and development.

A good home environment is a home environment that is decorated with plants/trees that are well maintained. Living pharmacies are grouped well and neatly. Ornamental plants are arranged to increase the coolness. A cool house will cause freshness to the child and the child will feel at home to stay at home. That's the desired home environment. Not an arid, stuffy, barren and prolonged heat environment. Therefore, housing construction should be environmentally friendly, not hostile to the environment.

Humans are homo socius creatures. Who tend to live with each other. Living in togetherness and mutual need will give birth to social interactions. Give and take each other is an activity that is always there in social life. Talking, joking, giving advice, and working together are social interactions.

How do parents interact with children in preserving their environment. This is interesting to discuss, the aim is to find out parenting parents in helping children preserve the environment.

II. Discussion

The family has an autonomous right to carry out education. Inevitably, expertise or not parents are naturally obliged to carry out education for their children. For children, the family is the place/nature first known and is the first institution he receives education. (Abu Ahmadi and Nur Uhbiyanti, 2001: 172). The family not only functions as a successor to the descendants, but more than that the family has social, economic, educational and cultural functions. The family as a biogenetic entity functions to maintain the continuity of offspring (reproduction) from one generation to the next. As a social entity, the family consists of individual family members who interact with and interact with one another according to their respective status.

As an economic unity, the family is a unit that works together to manage the needs of its members, besides that the family is also the source of education first and foremost, where all human knowledge and intelligence is formed for the first time. The family is a container for the formation of values, both social values, cultural values and mentality. Education

in the family is a means to form skilled and productive children so that in turn can accelerate the welfare of society. Humans are very instrumental in preserving the potential of the environment. Therefore children need to be equipped to preserve the environment through environmental education, especially environmental ethics. Environmental education can be carried out with a monolithic or integrative approach. In the implementation of environmental education the main need to be taught is environmental awareness. Lack of environmental awareness causes pollution (water, air, and land), decreased biodiversity and food availability, and decreased availability of natural resources. The importance of the environment for children's lives :

1. Understanding of the environment.

Environment in a general sense, means the situation around us. In the field of education, the meaning of the environment is very broad, that is, everything outside the child, in the universe. This environment surrounds humans from the moment humans are born until their death. Between the environment and humans there is a mutual influence, meaning that the environment affects humans, and vice versa, humans also affect the surrounding environment.

2. Various Environments.

Actually humans are faced with the environment since it is still a fetus in the mother's womb. The environment at that time was in the form of liquid which was the juice for prospective human beings, in addition, the fetus was also influenced by

the mother's psycho-physical condition. Since children are born in the world, children are directly confronted with the surrounding environment. The environment faced by children, in essence can be distinguished/classified as follows:

a. Inside Environment

In the form of liquid that seeps into the human body from food and drinks, which can cause fluid in body tissues. So as a result of lack of fluid, allows individuals to feel hungry, thirsty, sick, and tired.

b. Physical Environment

Is the natural environment around children, which includes types of plants, animals, soil conditions, homes, types of food, gas objects, liquid objects, and also solid objects.

c. Cultural Environment.

Is a tangible environment: literature, art, science, customs, and others.

In the family, we will find books: reading books, science books, and maybe we can also find objects of art, such as wall hangings in the form of shadow puppets, woven cloths, plaits, all of which can affect the soul of the child, either because of seeing the adults around him make use of the objects, or from the objects themselves the influence is received by the child.

d. Social Environment

This environment includes the form of the relationship between humans with each other, so it is often also called the environment in the form of humans and their relationship with or between humans around children. These include: attitudes or behavior between people, the

behavior of fathers, mothers, other family members, neighbors, friends, and others. The family is a miniature of the community and its life, so the introduction of family life more or less will certainly give a color to the child's view of community life. And also the style of social life in the family will also determine or influence the child's self development.

e. Spiritual Environment.

Is the environment in the form of religion, beliefs held by the surrounding community, and ideas that emerge in the community where children live.

3. The importance of the environment for children.

The influence that a child receives from his outside world or from his environment, some is imposed on him intentionally, and some is obtained by a child accidentally from outside parties. Educators influence intentionally and with good intentions, with specific intentions. Teachers intentionally influence their students, parents deliberately influence their biological children, community leaders also intentionally influence their community members.

Intentionally affecting children in various ways in the form of effort, leading, guiding, is the same as educating. The act of educators is to educate intentionally (conscious effort).

The influence a child gets without accidentally giving it, is also education for the child; the outside world unintentionally provides education. The influence of children from the

surrounding environment, can be good or bad.

The effect of this accidental education is also great for children's development. Given the vast amount of time, place, and also the possibility of children getting education/influence unintentionally, which can reduce or even damage the good effects of deliberate education, it is the duty of educators, parents, community leaders to try to prepare and provide the best possible environment for children, so that the possibility of bad influence can be prevented or reduced as little as possible.

If we can regulate the environment, we influence it in such a way, the environment will be able to become friends and who secretly help parents, educators, in carrying out education with the desired results. Conversely, if our environment is ignored, so the situation is so bad, it will also have a bad influence on children's development. We can make the environment a source of educational tools and educational factors, which are needed by parents or educators for the implementation of education.

Human domination of the environment (man ecological dominant) does not occur equally and evenly on the surface of the earth, because it is also influenced by how far the human group has been able to develop culture in mastering science and technology. Therefore, in addition to the concept of "man's ecological dominance", the concept of "culturally defined resources" applies (Gabler, 1966: 13-16).

Whether or not the potential of the environment is able to guarantee human

life as a resource, is strongly influenced by the cultural ability of the human group to realize the potential of environmental resources into wealth that guarantees welfare. Overall, humanity is indeed more dominant towards its environment because of the development of culture in the form of science and technology. But for the group of people who are still underdeveloped, in the sense of being backward in developing a culture in the form of mastery of science and technology, they are still very dependent on nature rather than being able to dominate it.

For people who have developed science and technology well, not only able to utilize environmental resources in their own country, natural resources in other countries can also be utilized for their welfare. They can be said to be "able to host other people's houses". While the people who have not been able to develop science and technology adequately, the potential of environmental resources in their own country, have not been able to be utilized for their welfare.

This is like "starved rats on a pile of rice". If people who have advanced mastery of science and technology can be expressed as "masters in other people's homes", then they are still low mastery of science and technology can be said as "slaves in their own homes". In managing the potential of environmental resources, the latter group of people only becomes laborers or employees, while foreigners who have high mastery of science and technology, become bosses or employers.

Here it can be stated that "the competitive ability of Human Resources" means more than "the comparative ability of natural

resources". The question arises in each of us "how to improve the comparative ability of Human Resources?" Herein lies the position, function, and role of education in the broadest sense. In scientific concepts and contexts, science and technology is neutral (value free). However, in its use for the welfare of the nation and state, even more broadly for the welfare of mankind, inevitably it must take sides. In this case, it must stand for the welfare, security and peace of mankind in general, not in favor of war, destruction of life, or destruction of the environment of life as a whole. Therefore, science and technology is not everything.

Some are all-powerful. namely God Almighty. Thus, mastery of science and technology must be based on IMTAK (faith and piety), which is the control of greed in utilizing environmental/nddd. With IMTAK which is the foundation of life. we are able to give thanks for the blessings provided by God the Creator for humans. Groups of people who are "technologically optimistic" have a tendency to see the technology as much as possible. As long as the technology is advancing, anything can be done. They seem to deify technology.

Though technology it self is one aspect of culture developed by humans. Without human. technology doesn't exist either. They seem to associate technology with God. Indeed, technology or more comprehensive science and technology, can engineer the natural environment, and it can cultivate the natural environment. Only God can create this universe. The resource, wealth, and all the energy that

exists in this realm of rava is created and belongs to God Almighty.

Habitat with all the completeness and support for life. especially the life of humanity. created by Him. Domination of the environment. ' only limited to manipulating and utilizing it. It was also colored by the ability to master the science and technology that characterizes the current progress. We recognize that the progress of science and technology now. so fast when compared with its development in the past. Mastery of nature is not an arena of greed.

Rather it is a gift that must be managed in its rational use. Therefore, human domination of the environment, is not without ethics and responsibility, but is based on IMTAK which is the control of greed. The natural environment with all its challenges has a RTA law governing harmony, balance, and sustainability.

It must be lived and realized by humans. The principles and concepts of ecolhogy which are the basis of harmony, balance, must be input and a stimulus for the development and application of science and technology in utilizing environmental resources for the welfare of humanity itself, as well as for the welfare of people's lives.

III. Conclusions

- 1) Children are part of a family that is socially and psychologically inseparable from coaching and education of parents, the community, and Educational institutions.
- 2) The family is a miniature of the community and its life, so the

introduction a little or a lot of family life will definitely give color to the views children towards community life. And also the style of social life inside the family will also determine or influence the child's self development.

- 3) Between the environment and humans there is mutual influence, meaning the environment affect humans, and vice versa, humans also affect the environment
- 4) Influences that children receive from the outside world or from their environment, some are imposed on him intentionally, and some children have accidentally obtained.

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Adat, Religion, and Globalisation: the Sustainable Living in Bali

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Abstract

Adat or customary law is an important aspect of the Balinese society. From such a long time, adat is viewed as a significant aspect before the arrival of Hindu religion in Bali. Both the adat and Hindu religion cannot be separated from one to each other, in which these have created the Bali Hindu culture until at the present time. However, the coming of the globalisation it seems that these influences will give some impacts regarding on how the sustainable Bali culture can be maintained for the future. Viewed from the local adat, both in terms of awig-awig (local regulation) or perarem (additional local regulations), there are no fixed regulations regarding to the concepts of clean and green. Nevertheless, the Balinese have the concept of Tri Hita Karana, the balance and harmony between God and man, man and man, and man and nature. This concept is not easy to be implemented, so the role of the local government is very significant in introducing the concept of clean and green. This concept is important due to the rapid Globalisation process, and the Balinese have attempted to adapt with the concept of clean and green (skala) inline with the concept of suci or holy (niskala). This paper is to discuss on how the Balinese have faced some changes regarding to this transformation process. The main questions are firstly, how the Balinese view the concept of suci or holy which is different from the concept of bersih or clean? Secondly, what kinds of efforts that have been done based on the existing regulations? Thirdly, how the Balinese should preserve and maintain the sustainable development in Bali? By analyzing these issues, it is expected to give a better understanding on how the role of adat and religion can provide a significant contribution to the concept of sustainable development in Bali.

Keywords: adat, religion, skala, niskala, globalisation and Bali.

I. Introduction

The Balinese have actually the concept of balance and harmony, called the Tri Hita Karana, that is the balance between man and God, man and man, and man with its nature. The concept of Tri Hita Karana is strongly related to the concept of cosmology, in which the Balinese should maintain the relationship between kaja (north) and kelod (south), kangin (east) and west (kauh), good and bad, skala (seen) and niskala (unseen) (Cf. Staab, 1997). All of these concepts can be found in the local Balinese knowledge as we can see in the Balinese manuscripts such as inscription, (lontars) palm leaves and newly published Balinese books.

All of these old Balinese manuscripts are, for instance, considered as the Balinese heritages that can be found also in the Bali museum in Denpasar and Gedong Kirtya in Singaraja. From the perspective of the Balinese traditional architecture, the Balinese house is classified into three parts such as the holy space (utama mandala), living space (madya mandala) and nista mandala.

The holy space includes the pemerajan (praying space), the madya mandala refers to where the people live, and the nista mandala includes the cemetery, the sea, and so forth. from this description, the Balinese have already their-own concepts on good and bad, holy and

unholy, mountain and sea, etc (cf. Stuart Fox).

II. Problems

Indeed, the Balinese have the concepts of *rwabhineda* (good and bad), black and white, left and right. However, how these concepts should be put in terms of balance and harmony is still problematic. These concepts can be related also to the concepts of holy or sacred (*suci* or *bersih*) and not holy or unsacred (*kotor*).

Previously, in some parts the Balinese in certain places in the villages cannot clearly determine the concepts of holy or sacred since these concepts embedded also with the concepts of *kotor*. For instance, after certain ritual and religious activities many rubbish had put nearby the location of the temple. This of course will give certain questions particularly for tourists visiting to Bali.

In relation to the above issue, there are some questions to be discussed in this paper namely: Firstly, the main questions are firstly, how the Balinese view the concept of *suci* or holy which is different from the concept of *bersih* or clean? Secondly, what kinds of efforts that have been done based on the existing regulations? Thirdly, how the Balinese should preserve and maintain the sustainable development in Bali? By analyzing these issues, it is expected to give a better understanding on how the role of *adat* and religion can provide a significant contribution to the concept of sustainable development in Bali.

III. The Balinese Culture and Best Practices

The architecture of the Balinese house is unique. The Balinese have their concepts of *Tri Angga*, based on the law of *Kosala* and *Kosali*. They have their own concepts where they should put certain shrines, living room, kitchen, toilet in their houses. Commonly speaking they put those things based on the sacred and unsacred concepts, as well as mount and sea directions. By looking at these concepts, the Balinese have their-own concepts of sacred and clean in opposition with the concepts of unsacred and unclean.

In the past particularly prior the 1980s, there were not many visitors to Bali. The Balinese could maintain their ecological system in managing the clean environment in their surroundings. In other words, they have their-own places to put rubbish in those places. There are some concepts such as the *teba*, in which rubbish is commonly located in the south or west part of the Balinese houses. The function of the *teba* is to put the rubbish in certain places. These rubbish is dried, which in turn this could be used to cook in their kitchen.

The increasing of the tourist projects in Indonesia in general and in Bali in particular have affected the Balinese development. This change can be seen particularly in the New Order era in Indonesia for more than 32 years. During this era, there were some changing policies from quality to quantity of the tourists called mass tourism policy. It means that on the one hand, it was not only the best quality of the tourists but also the poor quality of the tourists

visited Bali. In addition to this, the unprepared of the Balinese human resources working in the tourist industries in Bali caused some negative impacts to the maintenance of the ecological Balinese environment.

IV. The Adat in the Crossroads: Challenges and Responses

Every society has its own regulation in managing the people. In Indonesia in general and in Bali in particular they have their-own local regulation, adat (customary law, see for instance, Wirata). The word of adat coming from the Arabic word, meaning tradition or habitual attitudes in the community. In such a long time, the Balinese have their own local regulation and embedded with the Hindu religion coming from India. (Thapar, 2019, see also: Punyatmaja). The Balinese adopted and adapted the Indic influences to be their-own local adat. There are some differences in terms of adat and religious practices between India and Bali in Indonesia. However, though there are some differences, but as mentioned by Mahatma Gandhi to what extend the importance of the humanity beside the religion of Hindu itself is still the most important point in life. It means that religion is important, but the aspects of humanity are more important to be able to live side by side with other ethnic groups and other religions in Indonesia in general and in Bali in particular (Ardhana, et al. 2019).

Both the adat and religious lessons teach the Balinese to be able to live in the balance and harmony, using the concept of Tri Hita Karana. In order to be able to maintain the balance and harmony between man and God, man and man and

man and its nature, the Balinese put the ecological regulation in the adat regulation. In the original Balinese community called the Bali Aga, Bali Mula or Bali Asli, for instance, in Tenganan Karangasem Eastern part of Bali, there is a strong regulation on how to protect the nature. There is a strong regulation if someone takes a nut from its tree. This adat regulation is still kept on by the adat leader until now. Therefore, in some communities they put the adat regulation in the local adat regulation called awig-awig, but in some communities they put its regulation in the perarem. Meaning, the community can revise the regulation at anytime by the members of the local community if there is a need to change, due to the certain changes in the community (See: for instance: Soprapto Soedjimo).

As mentioned by Sheryl Sandber from Facebook Coo and Founder of Leaning. Org. commenting the Klaus Swab book title, *The Fourth Industrial Revolution* (2012) saying as follows:

“In the Fourth Industrial Revolution, Professor Klaus Swab puts forth a thoughtful framework for leaders to meet the challenge of maximizing the benefits of the profound technological, social, economic transformation reshaping society. Drawing on over four decades of bringing together governments, private sector and other parts of civil society starts a wide ranging discussion on how we can help to ensure that the fourth industrial revolution drives progress for human kind.”

From this illustration, there are some changes that need to be dealt by the Balinese. For example, we could see how they have to make some changes in the

context of making canang or offerings that is important for the religious aspect in their daily life. The main praying usually consists of fire, holy water, and flower. Seeing from this aspect, we can see on how the Balinese make offering or sesajen (canang) from coconut palm leaves and they make these from the bamboo materials. All of the materials have the certain meanings in terms of religious aspects of Hinduism (Maesse. 2018 and see also: Darmayasa). In the past time, the coconut leaves come from Bali itself. Due to the limited resources, today we have witnessed that the Balinese have imported these coconut leaves from the neighbouring Island, Java, particularly from East Java (Cf. Suarka, 2019, see also: Ardhana, 2019). Not only the banana leaves are imported from the region, but also other materials such as the fruits like banana, mangoes, and the like. It is not surprisingly also the people Java sell also the religious materials in Bali.

Due to the impacts of tourism industry, the Balinese women, for instance, have not enough time to prepare their religious materials such as sesajen, canang and the like. At the present time, the Balinese women not only work in the agricultural sectors like in the past time, but they also work in the government offices, as officials, teachers and tourist industrial sectors to mention a few. Due to their jobs, they have limited time to prepare the religious materials like the sesajen, canang and others. For instance, due to this situation, they make even their canang by using not the bamboo materials any longer, but they use it by using the iron (strepils) or other materials. This has brought about certain

question, especially in relation to the using of such materials for holy or sacred rituals. The difference between clean or bersih and unclean or kotor is clear. However, the difference between bersih and suci is unclear. Bersih is clean, but suci or sukla (holy) is if something has already been prayed or given mantra or pasupati (already given supernatural powers or kekuatan niskala).

The materials of offering or sesajen usually consist of certain materials like the pinang fruit, kapur (chalk), which are the symbols of the certain Gods in the Bali or Hindu religion. If they use the other materials, this has required certain explanation as people are no longer using the same materials as used to be. This is only one case, on how we can see the Balinese have begun to face many changes in their daily life (See further, Shin Nakagawa, RM Soedarsono and I Made Bandem. 2013).

V. Conclusion

Due to the rapid impacts of the globalization process, more explanations regarding the adat, religion need to be discussed, analyzed and elaborated in terms of how the young Balinese people could understand some changes that happen in their daily life in Bali. By this way, it is important to anticipate any change(s) that had happen in the past. By doing some explanations based on the adat tradition it is possible to maintain and preserve the Balinese culture in terms of community based development not only in this time but also for the future.

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Indigenous Religions and It Concerning the Sustainability of Nature

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ABSTRACT

Seyyed Hossein Nasr (1968) noticed that many natural disasters caused by man's moral crisis as the problem of modernization. Many religious believers tend to trace back their religions and it is teaching on treating nature and dealing with an ecological perspective. This article put on the notion of Indigenous Religions in Indonesia dealing with the sustainability of nature. Indigenous religions have particular teaching and practical way of life in preserving nature, ecology, and the universe. It because one of the fundamental elements in Indigenous Religions is kinship. Kinship in Indigenous Religions is not only with humans but also with other creatures, like the animal, the plant, the earth, the sky, the water, etc. Therefore, some rituals of Indigenous Religions closely related to nature and the environment. The purpose of such rituals is establishing a valuable relationship or in other words, are building an environmental intimacy. By looking at some Indigenous Religions or Aliran Kepercayaan in Java, this study will examine the norms, the values and the ethics related to sustaining nature as part of microcosm (jagad cilik) and macrocosm (jagad gede) where humans live and interact with other creatures. Both indicate the consciousness of people on the theory of the existence of the universe and their rule to preserve it. Therefore, modernization does not mean neglected the tradition but regarded it as renewing the value of traditions, especially in maintaining a relationship with nature.

Keywords: Indigenous Religions, Norms, Values, Ethics, and Nature Sustainability.

I. Introduction

Our nature was in a terrible crisis by the sign of climate change, global warming, natural disaster, environmental degradation, and so on. Look at the recent case of flood in Jakarta in the early of this year 2020. After hours of rain, several districts in Jakarta and satellite city (Bekasi, Tangerang, Depok, Bogor) flooded with water. Some of the parties claims have an effective solution toward Jakarta floods, and it leads chaotic on the debate between “normalization” and “naturalization” of the river.

However, the development of science and modernization demands humans as the center of the universe. They are greedy to exploit nature for the sake of needs leads

to natural disasters as the case of floods. The trees at the upstream area cut off a meanwhile massive building in the downstream area. On another side, exploitation over natural resources also happened all over the world such as oil mining, gold mining, coal mining, etc. Thus exploitation in line with the development of science and technology as signs of modernization. The fundamental aspect triggering this situation is an anthropocentric paradigm where placed humans as the center of the world and other creatures as an object for human interest (White, 1967).

Through their knowledge, humans assume abilities to recover nature after exploitations. The fact shows that disaster

came faster than their imagination of recovery. For the sake of reminding, humans tried to evoke their consciousness on nature by revisiting the religions and their teaching. Religions, however, assumed as a primary tool to evoke humans for preserving the sustainability of this universe.

Meantime, the deep bond between Indigenous Religions to nature has revealed another fact. People of Indigenous Religions provide another paradigm in their relation to nature and other creations. Humans perceived themselves as part of the cosmos; they did not the superior and separated from other creatures (Tylor and Zimmerman, 2005). This paradigm forces us rethinking about the relation between religion and nature. In Indigenous Religions, humans-nature relationship emphasized on the intrinsic values of all beings.

In Indigenous Religions expression, rituals, norms, and practice of religiosity have integrated on environmental acknowledgment. In that way, we frequently see rituals at forests, rivers, mountains, and others practiced by indigenous believers. They believe that building a relationship with other creatures is mandatory in establishing kinship. Therefore, it regarded as sin when humans broke their kinship by destructing their environment for the sake of needs. In other side, the Javanese community consistently emphasizes harmony, peace, balance, and consensus (Stange, 1998). Therefore, Javanese repeatedly perform ritual “Slametan” as

Geertz in Stange (1998) noted that “Slametan” along with offerings to spirits purposed to maintain safe, peace, and harmony of life.

Therefore, this article tried exploring the relationship between Indigenous Religions and nature. It is significant to preserve environmental degradation from the perspective of Indigenous Religions believers and their practices. The Indigenous Religions knowledge on environmental issues expressed in various forms such as rituals, norms, practices, etc. (Grim, 2001) is reliable to contemporary dialogue on the indigenous traditions and the development of modernization. Modernization does not mean neglected the religious tradition but accommodate it in a new ways.

II. The Worldview of Indigenous Religion: Micro-cosmos (*Jagad Alit*), Macro Cosmos (*Jagad Gede*)

This section discusses the worldview of Indigenous Religions or Penghayat Kepercayaan in Java. There is no dualistic juxtaposition between the creator and creation in Kejawen. On the contrary, there is an absolute relation between microcosm and macrocosm. The Whole manifested in its parts and the parts are in itself already the Whole. Therefore, the human being is the meeting point (Romano, 2013). The Javanese term that defines microcosm and macrocosm is “little word” (*jagad alit*) and “big world” (*jagad gede*). This concept represent not merely a philosophy but also a way of life and existential ethic (Romano, 2013). Therefore, the human being as the

microcosm represent the reflection of the big world. The way they represent is a reflection of the world.

One of aliran kepercayaan in Indonesia is Sumarah. Sumarah means total surrender that is not only physically but also spiritually. Sumarah perceives events that occur within themselves as a reflection of the microcosm. Consequently, experience in microcosm became a mirror of macrocosm reality (Stange, 2009). In the self of Sumarah member, good deeds not only reflected within themselves (in microcosm) but also within the reality or macrocosm. If a person achieves the highest consciousness, he will allow a beneficent influence on other creatures and not damage the world.

One of the important notions on the act (laku) of Penghayat Kepercayaan is sujud. In Sumarah, the members practice Sujud Sumarah individually or groups lead by a Pamong. The members equally took a couple of times to Sujud Khusus. They internalize the essence of Sujud in their daily life (Stange, 1998). This essence represent an abstract concept combining the logic of “rasa”, spirituality, and reality. Therefore, a Sumarah member should follow their “rasa” as guidance to act in their routine life. In accordance to this, one of 9 sesanggeman of Sumarah is preventing contempt, immorality, evil, spiteful, and so on. All deeds and utterances are honest and delivered with patience, consciousness, calm, and not driven by lust. Therefore, members of Sumarah should consider the realization of this

sesanggeman and its values in treating the environment.

III. Relationship between Human and non-Human Beings in Indigenous Religions Perspective; Norms, Values, and Ethics.

The current ecological perspective required humans to reconstruct their paradigm in seeing the earth and its contents. The anthropocentric paradigm where puts humans as the center of life and has power over other creatures should be eliminated since it destructs earth, nature, environment, and the universe. So destructions if continuous massively, humans will be affected also by the time. Therefore, humans should be rethinking their relationship toward other non-human being creatures.

Some scholars note that there is an interpersonal relationship between humans and other non-human being creatures. Barus (2019) study on Haruku people found that there is an inter-subjectivity on the relationship between humans and the crocodile; they believe that crocodile can help people. Then, Hallowel (2002) employs the concept of personhood in the study worldview of Ojibwa community. For Ojibwa, the persons are not only people but also other beings such as, the sun, stones, trees, etc. Therefore, the relationship to other creatures also should maintained to build harmony in life.

In this study, kejawen, which emphasizes on rising of awareness (kewaskitaan), did not explicitly teach on how to relate with other beings. However, the values and

ethics of kejawen in teaching their member to evoke “rasa” is important things to review. Such as in Sumarah, the deep of spirituality shown when a human could able to maintain “rasa” used to capture the truths of the inner world (alam batiniah) (Stange, 1998).

There are values of Kejawen such as 1) humans should be mercy for themselves; 2) humans should be mercy for their family; 3) humans should be mercy for others; 4) humans should be mercy for the universe (Heryansyah, 2017). As one of these values, to be mercy for the universe should emphasized by members of kejawen in their daily life. Their spirituality and deep connections to Gods reflected also in treating nature or the universe. If humans did not bring mercy for the universe by destructing, exploit, and torture the environment, so their spirituality questioned.

Meanwhile, other values of kejawen is laku prihatin. The form of laku prihatin various ranging from sujud to fasting. The purpose and means of laku prihatin such as to get closer to God, controlling worldly lust, and preserving God's values in humans. As Sedulur Sikep (Samin) values fasting as a way to behave every day in the righteous act; Budi Daya values fasting as keeping a righteous act and not only fasting from food and drink. In other side, Sapto Dharmo, their fasting ritual form in sujud as a reflection on worship and surrender to God (Kresna, 2017). The preserving nature from the perspective of Indigenous Religions reflected on the rise of individual spirituality. Since spirituality is the

essence, it internalized and implemented in daily life by not making it destructive to the universe.

IV. Conclusion

Sustainability of nature needed for the humans existence in this universe. Environmental degradation leads to serious attention and the actions of humans. By looking at religious teachings, religious believers evoke their ecological consciousness in treating other creatures. This article that discusses on Indigenous Religions in Java or Penghayat Kepercayaan in relation to nature founds several findings. First, the worldviews on microcosm and microcosm related to the rise of spirituality. The spirituality member of Penghayat Kepercayaan internalizes within the self or microcosm, and then it reflected with good acts in the macrocosm. Second, in the relation to other creatures, rising awareness (kewaskitaan) and rasa captured in the truth in the inner world (alam batiniah). Rasa will assist someone to prevent bad and destructive acts to the universe. Third, member of Kejawen or Penghayat possesses value to be mercy not only to themselves, family, and other humans but also to the universe. This value internalized and practiced in daily life to maintain a relationship with other God's creatures in this universe.

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Visual Cartoon "De Romon" as an Awareness Effort for the Importance of a Clean Environment

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Abstract

Indonesia is the largest archipelago country in the world consisting of 17,504 islands with 1,340 ethnic groups and 652 regional languages. Bali as one of the islands in Indonesia with a population of 3,890,757 inhabitants in 2010 has a long history. According to its history, Bali is divided into prehistoric period, ancient Bali, Bali in the middle of the XIV-XVIII century, the colonial period and the revolutionary period. Besides having a long history, Bali also has its local language. Balinese language is an Austronesian language from the Sundik branch and is more specific than the Bali-Sasak subsidiary. This language is mainly spoken on the island of Bali, the western island of Lombok, and a little at the eastern end Java island. The Balinese language in its usage has several levels, namely Bali alus, Bali madya, and Bali kasar. Bali is also known to have unique arts and culture. One of the famous forms of arts is cartoons. Cartoons in Bali have been developing since 1977. Bali Post as the oldest printed media born in Bali has published cartoons in its opinion page since 1977. Since then a number of cartoonists emerged such as Wied N., Tu Suarya, Gus Martin, Toni Tantra, Armin Jaya, IB. Loleck, and others. This research uses ethnomethodology. The analysis used is semiotics by observing the cultural signs that exist in the cartoon. The interviewee is Kadek Jango Paramartha, a cartoonist and also is the maker of the desk calendar cartoon of the municipality of Denpasar. Based on the semiotic analysis of the visual cartoon "DE ROMON" there is an expansion of the meaning "not polluting" to "not polluting the air, water and soil on earth". The expansion of the meaning is the result of contemplation by the cartoonist in interpreting "DE ROMON" from his perspective. Cartoonists have the power to interpret various meanings. When creating works, artists have absolute power in interpreting various phenomena around them through the visuals they create.

Keywords : cartoon, Balinese cartoon, cartoon visualization

I. Foreword

Indonesia is the largest archipelago country in the world, consisting of 17,504 islands. The islands in Indonesia are inhabited by ethnic groups who have a variety of languages and customs. According to the Central Statistics Agency, in 2010 the number of ethnic groups in Indonesia was 1,340 (RI, 2019), while the number of regional languages in Indonesia according to the Head of the Language Development and Coaching Board of the Ministry of Education and Culture, Prof. Dadang Sunendar in Banda Aceh, is 652 regional languages (Ige, Mutiah, & Nurdiarsih, 2018). These results are based on data from surveys conducted in 2017 and are updated annually in the month of

October. Prof. Dadang Sunendar said that hundreds of regional languages had been recorded since 1991.

Bali as one of the islands in Indonesia with a population of 3,890,757 inhabitants in 2010 based on the results of a population census conducted by the Central Statistics Agency (BPS) (Statistics, 2018). The Balinese have a long history. Based on its history, Bali is divided into prehistoric period, ancient Bali, Bali in the middle of the XIV-XVIII century, the colonial period, and the revolutionary period. In prehistoric period, according to the Gilimanuk site is a modern human with mongoloid race characteristics, with a life expectancy of 33-34 years (Ardika, Parimartha, & Wirawan, 2013: 10). In ancient Bali,

Saka 804 to Saka 836 (882 - 995 AD) formed a government institution or kingdom centered at Panglapan in Singhamandawa so it was called the Singhamandawa period (Ardika, Parimarta, & Wirawan, 2013: 107). In the middle of the XIV-XVIII Century, Bali was ruled by the Majapahit kingdom and Bali entered a new era, namely the influx of Hindu influence. At this time, the Hindu kingdom is present in Bali and the influence of Hindu culture is present in the Balinese society. During the colonial period, the Dutch came and wanted to rule Bali. The arrival of the Dutch to Bali was met with resistance from the Balinese people. Wars against the Dutch were everywhere. The Buleleng War of 1864 was the beginning of the Balinese resistance against Dutch colonialism. It was then continued with the Jagaraga war from 1848 to 1849 and several other puputan wars that occurred in various regions in Bali.

The Balinese people have their own local language called Balinese language. Balinese language is an Austronesian language from the Sundik branch and is more specific than the Bali-Sasak subsidiary. This language is mainly spoken on the island of Bali, the western island of Lombok, and a little at the eastern end of Java island. The Balinese language in its usage has several levels, namely Bali alus, Bali madya, and Bali kasar. This happened because of the influence of the Javanese language that spread to Bali since the days of the Majapahit kingdom. In its use, the Bali alus language is usually used to communicate formally, for example in meetings in the Bale Banjar, to propose to women, or as a language of communication between low-caste people to high-caste people. For Bali madya, it is used by people at the middle level such as between officials and their

subordinates, while for Bali kasar language is usually used by people from low caste communities.

In addition to local languages, Bali is also known for its art and culture. One of the famous arts is cartoons. Based on its history, cartoons in Bali have been developing since 1977. Bali Post as the oldest printed media born in Bali on August 16, 1948, has published cartoons in its opinion pages since 1977. Since then a number of cartoonist emerged like Wied N., Tu Suarya, Gus Martin, Toni Tantra, Armin Jaya, IB. Loleck, and others. Further said by Gus Martin, the cartoon theme adopted by the young cartoonists at that time to enliven Bali Post was humor, as well as social criticism, or editorial cartoons. The development of cartoons in Bali increased even more when the Department of Fine Arts which was under the Faculty of Engineering, Udayana University, Denpasar was transformed into the Fine Arts and Design Study Program of Udayana University on May 10, 1983 based on the Decree of the Rector of Udayana University

No.483/SK/PT.17/R.VIII/1983 and then strengthened by the Decree of the Director General of Higher Education Ministry of Education and Culture No.5/Dikti/Kep/1984 in its function of carrying out Higher Education Tri Dharma.

The glory of cartoons in Bali occurred around the 1980s when newspapers in Bali and in Indonesia made room for cartoons on a weekly basis. At that time more young cartoonists in Bali began to emerge, mostly alumnus from the Fine Arts and Design Study Program Udayana University such as Wied N., Jango Paramartha, Doplank, Kesuma Tirta, Made Ada, Cece Riberu, and others. Then on February 12, 1988, Balinese

cartoonists founded Pakarti (Persatuan Kartunis Indonesia)/ Indonesian Cartoonists Association Bali branch, chaired by Gus Martin. This organization was founded by Wied N., Gus Martin, Jango Paramartha, Tu Suaria, Chywan, Made Ada, Cece Riberu, and others. This organization aims to facilitate the activities of Balinese cartoonists towards the development of Balinese arts, especially in the field of cartoons. Through this organization, Balinese cartoonists hold joint exhibition activities in Bali, Indonesia and abroad.

II. Methodology

The methodology used is ethnomethodology. This is done because the visual cartoons used have a relationship with the Balinese culture so a comprehensive study of Balinese culture is needed. The analysis used is semiotics by observing the cultural signs that exist in cartoons. The interviewee is Kadek Jango Paramartha, a cartoonist and is also the maker of the desk calendar cartoon of the municipality of Denpasar.



Picture 1. Kadek Jango Paramartha

III. Result and Discussion

Based on its etymology, cartoons come from the English word "cartoon" and the Italian word "cartone" which means thick paper. In the beginning, cartoons was the name of stout paper, as designs for canvas or wall paintings. Currently, cartoons are pictures that are intended as humor or satire. For this reason, cartoons are not only statements of artistic taste for the sake of art, but also having the purpose of comedy, even insinuating and criticizing (Wijana, 2004: 5). Cartoons also means drawings or paintings that cover from the upper left hand corner to the bottom right corner of a thick paper that tells about the problem felt by the painter as an overflow of emotions (Sobur, 2016: 139). According to The Random House of Dictionary of the English Language, cartoons are sketches or pictures, usually humor, as in newspapers or magazines, as a satire symbol or describing actions, subjects, or people who have a unique interest (Berger, 2015: 182). So it can be concluded that the cartoon is a picture or sketch that contains humor, satire, criticism as an expression of emotional overflow towards the subject's actions.

Several types of cartoons known today are editorial cartoons, gag cartoons, and comic strips. Editorial cartoons or political cartoons are usually intended to express political or social views by insinuating. Gag cartoon is meant to be funny without being sarcastic. Comic strips are cartoon images in the form of short comics (Setiawan, Yulianti, & Nasution, 2017). In simple a cartoon can be divided into two types, namely verbal cartoons and non-verbal cartoons (Wijana, 2004: 8). Verbal cartoons are cartoons that utilize verbal elements and humorous images. Non-Verbal cartoons are cartoons that merely utilize humorous images/ visualizations to carry out the task. The pictures presented in this type

of cartoon are the pictures that distort logic.

In the 2012 desk calendar published by the Civil Service Cooperative (Koperasi Pegawai Negeri) Dharma Wiguna of the Denpasar City Government, the visuals displayed were in the form of cartoons as shown in the picture below.



Picture 2. “DE ROMON” cartoon in the desk calender 2012 (Source: Koperasi Pegawai Negeri Dharma Wiguna, 2019)

In the cartoon above, the cartoons displayed are included in verbal cartoons where there are verbal elements and humorous drawings. Verbal elements in the form of text such as the text "DE ROMON", “Jagalah tanaman dan jangan bakar sampah sembarangan”/ "Take care of the plants and do not burn trash carelessly", “Jangan buang sampah sembarangan”/ "Do not litter", and “Pisahkan sampah organik dan non organik, dan lain-lain”/ "Separate organic and non-organic waste, and others”. These texts are forms of invitation to the community to protect the environment and maintain cleanliness.

According to the online Balinese Dictionary "de" comes from the word "eda" which means "no" or "don't"

(<https://dictionary.basabali.org/Eda>, accessed 31 December 2019), while "romon" means "dirty", "polluter". So that "De Romon" can be interpreted as a whole "not to be dirty" or "not to be a polluter". This is in accordance with the Hinduism philosophy of Tri Hita Karana or the three causes of happiness/ well-being. The three causes of happiness are a harmonious relationship between humans and God Almighty (Ida Sang Hyang Widhi Wasa), a harmonious relationship between humans, a harmonious relationship between humans and their environment (Dalem, 2012).

The implementation of a harmonious relationship between humans and God is by practicing all the teachings contained in the holy books and stay away from all of its prohibitions. For the Balinese Hindu community, the implementation of this harmonious relationship is carried out by conducting various religious offerings (upakara) and ceremonies (upacara). Upakara comes from the word "upa" which means related to, and "kara" which means deeds/ works (hands) (Yogagiri, 2013). So that upakara is a form of service that is realized from work activities in the form of material offerings or sacrifice in a religious ceremony. In every religious ceremony performed by the Balinese Hindu community, upakara is always used as a form of getting closer to God/ Ida Sang Hyang Widhi; made from various types of materials, then arranged in such a way that resembles an offering which are beautiful to see and also having symbolic and religious philosophical meanings.

The definition of upacara in the Kamus Besar Bahasa Indonesia (KBBI)/ The Great Indonesian Language Dictionary is a series of activities or actions that are bound to certain rules according to custom or religion. The series of religious activities in Bali require various facilities

and infrastructure. Implementation of harmonious relations between humans by way of mutual respect, mutual tolerance, not hurting each other and so on. The implementation of a harmonious relationship between humans and the environment is to maintain cleanliness, not cutting down trees, and throwing trash in its place and so on.

"De Romon" is one form of implementing a harmonious relationship between humans and the environment. The formation of meaning through verbal and visual signs in cartoons has shown the existence of clarity and firmness of the meaning of the word "DE ROMON". In the words "take care of the plants and do not burn trash carelessly" has the same meaning as "DE ROMON" which means do not get dirty. "Take care of the plants" has the meaning of preserving the beauty of the environment so as to provide comfort to its inhabitants.

"Don't burn trash carelessly" has the meaning of polluting the environment. The results of burning garbage will cause new waste due to the remains of combustion. Surely this will lead to dirtiness in the surrounding environment. "Do not litter" means "not polluting the environment" so that it becomes clean and not polluted. "Separate organic and non-organic waste" has the meaning to "sort waste that can and can't be recycled" so that the environment can be maintained. So it can be said that "DE ROMON" in the cartoonist's view is an action or treatment as above.

In visual signs, visual cartoon that is seen is an implementation of watering plants and burning trash. As revealed by C.S. Pierce, the sign as a guide of someone due to the relationship with the response or capacity (Berger, 2015: 1). In Pierce's trichotomy, representation is something that is sensory (perceptible) or material that serves as a sign. Its presence evokes

the interpretant, which is another sign that is equivalent to it, in someone's mind (interpreter). The object referred to by a sign is "reality" or whatever is (assumed) to exist. That is, the object does not have to be concrete, it does not have to be invisible (observable) or exist as an empirical reality, but can also be other abstract, even imaginary and fictitious entities (Budiman, 2011: 74).

Based on this understanding, the representative is represented by a cartoon depicting someone watering plants and burning rubbish whose presence replaces the object of someone watering plants and burning rubbish in reality.



Picture 3. Burning garbage



Picture 4. Watering plants

When viewed from the meaning of "DE ROMON" based on the Balinese dictionary which is translated as "do not pollute" or "make dirty", a cartoonist provides the interpretation that "DE ROMON" also means not polluting the

air and providing comfort for nearby residents.

To note that burning trash creates problems in the environment. There are three negative impacts due to burning trash (Fitria, 2019). First, smoke from the combustion can produce hazardous materials such as carbon monoxide, formaldehyde, arsenic, dioxins and furans. Someone who breathes in the smoke of burning trash, has the highest risk of experiencing health problems due to these materials. Disorders can start from simple ones such as coughing, red or watery eyes, sore nose and headaches. Exposure to dioxin can cause several types of cancer, liver disorders, disorders of the immune system, and disorders of the reproductive system. Second, ash and smoke contamination from combustion as a result of burning trash can be absorbed by vegetables or fruit plants that grow around it. These foods if consumed in the long run can affect the health. Third, in addition to air and hazardous chemicals produced by burning trash, the ashes can also endanger children who play around the area. So that the meaning of "DE ROMON" in the cartoonist's view increases, that is not littering and providing cool air.

The visual cartoon representation at the bottom is seen as someone who tries to separate organic and non-organic waste. This representation represents the object of separation of waste that is actually carried out. Separation of waste is important to do given the different processes of decomposition of waste. Organic waste is very easy to decompose while non-organic waste is very difficult. This is because organic waste is waste produced by living things such as food scraps, fruit skins, and leaves. While non-organic waste is waste that contains substances that are difficult to decompose such as plastic. As a result it can cause

contamination and damage to the soil in a long time. So the interpretation of the meaning of "DE ROMON" in the view of cartoonists is not polluting and ruining the soil.

Based on the above discussion, the meaning of "DE ROMON" in the dictionary which is not to pollute or make dirty, receives an extension of its meaning from the cartoonists. The expansion of meaning is not to pollute the air, water and soil on earth. The expansion of the meaning is the result of contemplation by the cartoonist in interpreting "DE ROMON" from his perspective. Cartoonists have the power to interpret various meanings. As stated by Kadek Jango Paramartha (interview on December 25, 2019), when working, artists have absolute power in interpreting various phenomena around them. So that the communication of the phenomena that occur is conveyed through the visuals created. Whatever arises in the visual is the result of the cartoonist's self-reflection without interference from other parties.

IV. Conclusion

Indonesia is the largest archipelago in the world consisting of 17,504 islands with 1,340 ethnic groups and 652 regional languages. Bali as one of the islands in Indonesia had a population of 3,890,757 inhabitants in 2010. Besides having a fairly long history, Bali also has its local language. Balinese language is an Austronesian language from the Sundik branch and is more specific than the Bali-Sasak subsidiary. This language is mainly spoken on the island of Bali, the western island of Lombok, and a little at the eastern end of the island of Java. The Balinese language in its usage has several levels, namely Bali alus, Bali madya, and Bali kasar. Bali is also known to have arts and culture, one of them is cartoons.

In a simple cartoon can be divided into two types, namely verbal cartoons and non-verbal cartoons. In the visual cartoon "DE ROMON", the cartoons presented are considered verbal cartoons where there are verbal elements and humorous pictures. Verbal elements in the form of text such as the text "DE ROMON", "take care of the plants and do not burn trash carelessly", "do not litter", "separate organic and non-organic waste", and others. These texts are forms of invitation to the community to protect the environment and maintain cleanliness. The definition of "DE ROMON" according to the Balinese dictionary has the meaning of not polluting or making it dirty. Based on the semiotic analysis of the cartoon visual "DE ROMON" the meaning received an expansion to not pollute the air, water and soil on earth. The expansion of the meaning is the result of contemplation by the cartoonist in interpreting "DE ROMON" from his perspective. Cartoonists have the power to interpret various meanings. As stated by Kadek Jango Paramartha, when creating works, artists have absolute power in interpreting various phenomena around them. So that the communication of the phenomena that occur is conveyed through the visuals created. Whatever arises in the visual is the result of cartoonist self-reflection without interference from other parties.

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Religion and Youths in Sustainable City Development

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ABSTRACT

Today is the digital era where generation Z, those whose born after 2000, lead in digital instruments skill. Everything is digitalized, yet everyone still has to deal with the digital immigrant designed world. The rules and system of states nowadays seem to be so outdated comparing with the rapid development of the digitalized world. On the other hand, the physical world is facing a massive environmental degradation and followed by global climate change. Yet, the cities grow larger along with the human migration and incline to stay in cities or at least in the periphery. The policy makers are now compelled to find alternative solutions for the worlds' problems. It is definitely the time for involving the youths. This is their era. We need to have their perspective and ideas in how to take care the world. In the meantime, religions play an important role in daily livelihood. Although the world has been digitalized, religions flourish everywhere in the world. More and more religion-based education institutions and organizations are established. This fact makes this research relevant. This article will describe and analyze data from a research undertaken by Indonesian Consortium for Religious Studies, Yogyakarta since 2019.

Keywords: youths, religion, sustainable cities

I. Introduction

Historically, adult humans always control the course of life in any society. Until today, the majority of decision makers and policy makers whose decisions will be applied to the collective life system are adults. The center of civilization is almost always around adults. History is written and determined by adults. Every policy related to program design for the future also merely accommodates the opinions and aspirations of adults. They forget that the future belongs to the next generation who will live it in the future.

In this digital age, the world rotates and changes in seconds. Decision makers and collective system designers (even for the next five years) suddenly become very out of date. Policy makers have stuttered at the rapid change of the world. One of the most important things today is that we need to "involve" the younger generation, as Kaur states "they (children) are also active partners in creating a more

sustainable world..."¹, those who are born as digital natives, in designing policies. It is also contained in the Implementation Handbook on the UN Convention on the Rights of the Child page 168 "The specific interests of children need to be taken fully into account in the participatory process on environment and development in order to safeguard the future sustainability of any actions taken to improve the environment..."²

According to UN Convention of the Rights of the Child, a person is considered to be a child when he or she is

¹ Khusgeet Kaur, "Engaging Youth in Education for Sustainable Development: Strategies and Interventions," *Indian Journal of Sustainable Development*, Vol. 1 Issue: 2, pp. 27-32, July 2015.

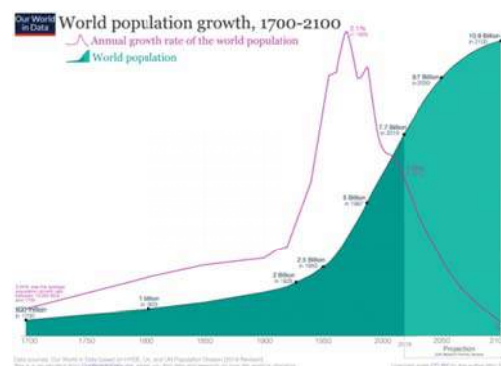
² http://www.unicef.org/publications/files/Implementation_Handbook_for_the_Convention_on_the_Rights_of_the_Child.pdf (retrieved on 16 January 2020).

under the age of 18³. Those under 18 years old today are the ones who were born after 2000, and they are called as the millennium generation. In this article, we are talking about this generation who attend religion-based schools and institutions since in Indonesia, religions play an important role in daily livelihood.

II. Demography: Now and Then

From time to time, there is this tendency for human population to dwell in the locus of cities or suburbs. Cities that are capable of or have large resources will attract more and more individuals/humans. Cities that are able to provide more job opportunities, both in numbers and in variety, will always invite people to keep on coming.

UN predicts by 2050, 68% of the world population (predicted to reach 9.7 billion by 2050) will inhabit urban areas.⁴ If in 2019 the world's population is in the range of 7.7 billion and 55% of the entire world population currently resides in urban areas, then in 2050, 68% of the 9.7 billion will inhabit urban areas. The figure will reach nearly 6.6 billion people in 2050. Of course this requires special attention for anyone who determines the policies of countries in the world. We need to design our future as early as possible, particularly concerning the way toward sustainable, just and smart urban living within this rapidly world population growth.



Source:

<https://ourworldindata.org/future-population-growth> (retrieved on 13 January 2020)

Speaking of generations, it can be seen in almost all countries in the world, leaders, important officials, figures are those who were born as Generation X (those born in the 1943-1964)⁵. The designers of the life we live in today are mostly from the baby boomers generation or generation X and perhaps those who are heading toward glory are generation Y (generation Y born in the early 70s - late 90s and millennial born after 2000). Both generations X and Y are digital immigrant generations (who moved from the non-digital era and forced to learn digital world). While millennial generation is a native digital generation. They are born in the midst of the glory of the digital era. Generation X and Y obviously stutter when compared with generation Z or millennial who immediately after born they are familiar with (for example) gadgets.

The native digital generation has very different perspectives, mindsets and

³ Convention on the Rights of the Child
<https://www.ohchr.org/documents/professionalinterest/crc.pdf> (retrieved on 16 January 2020).

⁴ <https://www.un.org/development/desa/publications/2018-revision-of-world-urbanization-prospects.html> 2018 Revision of World Urbanization Prospects (retrieved on 13 Januari 2020).

⁵ PwC's NextGen: A Global Generational Study
<https://www.pwc.com/gx/en/hr-management-services/pdf/pwc-nextgen-study-2013.pdf> (retrieved on 23 December 2019).

priorities from those of the previous generation. In addition, their lifestyle is very up-to-date and highly dependent on the digital world. In the meantime, the millennial generation population is large enough to be able to determine the direction of world development. This must be realized by policy makers who currently hold the reins of power. Because at this time, they are of the millennial generation may even have unconsciously determined the direction of the changing world.

III. Religion-based Education

In Indonesia, religion continues to be a concern of the State, bearing in mind that the first principle of Pancasila is the Almighty God, which in daily life is contained in the religious practices and beliefs of every citizen. Religion is indeed an inseparable part of Indonesian people's lives. Indonesia's population of more than 270 million has made religious life in Indonesia very lively. In just one year, Indonesia has many national holidays related to religion because it accommodates at least 6 major religions in Indonesia.

Environmental issues and trends in urban development in Indonesia will be very interesting if related to religion. Of course we all realize that all religions teach goodness to all of their people. But in the face of rapid development and the wave of differences in the current generations' perspectives, we may see religious institutions' strategies. Or even perhaps, they see or use religion as "a key conduit for knowledge dissemination and public mobilization..." (Jenkins, Berry and Kreider, 2018, pp. 9.4)

The official portal of the Indonesian government states that 87.2% of

Indonesia's population is Muslim.⁶ Based on this fact, we target those who attend Islamic-based educational institutions. According to the data of Biro Pusat Statistik Republik Indonesia or BPS RI (Statistic Central Bureau of Republic of Indonesia), there are 24,560 Madrasah Ibtidaiyah (MI) equal to elementary school with 3,565,875 students 2015/2016⁷ out of 25,885,503 elementary school students⁸ (taken from the data of the Ministry of Education and Culture of RI), 16,934 Madrasah Tsanawiyah (MTs) equal to junior high school with 3,160,685 students 2015/2016⁹ out of 10,040,277¹⁰ junior high school students, and 7,843 Madrasah Aliyah (MA) equal to high school with 1,294,776 students (2015/2016)¹¹ out of 8,647,394¹² high school students in Indonesia.

The data above can still be added to the data of Islamic boarding schools in

⁶ <https://www.indonesia.go.id/profil/agama> (retrieved on 27 January 2020).

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<https://www.bps.go.id/statictable/2015/09/10/1811/jumlah-sekolah-guru-dan-murid-madrasah-ibtidaiyah-mi-di-bawah-kementrian-agama-menurut-provinsi-2011-2012-2015-2016.html> (retrieved on 23 January 2020).

⁸ Indonesia Educational Statistics in Brief 2015/2016 [http://publikasi.data.kemdikbud.go.id/uploadDir/isi_A46E7FA-90A3-46D9-BDE6-CA6111248E94 .pdf](http://publikasi.data.kemdikbud.go.id/uploadDir/isi_A46E7FA-90A3-46D9-BDE6-CA6111248E94.pdf) p.43 (retrieved on 23 January 2020).

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<https://www.bps.go.id/statictable/2015/09/14/1836/jumlah-sekolah-guru-dan-murid-madrasah-tsanawiyah-mts-di-bawah-kementrian-agama-menurut-provinsi-tahun-ajaran-2011-2012-2015-2016.html> (retrieved on 23 Jan 2020).

¹⁰ Indonesia Educational Statistics in Brief 2015/2016, *Op.cit.*, p 57.

¹¹

<https://www.bps.go.id/statictable/2014/09/10/1534/jumlah-sekolah-guru-dan-murid-madrasah-aliyah-ma-di-bawah-kementrian-agama-menurut-provinsi-tahun-ajaran-2005-2006-2015-2016.html> (retrieved on 23 Jan 2020)

¹² Indonesia Educational Statistics in Brief 2015/2016, *Op.cit.*, p 75.

Indonesia. Obtained from the portal of the Directorate of Diniyah Education and Islamic Boarding Schools of the Ministry of Religious Affairs of the Republic of Indonesia, until the end of 2019, there are 28,194 Islamic boarding schools throughout Indonesia¹³. While the Directorate General of Islamic Education (Dirjen Pendis) Ministry of Religious Affairs of the Republic of Indonesia adds data on the number of students in all Islamic boarding schools in Indonesia totaling 4,290,626 people¹⁴. From the above statistical data, the number of children studying in Islamic-based educational institutions is more than 12.2 million children in Indonesia. This, indeed, makes the decision to focus our targets on children studying in Islamic-based educational institutions to be very relevant.

IV. Youths & Sustainable Cities

We have held a Focus Group Discussion (FGD) that invites a number of students from several Islamic-based schools and Islamic boarding schools around Yogyakarta as well as the teachers or caregivers of each Islamic boarding school. We deliberately only invited high school level boarding school students to be able to discuss with more focus and seriousness, but there was also one who came from a boarding school at junior high level. In addition to the FGD, we also conducted a public lecture at the Pesantren (Islamic Boarding School) Pabelan, Magelang, Central Java, which was attended by 100 *santri* (male

Pesantren students) and *santriwati* (female Pesantren students).

Both from the FGD and public lecture, we know that students and *santri(wati)* do not only study religion in their schools and Islamic boarding schools. They are also taught other basic knowledge such as science, social sciences, English, and others. Their curriculum was adopted from a curriculum issued by the Indonesian Ministry of Religion which had been adapted to the general curriculum of the Indonesian Ministry of Education and Culture. In addition, they also learn various skills such as IT, graphic design, sewing, and others.

In the FGD with Islamic boarding school (*pesantren*) and religion-based schools, there is some information about school programs, especially those related to the vision of a sustainable city. Programs such as gardening and planting trees, as well as some schools are increasingly paperless by maximizing technology (gadget or computer). There is also a building structure by considering accessibility for people with different abilities (difiable).

In the public lecture at the Pesantren Pabelan, we found one thing very interesting. They have the rule of “no gadget” in anywhere in the boarding school areas every day except for one holiday (Friday). The *santris* and *santriwatis* are allowed to take a phone call from their parents using the teachers’ or caregivers’ cellphone on Friday. Yet, the teachers and caregivers are fully aware of the digital world development. This is very challenging knowing that all *santris* and *santriwatis* are entering the boarding school in their Junior high school ages. This means that these

¹³ <https://ditpdpontren.kemenag.go.id/web/> (retrieved on 23 January 2020).

¹⁴ Sjafrudin, Asep, Mengembangkan Kestrategisan Pondok Pesantren, <http://pendis.kemenag.go.id/index.php?a=detil&id=9405> (retrieved on 23 January 2020).

children are likely to be previously exposed by gadget in their earlier age; let's say until they reach 12 years old. It needs a very strong will and commitment to live such a way of life in the boarding school.

The motto of the Pabelan Islamic Boarding School is: 1. Virtuous character, 2. Healthy body, 3. Knowledgeable, and 4. Free thinking. These four pillars are always emphasized in all activities in the Pesantren Pabelan. The caregivers at the Pesantren Pabelan are apparently quite progressive. Not holding a gadget does not mean that the students are technology illiterate. It does not mean that they are information blind. The caregivers implement certain programs that accommodate the world development and are truly up to date.

The idea of building sustainable city is well manifested in the *santri* and *santriwati's* of the Pesantren Pabelan explanation when they are asked about their dream upon a city in the future time. They come from different cities in Indonesia. Most of them want to go back to their respective hometown and develop their cities in a sustainable ways. They are considering all factors such as trees, animals, recycling program, education, transportation, green areas, hospital, human settlement, hospital, social cohesion, and area for religious activities. This is beyond our expectation on “no-gadget” school but high awareness on environment and development.

In the meantime, the FGD we held inviting Islamic-based school and Islamic boarding school also reveal surprising data. When the teachers are emphasizing institutional issues such as free education for all (along with the nationalization of

private schools by the state) and reforestation when they are challenged on how to build a sustainable city, the students are showing more promising future. A female student, comes from a small city in East Java, even brilliantly explains her thorough taught on developing her hometown in the future. Almost all aspects of life is well considered, such as public opinion gathering, developing kampong for elderly, a woman city friendly, and enhancing literacy by building library and interest-based communities. A male student adds on accommodating the people with different ability (difiable) and art centers.

To summer, we need to accommodate the thinking of these young people. The world needs the input and involvement of the younger generation. First, because they have a wise perspective too, they understand how the world works in this digital age, and the future is theirs. Meanwhile, by including current world issues in religious teachings will provide a stronger grip for the younger generation to live life in this world. In addition, also because religion is a very strategic thing with many adherents who believe in it, embracing all religious institutions will provide greater space and wider and rooted impact for sustainable cities development.

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Genealogy *Pura Agung Surya Bhuvana* Jayapura, Papua

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ABSTRACT

Pura Agung Surya Bhuvana in the city of Jayapura is the eastern part of *Padma Buana* Temple. The existence of the temple whose establishment was initiated by Hindus from Bali has become an important icon in the city of Jayapura and even becomes the center of socio-cultural activities about Hindu Bali. This article discusses 1) how was the beginning of the *Pura Agung Surya Bhuvana*?; 2) how did the temple develop as a center for Balinese Hindu, social and cultural-religious activities in the city of Jayapura, Papua? This article is based on the results of qualitative research. All data was collected through observation techniques, document studies, interviews, and FGD with several *pengempon* as informants and observers of Papuan culture. Data analysis was performed descriptively by applying symbol theory and structural-functional theory. The results showed that Hindus established the *Pura Agung Surya Bhuvana* in Jayapura city in 1962. At first, the dominant Hindus in Papua worked as civil servants, the TNI and Polri before the *Pura Agung Surya Bhuvana* was established, they carried out religious activities at I Made Matra's house, an employee of the Government of the Papua province. Overtime, the number of Hindus who migrate to the city of Jayapura continues to increase. Therefore in 1979, Hindu leaders in Jayapura City built the *Pura Agung Surya Bhuvana* for the needs of Hindus in the city of Jayapura, Papua. *Pura Agung Surya Bhuvana* was built on the hill Skyline in 1982 and it was inaugurated in 1990. In 2012, the *Pura Agung Surya Bhuvana* building was renovated to be more majestic than in 1990. After being renovated in 2012, *Pura Agung Surya Bhuvana* developed into a center of Hindu worship, the center of Balinese socio-cultural activities, places of art, Hindu religious education centers and tourist attractions in Papua.

Keywords : Genealogy, *Pura Agung Surya Bhuvana*, Hinduism.

I. Background

The development of a religious community is reflected in part by the establishment of a place of worship. The establishment of *Pura Agung Surya Bhuvana* which was inaugurated in Jayapura City in 1990 is an indication that Hindus are developing dynamically in this eastern part of Indonesia. Along with the times, Papua is now inhabited by migrants from outside Papua so that the reality has given its color for Papua, including Balinese in Papua. Until early

2019, around 6,300 Balinese were living in Papua. They predominantly work as farmers, civil servants, military and police.

The highest number of Balinese are in Keerom Regency, Papua Province. They are the dominant transmigrants from Karangasem Regency. A large number of Balinese in Papua affects many temples in the area (PHDI Jayapura City, 2018). In line with the dynamics of Hindu life in eastern Indonesia, there are already more than 36 temples. One of the biggest and

grandest temples in Papua is *Pura Agung Surya Bhuvana*, located in the Skyline area, Jayapura City, Papua.

The construction of the *Pura Agung Surya Bhuvana* was not only colored by a touch of Balinese temple architecture but was also colored by accentuations of cultural patterns of the Papuan people. The phenomenon of acculturation of Balinese Hindu culture with Papuan culture colors the establishment of the *Pura Agung Surya Bhuvana*. This was reflected in the signboard that reads *Pura Agung Surya Bhuvana Jayapura*. The temple nameplate is decorated with *Tifa*-shaped ornamentation and is visible from the highway. Furthermore, *Tifa* ornaments can also be found on the relief wall of the *Pura Agung Surya Bhuvana Temple*. It is unique considering that the Balinese temple shear walls are decorated with *Tantri* stories. A lion's fight with an ox is described side by side with *Tifa*'s ornament, even though *Tifa* was not mentioned in *Tantri*'s story. In every episode of the *Tantri* story depicted, *Tifa* ornaments are always added, both *Tifa* independently and *Tifa* side by side with the Cenderawasih bird.

Tifa is an important instrument for the people of Papua (Rai et.al., 2019). Whereas the Cenderawasih bird is highly respected and sanctified by every tribe in Papua because it is believed to be a paradise bird. Relief of *Tifa* in *Pura Agung Surya Bhuvana* can be seen in the *Praja Mandala wantilan* hall, for example on the front of the *wantilan*, the front of the stage and the ornament in the scene or *wantilan* pillars in the Balinese building. The ornaments seemed to combine Balinese style ornaments and Papua Senatani style ornaments (Rai, 2019).

The use of local cultural elements in *Pura Agung Surya Bhuvana* gives a distinct impression to the relationship of the local community with Hindus who come from Bali as well as from the Banyuwangi and Blitar areas in Papua. The special impression is marked by a social appreciation for the performing arts (Pradana, 2017; Pradana, 2018; Pradana, 2018a). Local Papuans and non-Hindu communities appreciate the *Pura Agung Surya Bhuvana* as a magnificent and artistic sanctuary (Rai, 2019). The beauty and splendor of the *Pura Agung Surya Bhuvana* have become an advantage as a tourist attraction in the city of Jayapura, Papua.

Pura Agung Surya Bhuvana in Papua has its place in the local community. The grandest temple in Jayapura is indeed a place of worship for Hindus. However, people in Jayapura who adhere to other religions often visit this temple. *Pura Agung Surya Bhuvana* was accepted as something new, without threatening the existence of the ideology of the local community. *Pura Agung Surya Bhuvana* was able to present a vehicle for social interaction between religious communities in Jayapura City, Papua. This means that social interaction in the *Pura Agung Surya Bhuvana* is not only in the Hindu community with the supporters of the *Pura Agung Surya Bhuvana*, but there are also social interactions between Papuans who do not follow Hinduism. Local people and non-Hindus in Papua feel comfortable visiting the *Pura Agung Surya Bhuvana* so that intercultural dialogue takes place.

Usually, a temple built in Bali serves as a sacred place for Hindu worship activities. However, temple buildings outside Bali, including *Pura Adhitya Jaya* in

Rawamangun, DKI Jakarta, are not only functioning as a place of worship for Hindus but are also used as centers for social activities of Hindus and Hindu religious education. Likewise, *Pura Agung Surya Bhuvana Bhuvana* has a function as a center for religious activities of Hindus in Jayapura. Even *Pura Agung Surya Bhuvana* has developed into a center of learning about Hinduism and Balinese culture which is often visited by students, students and the general public who are not Hindus in Jayapura City, Papua. In this study discusses : (1) How was the beginning of the establishment of the *Pura Agung Surya Bhuvana* ?; (2) How is *Pura Agung Surya Bhuvana* able to develop as a center for Balinese Hindu, social and cultural-religious activities in the city of Jayapura, Papua? This research publication has beneficial value, both theoretical and practical. Theoretically, this research can contribute to the development of the treasury of knowledge about the existence of a Hindu holy place named *Pura Agung Surya Bhuvana* for the harmony of religious life in Jayapura, Papua in the global era. Practically, this research is a valuable input for the government to strengthen the integration of the Indonesian people in the land of Papua.

II. Literature Review

This article discusses the beginning of the establishment of a Hindu temple named *Pura Agung Surya Bhuvana* in Jayapura City as part of the Papua region which is still growing. Following the research topic, there are previous publications concerning issues of Papuan development, the design of temples outside Bali and the relationship of Hindus with non-Hindus.

Elisabeth Adriana (2012) discusses Papua's development of political or economic problems. It was concluded that Papua is a land of many paradoxes. Papua has natural resources but it's people are still poor. Papua is reportedly suffering from a separatist movement but is still able to develop economically. Since 2001, Papua has received Special Autonomy status. The Government of Indonesia established the Papua Development Acceleration Unit with the main objective of accelerating the development process in Papua. Papua requires a comprehensive approach : (1) infrastructure and socio-economic approaches specifically the four sectors listed in the Special Autonomy Law : education, health, economy and infrastructure; (2) security and cultural politics. Peace and development are two different sides of a coin which is very compatible with the current condition of Papua. To develop and secure Papua, any strategy must be able to create economic equality, good governance, and respect for basic rights including those related to violence. One of the best ways to bridge the communication gap between Papua and Jakarta is through peaceful dialogue to reduce misunderstandings and prejudices that have created years of tension between conflict in Papua. In connection with a study entitled Genealogy of *Pura Agung Surya Bhuvana* Jayapura Papua, there are similarities between the main issues relating to the development and development of Papuan society. Specifically, the study of the *Pura Agung Surya Bhuvana* in Jayapura Papua analyzed the beginnings of the construction of temples in Papua while in the study entitled Papua Development Political or Economic Problems did not

analyze the temples in the development of Papuan society.

Supribawa and Ischak (2018) discuss the Effect of Characteristics of the Urban Social Environment on the Concept of the Development of *Adhitya Jaya* Temple in Rawamangun, Jakarta. They concluded that the influence of the characteristics of the social environment in urban areas and the heterogeneity of Hindus in East Jakarta was very large in influencing the concept of the construction of the *Adhitya Jaya* Temple, a Hindu shrine built on the philosophical values of *Tri Hita Karana*. This can be seen : (1) *Nista Mandala* has a *pasraman* building as a place for Hindu arts and education in Jakarta; (2) A new space emerges as a transition between *Madya Mandala* and *Nista Mandala* which is located inside the *Bale Manusia Yadnya* building as a place to carry out ceremonies for life rites such as marriage, tooth cut, quarterly, except for the death ceremony (*Ngaben*); (3) Inside the *Utama Mandala* there is a complex of *beji* buildings as a source for taking holy water. This *beji* complex is bordered by a sliding wall and *apitsurang* as an entrance into the *beji* complex. Based on all the additional activities and buildings it is not common if there is a temple complex in Bali with basic concepts in building temples. The Hindu community in Jakarta cannot be separated from the influence of it's urban social environment. However, in building the temple complex, they are still very concerned and consider the teachings of the philosophy of *Tri Hita Karana* relating to the needs of 1) The function of ritual for human relations with God; 2) The function of religious, arts and social education for the harmonious relationship of humans with others and their

environment. The study entitled The Influence of Characteristics of the Urban Social Environment on the Development Concept of *Adhitya Jaya* Temple in Rawamangun Jakarta with a study entitled *Genealogy Pura Agung Surya Bhuvana* Jayapura, Papua has a connection in the main issues regarding the function of the Temple outside the island of Bali. However, the study of *Genealogy Pura Agung Surya Bhuvana* Jayapura, Papua analyzed the origin of the temple while the research on the Influence of Urban Social Environment Characteristics on the Development Concept of *Adhitya Jaya* Temple in Rawamangun Jakarta did not analyze the origin of the existence of the Temple.

Liana (2016) has a study entitled "The Harmony of Muslims, Hindus, and Buddhists in Banda Aceh's Gampong Keudah. It is known that all the religions practiced by the Gampong Keudah community are intertwined. It was marked by the absence of noise because of religion in daily activities. The factors causing the creation of harmony in Keudah Gampong because they have implemented an attitude of tolerance that is closely intertwined among the Gampong Keudah community. In the religious field, they respect each other while worshiping. While in the socio-cultural and economic fields, relations between Muslims, Hindus, and Buddhists are very good. Muslim communities are very open, socializing and interacting with Hindus and Buddhists. They visited each other, helped and worked together. Likewise in the economic field, many of the same jobs as their trade do not seem to compete in trading. In connection with a study entitled *Genealogy of Pura Agung Surya Bhuvana* Jayapura, Papua,

there is a similarity between the main issues concerning religious communities with a study entitled Harmony of Muslims, Hindus, and Buddhists in Banda Aceh's Gampong Keudah. Specifically, research on the Genealogy of *Pura Agung Surya Bhuvana Jayapura*, Papua analyzed religious communities in a temple while in research on Muslim, Hindu and Buddhist harmony in the Banda Aceh village, Banda Aceh did not analyze temples specifically related to religious communities in the community.

William, Arnold, Kiniry, Gassman, and Green in History of Model Development at Temple, Texas (2008) said that the development of temples in Texas USA has a long history. The construction of the temple began in 1937-2006 after the Riesel watershed completed hydrological research in Texas in 1937. Hydrological findings from the Riesel watershed began to be realized in 1960 in the construction of the temple, Texas. Hydrological findings from the Riesel Basin in the form of ALMANAC, EPIC, APEX and SWAT used in the construction of temples have reduced the risk of flooding and optimized the function of spatial space between river basins around the temple plains. The relationship of research entitled History of Model Development at Temple, Texas with a study entitled Genealogy of the *Pura Agung Surya Bhuvana Jayapura*, there are common points of concern about the origin of the holy place. However, research on the Genealogy *Pura Agung Surya Bhuvana Jayapura* analyzes aspects of the *Pura* genealogy while the History of Model Development at Temple, Texas study does not analyze the genealogical aspects of the holy sites.

Lan-Yun Chang and Weining Liu in Temple Fairs in Taiwan: Environmental Strategies and Competitive Advantages for Cultural Tourism (2009) suggest that there are many tourism development strategies to make the temple more valuable. In this regard, energy conservation and pollution prevention measures contribute to improving the reputation of temples in Taiwan and financial performance in cultural tourism activities. However, the supply and use of environmentally friendly products in cultural tourism were no longer able to enhance the reputation of the temple in Taiwan. In connection with the Genealogy of *Pura Agung Surya Bhuvana Jayapura* research, the study titled Temple Fairs in Taiwan: Environmental Strategies and Competitive Advantages for Cultural Tourism has relevance because it examines sacred sites. However, research on the Genealogy *Pura Agung Surya Bhuvana Jayapura* analyzes the origin of temples while research on Temple Fairs in Taiwan : Environmental Strategies and Competitive Advantages for Cultural Tourism analyzes cultural development strategies for tourism.

None of the above publications specifically discusses the existence of *Pura Agung Surya Bhuvana*. However, some of the literature studies are valuable inspiration to study the history of the *Pura Agung Surya Bhuvana* and Hindu social religious activities related to the existence of the grandest temple in the city of Jayapura.

III. Research Methods

The research which examines the existence of *Pura Agung Surya Bhuvana* was carried out by applying a qualitative

approach from the perspective of cultural studies. A qualitative approach is a research strategy that produces information or data that can describe social realities and various events in people's lives. This research is a form of study of Balinese culture and Hinduism in the development of Papuan society. Barker (2005: 35-45) mentions that ethnography, textual and reception can be used in cultural studies in complex societies.

As the object of study in this study is the *Pura Agung Surya Bhuvana* in Jayapura City, Papua. The determination of the object and location of this research is based on several considerations, including : (1) *Pura Agung Surya Bhuvana* is the main place of worship for Hindus in Jayapura City, Papua; (2) The existence of the *Pura Agung Surya Bhuvana* not only as a Hindu worship place but also has developed into a center of Hindu social, artistic and religious activity; (3) *Pura Agung Surya Bhuvana* is the center of social activities about Hinduism and Balinese culture in the city of Jayapura, Papua.

The process of collecting research data uses several techniques, namely : (1) study of documents, namely by studying the literature obtained through research documents and personal documents that are not yet published in writing or visual; (2) interviews with 15 informants consisting of visitors, refugees and tourists visiting the *Pura Agung Surya Bhuvana*; (3) observations, which are direct observations at *Pura Agung Surya Bhuvana* in the city of Jayapura, Papua to see the activities of Hindus in Jayapura City, Papua. All data collected were analyzed qualitatively and presented

descriptively in the form of a description of the research.

IV. Genealogy Pura Agung Surya Bhuvana

The existence of *Pura Agung Surya Bhuvana* is inseparable from the history of the land of Papua. Papua is the easternmost part of the territory of the Republic of Indonesia (NKRI) which borders directly with Papua New Guinea (PNG). Papua, known as *Bumi Cenderawasih*, is divided into two provinces, Papua Province with the capital city of Jayapura and West Papua Province with the capital city of Manokwari. Papua Province is the parent province while West Papua Province is a province of the division of Papua since 2003.

The name Papua is derived from Portuguese sailors. Portuguese sailors first saw Papua in 1511. In 1511, they gave the name *ilhas dos Papuas* which means more or less an island inhabited by fine-haired people. Then the Dutch sailors called Papua as New Guinea because the skin of the Papuans was black and reminded them of the Guineans in Africa (Wetipo & Wedlana, 2015; 1). During the Dutch colonial period in Indonesia, Papua was better known as Dutch New Guinea than New Guinea. In the early days of the independence of the Unitary Republic of Indonesia, Papua was known as West Irian and *Irian Jaya*. After the reign of B.J. Habibie, West Irian or Irian Jaya was inaugurated as Papua.

Papua in the territory of the Republic of Indonesia and Papua New Guinea is the second-largest island in the world after Greenland in Canada. With a population belonging to the Melanesian family with

characteristics of black skin, curly and wavy hair, having a muscular and tall body. Through exogamy marriage, some of them have produced offspring with different physical characteristics from the indigenous population of Papua. That fact is evident in the Papuan population who live in coastal areas.

In general, Papua is divided into seven cultural regions, namely : *Mamta, Seireri, La Pago, Mi Pago, Anim Ha* cultural areas located in Papua province. Whereas in the cultural regions *Bomberei* and *Domberei* are located in the province of West Papua. The population of Papua consists of various ethnic groups, living in groups in small units, having its customs, culture, and languages. Geographical location, natural wealth, biodiversity and diversity of cultural arts causes Papua to have its own identity and uniqueness as an object of tourism in Indonesia. The uniqueness of tourist attractions is built from diversity and cultural uniqueness (Ruastiti et.al., 2018). The uniqueness of cultural diversity as an attraction of tourist destinations is inseparable from the effort to preserve cultural identity in the development of tourism (Pradana, 2019).

Along with the times, Papua is inhabited by migrants from outside Papua so that the reality has given it's color for Papua. Papua is not only identical with the culture of the ethnic groups of the Papuan people. The existence of Balinese ethnicity in Papua has also given its style to the lives of Papuans. Based on information from the Chairman of the *Parisadha Hindu Dharma* Province of Papua and the Chairman of the *Parisadha Hindu Dharma* of Jayapura City, Komang Alit Wardhana and Ida Bagus Suta Kertya are said to have recorded

around 6,300 Balinese in Papua. They work as farmers, civil servants and the Indonesian National Police. The largest number of Balinese live in Keerom district, Papua province. They are transmigrants from Karangasem, Bali.

To date, Papua already has more than 36 temples spread across the provinces of Papua and West Papua. One of the biggest temples in Papua is *Pura Agung Surya Bhuvana*. The temple is located in the Skyline area, Abepura District, Jayapura.

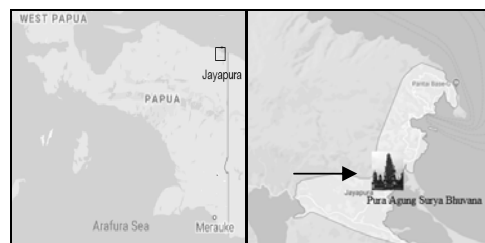


Figure 1. Geografis *Pura Agung Surya Bhuvana's* position. (Doc. Rai, 2019).

The development of Hinduism in Papua Province began with the integration of West Irian into the territory of the Unitary Republic of Indonesia, which began with the formation of the Province of West Irian in 1962. The founding of West Irian Province in 1962 required workers from various regions, including Hindu employees from the Bali region.

Initially, Hindus in the city of Jayapura worked as Civil Servants (PNS) and TNI/POLRI in charge of relating to the liberation of West Irian. In 1962, Hindus in Jayapura city numbered approximately 10 families with scattered dwellings. There were no Hindus gathered in one place in 1962. For prayer activities were held temporarily at the residence of I Made Marta. In the period 1964 - 1979, Hindus in the city of Jayapura had begun

to increase with workplaces in the local government, military/police and banks.

Taking into account the increasing number of Hindus, since 1979 the Jayapura Hindu leaders agreed to build a temple as a place to carry out religious, social and educational activities. Initially, it was agreed that the temple would be erected on a hillside near Base G beach, but did not receive customary approval. After that, the plan to establish a temple that moved around the Bukit Dok II was also not approved by custom. Finally, the plan to establish a temple on the location of the skyline hill facing directly on the Yotepa bay and the Pacific Ocean can be realized.



Figure 2. Natural view of Yotepa Bay from the skyline hills. (Doc. Rai, 2019)

Skyline hill land at that time was a plantation from the agricultural office area. Because of the convenience provided by Mr. Bas Yowe as the Head of the Agriculture Office and accompanied by traditional agreement, an agreement was made to establish the skyline hill as the location of the construction of the *Pura Agung Surya Bhuvana*.



Figure 3. *Pura Agung Surya Bhuvana* (Doc. Rai, 2019)

In addition to the current management of the parties involved, the temple founders also held meditations to get a blessing on the three locations when they meditated on this skyline hill, there was a very large light falling on this place, so this place was considered very appropriate as a holy place. After that, activity was started to level the ground level on the skyline hill as the temple foundation. With the presence of Mr. Ida Bagus Jayakesuma as Deputy Head of Public Works provided leveling assistance using a bulldozer, so that the building construction process could be carried out faster. Over time, Hindus in Jayapura City continue to try to build representative temples for shrines, places of social activity and places of education so that step by step the construction of shrine buildings is more complete.

Since 1982, step by step the *Pura Agung Surya Bhuvana* Temple in the skyline was built. The *Pura Agung Surya Bhuvana* Temple was opened to Hindus and it was inaugurated by the Governor of Papua, Mr. Barnabas Suebu SH on October 4, 1990. The *Pura Agung Surya Bhuvana* building was further complemented by a meeting hall called *Wantilan Praja Loka* which was

inaugurated by Mr. J.P. Solosa, MSi. as Governor of Papua Province on April 20, 2002.

In line with the development of Jayapura City government, Papua the physical development of *Pura Agung Surya Bhuvana* continues. This was made possible by the support of various parties, including (a) moral and material support from local Hindus; (b) facilities provided by local traditional leaders in the use of temple land rights; (c) assistance from officials who have served in Papua, including Mr. Maijen I Ketut Wirdana (Pangdam Tri Kora) and Mr. Irjen Pol. Made Mangku Pastika (Kapolda Papua); and (d) assistance from the Regional Government of the Papua Province and the Jayapura City Government.

Institutionally, the dynamics of Hindu life in Jayapura City are also supported by *Parisada Hindu Dharma Indonesia* (PHDI) as a Hindu religious organization in Indonesia. Since the 1980s, the *Hindu Dharma Indonesia* (PHDI) of Papua Province was formed, led by Drs. I Made Marta as a former Secretary of the Papua Province. In October 2011, the *Mahasabha Parisada Hindu Dharma Indonesia* which was held in Denpasar determined that the *Pura Agung Surya Bhuvana* of Jayapura as the easternmost *Padma Bhuvana* Archipelago in Indonesia based on *Mahasabha* Decree No. X No. : VIII/TAP/MAHASABHA X/2011.

Since 2012, the condition of the *Pura Agung Surya Bhuvana* building has begun to experience damage and needs renovation. In this context, it was agreed to hold a temple restoration in the main sections of the *Mandala*, *Madya Mandala* and the Projector wall or the fence.

Thanks to *Sang Hyang Widhi Wasa's* generosity, on May 9, 2013, the temple repair plan was realized. The laying of the first stone at *Pura Agung Surya Bhuvana* was carried out by Pinandita IGM Sunartha. Funds for the restoration of the temple were sourced from the Governor of Papua, the Regent of Waropen, the Mayor of Jayapura, the Regent of Keerom, the Regent of Timika, the Regent of Superior and the world of Hindus in Indonesia.

The construction of the *Pura Agung Surya Bhuvana* could be completed in September 2014. The inauguration ceremony of the *Pura Agung Surya Bhuvana* Temple restoration was held at *Sasih Kapat Saka warsa* 1936, on 8 October 2014 with the chairman of the *Pinandita* Committee IGM Sunartha. Karmini et.al. (2019) suggested that upakara always accompanies the implementation of Balinese Hindu religious ceremonies.

The ceremony and inauguration of the restoration of *Pura Agung Surya Bhuvana* in 2014 was supported by the Governor of Papua who was accompanied by the Secretary of Papua Province, Hindu leaders from Bali, such as: Yajamana Karya Ida Pandita Mpu Jaya Wijayananda from Griya Kutuh Kuta Bali, Sarati Ida Pandita Sri Wife Acarya Nanda from Griya Serongga, the picker from Ida Pedanda Gede Ketut Sebali Tianyar Arimbawa, Ida Pedanda Gede Dyelantik Sogata, Ida Pandita Mpu Jaya Wijayananda, Ida Pandita Mpu Jaya Wijayananda from Griya Kutuh Kuta Bali and Ida Pandita Mpu Satwikananda Griya Taman Bali.

V. *Pura Agung Surya Bhuvana as a Center of Hindu Social-*

Religious Activities in The City of Jayapura

Pura Agung Surya Bhuvana, which was inaugurated in 1990, is the biggest and grandest temple in Jayapura City. *Pura Agung Surya Bhuvana* Jayapura City has assets in the form of land and buildings, both in the form of praying buildings and buildings supporting Hindu activities in Jayapura city, including Pura land area of 7,790 M2 based on measurement letters dated November 19, 1979 number 195/1979, certificate Number 14 September 29, 1989, with the status of "Use Rights".

As pengempon or the people in charge of the *Pura Agung Surya Bhuvana* is *Parisada Hindu Dharma Indonesia* (PHDI) Jayapura City. *Pura Agung Surya Bhuvana*, Jayapura City, has refugees divided into three basins, namely Base G (26 HH) and Jayapura (36 HH), Abepura Hemp (45 HH) and non-non-Hemp with a total of 648 HH or 1,940 people. General activities carried out by each of these places are a monthly social gathering, community service every once a month in the temple and other social-religious activities.

With the *Pura Agung Surya Bhuvana* in Jayapura City, the activities of the local Hindus have become more dynamic. Together with the PHDI of Jayapura City, *Pengempon Pura Agung Surya Bhuvana* seeks to develop religious social activities aimed at : (1) Developing and maintaining culture in everybody of institutions, organizations engaged in religious and social affairs; (2) Developing the tasks referred to by PHDI together with Hindu organizations in the city of Jayapura such as the Hindu Woman of *Darma Indonesia* (WHDI) of

Jayapura City and the Indonesian Hindu Youth Association (Peradah) of Jayapura City.

The rules aim to increase awareness about certain norms and positions (Atmaja et.al., 2019). According to *Pasal 4, awig-awig Pura Agung Surya Bhuvana*, there are several purposes and objectives for the establishment of this temple which include : (1) Upholding Hinduism and religious norms and community norms following the times and literary rules; (2) Increasing *Sradha*, devotional service to *Sang Hyang Widhi* who resides in *Pura Agung Surya Bhuvana* Jayapura; (3) Improving the implementation of religious *dharma* and state *dharma*; and (4) Improving the relationship of unity and brotherhood of Hindus in Jayapura City.

This Hindu temple of pride in Jayapura can be understood to function not only as a ritual site for Hindu ceremonies but also as a place for other social and religious activities. Hindu religious ceremonies held at the temple include ceremonies in the context of welcoming *Galungan* and *Kuningan* feasts every 6 months, ceremonies relating to seclusion. Meanwhile, the socio-religious activities taking place in the *Pura Agung Surya Bhuvana* included *pesantian*, *pasraman* activities and the temple coordination meeting.

Hindu non-formal religious education programs that are routinely carried out are *pasraman* activities. *Pasraman* education emphasizes self-discipline, develops noble morals and qualities that are diligent, likes to work, curb lust and love to help others. The learning process in *pasraman* is a complete system. Systematically, the learning process is

supported by interrelated components in the realm of education (Karmini et.al., 2019). In the learning process in *Pasraman*, there are several interrelated components to achieve goals. These components are students, teachers, teaching materials and learning models. Learning strategies can be interpreted as a general pattern of teacher and student activities in realizing educational activities. From the general pattern of the activity, it can be seen the variety of activities displayed by the teacher and students. In this case, some strategies place more emphasis on teacher activities, but some emphasize activities on students. Orientation and future approaches must be emphasized in student activities (Syaiful, 2010: 37-41).

Regularly, *pasraman* activities are carried out during the school holidays. The purpose of *pasraman* is to form Hindu people who are spiritual, so the existence of *pasraman* is very important. The Hindu young generation is equipped with activities such as sports, practice, and outbound as well as religious materials. It is hoped that, through intensive *pasraman* activities, the Hindu youth of Jayapura City will not only understand religious teachings but will also be able to practice them in social life. They are expected to be able to ward off all forms of destructive behavior, promiscuity, free sex, and drug addiction. This is following the aim of National Education, which is to increase devotion to God Almighty, increase intelligence, hone skills, strengthen character in personality and increase the spirit of nationality by Law No. 20/2003.

VI. Pura Agung Surya Bhuvana as Central Arts of Hindu Culture in Jayapura

By the teachings of *Tri Hita Karana*, the Hindu community in the land of Papua respects local traditions and customs. Philosophy contains the values of life that are respected and adapted for human welfare (Pradana, 2017a). Following the functional theory of Talcott Parson in Ritzer (2004), Hindus in Jayapura, Papua, has done the process of adapting well so that it can be accepted by the people of Papua. This adaptive attitude, among others is manifested in the form of the construction of the artistic, *Pura Agung Surya Bhuvana*. The temple has adorned the city of Jayapura, Papua and even became part of the cultural tourism icon of Jayapura City.

Pura Agung Surya Bhuvana has now developed into a center for the development and strengthening of Balinese Hindu traditions. This is reflected by the visit of school children ranging from PAUD, kindergarten, elementary school, junior high school level, high school to Higher Education to this place. In general, they come in groups. For PAUD children through high school, they are guided by their teachers who are also religious. During the visit, besides hearing an explanation of Hinduism, they also had the opportunity to join in praying even though their religion was different. In general, students visit *Pura Agung Surya Bhuvana* for recreation and research.

Liana (2016) mentions that the relations of Hindus and non-Hindus in Jayapura are quite harmonious. Harmony is characterized by positive cultural and social responses (Tejayadi et.al., 2019).

As seen in some of the visitors of the *Pura Agung Surya Bhuvana* Papua, they were non-Hindus who deliberately came to the temple because they were greeted kindly by the *penyungsung pura*. As a tourist destination, *Pura Agung Surya Bhuvana* in Jayapura city is popular with all students and the general public. They deliberately come to enjoy the beautiful scenery and capture the visit through photos and videos and some even make films specifically by taking locations in *Jaba Pura*. *Pura Agung Surya Bhuvana* visitors is not just traveling, but also involved in various activities in the largest temple environment in the city of Jayapura, including engaging in social activities, arts-culture, religious (see Figure 7).

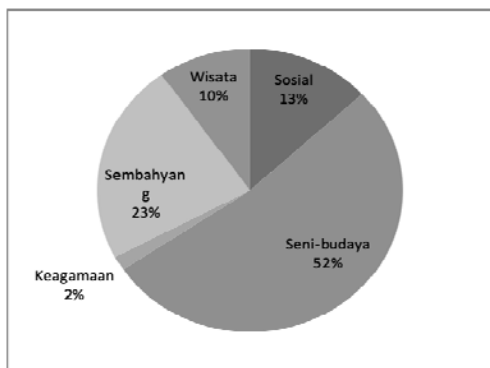


Figure 4. Visitor Involvement in Activities within the *Pura Agung Surya Bhuvana* (N=61) (Doc. Rai, 2019)

Opinions from non-Hindus and tourists towards the attraction of the *Pura Agung Surya Bhuvana*. They are very happy to visit the *Pura Agung Surya Bhuvana* because the building is unique and artistic, they feel comfortable, the location of the *Pura Agung Surya Bhuvana* is strategic and the people are friendly. Guests or foreign tourists who have visited come from India, the Netherlands, and Australia.

Aside from being a tourism object, *Pura Agung Surya Bhuvana* is meaningful as a center for learning of Balinese Hindu traditions. Meaning is a cause of practice (Pradana, 2018b). The practice of Hindu ceremonies at the *Pura Agung Surya Bhuvana* is not only as a form of practicing theory in Hindu religious education but also meaningful for non-Hindu students who often come to *Pura Agung Surya Bhuvana* to get to know the *Pura Agung Surya Bhuvana* as well as Hinduism in theory and practice. Because of this, the visit to *Pura Agung Surya Bhuvana* was not only enlivened by Hindus but also crowded with school children from PAUD, Kindergarten, Elementary School, Middle School, High School to College to study Hinduism in this place.

Hindu teaching material that is always delivered in the socialization of Hinduism to students visiting the *Pura Agung Surya Bhuvana* is about planting the concept of *Tri Hita Karana*, namely the three concepts of balance and harmony; (1) *Parahyangan*, which is a harmonious concept between humans and the creator through religious ceremonial activities; (2) *Pawongan*, namely the concept of balance and harmony between fellow human beings and God's creation through social activities; and (3) *Palemahan*, which is to maintain a balance between humans and the natural environment through mutual cooperation to clean and plant trees.

Pura Agung Surya Bhuvana has now become a tourist attraction for students, students and the general public in Jayapura City and surrounding areas. Visitors can enjoy the beauty of natural panorama and learn about the importance

of harmony among the nation's people in the Republic of Indonesia.

In responding to the increasing number of tourists who are interested in visiting the *Pura Agung Surya Bhuvana*, the Chairperson of PHDI Jayapura at every meeting and prayer always reminded the importance of continuing to maintain the sanctity of the temple, the sanctity of the temple and the environment in accordance with *Pasal 35, Awig-awig Pura Agung Surya Bhuvana* in 2017. Every day, *pemangku* and officials are advised to always be on standby at *Pura Agung Surya Bhuvana* to always be ready for receive tourist visits while at the same time giving an explanation of *Pura Agung Surya Bhuvana* and Hinduism.

VII. Conclusion

Based on the description above it can be concluded that the Hindus in Papua established the *Pura Agung Surya Bhuvana* in Jayapura in 1962. Initially, the Hindus in Papua who mostly worked as civil servants and the military/police when before the *Pura Agung Surya Bhuvana* existed, they carried out Hindu religious activities at the house of Mr. I Made Matra, an employee of the Provincial Government in Papua. Over time, the number of transmigrant Hindus in the city of Jayapura continues to increase. Therefore, Hindu leaders in Jayapura agreed to build a temple as a place to carry out Hindu religious activities in 1979. The *Pura Agung Surya Bhuvana* was built on the Skyline Hill in 1982 and inaugurated in 1990. In 2012, *Pura Agung Surya Bhuvana* renovated physical shape to be as magnificent as it is now.

Besides functioning as a center of worship for Hindus, *Pura Agung Surya*

Bhuvana has now developed as a center for social activities, arts venues, and as a tourist attraction for Hindu religious and cultural education in the city of Jayapura, Papua. Upon the conclusions obtained, it can be suggested to the parties concerned to always maintain the beauty of the *Pura Agung Surya Bhuvana* which has a very significant role in fostering harmony of the life of Hindus and people in Jayapura City.

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Forest Steadiness in The Perspective of Macroeconomics: *Distributed Lag Analysis*

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ABSTRACT

The roles of environmental natural resources as a source of livelihood as well as a financial source for regional economic development is indisputable. It has been more than three decades ago, since environmental issues became the world's concern for the first time at the international conference of the United Nations Organization of Sweden in 1972 to the United Nations Framework Convention on Climate Change in Bali during the late of 2007. Forests constitute a unified ecosystem in the form of stretches of land containing biological natural resources that are dominated by trees in nature's attachment to their environment. Forests serve fundamental benefits for human life. Apart from the real function in the form of timbers, the main function of the forest is to protect against water and soil. The forest also functions as a conservation of the living natural resources and its ecosystem. In Bali, saving the environment has been passed down since a long time ago. This is proven by the holding of the *Tumpek Wariga* ritual for every *enem sasih*, a term for six month in the Saka calendar. This is felt to be inadequate given the condition of Bali's forests experiencing distortion of security disturbances. The decreasing of forest area and the increase of critical land in the forest area, including the indication of the development of macroeconomic indicators which turned out to have an impact on the level of forest steadiness. This study aims to examine the effect of Population, Regional income and forest diagrams during the previous period on the level of forest diagrams. The analytical method used is dynamic econometrics distributed lag time series. This study showed a fact that partially the Regional income and the level of forest steadiness in the previous period significantly impacted the level of forest steadiness, whereas the population had no impacts on the level of forest steadiness. Simultaneously the population, Regional income and the level of forest steadiness in the previous period significantly impacted the level of forest magnitude in Bali during the analysis period with a confidence level of 95 percent. The forest serves as a development capital that provides a lot of benefits for people's lives both ecologically, socio-culturally and economically. For this reason, forests necessarily need to be managed, protected and utilized sustainably.

Keywords: Forest, Regional Income, Population, *Distributed Lag*

I. Introduction

Natural resources serve as a very crucial element of the environment. Humans live and develop by utilizing natural resources within its environment or its surroundings, those which include land, water, air, flora, fauna, microorganisms, minerals and energy (Stikor, 2010). The roles of natural resources and the environment as a source for life as well as source for income are inseparable from the

development process in a country (Barr, 2006). Even over the last three decades, since environmental issues, these two elements for the first time officially became a worldwide concern at an international conference held by the United Nations (UN) in Stockholm, Sweden, in 1972 until the last was at the United Nations Framework Convention on Climate Change (UNFCCC) which was held in Nusa Dua, Badung, Bali at the end of 2007. The similarity of the world's

high-level conference was to discuss about environmental damage caused by industrialization oriented to economic growth while ignoring the aspects environment that leads the world's climate to changing as it is today, the so-called global warming.

Forest is an ecosystem unit in the form of a stretch of land containing biological natural resources which are dominated by trees in natural attachment to its environment, which cannot be separated from one another. Forests have benefits and functions that are very meaningful to human being life (Suparmoko, 2014). Besides the production of the tangible results in the form of timbre, forests also have a protective function toward the soil and water (hydrology). Additionally, forests also function towards the conservation of biological natural resources and their ecosystems, such as the function of the nuftah plasma bank (native genetic) of flora and fauna of flora and fauna diversity, environmental tourism services, oxygen producers, air freshness until it is given the designation of the world's lungs.

Discussions regarding the environment conservation, especially in Bali, have been handed down since time immemorial. This is evident from the existence of a special ritual on the *Tumpek Wariga* Day, a day for Hindu communities in Bali to realize their expressions of gratitude to God for the fertility of plants to grow well and produce fruit or bushy flowers, which are held every 6 (six) months with the aim of commemorating the plants which indirectly is an embodiment of environmental sustainability. The total forest area in Bali Province is 130,686.01 hectares spread over 8 (eight) districts and cities, except for Gianyar Regency which does not have a forest area. The forest area is 23.20 percent of the total area of the island of Bali (BPS, 2018).

Table 1 Area of Forest Area by Regency/City in Bali Province in 2018

Regency/City	Area (ha)	Forest Area (ha)	Percentage of Forest Area by Area		
			Regency (%)	Province (%)	Provincial Forest (%)
Jembrana	84.180	42.156,27	50,08	7,48	32,26
Tabanan	83.993	9.969,15	11,88	1,77	7,63
Badung	41.852	1.779,87	4,25	0,32	1,36
Gianyar	36.800	-	-	-	-
Klungkung	31.500	1.048,50	3,33	0,19	0,80
Bangli	52.081	9.341,28	17,94	1,66	7,15
Karangasem	83.954	14.220,23	16,94	2,52	10,88
Buleleng	136.388	51.436,21	37,66	9,13	39,36
Denpasar	12.398	734,50	5,92	0,13	0,56
Province of Bali	563.286	130.686,01	-	23,20	100,00

Source: Dinas Kehutanan Provinsi Bali, 2018

Condition of the forests in Bali Province is experiencing considerable pressure. This is caused by disturbance in the forest security which is seen through the reduction in the area of forest cover and the increase in critical land of forest areas in Bali. In turn, the condition brings about a big impact on the macro climate in Bali through the generally hotter weather, as well as reduced water debit in the upstream due to forest destruction. This damage is caused by several factors, including because the forest has been converted into a residential area and moor and as a result of other human negligence so that forest fires occur. Apart from these causes, this condition is also caused by illegal logging and theft of forest products.

Economic development of an area essentially represents a series of efforts to improve the standard of living of the community. In addition, indicators commonly used to measure the economic condition of a region are the growth of Gross Regional Domestic Product and the growth of income per capita of society in the region (Krisna, 2018). Economic growth is the amount of added value generated by all business units in an area in a certain period (Krisna, 2019). The increasing rate of population growth and the economy of the community pushes pressure on the use of natural resources to increase. The increase in the rate of population growth will demand the availability of satisfying needs from the most basic (basic needs) to those that are exclusive (superior). This increased need makes humans, with their various roles and capacities, utilize the potential of natural resources and the environment as a practical

strategy in meeting their needs. Motivation and technology used in the exploitation of natural resources will be the key to how much pressure is borne by natural resources and the environment.

In general there are a large number of human activities which are closely related to the forests, including forests as a source of groundwater, agriculture, tourism and macro climate which are greatly decisive to human life. The condition certainly has an impact on a forest sustainability, especially because it is a disruption to the security of the forest itself. Thus, humans have become a major threat to the preservation of forests and this threat is increasing and spreading to the social, cultural, community, and environmental aspects around the forest. The economy is getting worse due to the devastation of Bali's tourism world and disrupting the comfort and safety of tourists which has resulted in the depletion of their number of visits post the Bali Bombing Tragedy I in 2002 and the Bali Bombing Tragedy II in 2005 which affected the economy of Bali, coupled with public awareness of the function forests that are still low.

Forests have a number of fundamental significances for human life. Besides the tangible results in the form of wood, the main function of the forest is serving as protection of water and soil. The forest also functions as a conservation tool for living natural resources and its ecosystem. The effort of saving the environment in Bali has been passed down since a long time ago. This is evident from the holding of the *Tumpek Wariga* ritual for each *enem sasih* (six months). This is felt to be insufficient considering that the condition of Bali's forests has experienced distortions that have become a security disturbance, both reduced forest area and increased critical land in forest areas, including signaled developments in macroeconomic indicators that turned out to have an influence on the level of forest steadiness. Therefore, a scientific study has an urgent role and condition to conduct, especially related to the forest steadiness which is ultimately expected to be a basic reference for policy making, so that what happens to the macro-economic justification of the environment is no longer a crucial

issue. This study is conducted to answer two issues; (1) Do the regional regional income, population, and forest steadiness of the previous period simultaneously affect the forest steadiness in Bali Province? (2) How do the regional income, population and forest steadiness in the previous year partially affect the forest steadiness in Bali Province? Based on the description of the problem, the objective to be achieved in this study is to reveal the influence of regional income, population and forest steadiness in the previous year, both simultaneously and partially on the forest steadiness in the Province of Bali.

II. Data and Methods

A. Types and Sources of Data

The data of the study include secondary time series data, starting from that in 1993 until that in 2018. The argument behind the selection of the 1993 as the initial year of research data is the availability of data, the minimum number of data requirements in testing time series data, whereas 2018 is the latest year and with the existing data. The data of this study were taken from processed primary and secondary data. As for the primary data in question represents the result of publication adjustments and descriptions from relevant agencies as well as the results of structured interviews with informants, namely the government through the Regional Apparatus Organization, such as: the Central Statistics Agency, the Regional Development and Research Development Planning Agency, Department of Environment, Forest Service, Stakeholders, Forum for the Environment of Bali, and Commissariat Grennepeace of Bali. Secondary data include data on Regional Regional Revenues collected from official publications of the Bali Provincial Statistics Agency, Bali Provincial Forestry Service, Regional Development Research and Planning Agency of Bali, detailed as follows: data on forest area and forest damage from the Forest Service and data on the total population obtained from the Central Statistics Agency of Bali Province.

B. Data Analysis Model Specification

This study makes use of the interpretation of the forest steadiness, which is the area of the forest that is not damaged, and uses regional income, population and forest steadiness in the previous year as its explanatory variables.

This study measures the application of Distributed Lag dynamic Econometrics models to forest steadiness in Bali Province with the influence of each explanatory variable by using the computer application software Eviews 9.0 (Winarno, 2015). Before testing the regression model, testing the stationarity of time data is antecedently performed through the stationarity test, cointegration test, and then the classic assumption test is performed which includes multicollinearity, heteroscedasticity and autocorrelation tests so that the model used meets the Best Linear Unexpected Estimator rules (Ghozali, 2017). The data analysis technique applied is the Partial Adjustment Model linear regression analysis which is proposed to determine the effect of the independent variables on the dependent variable. The form is as follows.

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t-1} + e_t \quad (1)$$

Notes :

- Y_t = Forest Steadiness in 1993 – 2018
- X_{1t} = Regional Regional Revenue
- X_{2t} = Total population
- X_{3t-1} = Forest Steadiness in the Previous Year
- $\beta_1, \beta_2, \beta_3$ = Regression Coefficient
- β_0 = Interception
- e_t = Interfering Error Estimation (*error term*)
- i = Observation – i

III. Result and Discussion

A. Validity Test of Time Series

The validity of the data used needs to be tested, including stationarity test and cointegration test.

1) Stationarity test

Stationarity test is conducted to determine the nature of the data used in the study, in which, the data are expected to have a variance that is not too large and has a tendency to approach its mean.

Table 2
Results of Stationarity Test with Unit Root Tests

Variable	ADF Value	McKinnon's Critical Values			Description
		1%	5%	10%	
Forest Steadiness(Y)	-3.191912	-3.737853	-2.991878	-2.635542	Stationarity at <i>alpha</i> (1)
Regional Revenue (X1)	-4.529725	-3.737853	-2.991878	-2.635542	Stationarity at <i>alpha</i> (1)
Population(X2)	-4.530038	-3.737853	-2.991878	-2.635542	Stationarity at <i>alpha</i> (1)
Forest Steadiness (Yt_1)	-7.221956	-3.752946	-2.998064	-2.638752	Stationarity at <i>alpha</i> (1)

Source: Data Analysis Results, 2019

As the results of the data stationarity test are shown in table 2, it can be concluded that all data are in stationary conditions. This can be seen in the value of Augmented Dickey Fuller (ADF) which is smaller compared to that of the critical value of McKinnon at a significance level of 5 percent.

2) Cointegration Test

Cointegration testing is very important when developing a dynamic econometric model. Thus, the interpretation of the model will not be misleading, especially for long-term analysis. Cointegration test results are presented in table 3 which shows that forest steadiness variables co-integrate with all the independent variables studied. This can be seen from the value of the *Likelihood ratio* that is greater than the critical value at the 5 percent significance level.

Table 3
Results Of The Cointegration Test with the Johansen Test between Forest Diagram Variables with the Respective Independent Variables

Independent	Eigenvalue	Likelihood Ratio*	Critical Value 5%	Notes
Regional Revenue	0.708446	24.6612	15.49	Lag interval 1 to 2
Population	0.867394	40.4634	15.49	Lag interval 1 to 2

Source: Data Analysis Results, 2019

Notes : * Likelihood Ratio = Trace Statistic

B. Classical Assumption Test

1) Multicollinearity Test

The multicollinearity test in this study was conducted with the Klein Test Model,

which includes comparing lower cases (correlation between each independent variable); if $R^2 y_{Xi, Xj} \dots X_n > r^2_{Xi, Xj} \dots X_n$, it is concluded that multicollinearity in the research model does not occur. Based on the test output it can be explained that the value of the multiple linear determination coefficient ($R^2 = 0.879$) is greater than the results of the coefficient of determination of all auxiliary regressions for the regional regional income, population, and forest steadiness of the previous year which are respectively 0.745, 0.677 and 0.780. Therefore, it is concluded that in the model problems with multicollinearity does not occur.

2) Heteroscedasticity Test

Heteroscedasticity testing is performed to determine whether in the model of variance inequality from one observation to another occurs or not. In this study heteroscedasticity testing is done using White model, namely by comparing the value of the probability (Obs^*) R Square which must be greater than the 5 percent probability of significance; thus it can be said that the heteroscedasticity model does not occur. In the model, the Obs^* R Square value is 0.713 which is greater than the 5 percent real level implying that the model used in this study does not contain heteroscedasticity.

3) Autocorrelation Test

The model used to determine whether there is an autocorrelation problem in this study or not is the Langrange Multiplier Test which is performed by comparing (Obs^*) R Square. In this case the test results must be greater than the 5 percent of significance probability, then it can be said that in the model autocorrelation does not occur. In the model it is found that the value of Obs^* R Square is 0.755, a value greater than the real level of 5 percent. This means that the model used in this study does not contain autocorrelation.

C. Estimation Results of Distributed Lag

The model of analysis used in this research is Distributed Lag Dynamic Econometrics which is done using the support of the *Eviews 9.0* software program. Distributed Lag regression analysis model aims to determine the effect of regional income, population and forest steadiness of the previous year on forest steadiness in the Province of Bali in the period 1993 - 2018, both simultaneously and partially. The summary of the results of data analysis using the *Eviews 9.0* program is presented in Table 4.

Table 4
Estimation of Foreign Investment in Bali Province in the period 1993-2018

Variable	Coefficient	t Statistic	Sig
Regional Revenue	0.196551	2.020389	0.0969
Population	702.9620	4.209476	0.0332
Forest Steadiness _{t-1}	0.340406	3.737709	0.0376
Constant = -2285.17		F Statistic = 50.894	
R Square = 0.879		Sig = 0.000	

Source : Data Analysis Results, 2019

1) The Effects of Regional Income, Population and Forest Steadiness of the Previous Year on Forest Steadiness in Bali Province in the Period 1993-2018

The results of statistical analysis with *Eviews 9.0* software summarized in table 4 can be concluded that simultaneously regional income variables, population and forest steadiness in the previous year have a significant effect on forest steadiness in Provisni Bali during 1993-2018 which can be explained through the calculated *F value* (50,894) > *F table* (3.07) and *sig value* 0,000 < significant level 0.05. This result is supported by a coefficient of determination (R^2) of 0.879 which means that 87.90 percent of the variation in forest steadiness in Bali is explained by regional income, population and forest steadiness in the previous year while the rest, 12.01 percent, is explained by other factors not included in the research model.

2) The Effect of Regional Revenue on Forest Steadiness in Bali Province during 1993 - 2018

The results of statistical analysis of regional income show that the t-value is

positive, which is 2,636 and is greater than the critical value of the t-table which is 1,721. The results of the t-test statistics on regional income show a significance value of 0.027, where the value is smaller than the error rate $\alpha = 0.05$, so it can be concluded that regional income has a positive and significant effect on the forest steadiness in Bali Province during 1993- 2018. The results obtained regarding the impact of regional income on forest steadiness in this study are in accordance with the theory which states that there is a positive and significant effect between regional income on forest steadiness in Bali Province. This is in line with the results of research conducted by Panto (2003) which found that forests, with their functions varying in economic and environmental terms play a very crucial role in the development process. In line with the roll out of regional decentralization, which gives regions the authority to manage their own households and for the forestry sector, it certainly has its own impact because, on one side, the forest as regional capital must be utilized to sustain regional income. The spirit of reform, sustainable and equitable forestry development seems to be unachievable if the old forestry paradigm is still used as a reference. The said old forestry paradigm constitutes the forest management which only gives greater benefits to entrepreneurs, but cannot lift the economy of the community and the region and has a high environmental impact. Therefore, a paradigm shift is fundamentally necessary within the form of a shift in orientation from timber management to resource management, centralized management to decentralized, and future forest management must consider the balance between economic, ecological and social aspects of the community in sustainable development. The existence of a new paradigm in forest management is expected to safeguard and preserve the forest and is certainly expected to make a major contribution to the government, especially towards the acquisition of sources of Original Regional Revenue.

3) *Total Population Has No Impact on Forest Steadiness in Bali Province during 1993 - 2018*

In the results of testing it is found that the population has no impact on the level of forest steadiness. This is indicated by the t-statistic value (-1.889) < t-table (-1.721). Based on the results of the t-statistic test for the population, it is obtained that the significance value is 0.008. This value is smaller than that of the error rate which is $\alpha = 0.05$, so it can be concluded that the population has no significant effect on forest steadiness in Bali Province during 1993 - 2018. The population is the key actor in environmental sustainability. In line with the results of research conducted by Krisna et al. (2018), humans live side by side with the earth, including forests. Unfortunately, what happens is that, for the most part, humans encroach on the forest to make it into residential areas, threatening forest sustainability. However, in the province of Bali the tendency is different from that which occurs outside of it, in that, the population lives side by side with the forest and always helps to preserve the forest. Many residents in Bali Province have a place to live close to the forest and they do not damage the forest, but try to preserve the forest so that it can achieve environmental balance. In terms of Balinese culture, a term known as “*Tri Hita Karana*”, in which the relationship between humans, nature or the environment is described. For the Hindu community, the balance between humans and nature is manifested by human efforts in carrying out religious actions, namely performing offering rituals which are offered to the Gods who dwell. This research is also supported by the results of a study conducted by Sunderlin & Resosudarmo (2014) which revealed that rapid population growth triggered an increase in the need for new land, both for housing and for economic activities, and forest areas were the main target. However, the notion that population is the major cause for the reduction in forest cover is not entirely true. Many other aspects behind the high population growth that contribute to deforestation need to be explored further.

4) *The Effects of Forest Steadiness of the Previous Year on Forest Steadiness in the Province of Bali during 1993 -2018*

The results of statistical analysis of forest steadiness in the previous year show that the t-test is positive, which is 1,852 and greater than the critical value of t-table, which is 1,721. T-statistic test results for forest steadiness in the previous year showed a significance value of 0.004. This value is smaller than that of the error rate which is $\alpha = 0.05$, which in conclusion can be stated that the forest steadiness of the previous year has a positive and significant effect on forest steadiness in the Province of Bali during 1993 - 2018. The results obtained regarding the influence of the forest steadiness of the previous year on the forest steadiness of the Province of Bali in this study is in accordance with the theory which found that there was a positive and significant influence between the forest steadiness of the previous year on the forest steadiness of the Province of Bali. This shows that the forest steadiness of the previous year would be continuing to be savoured until the present with a note that forest preservation would be maintained. The concept of *Tri Samaya* of Hindu teachings, especially *Atita* or the past, is very important to be taken into consideration in the preparation of plans for policies related to forest conservation. This is evidenced through the results of the present study which show the regression coefficient of the forest variable of the previous year has a positive value of 0.340. This value implies that if the forest steadiness in the previous year had increased by 1 hectare, forest steadiness in the Province of Bali would have increased by 0.340 hectare with the assumption that the other independent variables were constant. Or in other words the forest steadiness of the current period (the analysis period) is also influenced by that in the previous period. This is, in which, the present (*Wartamana*) is a reality that is owned by the community and future (*Nagata*) is also greatly determinative to the planning, because the planning that is now compiled can be implemented to read all opportunities, predict possible obstacles to arise as well as determine plans to overcome all obstacles related to forest conservation in order to create a stable forest condition.

IV. Conclusions and Policy Implications

Regional income, population and forest steadiness in the previous year have a simultaneous and significant effect on forest sustainability in Bali Province during the 1993-2018 period. Partially this study reveals that population does not significantly influence the forest steadiness as well as regional income and the forest steadiness the previous year has a positive and direct impact on the forest sustainability in Bali Province during the analysis period with a trustworthiness level of 95 percent.

Forest as a national development capital has tangible benefits, both ecological, socio-cultural and economic benefits, for the life and livelihood of the Indonesian society in a balanced and dynamic way. For this reason, forests must be managed, managed, protected and used continuously for the welfare of all Indonesian people, both current and future generations. Natural resource management in relation to environmental management not only considers the benefits of natural resources in a moment with maximum profits, but what is actually needed is the proper management for the long-term sustainability of development by means of internalizing the negative externalities caused by economic development and the need for committed strong cross-sectoral to maintain the forest sustainability so that it is always steady in accordance with the vision of the government of Bali Province *Nangun Sad Kerti Loka* of Bali.

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Hindu Ecological Conception, from Ritual to Environmental

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Abstract

An ecosystem of creatures' lives in the environment can grow and develop if supported by an atmosphere of life that supports one another, core of giving and receiving, until finally it can bring prosperity and happiness to fellow creatures. For this reason, the sustainability of a beautiful, harmonious and sustainable environment is an absolute requirement to be created and then maintained. It is realized that the effort to create such a condition is not merely to be enjoyed by the current generation, but also for generations of children and grandchildren who are the legal heirs of this environment. Because, in fact the current generation only "borrows" all components of the environment to carry out the process of survival and life in the present. In accordance with natural processes, all elements/components of the environment will be "handed over" to be enjoyed by the new generation later. Consequently, the current generation must leave and or surrender environmental management in a state of beauty, harmony and sustainable so as to be able to provide support for the survival of future generations. This article intends to reveal how Hindus conceptualize ecology and implement it in their social and religious life.

Keywords: Hindu ecology, ritual, environmental

I. Introduction

Ecological issues in the last decade although seemingly subsided and escape attention, but that does not mean it should be ignored. Because, the impact of ecological damage in almost all parts of the world is so real in plain sight. Pollution, exploration, exploitation of all elements of nature so massive and systemic occur, resulting in widespread ecological damage. Starting from the top of mountains, lowlands, watersheds, coastal abrasion, seems to be getting worse. All of that is due to the absence of ecological awareness among the people, especially industrial societies who show more attitudes and behaviors as "natural rulers", not as "friends of nature". As a result, there are many disasters, not natural disasters, but natural disasters, because they are caused by human activity itself which positions itself as the ruler of nature and all its contents. So feel free to

treat natural resources without thinking about the impact and sustainability.

Therefore we need what is called "ecoliteracy" (ecoliteracy). Ecological literacy is a term that was introduced by Fritjof Capra, a physicist from the United States who later explored environmental philosophy. In his book titled *The Web of Life*, published in 1996, Capra emphasized that: "If there is no awareness of the environment, there is no language, awareness and no culture or even no justice. Then we cannot learn human values, we must learn how to live sustainably. More than billions of years the planet has evolved but is able to maximize sustainability, then it becomes the essence of ecological literacy.

Simply put, according to Capra ecology (2007: 142), humans have attained a high awareness of the importance of environmental preservation. This form of

ecological literacy gave birth to the awareness that nature was able to manage itself in a sustainable manner, if without human interference. Therefore, this ecological literacy also leads humans to study nature and take the wisdom to continue living consciously that nature is really a part of him. However, the meaning of human life that is closely related to the environment seems to be increasingly uprooted, especially when humans are faced with the challenges and demands of modern life based on science and technology, which are often in extreme ways of exploring and exploiting natural resources. So that instead of sustained progress that is obtained, but rather setbacks even damage or even destruction that takes place alternately occurs, through various natural disasters as a sign of the environment has experienced a crisis, continued critical and over time could be exhausted. At this point humans as part of nature or the environment will realize, as Green Peace said: "If the last tree has been uprooted, the last river has been polluted, the last fish has been captured, then we will realize that humans cannot eat money".

II. Discussion

Speaking of the environment, what is meant is a unit or a functional unit of living things with their environment in nature. It can also be said, the environment is nature around humans together with other living creatures. By environmental experts, according to their nature can be divided into four (4) groups, namely:

- 1) Physical environment, which includes: sunlight, soil, water, air and natural surroundings in the form of inanimate objects, such as: hills, sea, river, mountain, etc., added with objects of the result of human technology, such as: factories, weapons, and so on.
- 2) The natural environment, including the natural environment around humans in

the form of living creatures other than humans, such as: plants, animals, also microorganisms, and the like.

- 3) 3) The social environment is other human beings around individuals, namely friends, organizations, communities, and so on.
- 4) The cultural environment, is in the form of a cultural, religious, cultural atmosphere, norms around humans themselves, etc. (Soemarwoto, 1994: 173).

Environmental classification as stated above is based on its nature. Meanwhile, according to its function (functionally), it only consists of two (2) components, namely:

- 1) Biotic components, which includes food-producing creatures, such as growing tumhuan; food-eating creatures such as humans and animals whose lives between eating and also being eaten.
- 2) Abiotic components include land (land), water, fire (heat), wind and ether (ether) which in Hinduism are known as Panca Maha Bhuta, which are the five major elements in the nature of God's creation (Soemarwoto, 1994: 174).

A. Theology of Nature Creation

All types of environment as mentioned above along with the components summarized in nature, of course, its existence (created) because of His will. It is impossible for the universe and all the excitement of the creature to simply appear without His will. Clearly, the existence of the universe with all its creatures was created by God. Even something that does not yet exist and will then be determined also by the will of God Almighty. Regarding this Yajur Weda holy book, XXXI. 2.6, states:

"Truly God/Hyang Widhi created everything that has been and will be, that lives growing with food. He is the Almighty God and eternal life "(Titib, 1994: 85).

Added in the Manawadharmastra, I. 41, which states:

"Thus, all of these creatures, both movable and immovable, were created by the Supreme Atma (Hyang Widhi) with the power of his asceticism, all at my command" (Pudja, 1981: 79).

Furthermore, in the holy book of Bhagawadgita, VII. 6, also confirmed:

"Know that all these creatures originate in My nature. I am the origin of the world and its destruction (pralaya) "(Pudja, 1981: 127)

Listening to the scriptures mentioned above can be understood that it exclaims all the nature along with all the elements/components that support an environmental ecosystem such as humans, plants and animals as well as all other things that exist and will exist even though, its existence is by His copyright will. Through its creation an ecosystem of living things will be able to grow and develop as well as kamadhuk (cash cows) that can support each other, give and receive each other. Realizing such an atmosphere of life is certainly necessary for a living condition and the life of beings who can love, respect and harmonize among the relationships between fellow creatures themselves.

Related to this, humans as creatures are bestowed with abilities and strengths with the element of "idyllic word", in fact, is the determinant of the condition of harmony/harmony between the relationships of fellow creatures. Humans with abilities, and strengths can not only make "kamadhuk" (nature and other creatures) the carrying capacity and

source of life for their lives, but with their hands of power humans can also make "kamadhuk" (cash cows) miserable, languish even die of it.

In short, the real human being is also part of an environmental ecosystem, is the key determinant that can make the environment beautiful, harmonious and sustainable or otherwise experiencing a crisis or even critical. Apparently, human beings with the concept of ideas and power of mind have been well aware of their function and role as determinants of conditions in the natural environment itself. So on that basis, humans aside from always utilizing the environment as a living resource that can continue the survival of the human generation, it turns out humans also must not forget their preservation efforts.

B. Philosophy of Debt to the Environment

Hindus in realizing devotion, among others, perform ritual activities (yadnya). The implementation of Yadnya ritual activities is also not free from philosophical foundation. This philosophical foundation cannot be separated from the existence of belief (sradha) which gives an understanding that the existence of the world and all its contents was created by God Almighty/Ida Sanghyang Widhi Wasa through his yad, as stated in the book of Bhagawadgita, III.10:

*Saha-yajnah prajah srstva
Purovaca Prajapatih
anasa prasavisyadhvam
esa vo 'stv ista-kama-dhuk*

Its meaning:

"Once upon a time Prajapati (HyangWidhi/God the creator) created man

through his yad and said that you will develop and let this be your perahan cow (Kamadhuk) (Pudja, 1981: 76).

Substantially, the temple quote above explains that the implementation of the yad is based on the belief that God created the world and all its contents based on its yad. On the basis of that belief, a philosophical understanding (conceptual) is built that the survival of life in this world can only be maintained if the Hindus, as the servants of his creation, do their yad. Only with mutual life in this world can it continue (Cudamani, 1993: 57). This belief then gave birth to a feeling of debt (Rna), which includes three human debts that are inherent and carried from birth (*Tri Rna*).

The concept of Tri Rna then becomes the philosophical foundation on every yadnya implementation in the form of ritual activities. That is why, according to Putra (1982: 2-3), Hindus consider the importance of their mayad's obligation, so that intrinsically based on the belief (sradha) of Hindus, make the yadnya ritual an epicenter of their religious activities. All of that is done as a form of "payment" (Balinese: mepenauran) for debt (Tri Rna) which will be cycled throughout his life through ritual activities yadnya which are broadly grouped into Panca Yadnya, with details:

1. Dewa Rna, namely debt to Ida Sanghyang Widhi Wasa (God Almighty) as the Creator of the world along with all its creatures that can be 'paid' by carrying out the ceremony of Lord Yadnya (worship

of devotees to God and or the Gods) and Bhuta Yadnya (offerings to all elements of nature).

2. Rsi Rna, is a debt to holy people like Maha Rishis who have received and then broadcast or spread God's revelations or teachings as a guide for the lives of the people. The debt to the Rishis can be 'paid' by carrying out the Rsi Yadnya ceremony (tribute to the saints).
3. Pitra Rna, is nothing but a debt to the ancestors, including parents who because of his merits made us all present (born) to the world (mercapada), then cared for until we grew up as useful humans. This Pitra Rna can be 'paid' by carrying out the Pitra Yadnya ceremony (offering to ancestors) and also Manusa Yadnya (devotion to fellow humans) (Subagiasta, 2006: 90).

Next, other sources in the form of the Bhagawadgita scriptures through several stanzas (sloka), both explicitly and implicitly, also state the foundation of the philosophy of the implementation of the yad so that what they aspire to achieve results all come from God. Excerpts of Bhagawadgita, VII. 22 referred to reads:

*"sa taya sraddhaya yuktas,
tasyaradhanam ihate,
labhate ca tatah Kaman,
mayai wa wihitan hi tan"*

Its meaning:

"Endowed with that trust, he seeks worship to it, and he also gets what he aspires for and which result is a gift from myself" (Pudja, 1981: 181).

Except from the holy book of Bhagawadgita, III sloka 12, 13, 14 further emphasizes and reinforces the philosophical foundation of the implementation of ritual activities (yadnya), namely:

*"Ishtan bhogan hi wo deity,
 donsyanthe yajna bhawitah,
 tair dattan apradayabho,
 yobhunkte stena eka is legal "*

Its meaning:

"Indeed, the desire to get pleasure has been given to you by the Gods because of your yadnya, while he who has obtained pleasure without giving his yad is a thief" (Pudja, 1981: 78).

*"Yajna sisayah sinah saint,
 nucyanta sarwa kilbisaih,
 Papa Bhagath,
 ye pacauty atma karanat "*

Its meaning:

"He who eats the rest of his yad will be delivered from all sins (but) He who only cooks food for himself is actually eating sin" (Pudja, 1981: 73).

*"Annad bhawati Bhutani
 parjanya annasam bhawah
 yajnad bhawati parjanyo
 yajnah karma samudbhawah "*

Its meaning:

"The existence of living beings because of food, the existence of food due to rain, the presence of rain due to yadnya, and the existence of yadnya due to karma" (Pudja, 1981: 79).

Based on the quotation of several holy texts above, it can be understood that philosophically the implementation of Hindu ritual activities is based on the existence of belief and awareness that God (Prajapati/Ida Sanghyang Widhi Wasa) has created and preserved life with all his blessings. Therefore, as a creature of His creation, every human being especially Hindus should always give thanks (angayubagia) which can then be realized through the implementation of his yad with all types, forms, and levels based on the encouragement of a sincere and sincere (Wijaya, 2011) : 68).

The essence of the quotation of some of the above scriptural texts provides an understanding of the philosophy that the law of the mayad is reciprocal or reciprocal. That is, God has created the world along with all the gifts of life is to be realized by humanity, in this case Hindus should also "reciprocate" by means of their mayad too. The goal is to care for one another, care for and care for one another, so that this life can continue, both in this world and in later life. If you don't do the yad and just enjoy what God has bestowed, then the person is actually a thief and will eat more and more of his or her own sins.

Therefore Hinduism teaches people to look after each other, care for or nurture through their yadnya, as a way to achieve prosperity (birth) and ultimate happiness (mind). This affirmation has been stated in the book of Bhagawadgita, III.11:

*"Dewam bhawayata ' nena
 Te god bhawayantu wah
 Parasparam bhayayantah
 Sreyah param awapsyatha "*

Its meaning:

'With this you take care of the gods, and with this also the gods take care of yourself. So by caring for one another, you will achieve the highest happiness' (Pudja, 1981: 77).

So about this matter, the principle of reciprocity applies. Not only between humans, the face of the Gods of God's holy rays also applies the law of the willad, which is useful for maintaining each other for the survival of life in an ecology that mutually support each other creatures in a sustainable manner.

C. Hindu Ecology: from Ritual to Environmental

Watra (2010: 171) says, Hinduism in practice is based on the Tri Basic Framework which includes Tattwa (philosophy), Susila (ethics) and Events (yadnya rituals). If analogous to an egg, Tattwa is the yolk part as a substance/core (conception), Susila is the white part of the egg as the essence (meaning/behavior), while the event that no other part of the eggshell as a material element, is commonly realized in various forms. and the type of yadnya ritual activities. It's just that various types of rituals that are still dominant yadnya behaved by offering offerings/offering which are actually still at the level of symbolic expressive rituals. Not yet prominent in activities that lead to the growth of behavior that is completely in line with the meaning behind the mandated symbol. Including ritual offerings that contain the mandate of love of ecology with environmental elements, including:

1) Tumpek Bubuh, Conception of Love for Plants

Commemorated by Hindus every Saturday Kliwon Wuku Wariga (once every 210 days), is called the holy day of Tumpek Wariga/Tumpek Pengatag or also called Tumpek Bubuh because one of the ingredients uses porridge material. This form of ritual practice of Tumpek Bubuh is not as a worship of trees as often misinterpreted, but as an expression of gratitude to God/Ida Sang Hyang Widi Wasa in his manifestation as Dewa Sangkara (God of plants) for his blessings in the form of various plants that produce various types of plants good food for human consumption and other creatures.

From the moral/ethical point of view, this Tumpek Bubuh ritual mandates a message that Hindus love God's creatures whose names are plants. Concrete form, on the day of Tumpek Bubuh, Hindus, among others, are not allowed to cut down trees, including not wanting to pick fruit, flowers, and leaves. Instead they are expected to plant trees/plants that have important meanings for survival and life as stated in the Sundarigama palm leaf library:

"Wariga saniscara kliwon ngaran panguduh puja wali Sang Hyang Sangkara, apan sira amrtaken sarwaning tumuwuh, kayu-kayu kunang widhi widhanya : Pras tulung, sesayut, tumpeng, bubur mwan tumpengagung iwaknya guling bawi, itik wenang, saha raka, panyeneng tetabuh. Kalinganya anguduh ikang awoh mwan godong dadya pamrtaning hurip ring manusa, sesayut cakragani. Kalinganya anuduh kna adnyana sandhi".

Translation:

Wuku wariga namely on the day of Saniscara Kliwon is called the day of the commander, one day to worship the Sanghyang Sangkala because it was he who created all the plants including wood. As for the juice squeeze, tulung, sesayut, cone porridge and cone cone with pork or duck rolled. It is also accompanied by raka-raka (snacks and fruits) that is for fun, tetebus and sesayut caleragni. The bebanten above is: pray for the blessing of Hyang Widhi so that all plants can flourish, bushy fruit blossoming and can be utilized for human life in the peace of heart and inner and outer well-being.

Tumpek Bubuh is a form of worshipping worship before God because of the grace of His creation of plants which are then used by human beings, including Hindus. Through Tumpek Bubuh, Hindus believe that there is a magical power that controls plants or trees as part of an ecology that all elements or components in one another support. Where humans become the most important factor, especially in environmental preservation efforts. Therefore, humans should be able to maintain a harmonious relationship with the natural environment. Tumpek Bubuh also gives lessons to Hindus that the purpose of preserving the natural environment is because humans cannot live without the natural environment with all the biological resources needed in life (Watra, 2010: 123).

In preserving the natural environment, the Tumpek Bubuh ritual gives meaning, function and meaning that should be followed up with concrete action. Because the pattern of human relations with the natural environment is like a chain of mutual need.

This was stated in the library of Kakawin Niti Literature I.10 which likens the relationship between the Lion and the forest, which must protect each other, that: "The lion is the guardian of the forest, but also always guarded by the forest. If the lion with the forest quarrel, they get angry, then the lion leaves the forest. The forest was destroyed by people, the trees were cut down to the point of light, the lions who ran hiding in bulk, in the middle of fields, were invaded and destroyed".

The point is that the existence of the natural environment indeed influences the continuity of the existence of all living things. Especially for human beings, not only can affect physically but also affect the psychological aspect (psychiatric). For this reason, each other living things, especially human beings who have thoughts and interests in the continuity of their lives, must position themselves as the guardians of the natural environment and all their contents, instead of becoming a destroyer let alone a destroyer which is the same as destroying the future of oneself and human successors to finally later.

D. Tumpek Kandang, Animal Love Conception

It seems that people's mental attitude now tends to decrease their love for the preservation of various animals as part of the unity of creatures in the living ecosystem. From various reports it can be seen, in quantity the level of life of species of animals is increasingly scarce, due to the space for his life is no longer able to maximize the quality of life. The cause is very complex, interrelated in a symbiotic crystallization condition. Each other is bound by a cycle of dependency that affects the survival of each other in

carrying out the process of growth or breeding.

Massive deforestation, for example, ecologically means narrowing the living space of a creature's habitat, especially animals. So it is not strange and it is clearly logical that if deforestation continues, it will cause some types of animals that require wide space such as elephants or tigers at any time suddenly enter a settlement of forest dwellers. The risk is that these animals become violent, prey on animals, often damage the settlements or even cause human casualties. This is a sign that suggests that there has been disharmony between natural elements which in fact must always strive to create a fabric of harmony in the condition of symbiotic mutualism. In a simple sense, it can be said that mutual dependence must be part of life attitudes in an atmosphere of "natural friendship" (Wijaya, 2011: 47).

The verse in the book *kakawin Nitisastra* I.10 analogizes "The lion is the guardian of the forest, but is also always guarded by the forest. If the lion and the forest are at odds, they are angry, then the lion leaves the forest, then the forest will be destroyed by people, the trees will be felled until it becomes bright. A lion who runs hiding in a cliff, in the middle of a field is also attacked and destroyed." The analogy of the Lion's friendship with the forest provides a lesson that every living thing in the absolute component of the environment must be able to condition itself in a position of mutual care, caring and beneficial. So that in this context, the role of humans, who are also creatures with the advantages of "eyelash", can rationalize forms of friendship with other

living creatures, including fostering a love for animals, more so which are categorized as endangered species. . So the protection of these creatures should be seen as wise actions of humans as moral beings.

Moving on from the above thought, it is fitting for humans as creatures of a higher degree than other creatures, to have a love of animals, as a reflection that human existence can not only benefit from the existence of animals but also be virtuous to participate in treating various animals in the love of cosmic friendship. Regarding the love of animals, in the practice of Hindu rituals have been conceptualized through a form of offering ceremonies to groups of animals or animals called *Tumpek Kandang*. The ritual implementation of the *Tumpek Kandang* ritual is marked by striking offerings (*banten*) which are distinguished according to the genius/class of each animal.

Theologically, the *Tumpek Kandang* ceremony intended for animals is a form of Hindu devotion to God/Hyang Widhi in his embodiment as *Pasupati* God which is mythologically portrayed as *Sang Hyang Rare Angon* - the god of livestock. The philosophical meaning of the *Tumpek Kandang* ceremony is as an expression of gratitude for the creation of various animals/animals whose existence has helped or helped humans in developing their life and life. So, this *Tumpek Kandang* ceremony does not contain any intention of worshipping animals that are not justified. All of that was done solely as a ritual tradition laden with the radiant Hindu's love for God's creatures. Because, by doing so, it means that people have placed the element of

"Animal" into him. In a sense, Hindus consider that all of His creations are parts of life that support each other in mutual dependence.

E. Nyepi, Generating Cosmic Consciousness

Unlike other Hindu holy days, Nyepi is not really a celebration but more meaningful as a day of purification. If in a celebration, the dominant expression that surrounds the mood or soul is splendor, excitement or excitement, even some of which take place with a spirit of rah-rah or debauchery. So, at the time of Nyepi holy day, all conditions are made to be more meaningful: quiet, as if the world, the universe is like returning to the point of emanation (creation), a period commonly called *tan hana paran-paran* - a state of absence, empty without anything.

Widana (2018: 59) states, Hinduism views the existence of the universe as originating from the Existing Being (God). What exists and exists in the universe is an inseparable part of the existence of God. So, whatever the existence of the whole universe, including humans in it, is the organic unity of the cosmic realm that is integrated into the pluralistic and multiculturalistic life of the universe. Material physical differences that make life in the universe seem diverse, actually remain in His diversity, but diverse in empirical reality. This is a part of ontology (Hindu theology) which simultaneously stimulates humans to continue to awaken their cosmic awareness, that there is a human being (*bhuwana alit*) is part of the existence of the universe (*great bhuwana*). Therefore, humans, as the main creatures created by

God, are glorified to behave nobly by glorifying God through various personifications in the universe.

Hindu theology in creation that departs from the aspect of ontology, gave birth to a philosophy based on an understanding of epistemology placing humans as part of the universe. Humans as microcosm elements are like mini duplications of the existence of the universe (*macrocosmos*), which then form into the "cosmic nature". So humans as an organic unity of the cosmic universe, can also be called "cosmic humans" (Donder: 2009: 214). Humans whose life and death linkages are in the vortex of cosmic nature is played by the *Mulajadi* - God the Creator. It is the main and noble task for beings as perfect as humans to return to their original cosmic consciousness that does not separate their existence from the existence of the universe in His power (Donder, 2013: 159).

Widana (2017: 79) in this context states that, celebrating the Nyepi holy day becomes very important so that Hindus return to their cosmic consciousness. Of course by not stopping at the level of expressive display through ritual media alone, but further and deeper is always trying to increase the very sublimative contemplative practices for the flourishing of souls of cosmic conscious human souls. The human soul is always positive thinking, constructive soul, normative mentality, moral virtue that ends at the top of the tower of highest spiritual awareness. That the Nyepi holy day is not merely interpreted as a symbolic form of canalization of *bhutakala* movements which tend to be "ramya"; always crowded, like rah-rah or partying, as is generally a favorite of humans. But more than that, how can

cosmic people change their capacity, which generally likes dynamic activities in the "ramya" environment, to elevate their status and quality to the "somya" state: neutralized: calm, and controlled. If possible, can continue to advance, increase and reach the realm of "sunya": the truth, that what originally came from the empty will return to the empty realm - the very *paraning dumadi*.

Subagiasta (2006: 143), added that the essence of "returning to the empty world" as the basis of the Nyepi theological concept and philosophy was then transformed by Hindus (Balinese) into the form of the implementation of the Bhuta Yadnya ceremony, starting from the masegeh, mecaru to Tawur levels Great. The meaning, quarter three money with the concept of "returning to the empty world" that is *nyepiang bhuwana* (*alit-agung*), which is ethically-normatively obligatory to be carried out by complying with the Chess of Disability. Chess Brata Depression which contains rules to observe the work (not active), observe gni (do not light the fire), observe the auction (not leaving the house), and observe the auction (not entertaining yourself), is not just touching the physical-material aspects only.

More expected is that touch and resistance will grow in the rise of human cosmic consciousness. An awareness that does not appear by itself, but is a sweet fruit from the results of if-born through the media of cleaning, purifying, and emptying themselves. So that the space and recesses of human conscience will be more cosmic awareness. Furthermore, it can be applied in the form of behavior that is more humanizing the universe, with all the love to commit to caring for

each other, caring for, protecting and preserving it.

III. Conclusion

Reflecting on the phenomenon that has now become a reality that is increasingly increasing the intensity of events that deny the noble concept of Hinduism, it can be said that most Hindus are actually limited to carrying out symbolic rituals that are still expressive. Yadnya philosophy which is a symbol of cleansing, purification and awareness, in fact has not been directly proportional to the tendency of character, character and behavior of some Hindus (Balinese) lately that have not been synergistic between conceptual ideal values with contextual conditions, including in terms of related behaviors with environmental - the environment.

Attributes of religious symbolic rituals practiced by Hindus are apparently not always in harmony with everyday behavior. It is even undeniable that even more intense the emergence of increasingly contradictory, counterproductive and destructive behaviors. Especially behavior that leads to acts of destroying the natural environment by means of exploration and exploitation of biological resources in the interests of economic investment, even at the expense of ecological interests. Now is the time for contemporary religious practices, they should no longer stop at the level of ritual but must continue to develop gradually, starting from the growth of social care, improvement of mental attitude and morality, to culminating in the attainment of spiritual awareness, which in turn returns again to behavior environmental oriented, in order to maintain the existence of the environment and all its living resources.

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Mainstreaming “Green Deen”: Teaching Religion and Ecology to Religious Extension Officers in Indonesia

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Abstract

Religion has been mostly understood as divine or sacred doctrine talking on theology and ritual worships. Along with the complexity of life in the contemporary world, ecology is among the problematic and tough issue. In Indonesian context, among the worse ecological problems are global warming, forest fire, plastic waste, flood, air pollution etc. On the other hand, as the most religiously growing society, we believe that religion is powerful driver to raise awareness on environmental problems among the society. In doing so, the Indonesian Consortium for Religious Studies (ICRS) conducted trainings on religious literacy to hundreds of religious extension officers (penyuluh agama) in several regions in the country. Indeed, religion and ecology is among the subjects on religious literacy. This article is trying to see how the religious literacy program has effectively become a platform to mainstream “green deen” or religious environmentalism among the front-liners of the state in charge of religious guidance for the people. The findings suggest that religious extension officers from all the different faith communities found the sessions on religion and ecology are useful, timely and strategic, as it could enhance the promotion of interfaith engagement and collaboration.

Keywords: ecology, environment, green-deen, plastic garbage, health, religion.

I. Introduction

Along with the pace of democracy and modernity, Indonesia is undergoing such tremendous changes in many different aspects. As a developing country, Indonesia is facing not only many socio-political problems but also ecological ones. Along with modernization which entail the building of many industries and other physical developments, many socio-political and ecological problems arise. At the social level, there are some elements of the society which is left aside of the modernization and became more marginalized society. Modernization which has eased human being into more modern and simple has some disadvantages on environmental level and ecology at large. The more modern and

sophisticated people, the more wastes they produced such as plastics, emission etc. which also lead to global warming. Zainal Abidin Bagir even asserts that democratization of Indonesia could also invoke the rise of environmental problems (Bagir 2015).

Unfortunately, the problem of ecology such as plastic waste and emission is such kind of endless challenges, especially for such developing countries as Indonesia. This complexity of ecological problems which finally lead to involve religious values to raise awareness among the society. Along with the program conducted by the Indonesian Consortium for Religious Studies (ICRS) together with British Council and the Ministry of

Religious Affairs to train religious literacy to hundreds of religious extension officers (penyuluh agama) in several regions in the country, the program is also trying to mainstream “green-deen” as a brand to raise ecological awareness. This paper is trying to see to what extent do religious extension officers responded to the issue and to what extent this issue could be mainstreamed in the society.

II. Ecological Problems and the Role of Religions

Along with modernization of Indonesia which brings about some significant development of the country as well as the society, it also gives some weighty impacts. In the one hand, industrialization and modernization have mostly eased people living in the society in term of transportation, fashion, food, and other kinds of life styles. On the other hand, such modernization also brought about negative influences toward the society as well as the environment. People’s life could be easily endangered due to such modern life styles. Such massive emission of industry and transportation, flood and forest fires due to massive extension of industry, and the massive of plastic waste due to human life styles are among the recent phenomena of ecological problems.

Among the above ecological problems, the most problematic and widely spread issue in Indonesia is plastic waste. As the forth largest population in the world (UN 2019), Indonesia has many significant social as well as ecological problems. Based on the research conducted by

Jenna R. Jambeck and his colleagues from Georgia University, it is found that Indonesia is the second country (after China) to produce waste plastics discarded in the marine environment (Jambeck et al, 2015). Further, the research also mentioned that Indonesia produced plastic waste as many as 6,4 metric tons per year and a half of it were discarded into ocean. The death of Sperm Paus in Wakatobi beach of North Sulawesi in 2018 due to the abundant of waste plastics in its stomach was only a small example of the danger of waste and debris of plastics in the ocean could endanger the marine life.

The above phenomena in fact prove that Indonesia is facing such huge ecological problems. The forest fire which happened almost every year in some parts of Indonesia is one of the ecological problems. The dense population in some big cities such as Jakarta, Medan and Surabaya also bring about social as well as ecological problems. Other than marginalized communities in some big cities, it is quite obvious some environmental crises such as emission, polluted water, plastic wastes etc. In fact, the government either at Jakarta or local level are aware of this problems. Although some policies and regulations have been issued to raise awareness among the society, Indonesian ecological problem is still a huge unresolved problem.

On the other hand, in Indonesian context, religions play a significant public role in the society. In such religious country, all religions could not only survive, but also

play a significant role in almost all aspects of social life. In this respect, religions as a moral force in the society could also as a driver for the ecological problems. In my views, there should be religious values which are in line with environment or ecology in general. With the power of religious authority, I believe, religions could hand-in-hand with the government to solve ecological problems well. Among the religious authority in Indonesia, the role of religious extension officers (*penyuluh agama*) could be empowered to socialize the issue to the society at large.

III. Religions and Ecology

Basically, all religions have good values. So far religions have talked a lot about faith (theology) and worship matters. To what extent do religions talk about environmental issues? The extent to which religions speak and become a driving force for humans to better protect the environment and preserve nature. Apparently, almost all religions talk about environmental issues, with relatively the same language. In general religion teaches to maintain a harmonious relationship between humans and nature. The environment must be preserved and maintained so that humans can continue to live and worship peacefully.

Islam clearly mentions about the obligation of humans to preserve and preserve nature as proof of obedience to God (Qur'an 30: 41). So, in general the concept of human obligation to govern the world properly and responsibly is known as the *khalifah fi al-ard* (substitute of God on earth). Therefore, Fachruddin

Mangunjaya (2012) states that Muslim world has the potential to contribute positively to environmental protection by way of its beliefs and doctrine. In Christianity the moral messages of religion about nature and the environment are also clearly stated. In Genesis 2 verse 15 it is stated that "God took the man, placed him in the garden of Eden to work on it and guarded it." So that in Christians humans are stewardship of God in protecting the world. Furthermore, Pope Francis (2015) issued the Encyclical *Laudato Si* (Praise to You) which talk about caring for our common home (earth).

In addition, Buddhism also teaches values to maintain harmony with the environment. Inner purity in Buddhism means respect for the environment and the mutual relationship between humans and nature. In the Buddha's view, managing the environment by destroying plants is a violation. History proves that the main event in the life of the Buddha took place under the tree. Finally, Hinduism also teaches to protect the environment. Humans, nature and the environment are a perfect ecosystem of God's creation, interdependence between one another is a natural cycle. This notion is clearly stated in *Bhagawadgita* III. Sloka 16.

IV. Mainstreaming “Green Deen” among Religious Extension Officers

Indonesian Consortium for Religious Studies (ICRS) has a multi-year program namely religious literacy. Originally, the program is designed to reduce religious

extremism which recently happened a lot in the country. Essentially, the program refers to learning about religions among religious extension officers in some regions in the country. In Indonesia, religious literacy has become a “multi-faith site for mutual learning among religious communities” (Sofjan, 2019). In doing so, ICRS has built cooperation with the Ministry of Religious Affairs and British Council to conduct workshops among religious extension officers. On the 3rd year of the program, ICRS considers to include the theme of ecology on the workshop. This decision is made based on the assumption as discussed on the previous sub-title that religious values could be good drivers to raise ecological awareness among the society.

Basically, the religious literacy program has effectively become a platform to mainstream “green deen” (Abdul Matin 2015) or religious environmentalism among the frontliners of the state in charge of religious guidance for the people. Among the findings during the workshops of religious literacy program for some religious extension officers in some cities in Indonesia responded positively to the mainstreaming of religious values on ecology, recommendation to the government, and also some best practices they have done so far on their own environment.

First, most workshop participants gave positive responses to the religious values on ecology. They do agree that there are some values concerning to environmental issues on each of their religious values. Most Christians acknowledged that the

environmental issues have been becoming significant themes on church sermons, while some of their Muslim counterparts confessed that this issue quite rarely discussed or even preached in mosques.

Secondly, most religious extension officers agree that ecological problem should involve all parts of the society. As this problem lies deeply in the society, they believe that it would give much effect from the society unless there significant regulation and enforcement from at the governmental level.

Finally, some of the religious extension officers from many different religions acknowledged that some of them have done some best practices on environmental issues among their communities. Based on their own experiences, they have used some religious values to mainstream religious values on ecology to their respective communities.

V. Conclusion

Currently, Indonesia is facing significant problem environmentally as impacts of modernization and democratization. Many environmental problems arise such as emission, plastic waste, flood, and forest fire which all above contribute significantly to global warming. To accelerate the government’s effort to curbs all the above problems, religious values could be empowered to solve the problems. Religion which in fact play a significant role could be a driving force to raise environmental awareness among the society.

In general, all religious extension officers as the participants of the religious literacy workshop responded positively the incorporation of ecological awareness on their preaching. They believe not only that their respective religion has its own concern on ecology, but also that they have done quite significant tasks in the society. However, the participants suggest that the government especially at the local level should issued more regulations on ecological awareness as endorsement to the society.

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The Ecological Crisis and Indonesian Muslim Organization Responses

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ABSTRACT

This paper focuses on Muslim initiatives on saving the environment. It examines various attempts, commitments, statements, and declarations by Muslims around the world to see how these have affected two mass Muslim organizations in Indonesia, namely Nahdhatul Ulama and Muhammadiyah. This paper describes initiatives that have been proposed by international and national Muslim organizations on the environment and analyzes how these initiatives have been implemented by Nahdhatul Ulama and Muhammadiyah organizations in Indonesia based on their two publications about plastic waste. In addition, this paper explores various initiatives in the world that commit to protect nature, carried out in numerous ways ranging from theological to practical. In particular the efforts to overcome plastic waste in An-Nur mosque in Bantul by reducing the use of plastic waste in several mosque events as well as conducting training on organic and non-organic waste sorting. In addition, practical paths are carried out by several environmental activists in Yogyakarta who make several environmentally friendly products and trash banks as an alternative to advocating for waste. Various commitments were built to lead to a clean environment free of garbage. It is important to see aspects of the faith that play a strong role in the awareness of the importance of protecting the earth in the future.

Keywords: Muslim Organization, initiatives, environmental activists, Yogyakarta

I. Introduction

Religion holds the potential is alternative to overcome the environmental crisis. In Indonesia, Majelis Ulama Indonesia (MUI) has issued two statements, which confirm that Muslims should protect the environment. First, statement number 4/2015 concerning the preservation of endangered species to maintain ecosystem balance. Second, statement number 41/2014 concerning waste management to prevent environmental damage. In addition, in the context of the 29th NU Mukhtar in February 2019, one of the issues discussed was a boycott of companies that did not manage waste well and the threat of plastic waste for environmental damage [4]. The

Mukhtar urged Muslim leaders to participate in answering the challenges of the destruction of the environment through the basis of the scriptural proposition [4].

In additionParallel to this, the Nadhatul Ulama (NU) published a book titled called Fiqih Sampah Plastik aimed at contributing to the prevention of waste with Islamic theology. The importance of religion's role in tackling plastic waste is argued considered important as an effort to preserve nature as a creation of Allah SWT. Further explanation, in Tthe book outlines verses in the Koran that correlate with environmental damage and how Muslims must guard it. In addition, there are strategic steps taken by Nadhatul

Ulama (NU) in efforts to tackle plastic waste including waste management using the garbage bank systems and waste management with ecobricks. This book illustrates that theological doctrine towards practicality in facing the challenges of the ecological crisis becomes the challenge of religious communities [7] .

The overflowing waste discharge that occurred at Piyungan TPST (Tempat Pembuangan Sampah Terpadu or integrated landfills) Yogyakarta in December 2018 and March 2019 shows that the level of trash production in Yogyakarta is very high. The data collected at Piyungan TPST shows there every day is as much as 580 tons of garbage entering there every day [11]. Even though some places in Yogyakarta regency already have a trash bank facility, but public awareness to put trash in the trash bank is still not comprehensive. However, the fantastic amount of overflowing rubbish shows the lack of human awareness in household waste disposal. This is in line with my experience as a founder of the Nandur Uwuh trash bank in Bantul, which finds several problems every week related to the lack of human awareness to have the willingness to sort trash that is decomposed or unraveled. This results in the fact that unsorted waste will enter Piyungan TPST, where the amount of waste deposits is increasing every day. The crisis of waste collection and access to management is one factor that does not touch the community. This certainly makes the waste management system in

Yogyakarta still experiencing a growing crisis.

From the above explanation, it is clear that religion could play an important role in rebuilding and preserving the environment. The proposed research analyzes to what extent these initiatives have been implemented by one of the mass Muslim organizations. Several environmental movements make religion as a moral treasurer supporting always be responsible for the preservation of nature.

II. The Initiative of Muslim Communities

A. Environmental Campaign on Social Media

A search on social media found four Muslim communities in the world who have the initiative in carrying out environmental campaigns. The four communities are the Global Muslim Climate Network (@muslimclimate), Green Muslim (@green_muslims), Ecomasjid, and khaleafa.com. Based on the community on social media have statements, declarations, and their actions in protecting nature. Below we will describe the four community findings in the social media.

The Global Muslim Climate Network is an international Muslim community that has the vision to deal with environmental problems. The forms of community action are campaigning on social media to become environmentally friendly Muslims. As in one of the posts on Instagram, "five simple steps to creating a Green Ramadan: Conserve food during iftars and avoid being wasted

by giving excess food to people in need, use relatively quick degradable paper products for iftars to and not at all avoid the use of styrofoam cups and plates,, recycle material, especially plastic water bottles, replace all light bulbs with energy saver bulbs and the converse electricity, give a sermon on the Islamic imperative to conserve and protect the environment."Organisasi ini mendeklarasikan muatan kampanye lingkungan hidup bagi orang Muslim di dunia" [12] Ecomasjid is a community based in the mosque that cares about the environment. This movement originated from Indonesia which carried campaign programs to the mosque to make the mosque more environmentally friendly. One form of action in this community campaign is the use besek (bamboo cubes) for the distribution of sacrificial meat during Eid al-Adha at the Istiqlal Mosque in Jakarta, which in the previous year used plastic [13]. In addition, environmental-based campaigns are also in the form of religious lectures with the theme of a clean and healthy environment. In collaboration with the MUI (Majelis Ulama Indonesia), the Ecomasjid makes conducts training to help always make Muslims more responsible with their rubbish, for example, getting used to carrying old newspapers and throwing them into the trash after the Eid al-Fitr prayer and appeals to process sacrificial animal waste to be used as fertilizer or buried in the ground. These community actions show that mosque-based environmental awareness is also important to do because

environmental damage is also present in mosque activities [13].

Green Muslims is a movement that moves throughout centred on the Muslim community that moves in the environment around the world. From There are this organization contains several declarations and statements about the forms of environmental campaigns by Muslims around the world. One of the goals of this organization is to build a Muslim environment world view that cares about the environment nature and reflects on the environment on a spiritual basis. This organization also launched an Environmental campaign program by opening an Islamic value-added program based on the environment. This program is called "Interfaith Learning and Activism: Exploring Why Nature Is Important for Us". This program is for children around the world aged 8 to 13 years from of all religious backgrounds to conduct interfaith dialogue and to save our nature together [14].

Khaleafa.com is the website of Muaz Nazir, a Muslim activist from Canada who conducts environmental campaigns on social media. He conducted his campaign that is the "Green Sermon Campaign" with writings for a Muslim to live an environmentally friendly lifestyle. From this website there are several alternatives for a Muslim to be able to live an environmentally friendly lifestyle. Some articles about a Muslims always living environmentally friendly at home, office, travel compilation, and joining an environment-based organization. One of the statements on this website is: "Small

changes around the house and on the lawn can reduce your carbon footprint and save money, businesses use large amounts of energy for heating, cooling, lighting, and using equipment. There are several simple ways to reduce energy use, and going to and from home, school or office can be done more intelligently by following a few simple steps" [15].

Based on this website, visitors can find various lifestyle alternatives for a Muslims who cares about the environment. The contents of the writings which show that a Muslim must care about the environment becomes one thing that shows that environmental problems must be dealt with quickly through the help of religious people.

The explanations above describe some initiations of Muslim organizations in the world that carry out environmental campaigns. With that, in the context of Indonesia, the two large Muslim organizations, namely Nadhatul Ulama (NU) and Muhammadiyah, through two publications have developed initiatives effort to solve the environmental issues problem especially related to waste management. The two publications are the Plastic Waste Fiqh book by NU and the 2014 MUI Fatwa by Muhammadiyah. Both of these books explain that Muslims must always care for the environment by being created by God. Subsequently described a description of the contents of the two books above.

B. Indonesian Muslim Organization Responses

Fiqh Sampah Plastik by Nadhatul Ulama is a book created to address the attitude of the public who ignore plastic waste. This book gives an illustration that Nadhatul Ulama has efforts in managing plastic waste by carrying out various waste management efforts. One potential alternative strategy is to open up waste management through a garbage bank, ecobrick, and the "Nusantara Free Garbage" campaign. At the praxis level, the raising of the Nusantara issues free of rubbish is continued with direct assistance work in the community, especially in the boarding school environment which is under the auspices of the NU jam'iyah. Conducting a roadshow program to several points of visit in the area [7].

In the program that was launched by Nadhatul Ulama in the book contained the active participation of the NU community in the management of plastic waste. In practice this assistance is in several pesantren of Nadhatul Ulama (NU) in Indonesia. In addition, the Director of the Nusantara Garbage Bank (BSN) and the Nahdlatul Ulama Disaster Management and Climate Change Institute (LPBINU) were present at the event initiated by the Directorate of Environmental Partnerships at D'Khayangan Senior Living Jababeka, Bekasi, West Java Ministry of Environment and Forestry (KLHK). This is in the context of encouraging community participation in environmental protection and

management activities because in the Bekasi area garbage collection is no longer receiving waste due to overloads [6].

In other hand another case, in a statement by the MUI in 2014 established a fatwa on waste management to prevent environmental damage. Some of the decisions in the fatwa related to the law are:

1. Every Muslim is obliged to maintain the cleanliness of the environment, to use goods for the benefit of benefit and to avoid themselves from various diseases and acts of tabdzir and israf.
2. Disposing of littering and/or disposing of goods that can still be used for self or others' sake is forbidden.
3. Governments and Entrepreneurs must manage waste to avoid harm to living things.
4. Recycling waste into goods that are useful for improving the welfare of its people must be kifayah [5].

In addition, the role of religious leaders is also required to contribute to this fatwa, namely:

1. Give religious understanding about the importance of preventing environmental damage and maintaining ecosystem balance through good waste management;
2. Conducting socialization, playing an active role, and making people aware of waste management and responsible life attitudes through a religious approach;

3. Encourage the preparation of religious guidelines and the formation of "Dai Environment" in order to realize public awareness in waste management [5].

C. Mosque Event: Reducing Plastic Waste

The initiatives to protect nature are carried out from theological to practical. One example on a local scale is the, one of the efforts to overcome plastic waste in An-Nur mosque in Bantul, through is training on organic and non-organic waste sorting to reducing plastic waste. The training program expects to make people aware and taken action to reducing plastic. This program is one implementation of the Muslim organization initiative that practices in Bantul, Yogyakarta [16].

The training program collaborates with Nandur Uwuh trash bank to maintain the garbage in the Mosque until now. This collaboration between local trash bank and Mosque show that religious activity can contribute to protecting nature. In addition, the collaboration can use as an alternative to advocating for waste. Various commitments were built to lead to a clean environment free of garbage[16].

From the above explanation, the findings of this data are then analyzed using one of the theories from Fachrudin Mangunjaya which explains about the four pillars as a solution to solving natural ecological structuring.

III. Analysis

In the book of Fiqh published by Nadhatul Ulama highlightsshow practical steps taken by NU institutions in tackling the current plastic waste problem. Theological doctrine is not thoroughly coveredwritten in the book but rather the efforts made are more practical. This is in line with the statement of Fachruddin Mangunwijaya who returned the task of humans as the manager of nature (khalifah) on earth. The steps which are based on theological roots go to the practice dimension, reflecting the efforts made by Nadhatul Ulama to face the challenges of the ecological crisis. It is hoped that these efforts will work together with several NU affiliates in the archipelago to jointly face environmental problems.

In the MUI fatwa by Muhammadiyah shows the limiting role for human bad behavior in damaging existing ecosystems on earth. This fatwa became a tool used by Muhammadiyah to proclaim that Muslims must work together to deal with plastic waste. The importance of the role of religious leaders is also in this fatwa so that in the practice of preaching can spread propaganda that is environmentally friendly to other Muslims.

This fatwa was made in 2014. Until now, several movements in waste management have not been widely spread, especially in Yogyakarta, the majority of which are Muhammadiyah. Some Muhammadiyah mosques in Yogyakarta as far as I know in Bantul have not fully played a role in waste waste treatment. And in some

practices they still use plastic as their packaging.

The trash free movement is more effectively and practically followed without the affiliation of religious organizations. This is because the problem of garbage is a universal human problem. Some religious organizations are more inclined in strengthening the values of spirituality that pivots on the human dimension. Therefore, in the outer dimension of the faith is often ignored.

My experience in working with a Muhammadiyah mosque, in Bantul, Yogyakarta to conduct organic and non-organic waste sorting training still faces obstacles. One of them is, the 2014 MUI fatwa which still sounded foreign and did not spread widely throughout the archipelago. The result is that practical waste management in Muhammadiyah is still hampered. However, when entering into the leadership of the mosque and explaining the purpose of this training for the mutual benefit of those who live in the local environment, the implementation will proceed. The MUI fatwa was not yet strong enough to encourage Muslims to conduct waste management training.

Two publications of Nadhatul Ulama and Muhammadiyah are a form of ecological crisis response that brings theology into the discourse of environmental problems. This initiative is influenced by several statements, declarations and actions from world organizations that contribute to addressing global environmental issues. The influence is in some of the above

publications in the framework of the background book of Plastic Waste Fiqh by Nadhatul Ulama which states that the issue of the global environmental crisis must be immediately addressed together.

The influence of the global Muslim organization focused based on the environment becomes a reference for the responses of two large Muslim organizations in Indonesia in facing the challenges of religious communities in the environmental crisis. However, this certainly experiences several obstacles in its implementation in society. The fact that is said by Fachruddin Mangunwijaya that explains the four pillars in the religion of Islam that are the solution to environmental problems is in the level of theological dogma of religion. The important issue that needs to be strengthened in the discourse of Muslim organizations is in religious doctrine which involves the role of religious leaders to jointly invite their followers to carry out waste management.

I argue that the strategic step in the effort to manage plastic waste is by inviting religious scholars or leaders of religious organizations to build concrete steps in waste management. This can be done by holding waste management training in each mosque to be the first step to make Muslims aware that the importance of managing plastic waste. Using tools in religious events that are environmentally friendly can also be used as a strategy to increase human awareness in the importance of waste management.

The above certainly is based on the aim at opening the space for greater of

thinking space consideration for religious leaders in how to responding to the challenges of the ecological crisis. The scientific discourse that is not narrow allows religious leaders to open themselves to receive knowledge related to the importance of waste management which is urgency nowadays.

IV. Conclusion

The implementation of two publications by two mass Muslim organizations in Indonesia, namely Nadhatul Ulama and Muhammadiyah, cannot be fully applied in Indonesia. The problem of plastic waste is a complex problem. The challenge of the two organizations is to include ecological contents in theological doctrines and activities. Strengthening of the two organizations can be done if there are efforts of the religious leaders of each organization to jointly invite Muslims to participate in every waste management activity.

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Application of Subak Sengempel System to Become Ecotourism Based on Tri Hita Karana (Case in Subak Sengempel, Abiansema District, Badung Regency)

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ABSTRACT

The foundation of the Subak system used to manage an organization is harmony and togetherness. Harmony and togetherness is a Tri Hita Karana (THK) concept consisting of Parhyangan, Pawongan and Palemahan. This study aims to analyze the implementation of THK to make Subak Sengempel as Ecotourism. The analysis technique used is qualitative and quantitative descriptive analysis. The result of the inverse matrix analysis is the relationship between all sub-systems of the system technology and all cultural sub-systems that can describe the Subak Sengempel into THK concept based ecotourism. The population in the study was 274 people. Respondents in this study were 42 people using Slovin theory. The inverse matrix analysis results illustrate that the ability of Subak Sengempel to become Ecotourism is 87.96%. This result shows that THK elements are good. Going forward, Subak Sengempel is expected to be able to increase the components of THK so that the sustainability of Subak Sengempel as an ecotourism can be maintained.

Keywords: Subak Sengempel, Tri Hita Karana, Ecotourism

I. Introduction

Ecotourism is sustainable nature-based tourism with a focus on experience and education about nature, managed with certain management systems and has the lowest negative impact on the environment, not consumptive and locally oriented (Fennel, 1999 in Arida, 2017)

To maintain the continuity of subak to become ecotourism, a balance between efficiency and effectiveness is needed. To achieve the sustainability of the subak to become ecotourism, it is necessary to apply the philosophical principle of harmony and balance of harmonious relationships known as the Tri Hita Karana (Three things to achieve prosperity in life). Tri Hita Karana is a

concept of harmonious relationships that exist in the teachings of Hinduism. This concept has been proven as a very important concept in any activity and is very universal. This concept is also a balance that is able to maintain as a stabilizer from disturbances that try to disrupt its existence. The concept of Tri Hita Karana is currently a concept that is embedded in subak, in order to maintain existence.

The elements contained in Tri Hita Karana which core elements of the balance value of the relationship between humans and God (the Parahyangan element). Parhyangan is a vertical relationship, or the relationship between humans and God as the creator. This relationship is a form of gratitude towards

God Almighty, because we all realize that everything comes from Him. The relationship between humans and others (Pawongan element). Pawongan is a good relationship between humans and humans. Good social relations will create harmony. This study aims to analyze the implementation of THK to make Subak Sengempel as Ecotourism.

II. Research Methodology

2.1 Determination of Research Locations

The research location was conducted in Subak Sengempel, Bongkasa Village, Abiansema District, Badung Regency. This research took place from November to December 2019. The determination of the study area was carried out by purposive sampling method with the basic consideration that Subak Sengempel would become ecotourism.

2.2 Data Sources

In this study using the following data sources.

2.2.1 Primary Data

Data obtained directly from data sources through interviews using a list of questions that have been prepared previously. Primary data in this study are the characteristics of farmers including the age of farmers, the level of formal education, livelihoods.

2.2.2 Secondary Data

Data obtained indirectly from the data source. In this study the secondary data is the monograph of farmland farmer groups.

2.3 Data Collection Methods

This study uses the following data collection methods.

1. Library research, by conducting library research related to research such as reading books related to research, browsing the internet, reading the results of previous research related to it, as well as documenting studies by collecting data from documents related to research.
2. Field research, namely data collection techniques that are carried out directly to the field or research location.

2.3 Data Analysis Methods

Data obtained in research in the field were analyzed using quantitative analysis methods and descriptive analysis.

1. Quantitative Analysis Method

The application of Tri Hita Karana (THK) to the Sub-Sengempel was analyzed by the matrix of the relationship between all subsystems of the technological system and all subsystems of the cultural system. Where technology as a system has five subsystems namely: software (concept/mindset), hardware (material), humanware (labor related to its ability to the technology), organoware (organization/management), and infoware (information related to technology the). Meanwhile, the cultural system has three subsystems namely mindset/concept, social, and artifacts/material. Where the matrix of the relationship between all subsystems of the technological system and all subsystems of the cultural system will be discussed, which is as follows. Matrix of relationships between all subsystems of the technology system and all subsystems of the cultural system:

- a. The matrix form of the relationship between elements of the business system based on Tri Hita Karana. So that the functional relations of the elements of the business system can be characterized by behavior, then in this methodological study a simplification is made, namely by doing discretization.

$$\overline{A} = [a_{ij}] = \begin{bmatrix} a_{11} & a_{12} & a_{13} & a_{14} & a_{15} \\ a_{21} & a_{22} & a_{23} & a_{24} & a_{25} \\ a_{31} & a_{32} & a_{33} & a_{34} & a_{35} \end{bmatrix}$$

Information:

A = a business system based on Tri Hita Karana

a_{ij} = elements of the relationship of all subsystems of the cultural system with all subsystems of the technological system.

i = cultural system (1 = culture/mindset; 2 = social; 3 = material/artifact).

j = technology system (1 = software; 2 = hardware; 3 = humanware; 4 = organoware; 5 = infoware).

- b. Ideal business system performance
The performance of an ideal business system stated by \overline{A} (a_{ij}) will be similar if the requirements of the a_{ij} element are met, even though they are in different environments. Furthermore, if improvements are made to the air element, then there is a chance that the performance of the business system will achieve ideal performance. Suppose the performance of an ideal business

system matrix is expressed as a matrix \overline{H} (h_{ij}), then the following relationship is obtained.

$$\overline{A} \cdot \overline{X} = \overline{H} \dots (1)$$

Because various elements of the business system are in the form of a matrix, the matrix can have a transformation form (Chapra & Canale, 1985; Supranto, 1992; Suwondo, 1993). The transformation value can be determined by looking at the matrix value \overline{X} , which is obtained by calculating the inverse matrix \overline{A} , as follows.

$$\overline{X} = \overline{A}^{-1} \overline{H} \dots (2)$$

The matrix in equation (1) can be said as a model/form of the transformation matrix, because it transforms a business system with certain performance characteristics into a business form with an ideal performance, in accordance with the Tri Hita Karana foundation. The difference in matrix A and X is expressed by its determinant value (D).

Table 2.1 Matrix of relationships between all subsystems of the technology system and all subsystems of the cultural system

	Subsystem Mindset	Subsystem Social	Subsystem Artifacts
Subsystem Software			
Subsystem Hardware			
Subsystem Humanware			
Subsystem Organoware			
Subsystem Infoware			

- d. Inverse Analysis

The inverse analysis is carried out because the inverse results that have the same value as one of the relationship matrices of the technological and cultural relations of the business system to be transformed. In conducting an inverse matrix there are a number of things that need to be considered.

First, if the matrix is not a quadratic matrix, then to make it a quadratic matrix, the matrix equation (1) must first be multiplied by the transpose matrix of the matrix to be invoked (Jhonston, 1984), so the formula becomes:

$$\begin{aligned}\bar{A} \cdot \bar{X} &= \bar{H} \\ \bar{A}^T \bar{A} \cdot \bar{X} &= \bar{H} \\ (\bar{A}^T \bar{A}) \bar{X} &= \bar{H} \\ \bar{X} &= (\bar{A}^T \bar{A})^{-1} \bar{H} \dots (4)\end{aligned}$$

Second, if the determinant is equal to zero, then the matrix will not be able to process or have no solution. This means that the transformation matrix is equal to zero, or there is no transformation matrix. But Nurrochman (1998) provides a mathematical solution for a matrix that has a determinant equal to zero, namely by manipulating the matrix. How to manipulate the matrix \bar{X} as follows \bar{X} .

- i. Take or remove one of the columns from the matrix \bar{A} so that the matrix \bar{A} will become a matrix \bar{A}
- ii. Take or remove one of the rows from the matrix \bar{A} corresponding to item i above, so that the matrix \bar{A} becomes a matrix \bar{A} .

Furthermore, as seen in equation (3), after the matrix can be calculated, and the matrix is known, the two matrices can be distinguished by calculating the determinant (D).

The value of Z in equation (3) shows the probability of the sample (business) company to be transformed. The business system can be transformed (known the THK application capability), determined by the absolute value of the determinant differences D and D *, and or the value of D * is zero, then the business cannot be transformed (does not transform/apply Tri Hita Karana). A business system can be transformed (has the value of applying Tri Hita Karana) if the value is $D > D^* > 0$.

The greater the value of Z, the greater the ability of the business to implement Tri Hita Karana. The details are as follows.

- i. If the value of Z, $0 < Z < 33\%$ can be interpreted as poor implementation of the Tri Hita Karana.
- ii. If the value of Z, $33\% \leq Z < 67\%$ can be interpreted quite well the application of Tri Hita Karana.
- iii. If the Z value, $67\% \leq Z < 100\%$ can be interpreted well the application of Tri Hita Karana.

1. Descriptive Analysis

The types of activities carried out in Subak Sengempel use descriptive analysis. Descriptive analysis method is a method of presenting the analysis of data interpretation by describing a social and environmental

phenomenon by interpreting the facts in the field.

III. Result And Discussion

3.1 Descriptive Analysis

Based on the interview results, it is known that the ideal expectation matrix and the actual situation can be seen in Table 3.2 and Table 3.3 as follows.

Tabel 3.1 Ideal Hope State (H)

	Subsystem mindset	Subsystem Social	Subsystem artifacts
Subsystem <i>Software</i>		5,00	5,00
Subsystem <i>Hardware</i>	5,00	5,00	
Subsystem <i>Humanware</i>	4,00		5,00
Subsystem <i>Organoware</i>	5,00	5,00	5,00
Subsystem <i>Infoware</i>	5,00	5,00	5,00

Tabel 3.2 Actual Hope State (A)

	Subsystem mindset	Subsystem Social	Subsystem artifacts
Subsystem <i>Software</i>		4,67	4,20
Subsystem <i>Hardware</i>	5,00	4,80	
Subsystem <i>Humanware</i>	4,30		4,78
Subsystem <i>Organoware</i>	4,50	4,56	4,55
Subsystem <i>Infoware</i>	3,70	5,00	4,50

3.2 Matrix Determinant Analysis

The application of THK in Sengakel Subak to become ecotourism can be seen by observing the results of the calculations of the two matrices, namely the ideal expectation matrix with the actual state matrix. With the following calculation:

$$\begin{pmatrix} 0,00 & 4,67 & 4,20 \\ 5,00 & 4,80 & 0,00 \\ 4,30 & 0,00 & 4,78 \\ 4,50 & 4,56 & 4,55 \\ 3,70 & 5,00 & 4,50 \end{pmatrix} \begin{pmatrix} 0,00 & 5,00 & 5,00 \\ 5,00 & 5,00 & 0,00 \\ 4,00 & 0,00 & 5,00 \\ 5,00 & 5,00 & 5,00 \\ 5,00 & 5,00 & 5,00 \end{pmatrix}$$

A H

Matrix Normalization Results A

$$\begin{pmatrix} 0,000 & 4,934 & 0,875 \\ 1,000 & 0,966 & 0,000 \\ 0,700 & 0,000 & 1,000 \\ 0,900 & 0,890 & 0,973 \\ 0,750 & 1,000 & 0,973 \end{pmatrix}$$

Matrix Transpose A

$$\begin{pmatrix} 0,000 & 1,000 & 0,700 & 0,900 & 0,750 \\ 0,934 & 0,966 & 0,000 & 0,890 & 1,000 \\ 0,875 & 0,000 & 1,000 & 0,973 & 0,973 \end{pmatrix}$$

Multiplication Result A.AT

$$\begin{pmatrix} 1,638 & 0,902 & 0,875 \\ 0,902 & 1,933 & 0,700 \\ 0,875 & 0,700 & 1,490 \end{pmatrix}$$

Invers Matrix A.AT

$$\begin{pmatrix} 1,027 & -0,314 & -0,455 \\ -0,314 & 0,720 & -0,153 \\ -0,455 & -0,153 & 1,011 \end{pmatrix}$$

Determinan Matrix A: 2,457

Matrix Normalization Result H

$$\begin{pmatrix} 0,000 & 1,000 & 1,000 \\ 1,000 & 1,000 & 0,000 \\ 0,850 & 0,000 & 1,000 \\ 1,000 & 1,000 & 1,000 \\ 1,000 & 1,000 & 1,000 \end{pmatrix}$$

Multiplication Result H.AT

$$\begin{pmatrix} 1,809 & 0,966 & 1,000 \\ 0,934 & 1,966 & 0,700 \\ 0,875 & 0,850 & 1,595 \end{pmatrix}$$

Matrix Invers A.AT. H.AT= X

$$\begin{pmatrix} 1,166 & -0,013 & 0,081 \\ -0,031 & 0,981 & -0,055 \\ -0,083 & -0,118 & 1,049 \end{pmatrix}$$

Matrix Invers X

$$\begin{pmatrix} 0,854 & 0,019 & -0,065 \\ 0,031 & 1,014 & 0,051 \\ 0,064 & -0,112 & 0,942 \end{pmatrix}$$

Deteminan Matrix X: 1,213

THK implementation value is 87.965% which is included in the very good category, where Subak Sengempel has been operating well and continues. This seems to indicate that it is sufficient to assess that the operational implementation of the Subak Sengempel activities to become ecotourism carried out in the farmer groups will continue, as long as there are no significant obstacles.

VI. Closing

4.1 Conclusions

Based on the analysis and discussion as presented in the previous chapter, it can be concluded that the implementation of Tri Hita Karana in the activities of Subak Sengempel farmers stated that the value of applying THK in the Subak Sengempel Farmer Group is 87.965% which is

included in the very good category. The THK implementation value of 87.965% is enough to assess that the operational implementation of the activities carried out on the farmers of Subak Sengempel will continue, as long as there are no significant obstacles.

4.2 Suggestions

Based on the results of the assessment of the implementation of Tri Hita Karana in business activities in the Subak Sengempel, suggestions can be given as follows. The implementation of Tri Hita Karana in the activities of Subak Sengempel in order to be maintained with the aim of continuing the ecotourism activities that have been carried out.

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Community Participation in The Development of Tourism Village and Their Impact on The Community's Economy

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ABSTRACT

Tourism Village is one form of application of sustainable community based tourism development. The development of a tourism village based on local wisdom requires the participation of people who are always innovating and creative in developing their villages. The development of a tourism village can have direct and indirect economic impact. This research aims to identify the concept of community participation, the development of tourism villages, community participation in the development of tourism village, tourism village development towards economic improvement, and analyze community participation in the development of tourism village and their impact on improving the community's.

Keywords: participation, tourism village development, economic improvement

I. Background

Tourism development policy is directed to be the main and excellent sectors, meaning tourism is able to become foreign exchange producers, encourage economic improvement, increase the local revenue, empower the economy communities, expanding employment and opportunities to strive, nurturing national personalities and religious values, and preserving the functioning and quality of the environment.

The potential of tourism attraction both natural and cultural nuance generally located in the village, so that various potential tourist attraction needs to be developed so that people benefit from the the village potential, among others by making it a tourism village. If such potential is not developed, according to [1] it affects the decrease in public income. Therefore, through the development of tourism villages, natural environment and cultural in the village will be preserved and quality.

The development of tourism village is relevant to the shifting model of tourism development that pays more attention to social and ecological aspects as well as the economic development of rural communities. The World Tourism Organization (WTO) reported in 1995 has developed an alternative tourism that respects the natural environment and cultural. [2] stated that a tourist village is a form of tourism, a small group of tourists live in or near a traditional life or in remote villages and study the local village and neighborhood life. Furthermore [3] defining a tourism village is a form of integration between attractions, accommodation, and supporting facilities presented in a society's life structure that blends with the prevailing ordinances and traditions.

II. Research Objectives

This research aims to analyses the concept of community participation, tourism village development, community participation in tourism village development, tourism village development of economic improvement, and

community participation in tourism village development and its impact on increasing community economy.

III. Research Methods

Related to research was document study studies, this research used methods of secondary data analysis by collecting materials in the form of research results, reference books, articles on journals, proceeding reports, theses, or dissertations of both national and international. From the various theories and concepts gained from these sources, it is further summarized, analyzed, and created the syntax of articles.

IV. Discussion

A. Community Participation

According to [4] participation is a force that the community has to overcome its current issue in order to achieve a better life in the future. Participation is also a redistribution of power that enables the underrepresented people to be involved in planning future development. While [5] it is said that participation is a special form of interaction and communication relating to the sharing of authority, responsibility, and benefits. Theodorson in [5] suggests that in a daily sense, participation is a person's involvement (individual or citizen) in a particular activity. The intended involvement is not passive but is active by the concerned.

Thoughts on community participation by [6] means participating in the community in development, planning, implementation, supervision and evaluation, and enjoying development outcomes. Thus, the success of national development determined by the level of community participation, both in contributing inputs and in enjoying the results. In the context of tourism, [7] states the orientation of tourism development needs to place the above fact as a fundamental consideration in developing capacity and capability in society. The goal is to improve

the service and the central role of society in tourism in accordance with the expectations and abilities that have.

The development of tourism villages in Indonesia is more facilitated by the country, while people tend to be passive. Consequently, in responding to state-sponsored innovations in the development of tourism villages still face a number of crucial issues [8]. Bottom up planning forces local communities to think and move to design and decide a pattern of tourism development that favored communal interests. While [9] it confirms that participation is a willingness to help the success of the program according to everyone's ability without necessarily sacrificing its own interests.

B. Tourism Village Development

According to [2] the tourism village is a form of tourism, a small group of tourists living in or near traditional life in remote villages and learning the village lifestyle and local environmental. While [3] states the tourism village is a form of integration between the attractions, accommodation, and supporting facilities presented in a community life structure that blends with the ordinances and traditions that apply.

The Ministry of Culture and Tourism created a program called Community Based Tourism (CBT). Community-based tourism can be classified as 7 (seven) as found in Development of Community Based Tourism: Final Report 2003 [10] namely: Basic Visitor Facilities, Basic Visitor Facilities plus Tourism Theme, Handicraft Villages, Hotels and Villages Communities, Traditional Tourism Villages, Community Close To Primary Tourism Attraction, and Integrated and Organized Community Based Tourism.

In relation to the concept of tourism village development, [11] defines the development of tourism villages as a process that emphasizes ways to develop or promote

tourism villages. More specifically, the development of tourism village is interpreted as efforts to complement and improve the tourism facilities to meet the needs of tourists. In addition, an important component that needs to exist in the development of tourism village itself is the participation of local people, local norms system, local customary system, and according to [12] plus local culture.

C. Community Participation in Tourism Village Development

Community Based Tourism is a model of development that provides opportunities to rural communities to participate in tourism development. The idea of activities and management is done entirely by the community and the benefits are felt directly by local people. Thus, the community-based tourism role of local communities as stakeholders is the most important element in the development of tourism villages [4]. Through the development of tourism village is expected to be equalization in accordance with the concept of sustainable tourism development.

Based on [13] the principles of community-based tourism include: recognizing, supporting, and promoting public ownership of tourism; involving community members from scratch in all aspects; encouraging community pride; improving quality of life; ensure environmental sustainability; retain unique character and local culture; cross-cultural learning; respect cultural differences and respect human dignity; distribute benefits evenly among community members; contributions to community activities.

The uniqueness of tradition and culture inherent to the village community is the driving of tourist villages. According to Weaning (2001) in [4] the success of tourism village development depends on the level of acceptance and support of local communities.

Local communities serve as hosts and become actors in the development of tourism villages on the planning, supervision, and implementation stages. The illustrations expressed by Wearing (2001) in [4] confirm that the local community is equally important to the government and private sector as stakeholders in tourism development.

[14] emphasizes that community participation is an important component for the growth of empowerment. According to [15] there are two perspectives on seeing community participation in tourism. Both perspectives are local community participation in the decision making process. Timothy emphasizes the need to involve communities in decision making by accommodating local people's wishes and objectives in developing and absorbing tourism benefits.

Communities in the development area should be encouraged to identify their own objectives and directing the development of tourism to improve the fulfillment of local community needs. In addition to participating local people in decision-making, Timothy considers the importance of involving stakeholders namely government, private, and other community members to take part in decision making and see the importance of tourism education for local communities to increase community capacity, especially in accepting tourist benefits.

D. Tourism Village Development Towards Economic Enhancement

The law of RI No. 10 of 2009 on tourism describes multi-dimensional and multidisciplinary tourist, as a manifestation of the needs of every person and country as well as the interaction between tourists and local people, fellow tourists, governments, local governments, and entrepreneurs. Furthermore, [16] state tourism has institutional aspects and the benefits of human activity aspects. As the institution can

be seen from the management side, namely how tourism planned, managed, and marketed to tourists. In terms of benefits, according to [17] tourism is a benefit for tourists and local people. According to Tibout in [18] the impact of tourism for the local economy is very high, because the money that tourists spend is a fresh money for the local economy that can affect the local economy and can be directly enjoyed by the community.

Regional economic development is the process of managing resources which among local governments, communities, and the private sector partnered to create new jobs and stimulate the development of economic activity within the region [19]. Each effort of district economic development aims to increase the number and type of employment opportunities for local communities. To achieve the objectives, local governments and communities jointly take regional development initiatives.

E. Community Participation in Tourism Village Management and It's Impact on Improving Community Economy

Local community participation is an important component of sustainable development, aims to meet the needs of current and future generations, while protecting natural resources. In the implementation there are external and internal factors that affect the participation of the community. Internal factors include age, gender, occupation, education and knowledge. While external factors include environment, weather, stakeholders, and community leaders. Meanwhile, according to [20] the obstacles of the participation of society consist of 3 obstacles namely operational, structural, and cultural.

Through the development of tourist villages, people are given insight into tourism and the ability to take advantage of the potential and attractiveness of its village.

Tourism is an activity that has a wide dynamic impact in which various businesses can be created through tourism activities. The main components in tourism activities are tourist attraction supported by other components, such as transportation, accommodation, restaurants, cultural attractions and souvenirs. These components provide facilities and services directly in fulfilling the needs of tourists visiting a tourist destination. From the activities of the tourism component will arise other business activities that are indirectly related to tourism activities, it called induced impact.

V. Conclusion

Community participation in tourism is explicitly explained in the law of RI No. 10 year 2009 about tourism, which starts from the planning, implementation, management or utilization, enjoying the results, and evaluation.

Participation is considered as the right of citizens to be involved in the decision making process at every stage of development. This signifies community participation as an important key to the success of tourism village development. In its implementation, community participation is influenced by factors that both support and inhibit.

Community participation in tourism village development (direct and indirect) has an impact on economic enhancement in tourism village development area, whether direct or indirect.

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Effectiveness of Galuhayu Incense *Kluwih Flower (Artocarpus camansi)*, *Pandan Wangi (Pandanus amaryllifolius)*, Wood Powder as an Insecticide to Minimize *Aedes aegypti* Mosquito

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ABSTRACT

This study aims to determine the effectiveness of Galuhayu Incense (kluwih flower (*Artocarpus camansi*), pandan wangi (*Pandanus amaryllifolius*), wood powder as an insecticide to minimize the *Aedes aegypti* mosquito. This study used an experimental research design with a completely randomized design study (CRD), the sample of the study was 625 adult *Aedes aegypti* mosquitoes, each containing 25 mosquitoes, repeating the treatment 5 times, with a exposure time of 0 (control), 10, 20, 30, and 40 minutes. The research was conducted for 3 months, starting from July to September 2019. The research was carried out at the Entomology and Parasitology Laboratory, the Health Service Laboratory and the UPTD. Hyperkes and KK of the Province of Bali. Data analysis with one-way ANOVA test and Fisher's LSD test. The results showed a significance value of 0.00 less than $p < 0.01$ so that galuhayu incense significantly affected the number of *Aedes aegypti* mosquito deaths and the most effective exposure time was 30 minutes with endurance 5-6 hours after the incense was lit. Laboratory results show $PM_{2.5}$ levels of $0.7 \mu g/Nm^3$, CO levels of $0 \mu g/Nm^3$, NO_2 levels of $0.4 \mu g/Nm^3$, SO_2 levels of $2.97 \mu g/Nm^3$, O_3 levels of $0.7 \mu g/Nm^3$, H_2S levels of 0.002 ppm and TSP levels of $1.38 \mu g/Nm^3$. Thus, Galuhayu incense is effectively and safely used as an insecticide to minimize *Aedes aegypti* mosquitoes in accordance with Government Regulation of the Republic of Indonesia No.41 of 1999 and Bali Governor Regulation No.16 in 2016 Concerning the National Ambient Air Quality Reference.

Keywords: *Aedes aegypti*, Galuhayu Incense, Insecticide.

I. Introduction

Dengue Hemorrhagic Fever (DHF) is one of the diseases transmitted by mosquitoes which is a global health problem especially in developing countries. Lately, dengue fever has become a classic problem which is certain to appear every year, especially at the beginning of the rainy season (DEPKES RI, 2005). At present the population at risk of Dengue Haemorrhagic Fever (DHF) in the world reaches 2.5 billion people spread over 100 countries in Asia Pacific, America, Africa, and the Caribbean and or 40% of the world's population. The World Health Organization (WHO) estimates that 5-100 million infections occur annually. In the report of the percentage of DHF cases in 10 Southeast Asian countries in 2006-2015, it was recorded that 57% of

all cases that occurred in Southeast Asia were reported from the Indonesian region (Faizatun N., et al, 2016).

Dengue Hemorrhagic Fever in Indonesia has increased significantly every year. In 2015 the Incidence Rate (IR) figure reached 50.75 per 100,000 population and in 2016 it reached 78.85 per 100,000 population (Depkes RI, 2017). The high cases of dengue fever in Indonesia are caused by several factors including: the high population of *Aedes aegypti* mosquitoes, the increasing population and population density in Indonesia, the declining quality and quantity of the environment both soil, water and air, as well as the increasing use of synthetic insecticides in various regions in Indonesia one of them is the Province of Bali (Wigati and Susanti, 2017). Bali

Province is an active province in developing the health, tourism and environment sectors based on local wisdom. Bali is one of the islands as an international tourism destination as well as a province with the highest number of Dengue Hemorrhagic Fever cases in Indonesia (Adnyana, 2018).

Based on the Bali Provincial Health Service Report in 2018, the number of Dengue Hemorrhagic Fever Patients (DHF) in Bali Province reached 5,487 cases with 28 deaths, and the Incidence Rate (IR) reached 105.7 per 100,000 population, this number is still far above the target. The national level established by the Republic of Indonesia Health Office in 2017 reached <49 per 100,000 population (Profile of the Bali Provincial Health Service, 2019). At present, the use of synthetic insecticides in the community has increased significantly. It is known that the synthetic insecticide content is very dangerous both for body health and the environment. Insecticides circulating in the market contain several chemical compounds including organochlorines, organophosphates, kabamat, pyrethroids, and DEET (Sutarto and Syani, 2018).

The content is not only as an insect repellent, but a toxic cause through the accumulation of acetylcholine in the body (Prasetyowati and Wahono, 2016). The effort that can be done is to explore new ways of controlling insects that are safe and effective. One of them is to replace synthetic insecticides with environmentally friendly insecticides to reduce the incidence of dengue fever in the province of Bali through the use of plants as insecticides in the form of incense.

Incense is a ceremonial facility used for worship processions that have a fragrant aroma and have a varied shape used by Hindu communities, especially in the Province of Bali (Nala, 1994). Generally incense sticks with varying sizes, but now there are many other forms such as cones,

circular, and shaped like a candle. The use of incense in general by burning which serves as a witness ceremony (*purohita*) by all levels of Hindu society, especially in the Province of Bali. The use of incense by the Hindu community in Bali is very high, the increased use of incense in the community certainly has its own problems, one of which is the raw material used to produce incense. The results of a preliminary study to the distributor of incense in Bali Province showed that 95% of the incense in Bali originated from import activities from the regions of Java, China, Thailand and India. Until now Bali does not yet have its own incense brand product.

The problem that occurs in the community is that the raw material for incense used still uses wood dust waste obtained from the wood craft industry. However, incense fragrances still use synthetic fragrance materials. Synthetic fragrance ingredients if burned cause poisoning, endanger the health of humans and livestock such as causing cancer of the respiratory tract, paralysis, physical disability (Wardhana and Wijaya 2015) and death as well as increasing levels of pollutants in the air such as Carbon Monoxide (CO), Nitrogen Dioxide (NO₂), Sulfur Dioxide (SO₂), dust particles (TSP), Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbon compounds (PAHs) and toxic substances which cannot be directly degraded by the environment, so that the causes of pollution are relative to the environment high (Lestari and Navasumprit, 2016).

The tendency of people to return to nature (back to nature) causes demand for products derived from natural materials is increasing. Therefore, there is a relatively new breakthrough to support and answer the problems experienced by the community, namely the development and use of incense raw materials derived from kluwih flower waste (*Artocarpus camansi*), pandanus

fragrance (*Pandanus amaryllifolius*) and wood powder called *Incense Galuhayu*.

Pharmacologically, kluwih flowers (*Artocarpus camansi*) and pandan wangi (*Pandanus amaryllifolius*) contain essential oils, chalcone compounds, dihydrocalcon, flavanone, flavone, 3-prenilflavone derivative, 3-geranilflavon, piranoflavon, oxepinoflavone, stanton tannins and polyphenols which have an inhibitory effect

II. Purpose

The purpose of the research that has been done is to find out Galuhayu Incense (Kluwih Flower (*Artocarpus camansi*), Pandan Wangi (*Pandanus amaryllifolius*), wood powder effective as an insecticide to minimize the *Aedes aegypti* mosquito.

III. RESEARCH METHODS

This research uses experimental research. The research design used was a Completely Randomized Design (CRD) and repeated treatments 5 times referring to the Frederer formula, 1991: $(t-1)(r-1) > 15$, where t = number of samples for each treatment group, r = number of groups treatment. Referring to the formula, the test in this study $r = 5$, a total sample of 625 animals. This is in accordance with procedures recommended by the World Health Organization Pesticides Evaluation Scheme (WHOPES, 2009) and the Pesticides Commission, 1995).

This research was conducted for 3 months from July to September 2019. The research was conducted at the Entomology and Parasitology Laboratory, Denpasar Health Polytechnic for *Aedes aegypti* mosquito breeding and testing the effectiveness of galuhayu incense. Health Service Laboratory and UPTD. Hyperkes and KK of the Province of Bali for safety testing of galuhayu incense smoke and ash and the place to produce galuhayu incense located at UD. Bali Prapen site selection is

on insect feeding, respiratory inhibitors and moulting inhibiting hormones (Research Institute for Medicinal and Aromatic Plants, 2011). Polyphenolic compounds, tannins and flavonoids are desiccant. The poison is a contact poison that can cause death in insects due to continuous desiccation (Hariana, 2016).

due to the equipment needed in this complete research available.

The writing method in this study is based on data obtained when conducting research on galuhayu incense testing as an insecticide to minimize *Aedes aegypti* mosquitoes. And supported by health journals, environmental health journals and theories sourced from the literature. The data collection method in this study is based on a preliminary study by obtaining data on the number of dengue fever (DHF) cases in each district located in the working area of the Province of Bali through the website of the Provincial Health Office of Bali and the Provincial Statistics Office of Bali.

The tools and materials used in this study are as follows: 1 medium sized bucket, small plastic cups with a volume of 50 ml, scales, scissors, knives, white gauze, filter paper, mosquito cages of 40x40x40 cm³ size of 5 pieces, handscone, cotton, hygrometer, thermometer, aspirator, gas lighter, stopwatch, data recording form, stationery, camera, kluwih flower (*Artocarpus camansi*), pandanus scented leaves (*Pandanus amaryllifolius*), wood powder, 625 *Aedes aegypti* mosquito eggs, water, fish pellets, 50 grams of sugar, 500 grams of sticky powder, 2000 sticks of bamboo sticks.

The data of this study are the number of mosquito and larvae deaths due to exposure to galuhayu incense smoke with the tail unit presented in tables, graphs and narratives. Data analysis used statistical one-way ANOVA (Analysis of Variance) test with

significance level $p < 0.01$. As well as a post hock test with Fisher's LSD to determine differences in significance in each treatment at different times.

Data on the distribution of the characteristics of the effectiveness of galuhayu incense on the number of *Aedes aegypti* mosquito deaths carried out for 10 days, repetitions 5 (five) times with time 0 (control), 10, 20, 30 and 40 minutes are presented in Table 1.

III. Results And Discussion

Table 1. Results of observations on the number of adult *Aedes aegypti* mosquito deaths exposed to galuhayu incense smoke (Source: Research Results, 2019)

Time (minutes)	Number of Mosquitoes	Number of Mosquito Deaths <i>Aedes aegypti</i>					Total	Average
		I	II	III	IV	V		
0	125 Ekor	0	1	0	2	1	4	0,8
10	125 Ekor	7	6	9	12	17	51	10,2
20	125 Ekor	14	17	19	16	22	88	17,6
30	125 Ekor	23	25	22	21	25	111	23,2
40	125 Ekor	25	24	25	25	23	122	24,4

Based on the results of the study in table 1 shows that the average number of *Aedes aegypti* mosquito deaths exposed to galuhayu incense smoke in 0 (Control), 10, 20, 30, and 40 minutes respectively was 0.8;

10.2; 17.6; 23.2; and 24.4 tails. The following results of one way ANOVA statistical tests on the number of *Aedes aegypti* mosquito deaths exposed to galuhayu incense smoke are presented in table 2.

Table 2. One way ANOVA test results on the number of *Aedes aegypti* mosquito deaths exposed to galuhayu incense smoke

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1933.760	4	483.440	71.727	.000
Within Groups	134.800	20	6.740		
Total	2068.560	24			

Source: Data processing, 2019.

One way ANOVA statistical test results showed that the significance value was 0.00 less than the p value < 0.01 so that galuhayu incense significantly affected the number of *Aedes aegypti* mosquito deaths and was suitable for use as an insecticide. The following is a graph of the average number of *Aedes aegypti* mosquito deaths exposed to galuhayu incense smoke at different times.

The following graph shows the average number of *Aedes aegypti* mosquito deaths exposed to galuhayu incense smoke in the

span of 0 (control), 10, 20, 30 and 40 minutes experienced a very significant increase. Thus, Galuhayu incense is effectively used as an insecticide to reduce the prevalence of Dengue Hemorrhagic Fever (DHF) in Bali Province and the most effective exposure time is 30 minutes with durability 5-6 hours after the incense is lit. The following is the post hock Fisher's LSD test data on the number of *Aedes aegypti* mosquito deaths exposed to galuhayu incense smoke presented in table 3.

Table 3. Fisher's LSD post hock test results on the number of *Aedes aegypti* mosquito deaths exposed to galuhayu incense smoke

Waktu	0	10	20	30	40
0	-	0,00*	0,00*	0,00*	0,00*
10		-	0,01*	0,00*	0,00*
20			-	0,00*	0,00*
30				-	0,47
40					-

Source: Data processing, 2019.

Note: * shows between significantly different treatments (significant)

Based on the results of the Fisher's LSD post hock test on the number of *Aedes aegypti* mosquito deaths exposed to galuhayu incense smoke showed that the treatment with 30 minutes compared with 40 minutes time value of $p > 0.01$ was 0.47. Thus, the treatment shows no significant or insignificant difference.

The high mortality rate of *Aedes aegypti* mosquitoes using galuhayu incense is caused by secondary metabolite compounds produced by plants to be used as a means of self-defense from outside attacks or predators. Raw materials from galuhayu incense consist of kluwih flower (*Artocarpus camansi*) waste containing essential oils, chalcone compounds, dihydrocalcon, flavanone, flavones, derivatives 3-prenilflavone, 3-geranilflavon, piranoflavone, oxepinoflavone, xanthon, stilbene, saponins, flavonoids, tannins and polyphenols which have the effect of inhibiting the eating of insects, respiratory inhibitors and molting inhibitors (Research Institute for Medicinal and Aromatic Plants, 2011). And fragrant pandan leaves (*Pandanus amaryllifolius*) contain secondary metabolite compounds including polyphenols, flavonoids, saponins, essential oils, and alkaloids (Rina, M. et al, 2012). Alkaloid compounds, polyphenols and flavonoids found in pandan leaves act as an anti-mosquito. Research Harborne, JB (1987) said the compound is effective as an insect repellent.

The content of compounds that are very influential in the flower kluwih (*Artocarpus camansi*) and fragrant pandanus (*Pandanus amaryllifolius*) namely flavonoids, saponins and polyphenols. Flavonoids act as a powerful inhibitor of the respiratory system of adult insects. This substance will affect and damage the respiratory system of *Aedes aegypti* mosquitoes so that, mosquitoes experience significant death. Saponins function to reduce the surface tension of the insect's body, which causes the release of toxic substances so that it can easily enter the insect's body as a result of which the insect is easily traumatized by the skin and is continuously dehydrated. While polyphenols are able to bind to adhesion factors, extracellular proteins and soluble proteins cause the process of cell damage and cuticle insects to be faster and higher as a result mosquitoes easily die (Faizatun, N., et al, 2016).

Polyphenol, tannin, alkaloid, saponin and flavonoid compounds are desiccant. The poison is a contact poison that can cause death in insects due to continuous desiccation (Hariana, 2016). The mechanism of polyphenol compounds, flavonoids and saponins is a compound that damages the cuticles, cell membranes, respiratory tract insects and inhibitors of molting hormones so that mosquitoes experience desiccation (Widiani and Kartini, 2015). Polyphenols are bioactive compounds which are not preferred and are

avoided directly by insects including mosquitoes. The use of bioactive compounds is very useful as an insect repellent, as well as the content of flavonoids such as chalcone, dihydrochalcone, flavanone, flavone, derivatives 3-prenylflavone, 3-geranylflavone, piranoflavone, oxepinoflavone, have activities as insecticides that are safe for health, non-toxic, have no side effects and are environmentally friendly (biodegradable) (LPPM UNUD 2014).

According to U.S. Environmental Protection Agency, 2014 contains polyphenols, flavonoids, tannins, saponins and cineols as bioinsecticides that are effective against insects but are not toxic substances. An insecticide is a material that contains a bioactive compound that is used as a vector that causes disease. A good insecticide has a good quality that is has a high killing power, with a fast time, but does not cause poisoning and death for vertebrate animals, humans and livestock, more economical prices, easy to obtain raw materials, and has a stable biochemical structure, colorless and has no unpleasant odor.

Based on the mechanism of action of the bioactive content above, the potential of Galuhayu Incense made from kluwih flower (*Artocarpus camansi*), pandanus fragrance (*Pandanus amaryllifolius*) and wood dust effectively used as an insecticide against the death of *Aedes aegypti* mosquitoes to help reduce the incidence of dengue fever and reduce the population of *Aedes aegypti* in the Province of Bali. The use of fogging method is the most effective method, because the smoke that is inhaled by insects will go directly to the respiratory tract and skin which causes the content of secondary metabolites contained in

Galuhayu Incense to work quickly, effectively and give good results.

Incense Galuhayu has passed the testing phase in the Bali Provincial Health Office laboratory and UPTD. Bali Provincial Hyperkes Office to find out the content and safety of galuhayu incense smoke and ash in accordance with Government Regulation of the Republic of Indonesia Number 41 of 1999 concerning National Ambient Air Quality Reference and Bali Governor Regulation Number 16 of 2016 concerning Environmental Quality Standards and Environmental Damage Criteria in table 4.

Based on the results of the test shows that there are 7 parameters with testing in various different places including A298 testing carried out in the laboratory, A299 testing carried out outside the laboratory area and A300 testing conducted in residential areas. Laboratory test results regarding the content and safety of galuhayu incense smoke show that the smoke content on *galuhayu incense* burning is declared safe and suitable for use as an insecticide and the residual combustion in the form of ash has the effectiveness to kill *Aedes aegypti* mosquito larvae.

Galuhayu incense is an innovative, solutive product with high potential to be developed to help minimize *Aedes aegypti* mosquitoes in Bali Province. Galuhayu incense helps reduce the use of synthetic dyes and fragrances in the production of incense with the aim of helping to reduce air emissions in the Province of Bali. Galuhayu incense is an effective solution in supporting the creation of safe products for health, non-toxic and environmentally friendly. This innovation supports the program of the Provincial Government of Bali namely maintaining the balance of nature, people and culture of Bali.

Table 4. Laboratory test results regarding the content and safety of galuhayu incense smoke and ash in accordance with the National Ambient and Air Quality Reference Standards Environmental Quality and Standard Criteria for Environmental Damage

No	Parameter	Satuan	Metode Analisa	Hasil Pengujian			Baku mutu *)	Hasil
				A 298	A 299	A 300		
1	PM _{2.5}	µg/Nm ³	Gravimetri	0,5	0,7	0,7	66	Aman
2	Nitrogen Dioksida (NO ₂)	µg/Nm ³	SNI 7119-2 2017	0,4	0,4	0,4	400	Aman
3	Sulfur Dioksida (SO ₂)	µg/Nm ³	SNI 7119-7 2017	3,67	3,69	2,97	900	Aman
4	Karbon Monoksida (CO)	µg/Nm ³	Pembacaan Langsung	0	0,1	0	30.000	Aman
5	Oksidan (O ₃)	µg/Nm ³	SNI 7119-8 2017	0,1	0,7	0,7	235	Aman
6	Hidrogen Sulfida (H ₂ S)	ppm	Methylene Blue	0,002	0,002	0,002	0,02	Aman
7	Debu Total (TSP)	µg/Nm ³	Gravimetri	2,97	1,96	1,38	230	Aman

Source: *Laboratory Examination Results*, 2019.

IV. CONCLUSIONS

Based on the research that has been done, the following conclusions can be drawn: Galuhayu incense (kluwih flower (*Artocarpus camansi*), pandanus fragrance (*Pandanus amaryllifolius*), wood powder effective as an insecticide to minimize the *Aedes aegypti* mosquito. The results of the study showed a significance value of 0.00 smaller than p value <0.01 so that has a significant effect on the number of *Aedes aegypti* mosquito deaths with *galuhayu incense* the most effective exposure time of 30 minutes with endurance 5-6 hours after the incense is lit. As well as the results of the testing of smoke safety on burning galuhayu incense safe and feasible to use as an insecticide and the residual combustion in the form of ash has the effectiveness to kill *Aedes aegypti* mosquito larvae in accordance with Government Regulation of the Republic of Indonesia Number 41 of 1999 and Bali Governor Regulation Number 16 of 2016.

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Plastic Waste Regulation: Principles of Environmental Conservation in Ancient Balinese Texts and Their Adoption in the *Awig-Awig* Rules of *Adat* Villages

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ABSTRACT

In Bali, plastic waste is a problem and has great potential to reduce the quality of tourism. Therefore, this problem needs to be regulated and integrated with Balinese customs and culture because traditional villages are the dominant traditional institutions in Bali. Related to that, in Bali there are many ancient texts that contain teachings on environmental preservation, especially in the Lontar Bali Purana, Agastya Parwa and several other texts. Departing from this philosophy and based on Law Number 32 Year 2009 Concerning Environmental Protection and Management, the Provincial Government of Bali and the city/regency government make regulations regarding the management of plastic waste as stipulated in Governor Regulation Number 97 Year 2018 and Regulation of Mayor of Denpasar City Number 36 of 2018. However, regulations regarding the management of plastic waste should not only be established to the extent of the regulations of the governor and mayor. Traditional village (*desa adat*) is the strongest cultural institution that needs to apply the rules regarding the management of plastic waste in order to protect the village environment through *awig-awig*, *pararem* and any other rules. This study aims to provide alternative points of environmental preservation contained in the text of Lontar Purana Bali and three other supplementary texts which can be outlined in *awig-awig* rules and applied by Balinese people. This study uses normative legal research methods (normative legal research). To get the principle points of environmental preservation in ancient texts, this study uses a critical discourse analysis method that involves three phases of analysis. The study result is that *desa adat* can make *awig-awig* rules by carrying out traditional principles found in Lontar Purana Bali text and several other texts and thus conduct inclusive application of the government's regulations for environmental preservation.

Keywords: *awig-awig* rules, plastic waste, Balinese traditional village

I. Introduction

Plastic waste is a serious problem around the world. Bali as a world-class tourist destination also faces the threat of increasingly severe plastic waste. Preliminary observations made in the context of this study revealed that more than 80% of foreign tourist respondents said bad things about Bali in terms of waste management. Besides, the lack of awareness of residents to dispose of trash in its place and protect the environment from plastic waste pollution adds to the negative impression of tourism in Bali.

Another serious problem is about waste management in each district. Since the enactment of the ban on massive waste disposal from outside Denpasar to the Suwung Final Disposal Site by the governor

of Bali, the district government, especially Badung has experienced obstacles in the collection and disposal of waste. Several other regencies that have an adequate land area for the construction of the Final Disposal Site (TPA) do not experience problems, but Badung is constrained by land because of its relatively high density.

In terms of waste management, there is still an educational gap between the community and rubbish collectors on separating organic and inorganic wastes [1]. The community, especially among the educated (students, students, or academics) has little or no understanding of the importance of the separation between organic and inorganic waste. Schools through educational programs organized by the government, non-governmental organizations or environmental

organizations (such as Bye Bye Plastic) have taken increasingly aggressive educational measures. Therefore, some students have understood the nature of organic and inorganic waste. In reality, when they have tried to separate waste, there is no further step from the garbage collector, both from the private sector and the government. The separated rubbish eventually mixes again in the garbage truck so that the waste segregation effort independently runs in vain.

Bali as a tourism destination should seriously respond to this plastic waste problem. With the power of culture and Hinduism which is dominant, Bali has the support of large cultural institutional assets [2]. These cultural institutions can be used as triggers, mobilizers, and pioneers for the prevention and management of plastic waste. The strongest cultural institution in Bali is a traditional village [3]. Traditional villages as cultural and Hindu-based traditional community units are cultural institutions that bind their communities with religious, cultural, traditional and social rules in the form of *dresta* (customary consensus) as stated in various types of rules ranging from *bhisama*, *awig-awig*, to *pararem*.

Because customary villages and all forms of rules are the most binding cultural institutions of Balinese society, it is an urgent need for the government and all stakeholders to integrate plastic waste regulation to this strongest cultural institution. However, traditional customs are not yet well-prepared for massive changes in the environment. As far as *awig-awig* is concerned, it is in fact more focused on religious rituals, customs and territorial divisions [4,5]. Unfortunately, environmental protection and especially waste regulation is not found in many *awig-awig* consensus.

The existence of Bali Governor Regulation No. 97 the Year 2018 concerning Restrictions on Disposable Plastic Piles is a milestone in the seriousness of the Bali Provincial Government in protecting Bali

from the dangers of plastic waste. This regulation was welcomed positively by various groups, and various types of plastic waste reduction movement began. In many cases, this governor's regulation has not yet extended to the community as a whole. One factor is due to a lack of socialization in various levels of society. Another obstacle is the lack of alternative materials for disposable plastic substitutes that are commonly used by traders, especially in traditional markets. This causes the use of plastic in traditional markets has not decreased even since this regulation was made [6].

Seeing this phenomenon, there needs to be integration and mutual support between government regulations and customary regulations. For the Balinese people in general, customary regulations tend to take precedence because they not only involve ordinary phenomena that occur daily but also concerning the religious system that is still deeply rooted in the lives of Balinese people. Therefore, religion and culture should be used as vehicles to strengthen the handling of plastic waste. The problem is about which religious concepts can be integrated with government regulations related to handling plastic waste.

II. Reviews of Related Literature

2.1 Concepts

Tri Hita Karana

Tri Hita Karana 'the three causes of prosperity' is a concept contained in various ancient Balinese texts, for example, *Lontar Bhuana Kertih*, *Purana Bali* and *Yadnya Prakerti*. This ancient concept was then formulated on November 11, 1966, when the Regional Conference I of the Bali Hindu Council of Struggle was held. This concept was then known worldwide, because it represents the philosophy of the Balinese culture that has developed since ancient Balinese times.

The concept of *Tri Hita Karana* emphasizes the balance between human relations with God (*parahyangan*), fellow human beings (*pawongan*) and the environment (*palemahan*). These three relations are symbolized by the plus sign (cross) which is commonly known as a *tapak dara* or swastika. The starting point of these three harmonious relationships is humans. Therefore, humans are placed in the middle. The balance of human relations with God, each other and the environment are determined by humans because humans are given the freedom to act. This is stated in the *Bhagavad-gita* Scripture:

*ye yathā mām prapadyante
tāms tathaiva bhajāmy aham
mama vartmānuvartante
manuṣyāḥ pārtha sarvaśaḥ*

Bhagavad-gita 4.11)

Translation: As all surrender unto Me, I reward them accordingly. Everyone follows My path in all respects, O son of Prthā [7].

Therefore, humans are given the choice to make themselves and their environment positive or negative. With the intelligence they have, humans can do for the welfare of themselves, each other, and the environment. For this reason, the concept of *Tri Hita Karana* is originated from the formation of humans who have positive characters.

Sad Kertih

How the *Tri Hita Karana* concept is implemented in real life is by practicing *Sad Kertih*. *Sad Kertih* ‘six types of resources’ or ‘six assets’ are implicitly contained in the Lontar Purana Bali, Yadnya Prakerti, Bhuana Kertih, and many other manuscripts. The six *kertih* or assets are *atma kertih*, *segara kertih*, *wana kertih*, *danu kertih*, *jagat kertih* and *jana kertih*. The six assets are character assets, marine assets, forest assets, lake assets, territorial assets, and human resource assets [8].

With these six assets maintained, the Balinese are believed to be prosperous both materially and spiritually. The starting point for all this welfare is the *Atma Kertih*, or character asset. With the development of good character, human beings can make the most of all resources and still preserve nature.

Starting with the concept of *Sad Kertih*, the provincial government of Bali launched the tagline ‘*Nangun Sad Kerthi Loka Bali*’ which becomes the basis for the development of a new era of Bali. Regional development planning is proposed based on the implementation of *Sad Kertih* sourced from ancient Balinese literature.

Lontar Purana Bali and Related Literatures

There are several versions of the Lontar Purana Bali, and two with the same title are collected at the Lontar Documentation Center of the Bali Provincial Culture Office and also at Gedong Kirtya, Singaraja. In general, the lontar manuscript tells the history of Bali since the reign of Kesari Warmadewa in the ninth century. In its description, this ancient text contains implicitly about the welfare of the Balinese people which is rooted in three types of harmonious relations, namely between God, man, and nature.

Another lontar scripture that contains the harmonization of God, humans, and nature is Yadnya Prakerti, which belongs to the Widhisastra Tapini manuscript. This text specifically includes rules for someone who wants to make offerings to God in the form of *banten*. This written discourse explicitly mentions the sanctity of ceremonial materials and the purity of the people involved in them. Implicitly, this palm-leaf text mentions the concept of *sukla* and *cemer* ‘pure and impure’ which form the basis of Balinese culture. With the concept of *sukla* and *cemer*, traditional Balinese people divide the area, time, and household furniture into pure and unclean categories. The purpose of this concept is to develop human nature that is

able to distinguish which things improve the standard of life of people in a *niskala* 'spiritual' and what is not. Everything that is noble or sacred is believed to be able to deliver human nature into good qualities. Meanwhile, everything that is bright will plunge humans into negative characters.

A similar concept is stated in Lontar Kusumadewa, which specifically discusses the rules and regulations for saints. In this text it is also stated that someone who wants to improve themselves in the path of purity should always try to maintain both physical and spiritual purity.

2.2 Theoretical Basis

a. Legal System Theory

The legal system is a theory put forward by Friedman that functions to find out how much success a rule of law is enforced in the community. Yet, in this study the legal system theory will be used as a parameter to form a custom rule or in Balinese language called *awig-awig*. This theory has a basic principle of input and output. Input means shock wave in the form of demands that radiate strongly from the community. Output is the result of the process of changing inputs into outputs in the form of rules that are processed through the system and the birth of a product. Concerning legal studies, the intended output is legal products that are expected to have an impact on society and have an effect both small and large in scale [9]. In the process of changing inputs into outputs some processes use the system, namely the legal system.

Friedman in legal system theory put forward 3 (three) elements in a legal system including the structure, substance, and legal culture [10]. The legal structure consists of several elements such as the number of jurisdictional courts, directions for appeals from one court to another, and legislative body records. Elements in the legal substance such as norms, legal rules made by the community. Legal culture has elements of external and internal, external legal culture which has a

legal meaning that lives within the general population. Internal means the legal culture that has been run by the community continuously. More specifically, it is explained about the culture of internal law, which is a society that can be categorized as people who carry out internal legal culture. They are people who have specialty in the field of law and are given the task to carry out these laws [11].

The theory of the legal system is used as a reference in testing a rule of law that has been applied properly or not. However, this study will use legal system theory as a reference in establishing customary or *awig-awig* rules regarding plastic waste. This study is more focussed on the legal culture of the people of Bali Province in the context of protecting the environment in Bali.

b. Principles of Tradition, Religiosity and Togethernees in Customary Law

Customary law in general has a traditional style, which means it is hereditary, from the days of one's ancestors to their children and grandchildren, and the situation is still maintained today and in the future [12]. Principles of customary law is generally religious (magical religious), which means legal behavior or rules in customary law are related to religious elements [13]. In general, customary law also adheres to the principle of togetherness in its legal system in people's lives. Customary law is primarily concerned with shared interests rather than personal interests. The legal relationship between community members and one another is based on a sense of togetherness, kinship, help and mutual assistance [14].

The principles of customary law above is used as a tool in this scientific study in the context of the importance of the community, especially in Bali in protecting the surrounding natural environment in this case the pollution of plastic waste. These customary law principles have a role in helping to elaborate on the philosophy of *Tri*

Hita Karana and also the *Lontar Purana Bali* in the formulation of the establishment of traditional village awig-awig in managing plastic waste.

c. Critical Discourse Analysis

The next theory used in this study is the theory of critical discourse analysis pioneered by Van Dijk [15]. This theory is known as Critical Discourse Analysis (CDA). According to this theory, a discourse is always influenced by intrinsic and extrinsic elements. Intrinsic elements are elements that build a discourse from within, for example point of view, settings, language style, themes, moral messages and so on. Meanwhile, extrinsic elements involve the existence of other reference texts that enrich a discourse, author's background, purpose of writing and so on.

Van Dijk divided the analysis of this critical discourse into three phases of analysis, namely the analysis of micro, meso and macro structures. In microstructure analysis, intrinsic elements take precedence. In meso structure analysis, the relationship between one part of the discourse with another part is examined. Finally, in the analysis of macro structure, the big picture and the main theme of a discourse are determined. Macro structure analysis also reveals the purpose of making a discourse [16].

In this research, critical discourse analysis is used to study four *lontar* manuscripts, namely *Purana Bali* [17], *Yadnya Prakerti* [18], *Bhuwana Kertih* [19] and *Kusumadewa* [20] and determine religious and cultural ideas or principles support the regulation of plastic waste that was triggered by the government. These principles are then pursued to be integrated so that they can work together at the traditional-religious level.

2.3 Reviews of Previous Studies

How to integrate Balinese local wisdom and government regulations regarding plastic waste management have become major focus

in various research. Long before the governor of Bali issued Governor Regulation Number 97 Year 2018 concerning on plastic waste regulation, many research have been published within the topic of reducing rubbish on the island. In the last ten years, the scope of discussion have been circled around worries about plastic uses and wastes in many tourists destinations in Bali (Wardi, 2011). Furthermore, Azari (2014) presents a fact about plastic wastes in Pacific Ocean and implies that all nations should be responsible for this manmade catastrophe. Suwendra and Suharta (2018) argue on the socialization of Governor Regulation Number 97 Year 2018 and provides real examples of how single-use plastic products could be replaced by paper bags and tote bags made of recycled materials. Abhiseka and Suharta (2019) finds further implications after Governor Regulation Number 97 Year 2018 was implemented in 2018, especially on how this regulation is somewhat ignored in many traditional markets.

Wardi (2011) focuses on how plastic rubbish is regulated and managed inclusively with traditional values. Waste that falls into the category of organic waste can benefit the community by turning it into compost, with better management it can be sold and made into village income. In this plastic waste management effort, the local government does not work alone but instead collaborates with NGOs to provide guidance to the community on waste management in their environment. By paying attention to the volume and type of waste such as organic and non-organic (plastic), this socio-cultural based waste management will be carried out properly. But in this social and cultural-based waste management, it is necessary to have synergy from all parties from the village level, NGOs, to the local government, thus creating a clean and free environment from organic and non-organic waste [21].

Azaria [22] discusses plastic waste whose existence threatens the cleanliness of the environment of the Pacific Ocean. Plastic

waste which is increasingly ravaging the Pacific marine environment makes the whole country has a burden and responsibility to prevent, reduce and control pollution caused by abundant plastic. In an effort to tackle waste that destroys the sea, especially plastic, environmental organizations are collaborating with the United Nations and not forgetting the participation of Pacific Ocean countries in anticipating pollution of plastic waste and carrying out consistent cleaning in the Pacific ocean convergent zone [23].

Abhiseka and Suharta [24] reviewed the rules of the Denpasar City Mayor, which was passed in 2018 on reducing the use of plastic bags. This study examines social phenomena among the community whether the rules regarding the reduction of plastic bags have been going well or there are still obstacles in the community environment. The study obtained from the results of this study, which encountered several obstacles in the implementation of this guardian in the traditional market zone. The problem is that not all packaging can be wrapped with an alternative bag instead of plastic bags. However, the obstacles that can be obtained can be resolved with a number of solutions, one of which is the promotion of socialization in each market and if there are protracted violations, administrative sanctions will be imposed by the authorized officer [25].

Suwendra and Suharta [26] stated that plastic waste is indeed not a new problem that needs attention from the central and regional governments. The Government of the Province of Bali made a solutive step by making a policy to limit the generation of disposable plastic waste as manifested in Governor Regulation Number 97 of 2018. The attitude of the Bali Provincial Government's commitment to addressing plastic waste is manifested in the provisions of Governor Regulation No. 97 of 2018. In the regulation of this regulation it is determined that business actors or the public can use other materials such as tote bags,

goodie bags, etc., as an alternative material to replace plastic. For supervision in environmental control of plastic waste pollution, the government can create a supervisory body that has the authority to monitor the volume of disposable plastic usage [27].

Putra [28] stated that traditional villages are an inseparable part of the regional government structure. Therefore, Putra and Sudharma conducted a study on the role of traditional villages in the management of plastic waste which was focused in Denpasar area.

Waste management and waste banks are a solution that should be appreciated by traditional villages in the city of Denpasar. Not only the city of Denpasar but throughout the province of Bali. Customary villages need to provide information on waste management and waste banks. The challenge that needs to be faced by traditional villages is to create awig-awig or Perarem which determines the management of plastic waste and how it is implemented in the community especially in Bali [29].

III. Methods

The scientific reasoning in this study focuses on normative legal research methods. This normative research moves to the method of identifying laws which are the concept of norms or rules used as a reference for social society. The general stage of this normative legal research is to identify the legal rules that apply and are supported by library materials or secondary data [30]. Ishaq believes that in normative legal methods, people who conduct research are assisted with literature as secondary data. Normative legal research can also be regarded as library law research or theoretical/dogmatic legal research. Furthermore, the focus of the object of normative legal research includes research on the principles of law, the legal system, the level of legal synchronization, legal history, and legal comparison.

This research study examines the facts and symptoms that occur in the community's social life environment, especially in Bali, about the phenomenon of plastic waste which is still an important topic for research. This study focuses on the rules that apply in regard to plastic waste such as Law Number 32 of 2009 concerning Environmental Protection and Management. The Provincial Government of Bali has made regulations regarding the management of plastic waste as outlined in Governor Regulation Number 97 Year 2018 and Denpasar Mayor Regulation Number 36 Year 2018. These rules are then synchronized with Lontar Purana Bali and several related lontar manuscripts to make an awig-awig for a traditional village which is about the prevention of plastic waste. The formulation of awig-awig also cannot be separated from the Regional Regulation of the Province of Bali Number 4 of 2019 which contains provisions in the formation of *awig-awig*.

Primary data in this study include Law Number 32 Year 2009 Concerning Environmental Protection and Management. Based on that, the Provincial Government of Bali made regulations regarding the management of plastic waste as outlined in Governor Regulation Number 97 of 2018, Mayor Regulation Number 36 of 2018, and Regional Regulation of the Province of Bali Number 4 of 2019 concerning Customary Villages. Secondary data from this study are the literature, literature material related to this research, as well as the opinions of experts.

IV. Findings and Discussion

Based on the analysis of the four palm-leaf manuscripts related to environmental topics, there are four main concepts or principles that represent the concepts of environmental conservation and managing plastic waste in indigenous village communities. These principles represent the realm of religious and traditional culture of the Balinese people and may be combined and synchronized with government policy.

4.1 Supremacy of Parahyangan

In accordance with what was explained in the lontars that were analyzed, the poetry or the realm of divinity (religion) became the main element in Balinese culture. All things are related to God because the Balinese believe that God is the source of everything that exists. Therefore, the supremacy of the devil as a dimension of human relations with God can be a great force to support plastic waste prevention programs.

In this case, plastic should be banned in temple areas, according to basic regulations in *Lontar Widhisastra Tapini* and *Yadnya Prakerti* texts. In connection with the concept of *sukla* and *cemer* which are very strictly applied in the realm of the devil, the use of plastic is a clear example of how this concept has been violated. Plastics, especially those that have been recycled, are elements that can pollute the sanctity of the realm of evil. By referring to this *sukla* and *cemer*, the use of plastics in the realm of Malang can be reduced to a minimum.

In addition, the Kahyangan Jagat as the highest authority should be the sources of religious-based supremacy from which people take examples to eliminate plastic from daily uses and religious purposes. The regulation must be socialized in a top-down way from the highest temple authority to household *merajan* level.

Rules and regulations in *Parahyangan* must be observed strictly by the people and the temple authorities. Since plastics are sometimes made from recycled materials, this can influence the concept of *sukla* and *cemer* in Balinese tradition. Therefore, recycled materials (except metals) should not be used in temples to keep purity. It is to be noted that recycling does not seem to work in *Parahyangan* scope due to strong concept of *sukla* and *cemer*. Therefore, all materials used for temple worship must be made of organic materials, or, if not, metals.

4.2 Enabling Pawongan Authorities

Pawongan concerns on human relations and all kinds of hierarchies that allow humans to interact systematically to achieve certain goals. In *pawongan* realm, each community has the authority to protect, protect and educate the general public.

There are two kinds of authorities involved in this case. The first group is named traditional authorities. Traditional authorities are those who usually have ascribed status in the society and become sourcepeople to whom people put their faith upon. Those authorities are, for instance—priests, *tapinis* (people who supervise the makings and preparation of any offerings and ceremonial paraphernalia), *saratis* (offering makers), *adat* authorities, members of prominent *griyas* and *puris* (houses of priests and noble people), and those who are economically, academically and genealogically powerful. Those authorities have influence and can attract many people.

The second authority is the government and politicians. Both have almost the same influence to the people in general. Both authority must stand together to establish and socialize plastic waste management. Furthermore, influential stakeholders in education, tourism, economy and social media should also be involved. Since those stakeholders have large popularity, they can influence people to do something positive.

4.3 Palemahan: Effective Uses of Land

In October 2019, governor of Bali banned regencies outside Denpasar from disposing rubbish at Suwung Final Disposal Area (TPA—*Tempat Pembuangan Akhir*). This regulation results in significant stagnancy of waste collecting and disposal in Badung, Gianyar and Tabanan, three regencies that regularly dump rubbish to Suwung TPA.

Factually, there are about 5,000 to 10,000 tons of rubbish everyday in Bali. According to *Forum Komunikasi Pegiat Lingkungan*

Bali (FKPL Bali) [31], 60% to 70% of the total rubbish are organic, and 20% to 30% are anorganic. The head of FKPL Bali said that if waste management is well-managed on village level, up to 90% of the total waste will not end at Final Disposal Area. Instead, almost all rubbish will be reused or either decomposed and resold as nutritious compos for agricultural sector.

As a concrete action to solve this problem, every village must provide independent (or semi-independent) waste regulatory management. Every village must divide their territory into three sections based on *Tri Hita Karana* concept. In the other words, every *adat* village acts independently in managing and regulating the wastes. Every *adat* village should provide special place to collect rubbish and allocate the *dana desa* ‘village fund’ from the government to employ some people to collect and separate rubbish and do follow-up management in a larger scale.

The purpose of waste regulatory management is to collect and separate organic and anorganic wastes. Organic wastes could be used as inexpensive compos and anorganic wastes are sold and recycled. In this case, *adat* village must have mutual collaboration with environmental foundations and NGO focussing on plastic recycling.

According to Permendesa PDTT no. 11 Year 2019, village fund is mainly allocated for village developmental programs and activities with four main categories namely increase of life quality, prosperity improvement, elimination of poverty, and improvement of public services. Managing rubbish is one effective and essential action to improve public service as well as tackling down poverty by employing local human resources.

4.4 Sukla and Cemer

Educating people about the existence of *sukla* (purity) and *cemer* (impurity) as subtle elements covering every object can also help reduce plastic wastes. This concept has been very popular in Bali, and if plastic regulation

is inserted and combined with this concept, there will be betterment of people's consciousness regarding how to treat the environment to be *sukla* (pure). Concept of *cemer* should be well-implanted to people whenever they see single-use plastics scattered on the streets or at the markets. In this way, people will gradually become aware of how to keep the environment free from plastic wastes.

Some kinds of recycled plastics have already been banned by temple authorities all around Bali (and also in Hindu temples outside Bali). This is because recycled plastics are produced from used plastic products. According to Balinese concept of *sukla* and *cemer*, used materials are considered impure and unfit for religious purposes. Therefore, more temple authorities have become aware and have obliged that all temple ceremonial and ritual ingredients and materials should be

V. Conclusion

Reducing plastic waste is not just government work. All elements of Balinese society must be mobilized to overcome the accumulation of plastic waste. With the combination and integration of traditional Balinese traditional and religious values with government regulations, this goal can be achieved with more significant effort. Because religious values and traditions are highly valued by the Balinese people, the integration of regulations regarding the prevention of plastic waste needs to be fully supported by traditional values. These values also need to be introduced and socialized by the authorities who have the ability, power, and expertise in managing the community in customs and traditions.

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Conservation of The Endangered Amerta Jati Orchid (*Vanda tricolor*) in Nature Tourist Park of Buyan Tamblingan Bali

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ABSTRACT

Orchid is an ornamental plant that has a high aesthetic value because of its beautiful flowering with its attractive unique colors. The orchids taxonomy is included in the Ochidaceae family. Mostly found in tropical wet regions. In 1914 Schlechter estimated that there were 15.000 species. While Hawkes in 1965 estimated that in this world there were 30.000 species of orchids. In Indonesia there are around 5000 species of native orchids reported scattered throughout the archipelago. The large-scale hunt for orchids in the Amerta Jati forest makes the population considerably decrease. Currently the three-color orchid Amerta Jati (*Vanda tricolor*) Tamblingan is endangered. This orchid plant is endemic in Buyan Tamblingan Nature Tourist Park (NTP). This study purpose is the efforts of local people to conserve the conservation of *Vanda tricolor* by In-situ and Ex-situ. Conservation carried out by an a carefully effort to protect and manage the environment and natural resources. An asylum and long-term protection of endemic local orchids. In-situ conservation which is done by the community around Buyan Tamblingan Nature Tourism Park (NTP) is by not doing illegal poaching or orchid exploitation in nature. Whereas the ex-situ conservation is orchid cultivation activities in the fields, gardens or yards of the community. When orchids already meet adaptation in nature. Some orchids from ex-situ were transferred to nature (Amerta Jati forest). Local people will continue to be made aware of the importance of local orchids conservation from extinct. Ethnobotany orchids are not only aesthetic but also have health benefits such as preventing diarrhea, dysentery, helping body recovery, reducing postpartum bleeding, toothache medication, nourishing bones, increasing endurance and preventing constipation.

Keywords: conservation, orchids, Vanda tricolor, Amerta Jati

I. Introduction

Orchid is an ornamental plant that has a high aesthetic value because of its beautiful flowering with unique attractive colors. The taxonomy of orchids is included in the Ochidaceae family. Mostly found in tropical wet regions. In 1914 Schlechter estimated that there were 15,000 species [1]. While Hawkes in 1965 estimated that in this world there were 30000 types of orchids [2]. In Indonesia there are reported to be around 5000 species of native orchids scattered throughout the archipelago. In Indonesia several studies on orchids have been

carried out. Mount Lawu area, Central Java, precisely 11 orchids was found in the Jobo Forest. In East Java, precisely on Mount Penanggungan, ten orchid species were found which were dominated by *Flickingeria angulata*. In Bali especially in the Bali botanic garden area, there are orchids that grow naturally on reforestation trees, there are 30 species from 14 genera. The genera of *Bulbophyllum*, *Dendrobium*, and *Eria* are the most numerous.

The large-scale hunt for orchids in the Amerta Jati forest makes the population considerably decrease. Currently the three-color Amerta Jati

Tamblingan orchid (*Vanda tricolor*) is threatened with extinction. This orchid plant is endemic in Buyan Tamblingan Nature Tourist Park (NTP). The presence of orchids in the wild continues to decline, caused by habitat destruction and over-exploitation. Exploration of flora, especially orchids, is considered very important, because many of the orchid's natural habitats have been degraded. The destruction of orchid's natural habitat has increased sharply and has been accelerated by human activities such as housing, industry, plantations and so on. Illegal orchid traders penetrate directly in their natural habitat, so this also triggers a decline in wild orchid populations in the wild.

Buyan Tamblingan Nature Tourist Park is included in the Batukahu mountain forest group which has been designated as a forest cover based on the decree of the Dutch East Indies Government on May 29, 1927 No.28. HW.376, which contains an 8 hectare enclave. Decree of the Minister of Forestry Number SK.2847/Menhut-VII/KUH/2014 dated April 16, 2014 concerning the Determination of Forest Areas in the Batukau Mountain Forest Group covering an area of 15.102,90 Ha in Buleleng Regency, Badung Regency and Tabanan Regency, Bali Province. The area of Lake Buyan Tamblingan Nature Tourist Park (NTP) is 1847,38 hectares.

Buyan Tamblingan Nature Tourist Park is located in three villages of Wanagiri, Munduk and Gobleg. Wanagiri Village is one of the villages in the Lake Buyan Tamblingan Nature Tourism Area and has an area of 15,75 Km². Topographically it is located at an 1220 meters above sea level altitude. The Wanagiri Village population based on 2014 was 3811 people consisting of 1927 men and 1884 women. Munduk Village is located in the Banjar District, a coffee

plantation area in the Dutch period. However, that condition changes when coffee is no longer reliable. The community cut down coffee and replaced it with cloves. The residents number of Munduk Village is around 7799 people, 3949 men and 3850 women. About 10 percent are coffee farmers (40 percent of Munduk residents are rice and field farmers). The average coffee in the Munduk village is Robusta species because it is planted at an altitude of 900 meters above sea level. Munduk Village itself is located at an 600- 1500 meters above sea level altitude, with an 19,76 Km² area. While the Gobleg village has 27 km² area. The population is 7087, consists of 3560 men and 3527 women.

The condition of Buyan Tamblingan forests is still primary forest, but it is feared that the hunt for wild orchids will worsen. Plant species such as orchids in Buyan Tamblingan forest need to be saved to avoid extinction. One of the efforts to save plants is in situ and ex-situ conservation, namely conservation carried out in their habitats and outside their habitats such as in community gardens or botanical gardens. Sampling, species and habitat of orchids inventory carried out to determine the orchid species diversity their habitats as a basis for conservation of situ and ex-situ. It is hoped that native Balinese orchids can grow well outside their habitat. With the hope that Bali's orchid plants will become numerous and will eventually survive from extinction. The research objective is to increase awareness of local communities for conservation of *Vanda tricolor* orchids both In-situ and Ex-situ. Conservation of In-situ which is done by local people around Buyan Tamblingan Natural Tourism Park (NTP) namely by not doing orchids poaching or exploitation in nature. Whereas the conservation of such activities takes the form of orchid

cultivation in the community fields, gardens or yards. When there are many orchids that meet the adaptation requirements, they will be returned to the forest.

II. Research Sites

The research activity was carried out in the Lake Buyan Tamblingan NTP area, which has 1703 hectares area, which is located on the Batukahu forest group of forest land register. Buyan Tamblingan Natural Tourism Park has a northern boundary is Wanagiri village and Lemukih village, the south is Batunya village and Candikuning village, the east is Batukahu protection forest and Peken Hamlet, Pancasari Village, and the west is Tamblingan Munduk and Gesing village Bali province.

III. Research Methods

The method of in-situ conservation orchid plants search is carried out using transect method by taking an inventory in the field. The activity was carried out by exploring 20 observation plots with a plot 20 x 20 meters size [3][4]. Data collection was carried out after orchid species were found. Data recorded includes species name, number of species and microclimate habitat. The number of species is calculated based on the species of orchids found. The place height and geographical position is measured using GPS. The slopes measured with a clinometer, the slope direction measured using a compass, the canopy cover is measured, the air temperature and humidity are measured with a thermo hygrometer, the acidity (pH) and soil moisture is measured with a soil tester. Existing conservation method is by cultivating orchids outside their habitat. Orchid plants are cultivated for 3 months.

Growth rates and life percentage are recorded [5].

IV. Data Analysis

Analysis using plant identification and Microsoft Excel calculations. To describe the orchids distribution, the data analysis is performed by calculating the standard deviation of each variable data. The height of the place is grouped in each range of 500 m above sea level ie 100-1000, and 1100-1500 m above sea level. The slope direction is grouped into four zones based on the compass direction, North-East (0-90°), East-South (90-180°), South-West (180-270°), and West-North (270-360°).

V. Results and Discussion

a. Condition of Orchid Habitat

Buyan Tamblingan Nature Tourism Park is a secondary forest in the form of mountain hills. From 20 transect observation plots, almost all of them were found orchids, which are located around the edge of lakes, cliffs or ridges and natural forests, with 900-1400 m above sea level altitudes. The topography is mostly tilted with a 10-45° slopes. The vegetation species is a tropical rain forest plant species. Vegetation conditions are still quite dense with many large-sized trees found in natural forests such as *Agathis dammara*, *Altingia excelsa*, *Alstonia scholaris*, *Arenga pinnata*, *Artocarpus camansi*, *Casuarina junghuhniana*, *Calophyllum inophyllum*, *Elaeocarpus glaber*, *Ficus benjamina*, *Myocule fragrance*, *Pangolus fragrans*, *Amrist*, *Persea americana*, *Sapindus rarak* and *Zanthoxylum rhetsa*. There were found many vegetation species on the edge of the lake such as *Cryptocarya massoy*, *Erythrina hypaphorus*, *Erythrina variegata*, *Lucuma luzoniensis*, *Moringa oleifera*, *Rauvolfia javanica* and *Syzygium*

aromaticum. While vegetation on the ridge near the road that bordering the settlement, there were many plants grow from reforestation plants, namely *Annona muricata*, *Cocos nucifera*, *Coffea sp*, *Plumeria alba*, *Psidium guajava*, *Morus alba*, and *Leucaena leucocephala*.

Orchids are found on steep and very steep slopes. Sloping and even steep land conditions are difficult to reach by the community, so vegetation on the land is better than flat land. The causes of land degradation include erosion and sedimentation [6][7]. Very steep land is prone to erosion and water loss so only certain plants can grow on the land and need to be conserved.

b. Diversity of orchids

Based on the transect vegetation inventory results, there are 47 species of 29 genera and 2 orders (Orchidales and Asparagales) were found. The of orchids species that have the most population are *Appendicula elegans*, *Liparis condylobulbon*, *Coelogyne flexuosa*, *Vanda tricolor*, *Eria hyacinthoides*,

Dendrobium linearifolium, *Eria latifolia*, *Eria verruculosa*, *Microsaccus javensis*, *Liparis caespitosa*, *Bulbophyllum odoratum*, *Pholidota carnea*, *Bulbophyllum lobbiai*, *Bulbophyllum absconditum* and *Dendrobium crumenatum* (Figure 1).

Based on orchids growth observations in the NTP area of Buyan Tamblingan Lake, obtained 47 species belonging to 29 genera. In Figure 2 it can be seen that the most rich orders of types and numbers are *Eria* (208 individuals), *Appendicula* (137 individuals), *Liparis* (123 individuals), *Bulbophyllum* (92 individuals), *Coelogyne* (80 individuals), *Vanda* (75 individuals), *Dendrobium* (73 individuals), *Microsaccus* (50 individuals), *Pholidota* (21 individuals) and *Malleola* (12 individuals).

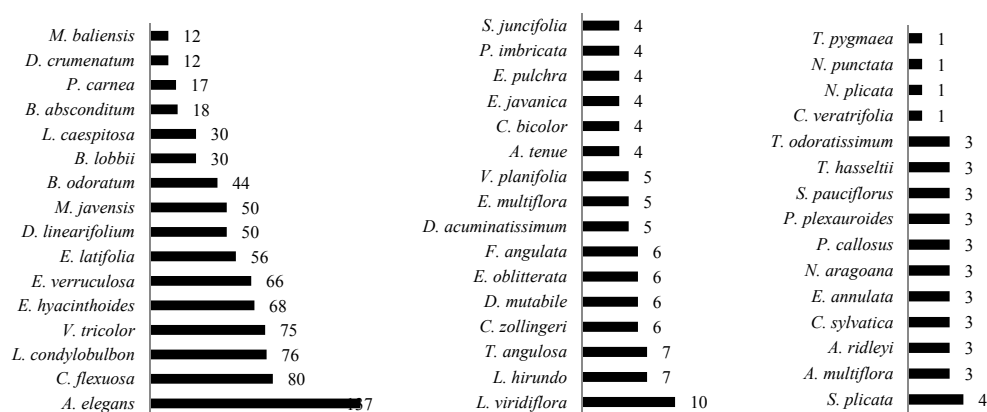


Figure 1.

Number of individuals in the orchid population per hectare in Buyan Tamblingan Nature Tourist Park

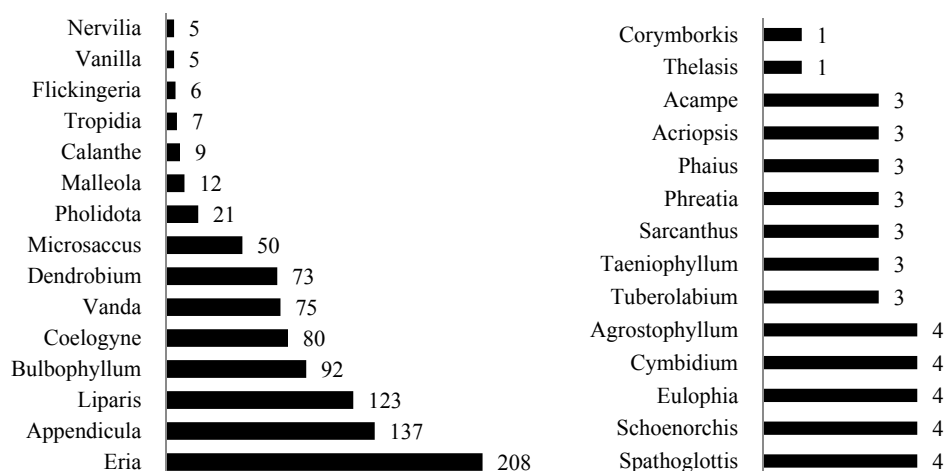


Figure 2.

Number of individuals based on the order level for each orchid per hectare in Buyan Tamblingan Nature Tourist Park

Table 1. Important value indices of orchid species in Buyan Tamblingan Nature Tourim Park

No	Orchid Species	IVP (%)	No	Orchid Species	IVP (%)	No	Orchid Species	IVP (%)
1.	<i>Appendicula elegans</i>	20,7	17.	<i>Liparis viridiflora</i>	2,9	33.	<i>Spathoglottis plicata</i>	1,0
2.	<i>Coelogyne flexuosa</i>	14,6	18.	<i>Liparis hirundo</i>	2,3	34.	<i>Eria annulata</i>	0,8
3.	<i>Liparis condylobulbon</i>	14,2	19.	<i>Tropidia angulosa</i>	2,3	35.	<i>Phreatia plexauroides</i>	0,8
4.	<i>Vanda tricolor</i>	14,1	20.	<i>Eria oblitterata</i>	2,1	36.	<i>Sarcanthus pauciflorus</i>	0,8
5.	<i>Eria hyacinthoides</i>	13,4	21.	<i>Flickingeria angulata</i>	2,1	37.	<i>Tuberolabium odoratissimum</i>	0,8
6.	<i>Eria verruculosa</i>	13,1	22.	<i>Calanthe zollingeri</i>	1,8	38.	<i>Acriopsis ridleyi</i>	0,8
7.	<i>Microsaccus javensis</i>	11,4	23.	<i>Dendrobium mutabile</i>	1,5	39.	<i>Taeniophyllum hasseltii</i>	0,8
8.	<i>Eria latifolia</i>	10,9	24.	<i>Eria multiflora</i>	1,4	40.	<i>Calanthe sylvatica</i>	0,8
9.	<i>Bulbophyllum odoratum</i>	9,2	25.	<i>Vanilla planifolia</i>	1,4	41.	<i>Nervilia aragoana</i>	0,8
10.	<i>Dendrobium linearifolium</i>	8,9	26.	<i>Eria javanica</i>	1,3	42.	<i>Phaius callosus</i>	0,8
11.	<i>Liparis caespitosa</i>	7,7	27.	<i>Dendrobium acuminatissimum</i>	1,1	43.	<i>Acampe multiflora</i>	0,5
12.	<i>Bulbophyllum lobbii</i>	6,2	28.	<i>Agrostophyllum tenue</i>	1,0	44.	<i>Thelasis pygmaea</i>	0,4
13.	<i>Bulbophyllum absconditum</i>	5,6	29.	<i>Pholidota imbricata</i>	1,0	45.	<i>Corymborkis veratrifolia</i>	0,4
14.	<i>Pholidota carnea</i>	4,9	30.	<i>Schoenorchis juncifolia</i>	1,0	46.	<i>Nervilia plicata</i>	0,4
15.	<i>Dendrobium crumenatum</i>	4,1	31.	<i>Cymbidium bicolor</i>	1,0	47.	<i>Nervilia punctata</i>	0,4
16.	<i>Malleola baliensis</i>	3,7	32.	<i>Eulophia pulchra</i>	1,0			

Buyan Tamblingan NTP has a high index of orchid species diversity ($H = 3,07$). Data in the field shows that there are 47 orchid species found. The field data shows that 47 species found, which have high importance (Table 1), such as *Appendicula elegans* (20,70%),

Coelogyne flexuosa (14,60%), *Liparis condylobulbon* (14,20%), *Vanda tricolor* (14,10%), *Eria hyacinthoides* (13,40%), *Eria verruculosa* (13,10%), *Microsaccus javensis* (11,40%), *Eria latifolia* (10,90%), *Bulbophyllum odoratum* (9,22%), *Dendrobium linearifolium*

(8,90%), *Liparis caespitosa* (7,77%), *Bulbophyllum lobbii* (6,24%), *Bulbophyllum absconditum* (5,66%) and *Pholidota carnea* (4,92%).

The analysis results show that the uniformity index between 0,50-0,79. If the uniformity index value is close to zero, it means there is a tendency for species domination to occur due to the instability of environmental and population factors in the ecosystem. If the uniformity index approaches 1, then the ecosystem is in a relatively stable condition, the number of individuals per species is relatively the same [8]. If we see the Buyan Tamblingan NTP uniformity index, it can be said that habitat conditions are relatively stable. The regular pattern of orchid distribution where individuals are located at a certain place in the community. This order can be due to competition between orchids species, causing competition to encourage the division of the same living space. Some species do appear to dominate in some locations only, while in other locations they do not appear at all. The regular orchid distribution patterns are non-random patterns indirectly caused by limiting factors to the existence of a population [9].

c. *The Ex-situ Vanda tricolor Conservation*

The local community in carrying out the conservation is by maintenance the orchids in their yard. The factors that are considered by the community are the nature of life (habitat), the factors that affecting the growth and the orchid species that cultivated. Based on the growth pattern, people understand that orchids can be divided into two types, there is sympodial and monopodial. The sympodial type is an orchid that does not have a main stem, where the flowers come out from the end of the stem. Monopodial type is orchid growth straight up on one

stem, the flowers come out from the side of the stem between the two axillary leaves. According to Hawkes based on its habitat, orchid plants are divided into four groups, namely epiphytic orchids, terrestrial orchids, lithophyte orchids and saprophytic orchids.

The factors that affecting the *Vanda tricolor* orchids growth are altitude, air temperature, environmental humidity, sunlight and plant maintenance. The height of the place is the main factor that determines the *Vanda tricolor* orchid growth success. Besides environmental factors such as temperature, light and humidity also greatly affect the growth of *Vanda tricolor* orchids that are conserved by local people. The height of the place for each orchid species is not the same, some orchids can grow well in the highlands, but other species will grow and thrive in the lowlands [10]. There are several orchids species that can grow and flower in the lowlands to the medium. *Vanda tricolor* will develop in the medium and highlands especially Munduk and Wanagiri villages. Local people are aware of the importance of conservation to keep the local orchid *Vanda tricolor* from extinction. Ethnobotany the orchid is not only aesthetic in nature but also has health benefits in the form of the benefits of preventing diarrhea, dysentery, helping the body recover, reducing postpartum bleeding, toothache medicine, healthy bones, increasing endurance and preventing constipation.

Based on the height of the place, the temperature requirements for certain orchids are also different [11]. Air temperature greatly affects the metabolic process. High temperatures cause the metabolic process to take place quickly, conversely at low temperatures the metabolic process occurs very slowly. Based on the temperature [12] divides orchids into 3 groups of species of cold,

medium species and warm species. *Vanda tricolor* conserved by local people includes warm orchids, night time temperatures 20-24°C and daytime 20-25°C. Generally the humidity needed by *Vanda tricolor* orchid is a relative humidity (RH) 60-85% ranging. Moisture should not be too high at night, and not too low during the day. Local people maintain *Vanda tricolor's* moisture to remain stable, ie watering the mist spraying system using a sprayer. Moisture is too high at night to overcome local communities by reducing watering, conversely too low humidity during the day is overcome by watering that is wetter.

Ex-situ conservation of *Vanda tricolor* by local communities includes the use of growing media, watering, fertilizing, environmental control and disease pests. *Vanda tricolor* growth media functions as a root stand, nutrient storage and water. Local people consider a good growing medium that is looking for material that is not rotten, does not cause disease, good aeration, binding water, nutrients and acidity (pH) 6-7. The orchid growth media used by the community are moss, ferns, wood shavings, coconut fiber, charcoal and bark. *Vanda Tricolor*, which is conserved by local people, uses pots. At the base of the pot, broken bricks function to absorb more water for a good the draenation and aerial capabilities [13]. Media that are good and commonly used by the public are moss and ferns. Moss contains 2-3% element N and has a very good water binding ability. Being fern in addition to having a good draenation and aeration also contains many nutrients needed by *Vanda tricolor*. Replacement of the growing media pot is done when the *Vanda tricolor* is large. Pot that is good to use pots made of brick, because it can maintain humidity.

Maintenance of the *Vanda tricolor* environment does not provide enough nutrients for growth. Overcoming this problem, the community usually provides fertilizers both organic and inorganic, namely compound fertilizers that contain micro and macro nutrients. In general, the macro elements needed are C, H, O, K, N, P, Ca, S and Mg while the micro elements include Fe, Cu, Zn, Mo, Mn, B and Cl. The fertilizers application to *Vanda tricolor* is different for the growth phase. In the vegetative growth phase for small plants NPK fertilizer 30:10:10. Vegetative phase in adult orchids NPK 10:10:10. Generative phase Comparison of NPK 10:30:30. Fertilization is done through the leaves, especially the lower surface of the leaf. Fertilization is done when there is no sunlight when the leaf stomata are open so that fertilizer application is more effective [14].

Vanda tricolor orchids maintenance uses shade to avoid direct sunlight. However, to maintain orchid moisture, watering is very important to note. The frequency and amount of water sprayed on the *Vanda tricolor* orchid is not too wet and according to environmental conditions. *Vanda tricolor* orchid is sprayed twice a day, in the morning and evening. *Vanda tricolor* orchids are maintained in a clean environment and free air circulation. Environmental cleanliness needs to be maintained. Pest control is done by preventing the growth of fungi and bacteria in plants as well as other insects such as trips. Pest control is done spraying *Vanda tricolor* with medication once a week.

VI. Conclusion

In-situ conservation which is done by the community around Buyan Tamblingan Nature Tourism Park (NTP) is by not doing illegal poaching or orchid

exploitation in nature. Whereas the existing conservation of *Vanda tricolor* orchid cultivation activities in the fields, gardens or yards of the community. When *Vanda tricolor* has fulfilled adaptation in nature. Some orchids from the existing conservation were moved to the Amerta Jati forest. Local people are aware of the importance of keeping the local orchid *Vanda tricolor* from extinction.

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The Relationship between Yoga Holistic Healing Exercise with Level of Anxiety and Quality of Sleep in Elderly in the Working Area of Community Health Center (CHC) I of East Denpasar, Bali

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ABSTRACT

Background and Objectives: Anxiety is a mental health problem that often occurs in the elderly, which will have an impact on quality of sleep. Yoga Holistic Healing Exercise is a healthy lifestyle that has benefits for psychological and physical aspects of life. The aim of this study is to determine the relationship between Yoga Holistic Healing Exercise with the level of anxiety and quality of sleep in elderly. **Method:** This cross-sectional study was conducted on 50 elderly in the age group of 65 – 77 years old, which taken in the working area of Community Health Center (CHC) I of East Denpasar, Bali. The measurement tools are Hamilton Rating Scale for Anxiety (HRS-A) to measure the level of anxiety and Pittsburgh Sleep Quality Index (PSQI) to measure the quality of sleep. **Result:** The results of data analysis with Chi-Square Test for the relationship between Yoga Holistic Healing Exercise with the level of anxiety was statistically significant with a p value of 0.00 ($p < 0.05$) and for the relationship between Yoga Holistic Healing Exercise with the quality of sleep was statistically significant with a p value of 0.03 ($p < 0.05$). In addition, there is also a statistically significant to the relationship of the level of anxiety with the quality of sleep. **Conclusion:** There is a relationship between Yoga Holistic Healing Exercise with the level of anxiety and quality of sleep in elderly

Keywords: Lifestyle, Yoga, Elderly, Anxiety, Quality of Sleep

1. Introduction

The world's population is ageing rapidly. The global population aged 60 years or over numbered 962 million in 2017, more than twice as large as in 1980 when there were 382 million older persons worldwide ^[1]. Even in 2020-2025, Indonesia will rank the country with the highest structure and elderly population after China, India and the US with life expectancy above 70 years ^[2].

Some Governments are seeking to increase welfare and quality of life for elderly, which will be essential to fulfil the pledge of the 2030 Agenda for Sustainable Development that “no one will be left behind”. One aspect of Sustainable Development Goals (SDGs)

is to improve health care systems that are working to promote healthy ageing, to prevent and treat non-communicable diseases and chronic conditions, as well as to expand access to quality long-term and palliative care ^[1].

As we get older, lifestyle that includes eating patterns and physical activity will change. Psychologically, feelings and thoughts will also change. They will feel lonely easily in the community. This causes the elderly are not eager to regulate their healthy lifestyle. So that the lack of application of healthy lifestyles in the elderly will cause other psychological effects. Mental health problems that often occur in the elderly are anxiety, depression, insomnia, paranoids, and dementia, if the elderly experience these

problems, then the condition can interfere with the daily activities of the elderly [3]. Over 20% of adults aged 60 and over suffer from a mental or neurological disorder and 6.6% of all disability (disability adjusted life years-DALYs) among people over 60 years is attributed to mental and neurological disorders. Anxiety, which is one of mental health disorders affect 3.8% of the older population [4].

Anxiety is an obscure and pervasive concern related to feelings of uncertainty and helplessness. Anxiety that experienced by the elderly can also cause the difficulty of sleeping and can affect concentration, alertness, increase health risks, and can damage the function of the immune system. Sleep deprivation in the elderly affects the physical, cognitive abilities and the quality of life [2]. Health-care professionals and older people themselves are under-identifying mental health problems, and the stigma surrounding these conditions makes people reluctant to seek help.

One effective effort to maintain and improve mental health of the elderly is implementing Yoga Holistic Healing exercise. Yoga Holistic Healing is an activity including body, soul and mind therapy that combines posture (Asana), breathing techniques (Pranayama), and meditation or relaxation [5] that thoroughly unites soul, mind and spirit with the aim to provide mental and physical healing and to regain health & vitality in our life [6].

Yoga Holistic Healing Exercise is a form of culture that can be applied as a healthy lifestyle that is effective and beneficial for overcoming mental and physical health conditions [7]. By applying Yoga Holistic Healing Exercise as a healthy lifestyle is expected to provide benefits for physical and mental health, especially for the elderly. Therefore, the authors are interested in conducting observational

research on the relationship between Yoga Holistic Healing Exercise with levels of anxiety and quality of sleep in elderly.

II. Material and Methods

A. Study Design

This study was a cross-sectional analytic study design. The purpose of this study is to investigate the relationship between Yoga Holistic Healing Exercise with level of anxiety and quality of sleep in elderly.

B. Participants

The sampling technique in this study used a purposive sampling technique of 50 respondents. The study was conducted in Denpasar City, specifically in the working area of Community Health Center (CHC) I of East Denpasar, Bali. Inclusion criteria were all the elderly were over than 60 years old. The exclusion criteria were the elderly who do not give a willingness to become respondents. All samples were given 2 types of questionnaires, namely the Pittsburgh Sleep Quality Index (PSQI) and the Hamilton Rating Scale for Anxiety (HRS-A).

C. Procedures

All data retrieval is done in one time. Each participant was interviewed with questions about Yoga Holistic Healing participation. In addition, respondents were also given 2 types of questionnaires, namely PSQI and HRS-A. Data collection was carried out from January to February 2020.

• Yoga Holistic Healing Participation

Data collection for the participation of Yoga in the population is done by interviewing techniques by asking about the duration of yoga and the frequency of participating in yoga in 1 month.

• Pittsburgh Sleep Quality Index (PSQI)

The PSQI has been found to be valid and reliable to measure the quality of sleep in samples with anxiety disorders. The

PSQI has demonstrated adequate reliability (Cronbach's alpha = .83, test-retest reliability $r = .85$)^[8]. The PSQI is a 19-item, self-report questionnaire that measures subjective sleep quality over the previous month, which are aggregated into seven components that assess various aspects of sleep, and the sum of these seven components yields a global score that discriminates between "good" and "poor" sleepers^[9].

• **Hamilton Rating Scale for Anxiety (HRS-A)**

HRS-A is a measurement of anxiety which there are 14 symptoms that appear in individuals who experience anxiety. Each item observed has a score of 5 (likert scale), which is between 0 to 4. The validity of the HRS-A instrument has the reliability indicated by the Cronbach's Alpha value is 0.793^[10].

D. Statistic Analysis

The Chi Square test was used to analyze the association between Yoga Holistic Healing Exercise and level of anxiety, Yoga Holistic Healing Exercise and quality of sleep and also association between level of anxiety and quality of sleep.

Test were analyzed using the SPSS 16.0 software for windows.

III. Results

A. Characteristics of Respondents

Table 1. Characteristics of Elderly Based on Gender, Age and Yoga Holistic Healing Exercise Participation

Characteristic	Frequency	Percentage
Gender		
• Female	29	85
• Male	21	15
Age		
• 65 – 70	41	80
• 70 – 75	8	16
• > 75	1	2
Yoga Participation		
• Yoga	37	74
• Non – Yoga	11	22

Based on Table 1, it can be seen that the majority of respondents aged between 65-70 years and respondents are dominated by the female.

B. The Relationship Between Yoga Holistic Healing Exercise with Level of Anxiety

Table 2. The Relationship Between Yoga Holistic Healing Exercise with Level of Anxiety

	Level of Anxiety					Value
	Not Present	Mild	Moderate	Severe	Very Severe	
Yoga	2	3,5%	%	%	%	,000
(%)	6,5%					
Non-Yoga	3,1%	3,1%	3,1%	0,8%	%	,000
(%)						

Based on Table 2, the data shows that there is a relationship between Yoga Holistic Healing Exercise and anxiety levels in the Working Area of Community Health Center (CHC) I of East Denpasar, Bali, with $p = 0,000$ ($p < 0,05$). The data above shows the number of respondents who did not experience anxiety was dominated by respondents

who participated in Yoga Holistic Healing Exercise.

C. The Relationship Between Yoga Holistic Healing Exercise with Quality of Sleep

Table 3. The Relationship Between Yoga Holistic Healing Exercise with Quality of Sleep.

		Quality of Sleep		Value
		Good	Poor	
Yoga	Yes	35	2	
	f(	94	5,	
(%)		,6%	4%	,033
	N	9	4	
Non-Yoga	Yes	69	30	
	f(	,2%	,8%	
(%)				
	N			

Based on table 3 above, the data shows that there is a relationship between Yoga Holistic Healing Exercise and sleep quality in the Working Area of Community Health Center (CHC) I of East Denpasar, Bali, with $p = 0.033$ ($p < 0, 05$). The data above shows the number of respondents who have good sleep quality is dominated by respondents who take part in Yoga Holistic Healing Exercise.

D. The Relationship Between Level of Anxiety with Quality of Sleep

Table 4. The Relationship Between Level of Anxiety with Quality of Sleep.

		Quality of Sleep		Value
		Good	Poor	
Level of Anxiety	Not Present	5		
	f(%	
(%)		00%		,000
	Mild			
(%)		f(	2,5%	7,5%
	Moderate			
(%)		f(	00%	%

		Quality of Sleep		Value
		Good	Poor	
Level of Anxiety	Not Present	5		
	f(%	
(%)		00%		,000
	Mild			
(%)		f(	2,5%	7,5%
	Moderate			
(%)		f(	00%	%

Based on Table 4, the data shows that there is a relationship between the level of anxiety with quality of sleep with $p = 0,000$ ($p < 0.05$). The data above shows that most respondents who did not experience anxiety had good sleep quality.

IV. Discussion

Anxiety is an emotional response to an assessment that describes a state of worry, anxiety, fear, unrest with various physical complaints. Besides anxiety can cause bodily reactions that will occur repeatedly such as feeling empty in the stomach, shortness of breath, palpitations, heavy sweating, headaches, urinating or defecating^[13].

This study was used Yoga Holistic Healing Exercise as a healthy lifestyle for elderly to decrease level of anxiety and improve quality of sleep. Yoga Holistic Healing consists of words “Yoga” which means the knowledge that unites the mind, body and soul, as well as microcosm and macrocosm. “Holistic” means thorough and natural. “Healing” means the return process of the body's physiological functions both physically and psychologically. Yoga Holistic Healing Exercise combines breathing, relaxation and meditation techniques and stretching exercises^[13]. Yoga can improve Gamma Amino Butyric Acid (GABA), which is a neurotransmitter that has an important role in the symptoms of mental disorders. The main function of GABA is to reduce arousal and reduce aggression, anxiety and active in the excitation function. Yoga breathing

techniques cause an increase in the workings of the parasympathetic nerves, provide a relaxing effect, stimulate the release of oxytocin and also called yoga breathing exercises ^[14]. Oxytocin can induce anti-stress and have an effect in reducing cortisol levels ^[15].

Based on previous studies, by following Yoga is able to significantly overcome anxiety problems ^[11]. Another study of Yoga exercise conducted in Parkinson's disease patients by measuring anxiety levels, found that after being given yoga exercises for 8 weeks there was a decrease in anxiety levels and improved sleep quality ^[12]. Yoga has an effect on vasodilation in blood vessels which causes oxygen transport throughout the body especially the brain smoothly so as to reduce blood pressure and pulse to be normal. this condition will increase relaxation in the elderly ^[16].

By practicing Yoga Holistic Healing Exercise will affect the anxiety levels in the elderly that related to quality of sleep. The lower the level of anxiety, the better the quality of sleep in the elderly. In addition, Yoga Holistic Healing Exercise can help maintain the balance of metabolic performance in the body, so the body becomes relaxed and can cause feelings of pleasure so that the elderly can fall asleep ^[17]. The relationship between anxiety and sleep quality in line with research conducted by Dariah in 2015, states that there is a relationship between anxiety levels with sleep quality in the elderly ^[18].

By inviting the elderly to participate in Yoga activities, is one form of our concern for the elderly in order to improve the quality of life of the elderly, both in terms of biological and psychological. So that the elderly can still play an active role in society, both in terms of social and economic aspects and can fulfill a sustainable life program.

VII. Conclusion

In summary, there was a relationship between Yoga Holistic Healing Exercise with level of anxiety and quality of life in elderly, which by following Yoga Holistic Healing Exercise have a low score of anxiety levels and high score in the quality of life in elderly.

VIII. Acknowledgment

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The Impact of Inclusive Environment on the Education of Special Needs Children

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ABSTRACT

The purpose of this paper is to describe the impact of an inclusive environment on the education of special needs children at Saraswati Elementary School in Tabanan. Based on children's rights conventions and regulations, all children have the same right to quality education, regardless of their differences. In reality, there are still discriminatory treatments and negative social views toward children with special needs, thus hampering their development. This phenomenon is very interesting to be studied in qualitative research - with the Cultural Studies approach. The results showed that school community of Saraswati Elementary School was empathetic towards the special needs children. It is characterized by attitudes that were being open, friendly and being able to accept special needs children. Special attention and treatment were also given to special needs children who have uniqueness. They were being involved collaboratively in learning activities, playing and extra-curricular activities with normal children. They were also supported by good teachers' self-efficacy. Such an inclusive environment, it turned out to have a positive impact on the personal development of the special needs children academically, personally, and socially. There was also a positive impact on the character building, social intelligence, and emotions of normal children.

Keywords: inclusive environment, special needs children

I. Introduction

Anti-discrimination education is a trending global issue. It is where children's diversity is accepted in togetherness. Every child, either normal child or special needs child reserves the right to receive quality education and live in harmonious social relations. Regulations and conventions that correspond to this are included in Constitution of Republic Indonesia 1945 (amendment) article 31 paragraph 1. The article states that every citizen has the right to get education. Law No.20 of 2003, article 5 on the National Education System, also states that every citizen has the same right to obtain quality education, including special needs children. Bandung Declaration of 8-14 August 2004 states that every child with disabilities is guaranteed to access all aspects of life, such as education.

Harmonious relationship between human beings, in Hindu concept is known as philosophy of *Tri Hita Karana* and *Tat Twam Asi*. *Tri Hita Karana* means three causes of well-being consisting of *Parahyangan*, *Pawongan*, and *Palemahan*. *Parahyangan* is the harmonious relationship between human and God, *Pawongan* is the harmonious relationship between one human with another human being, and *Palemahan* is the human relationship with the natural environment. In the context of an inclusive environment, the focus is more on *Pawongan*, which is a harmonious relationship between fellow human beings. This theory was made into a very essential concept of how to live in harmony and harmony in a multicultural atmosphere. It is also in harmony with the national ideology of Pancasila. While "you are me and I am you", is the meaning of *Tat Twam Asi*. Its basic

meaning is how to love oneself as well as to love others and the environment (Bandem, 2012).

Data from the Central Statistics Agency in 2017, the number of children with special needs in Indonesia reached 1.6 million, and only 18 percent of children received inclusive education services. While the 2018 Education Statistics data, the percentage of population with disabilities (aged 5 years and over) who are still in school is only 5.48%. People with disabilities who do not attend school are 70.62% (<https://www.ilo.org>; Jayani, 2019; <https://www.kemdikbud.go.id>).

If we look at the number of special needs children, it turns out that it is relatively in a big number. While special needs schools are limited only in country town. Education for special needs children in special needs schools is apparently less effective. The results of research by The National Academy of Sciences, USA (1980), found that the classification and placement of children with disabilities in schools, classes or special places are ineffective and discriminatory (in the Directorate of Special Needs Education Development and Special Services for Primary Education, 2015: 18).

In reality, the main obstacle of special needs children to develop is not due to disability. As long as there are tools and special handling, they will be able to overcome these obstacles. The difficulty is to deal with their social barriers, and a negative social view towards them. These social barriers need a solution. They should learn with normal children in an inclusive education scope. Inclusion is an ideological system which collectively comes from the school community that realizes the responsibility in educating all students. Therefore, special needs children could develop their potential optimally. *Permendiknas* No. 70 2009

states that inclusive education is a system that provides opportunities for all students with disabilities and students with intelligence or special talents to attend school in the same educational environment with students in general.

Special needs children who participated in inclusive education turned out to have greater success, as the results of a study by Meyer (2001) stated that students who have disabilities have greater success when they get education in the environment that receives them, especially those related to their social relationships and friendships with their communities (in the Directorate of Special Education Development and Primary Education Special Services, 2015: 19).

In reality, the special needs children are unique, if they learn together with normal children in the same class, sometime it can be a problem. Normal children can be hampered by children with disabilities. In other words, the special needs children are not accepted by their peers. This phenomenon can create an uncomfortable and unfriendly inclusive learning environment for them. Moreover, the normal-age children who don't want to accept them, the limited teacher self-efficacy, and the less supportive parental attitude to all of their strengths and weaknesses contribute to the problem faced by the special needs children.

To study the problem above, a case study was held at Saraswati Tabanan Elementary School, using critical education theory. One of the solutions is through inclusive education. The main duty of inclusive education is to accompany students to become subjects of education. The process of education is based on interactions between the special needs students and normal students. Comfortable academic and social interaction among students need inclusive

environment. An inclusive environment is an open school for everyone, friendly and fun environment, and having ability to removes barriers for everyone (<https://bacapikiran.com>). Bourdieu (1930) in social practice theory, the realm of inclusive environment cannot be separated from the role of dominant agents, school communities, habitus and capital. The capitals include cultural capital, social, economic, and symbolic capital (in Harker, 2009: 9).

II. Method

A qualitative research method using Cultural Studies is applied in this study. The data were collected by deep interviews, questionnaires, and documents study. Determination of the informant is done by purposive technique with the principle of snowballs. The key informant is the principal. Then it is developed to the other informants such as teachers, students, and parents. Data collection is stopped after reaching the level of information saturation (Bungin, 2009). Data validity test is cross-checked by triangulation techniques. The main instrument of this research is the use of interview guidelines, recording devices and cameras. Data were analyzed using descriptive qualitative techniques.

III. Results and Discussion

Saraswati Tabanan Elementary School, Bali, is a regular private school under the management of Perguruan Rakyat Saraswati Foundation. SD Saraswati Tabanan is accredited A (very good) based on the Decree of the National School/Madrasah Accreditation Agency Number 252/BAP-SM/LL/IX/2014 on September 27, 2014. Since 2011 (nine years ago), this school is holding inclusive education correspond to the decree of Education Departement of Tabanan regency.

In general, the special needs children studying at this school have emotional disorders, mental retardation and developmental delays. They have their own uniqueness. The number of special needs children who learning in inclusive education in 2019/2020 is 10 students (0.99%) than 1,011 normal students. The average ratio per class of special needs children study together with normal children is 1:30. Based on research, all school communities could accept the special needs children. It was signified by normal students of the same age received the special needs children both in classroom learning activities and in extra-curricular activities, such as cooperative learning, choose friends to sit on one bench, playing, go to the canteen and go to toilet with friends. The inclusive environment is shown in the following photos.



Figure 2
Classroom and Extracurricular Activities of
Children with Special Needs (red circle) and
Normal Children

Figure 2 above shows that they are taught together both in academic and non-academic activities. The acceptance of normal peers makes them willing to learn, move and socialize. This joint activity can build social cohesion between the special needs children and normal children of their own age. Kerta Adhi's research (2018) revealed that the acceptance of normal children towards students with special needs established conducive social cohesion in learning process (in Jurnal Ilmiah Peuradeun.Vol. 6, No. 3. September 2018).

The students are not the only ones who influence the inclusive environment,

but the role of agents or other school members contributes to the inclusive environment, such as government, foundations, school committees, principals, employees, parents and other stakeholders. The dominant structure or government, in this case Education Department of Tabanan regency has given legality to Saraswati Tabanan Elementary School in carrying out inclusive education, with a decree No.181/530/ Disdikmudora dated July 12, 2011. In its application, the government provides guidance and assistance in improving inclusion services, such as improving the quality of human resources, especially teachers in the process of education, learning and assessment of inclusive education, mentoring from teachers of Special Needs Schools and Psychologists.

Saraswati Tabanan Foundation also gives its supports to Saraswati elementary school to become an inclusive school. The foundation does not only facilitate normal students but also special needs children, such as access roads, friendly classrooms for children, a library with a collection of books that fit the needs of children, and space to play and develop themselves. And the most important one is the application of child-friendly communication.

The principal of Saraswati Elementary School has a commitment to create and maintain a friendly and pleasant learning atmosphere for all children. There is good management to support the running of an inclusive school. It starts with planning, organizing, coordinating and supervising. The school principal facilitates learning tools that are fit for all children, such as curriculum, learning resources, learning tools, teachers, and assessment of learning outcomes.

The class teachers take an important role in creating and maintaining an

inclusive environment. The teacher deals directly with children, both special needs children and normal children, so that the teacher knows exactly what the needs and uniqueness of each child is. Most teachers (83%) have good self-efficacy in maintaining an inclusive environment. Teachers pay special attention to special needs children when they show their uniqueness, so there is an emotional and social relationship between teacher and students. The teacher facilitates their uniqueness in learning process.

Lestari (2012), states special needs children has unique characteristics mentally, physically and emotionally. Therefore it requires patience and the ability to understand them. An example situation faced by the teacher: when she taught counting with an abacus, the special needs student is unable to work on the problems according to his expectations. Then that student went berserk. Even though the class teacher Ni Luh PLL, S.Pd. has given the material and target according to his characteristics, but this student insisted on reaching the target like a normal student, but in fact he could not, then he became emotional, hysterical, crying and any items nearby were thrown away or messed up. After this student was calm and regained consciousness. He states that he could not hold his emotions, he cried unconsciously. The way the teacher handles emotional children is shown in the following picture.



Figure 2

Teacher is Handling a Special Needs Student

The role of parents is crucial in inclusive environment. Parents and their families pay special attention to children

with special needs, ranging from physical needs to the child's mental and social development. Fulfilling the needs of food, cleanliness, social relationship, rest, until doctor or psychologist consultation should be carried out by parents. If parents do not understand the uniqueness of their children, this situation tends to become an obstacle for their growth and development. According to Nafi (2012), the love of parents, family and the immediate environment is very helpful for the growth and development of special needs children, because they are the ones who know and understand various aspects of them more than others. It will impact on the optimal development of children's potential and children experience the process of becoming independent. Parents state that it is not enough if they are only educated in an inclusive environment at home, it is necessary for children to socialize in a wider context and real social life. Hence, Saraswati Tabanan Elementary School is a choice for parents to send their children to school.

Community Service Activities carried out by IKIP Saraswati also takes part for an inclusive learning at Saraswati Elementary School. It was a workshop on Increasing Teachers Competence on Inclusive Education, with guest speakers Drs. I Wayan Gede Jagra, M.Pd., Head of the Curriculum and Assessment Section in the Field of Special Education Development in Bali Province, and Mrs. Dra. Made Murdani, M.Pd. Principal of Special Needs School 1 Badung. The results of the activity could increase the knowledge and skills of teachers in inclusive education. Through this activity, the teachers are able to modify the learning system, syllabus, and inclusive assessment system. Then the second training which is especially dedicated for parents by Dra. Retno IGK Kesuma. M.Kes. The result shows that

parents have a better understanding of the uniqueness of children with special needs. They become confident and empathetic to their children.

The special needs children who live in marginalized groups are apparently given the same space as other children in inclusive education. Inclusive education as viewed from critical education theorists, its essence is to deliver students to become subject based on their potential, which is in accordance with the relations of subject between the special needs children and the normal children at their age (Freire, 2007). They establish a harmonious relationship between special needs children and normal children. There are mutual acceptance and respect for each other, no one get bullying or being hurt. This is an implementation of *Tri Hita Karana* (specifically *Pawongan*) and *Tat Twam Asi* philosophy. Inclusive education is re-humanizing human beings who are dehumanized due to unjust systems and structures. They are united in differences and the real life of heterogeneous school communities. They learn and socialize so that they can receive and respect one another.

The practice of inclusive environment based on Bourdieu's (1930) social practice theory, turns out that agents or school members are respecting each other and embracing each difference as habitus.

The school environment is an open, friendly and fun space for all children. Agencies (external, internal, and capital accumulation) can form an inclusive environment. External parties, such as the government allows schools to implement inclusive education. The internal agents or school community, starting from foundations, school principal, school committees, teachers, parents, employees and students are very open and act for the convenience of the school environment. Habitus in an inclusive environment is influenced by capital games, such as

culture capital, social capital, economic capital, and symbolic capital.

School community applies cultural habit by saying greetings, such as *Om Swastiyastu*, *good morning*, *good afternoon*, and accepting differences by respecting each other, no bullying, wearing traditional clothes every Thursday, and *Purnama-Tilem* and *Mesatua* activities which are carried out continuously, so that it becomes a habit. Good social relationship is grown through better communication and socialization between special needs children and normal children. Normal children help them in facing learning difficulties, be with them to the canteen and or to the toilet. In Economic, the school tries to provide better infrastructure facilities for all of the school communities. The symbolic belief concerns with self-esteem and prestige. It is the aim of Saraswati Foundation to combat ignorance. Due to this aim, the school must create and maintain an inclusive environment so that inclusive education practices can run optimally.

Conducive inclusive environment provides space and time for all children to learn and become smarter. They freed themselves from differences and selfishness, they were freed to socialize based on their uniqueness. This environment cannot be separated from the role of agents from both external parties (government) and internal (school community). Agencies collaborate with each other in creating an inclusive environment, so that it becomes a habit. The power of culture, social practice, economic, and symbolic capital among the community also supports the inclusive environment. The inclusive environment built in the school turned out to have good impact on inclusive education. It gives comfortable learning environment and interaction for the special needs children. The normal

children also gains good impact in the formation of their character, such as empathy, tolerance and love for everyone.

IV. Conclusion

This study on inclusive education shows the application of inclusive environmental practices at Saraswati Tabanan Elementary School. The inclusive environment cannot be separated from the role of agents from both external parties (government) and internal (school community). Agencies collaborate with each other in creating an inclusive environment. The power of capital, such as culture capital, economic capital, social capital and symbolic capital contributes to an inclusive environment. The inclusive environment that was built in the school turned out to have a good impact on inclusive education. This environment affects the Special Needs Children's academic and non-academic activities. Meanwhile, normal children can also get a positive impact on their characters, such as empathy, tolerance and love for everyone. Hence, the child's social and emotional intelligence may develop through the inclusive environment.

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Megati Village Development Strategy as a Cultural-Based Agrotourism in Bali and Creating Sustainable Agriculture

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Abstract

Return to nature is an option for outdoor activities, breathing fresh air brings the right benefits for taking the time, to be close to nature is very good for mental and physical health. Village tourism is a form of integration between attractions, accommodation and supporting facilities that are presented in a structure of community life that integrates with applicable procedures and traditions, to create a unique area with a bandage of local culture. The strategy of local culture-based village tourism in the village of Megati, is an alternative strategy based on the analysis of internal and external strategic factors, these factors include opportunities, threats, strengths and weaknesses, with a concentric diversification with horizontal integral strategy. The aspect of agricultural culture carried out by the community in creating sustainable agriculture as capital in the development of a tourism village is to make all cultural activities as attractions that can be enjoyed by tourists sourced from local resources and culture in the agricultural system.

Key words: *THK*, agricultural culture

I. Background

Back to nature is an option for outdoor activities to breathe fresh air, enjoying the greenery of plants and rice fields or walking in the rice fields brings very good benefits, taking time to be close to nature. One innovative alternative that is developing now is utilizing natural resources in rural areas as objects to return to nature. Involving various aspects of life and components of rural communities participated in becoming a tourist attraction. Integrated agriculture is a sustainable system, and adheres to the principle that everything that is produced will return to nature. This means that the waste produced will be reused as a resource that can be utilized.

Village tourism is a form of integration between attractions, accommodation and supporting facilities that are presented in a structure of

community life that integrates with applicable procedures and traditions. Various natural attractions are found in the countryside which require such arrangements as are needed as an attraction visited by tourists visiting a village.

Solutions that develop a village through the tourism sector by involving natural sources of community activities as objects that require developmental control and implementing rural conservation activities as part of tourism assets. The potential of the village as a tourist attraction is a downstream concept of developing agro-tourism that involves various components in the countryside.

It summarizes the intact capital and natural resources that have the characteristics of growing together in an area with a life structure, both space and pattern with the local community. The activities of rural communities are a habit

that is applicable in the community and carried out daily from generation to generation, is a norm that applies in these communities can be said to be a natural culture in rural and natural communities

One of these natural activities is seen in agricultural management. The overall activities of the community are arranged in a rule of agricultural autonomy called *subak* with all the activities therein. Rural tourism is considered to have a connection with development strategies that can continue in many developing countries.

Because of its distinctive nature, rural tourism is included in the category or type of small business. Tourism must also respect local customs, preserve the environment and provide a real positive impact that can be enjoyed by residents around the tourist attractions. With the uniqueness of each village worth to be sold in the packaging of tourism destinations. Each village has certain advantages, namely the uniqueness of a complete lifestyle with handicraft products, arts typical of the region or village. In mapping tourism potential, anticipating obstacles and developing strategies in the context of realizing tourism villages, the community benefits from improving the economy and welfare of tourist visits. planning-action-measurement of results using feedback at each stage.

The research objective is to determine the strategy of local culture-based village tourism in the village of *Megati*, to determine aspects of agricultural culture carried out by the community in creating sustainable agriculture as capital in the development of tourism villages.

The study was conducted in *Megati Village, Selemadeg Timur District, Tabanan Regency*, as one of the rural tourism destinations that offer natural beauty as a tourist attraction

capital. The study involved 20 samples who have implemented integrated farming in livestock crop integration in reducing agricultural costs, and creating sustainable agriculture based on local culture.

II. Research methods

The study was conducted in the agro-based tourism village of *Megati Village, Selemadeg Timur District, Tabanan Regency, Bali Province*. The study was conducted by purposive sampling in which the *Megati* village as one of the new local cultural-based tourist destinations in agriculture (Agro-tourism) was developed to improve the rural economy. The sample chosen census consisted of 20 people who have carried out farming technology innovation in the field of sustainable agriculture based on *Tri Hita Karana*.

The method used in this research is quantitative descriptive method, which is a method to make a systematic, factual and accurate description of the facts and the nature of the phenomena investigated at the research location (Ardhiariska, Utami, & Kustiari, 2015).

Data analysis as a community-based tourist destination, the planning, implementation, and control of the resources owned are managed directly by the community. An alternative strategy for developing Agro-tourism based on SWOT analysis is identifying internal factors (opportunities and threats) and external (challenges and obstacles) in developing a Balinese Cultural-Based Agrotourism Strategy and Creating Sustainable Agriculture

III. Results and Discussion

A. The *Tri Hita Karana* Concept of *Subak* Culture in *Megati Village*

A farming system that is entrenched in rural communities as a form of the philosophy of *Tri Hita Karana* in the Subak system. The subak irrigation system is an appropriate technological system, and as a cultural system. This phenomenon shows that basically the Subak irrigation system is a technological system that has been developed as part of a cultural society. Subak systems are seen as technological systems, so these systems have the ability to be changed. Meanwhile, the limited ability of the subak irrigation system to overcome extreme conditions, so the conditions basically must be resolved through harmony and togetherness, because the principle of *Tri Hita Karana* (THK) as the basis of the subak system (Windia, Pusposutardjo, Sutawan, Sudira, & Arief, 2017)

The form of the concept of *Tri Hita Karana* and the cultural system that contains the element of *parhyangan* is a harmonious relationship between humans and God, *pawongan* as a harmonious relationship between humans and humans, and *palemahan* is a harmonious relationship between humans and the environment (Runa, 2012).

The embodiment of the *Tri Hita Karana* concept in subak operations in Megati Village includes:

- a. Cultural systems that are mirrored in the mindset of irrigation water management are carried out on the basis of harmony, which is valued as the basis of togetherness. Besides carrying out farming life and carrying out rituals in *subak* as culture as well as culture in the context of *parhyangan* there are several activities that must be carried out by subak members, namely: the existence of *Mendak Tōya* (fetching water) which is considered as a monitoring mechanism for the water management system contained in the subak, with

the aim of suppressing violations in subak (regional) authority.

- b. As the application of local culture to the context of marriage is carried out routinely religious ceremonies that have been organized based on *wariga* on the Balinese calendar, from cultivating land to harvesting.
- c. As the application of local culture to the *parhyangan* context is carried out routinely religious ceremonies that have been organized based on *wariga* on the Balinese calendar, from cultivating land to harvesting. As an embodiment of Balinese culture and farming social system in Subak and as social life in *subak* business is a social organization that has been organized with written and unwritten rules or *awig-awig*. *Awig-awig*, which was originally only an agreement between Subak members, became a tradition called *dresta* or *sima* and was based on beliefs related to Hinduism (Norken, Suputra, & Arsana, 2017). *Awig awig* which is applied to the Aseman IIIa subak in Megati Village contains regulations relating to the implementation of *subak* institutions so that harmony. *Subak* meetings are held routinely before the planting season to get agreement between *subak* members. Furthermore, it can create subak management in harmony and togetherness. *Subak* activities are carried out in mutual cooperation.
- d. material systems as real manifestations in subaks. regeneration of ritual mastery in subak.
- e. The object/material in *subak* can be clearly seen from the existence of buildings for those who regulate the equitable distribution of water on *subak* land. The building for the *subak* has a water channel to the paddy field area and also has a disposal site on the paddy field. Water management is carried out proportionally with the size

of the water called the tektek, the threshold of the building for which is measured based on the size of an adult's finger or about 6-7 cm wide. sometimes adjusted to the conditions in the paddy fields.

IV. Agro-tourism based Village Development Strategy

Community empowerment through the development of rural tourism has implications for social security, regional culture, in the form of strengthening and some changes in social, cultural and environmental values (Andriyani, Martono, & Muhamad, 2014). External Strategy Factor Matrix in the development of agrotourism in megati villages Through SWOT analysis aims to plan agro-tourism development. focuses on organizational analysis for recommended strategic actions. As a methodology for determining strategic position. The determination of strategic factors (opportunities and threats) is a strategy implemented in compiling EFAS tables, the external environment is analyzed based on an analysis of the external environment to develop strategies to identify opportunities and threats (Helms & Nixon, 2010).

Strategic planning for the development of a tourism village in Megati Village, it can be seen the opportunities and threats that are likely to affect the sustainability of agro-tourism based villages in the future. Megati village as one of the tourist village development objects that lead to agro-tourism development strategies, demands the uniqueness of local resources and local culture that has an attraction to visit, and is able to provide satisfaction to the experience of each tourist, is a strength that must be highlighted. internal weaknesses found in Megati Village can be minimized through directed programs,

overcome to develop rural tourism based on local culture.

The development of a tourism village (Agro-tourism) is known to include several things:

a. SO Strategy:

The SO (Strength-opportunities) strategy is a strategy that uses all the strengths to take advantage of opportunities in Megati Village, which utilize a weak economy as a leverage to develop local culture-based agro-tourism and the existence of natural resources through innovations that are packaged to produce various attributes that are interesting as an experience that can be felt by visitors to agro-tourism.

b. ST (strength-threats) strategy

It is a strategy to use the power of Megati Village to avoid threats, in this context strengthening the existence of local culture such as the implementation of rituals in subak as a unique activity can be seen in Megati Village. Strategy avoids the impact of technological innovation, carried out by utilizing technology in accordance with the needs of agro-tourism development without eliminating the existing local nuances. Using the concept of biotechnology as an effort to produce agricultural inputs that can be applied to agriculture to maintain natural areas free of inorganic influence.

c. WO Strategy (Weakness-opportunities)

The strategy used to take advantage of opportunities that exist to overcome the weaknesses found in the village of Megati. The actions taken include regeneration of farm managers in the Megati Village area, and regeneration of the mastery of local culture in businesses that function to sustain operations in a sustainable manner. Creating biomass innovation in protecting nature in the village of Megati.

d. WT (Weakness-threats) strategy

Strategies based on defensive activities are aimed at minimizing existing weaknesses and avoiding threats. Weaknesses in the field of technical operations and threats that come from outside such as attacks, pests and changes in weather and climate, the interest of young people to pursue the field of farming and the weak mastery of local culture. To overcome this, the strategy used is the socialization efforts of the younger generation, training and mentoring of farming and agricultural workshops to avoid extinction in the future.

The SWOT analysis shows that the strategy of agro-tourism development in Megati Village is on strong internal factors and strong external factors as well improve the efficiency and effectiveness of farming naturally, human resource development so as to be able to provide good service, strengthening local culture in farming systems that are packaged in farming attractions, as the main attraction that can create a unique experience in a visit to the Megati Agrotourism village.

V. Sustainable Agriculture Development in Megati Village

Sustainable agricultural development is a commitment that must be implemented. Implementation of development that emphasizes the goal of economic progress by protecting the environment. The sustainable development approach is essentially a development activity that combines economic, social and environmental aspects. its implementation of this concept has not been implemented consistently, this is reflected in the many problems that are associated with environmental damage. There are still

many problems encountered in the implementation of sustainable agricultural development, one of the prominent causes is the existence of a sectoral ego that causes implementation to be insulated (Rivai & Anugrah, 2016)

Implementation of sustainable agriculture in Megati Village is an effort to manage agricultural land, by utilizing land as a food crop production, using environmentally friendly agricultural inputs including the use of fertilizers processed from fermentation of cattle waste from farms owned by farmers, and processing agricultural waste into feed livestock. This innovation was carried out with the aim of returning soil nutrients to produce optimally. The use of environmentally friendly inputs is one of the objectives of sustainable agriculture and then agriculture can be economically profitable, acceptable to the community and ecologically environmentally friendly.

VI. Conclusions and Suggestion

A. Conclusion

The results of the SWOT internal and external analysis are the local culture based tourism village logging strategies. Strategic factors both internal and external consisting of opportunities, threats, strengths and weaknesses, it can be concluded that the Megati Village has a strategic position to support the development of agro-tourism, meaning that in this position agro-tourism has the advantage of being able to compete with other agro-tourism. One way the strategy can be implemented is to create distinctive features from other agro-tourism strategies

The cultural aspects of agriculture carried out by the community in creating sustainable agriculture as capital in the development of tourism villages are making all cultural activities as

attractions that can be enjoyed by tourists.

B. Suggestions

Suggestions that can be given to respondents, namely, maintaining agricultural areas by conducting farming management activities with environmentally friendly inputs. And preserving the local culture of agriculture as one of the advantages of Megati Village and the regeneration of farm labor and rituals in farming as agricultural culture.

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Quality Analysis of Service to the Level of Tourist Satisfaction in Water Development Object of Tegenungan District in Gianyar District Bali Province

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Abstract: This study aims to determine the level of satisfaction of graduates to the quality of service and identify weaknesses and potentials that have to increase tourist arrivals at the Tegenungan waterfall attraction. The study was conducted in Kemenuh Village, Gianyar Regency, Bali Province. This research is a qualitative research. The data used are primary and secondary data. Data collection uses a closed questionnaire with a likert scale and documentation. The sample technique used is accidental sampling. Data analysis uses descriptive analysis with a percentage formula. The results showed that most respondents had a satisfied attitude at the reliability dimension of 50%, empathy and responsiveness as much as 46%, on the dimensions of physical evidence, the level of satisfaction and dissatisfaction were at the same level that was as much as 46%, and at the assurance dimension the majority of tourists felt not satisfied with the percentage of 44%. Thus, management should prioritize the dimensions of collateral and physical evidence to improve its services.

Keywords: Service Quality, Level of Satisfaction, Tourist

I. Introduction

Tourism is one sector that is relied on by the government to obtain foreign exchange. The tourism sector provides an important contribution to the country, because it is one of the sectors contributing the largest economy in Indonesia. As one of the largest archipelagic countries in the world, Indonesia has many tourist destinations ranging from historic cities, beautiful mountains to beaches that stretch broadly from Sabang to Merauke. With beautiful natural scenery and the many tourist destinations in this country, making Indonesia as a favourite vacation spot both, from domestic and foreign tourists. The Tegenungan waterfall tourism object which is located in Kemenuh Village, Gianyar Regency, Bali Province has quite a big attraction from its natural beauty. Tourism visits to Tegenungan waterfall are in great demand but the feedback obtained is still unsatisfactory. The problem that occurs in the Tegenungan waterfall

attraction is that there are still complaints and negative reviews that will have an impact on tourist satisfaction and feedback that will be given. According to Richard L. Oliver in Tjiptono & Diana (2015: 23) customer satisfaction is a feeling of pleasure or disappointment that someone gets from comparing the performance of perceived products and expectations. Quality of service/product will affect the level of tourist satisfaction. According to Fandy Tjiptono (2014: 268) the definition of service quality focuses on efforts to meet the needs and desires of consumers and the accuracy of their delivery to balance consumer expectations. According to Parasuraman, Zeithaml and Berry in Tjiptono and Chandra (2016: 133) state that there are 5 dimensions of service quality which are a simplification of ten dimensions of service quality including reliability (reability), responsiveness, assurance, empathy, empathy and physical evidence (tangible).

Published feedback will affect the image of a tourist attraction. Then the image of a tourist attraction will affect the perception of tourists who will visit. Tourists today are very critical and sensitive to a certain product image, including tourism products. The unsatisfied tourist visit to the Tegenungan waterfall will have an impact on the number of visits and the development of the tourist attraction itself. Based on the formulation of the problem, the objectives of this study are: 1) To measure the level of visitor satisfaction at the Tegenungan waterfall tourism object so that it can improve or develop the quality of service; 2) To identify the potential that must be developed to increase the number of visitors in the Tegenungan waterfall tourism object.

II. Methodology

This research is a qualitative descriptive study with a survey method. The type of data used is qualitative data which is then analyzed using the SPSS Statistics 22.0 program. The research was carried out by Tegenungan waterfall tourism object located in Gianyar Regency, Ubud District, Kemenuh Village, Banjar Tegenungan. The location selection is done purposively with the consideration that Tegenungan waterfall tourism object has the potential to be developed. The population in this study are tourists visiting Tegenungan waterfall. Samples were taken by the non-probability sampling method using accidental sampling techniques obtained by as many as 50 people. Accidental sampling technique according to Sugiyono (2013: 77) is taking respondents as samples based on coincidences, that is, who happens to meet or meet with researchers when conducting res

The majority of respondents were from Indonesia and were the first visit. The purpose of visiting is on vacation. The

results of descriptive analysis of the results of research into the quality of service satisfaction of tourists in the tourist attraction Tegenungan Gianyar waterfall are as follows. Where based on the level of tourist satisfaction with tangible factors in the Tegenungan Waterfall attraction, 8% of respondents were very satisfied, 38% were satisfied, 8% of respondents were quite satisfied, 42% were dissatisfied, and 4% of respondents felt very dissatisfied. The level of tourist satisfaction with the reliability dimension, as many as 12% of respondents were very satisfied, 38% were satisfied, 10% of respondents were quite satisfied, 32% were dissatisfied, and 8% of respondents were very dissatisfied.

The level of tourist satisfaction with the assurance dimension at the Tegenungan waterfall attraction, 42% were satisfied, 14% of respondents felt quite satisfied, 34% felt dissatisfied, and 10% of respondents felt very dissatisfied. Tourist satisfaction with the empathy dimension (empathy) shows, 16% of respondents felt very satisfied, 30% felt satisfied, 14% of respondents felt quite satisfied, 32% felt dissatisfied, and 8% of respondents felt very dissatisfied. While the level of tourist satisfaction with the responsiveness dimension shows, 14% of respondents felt very satisfied, 32% felt satisfied, 16% of respondents felt quite satisfied, 34% felt dissatisfied, and 4% of respondents felt very dissatisfied.

Analysis of service quality on the level of tourist satisfaction in Tegenungan waterfall tourism object in Gianyar, the majority of respondents tended to be satisfied with the three dimensions of service quality, namely the 50% reliability dimension, the responsiveness dimension with a 46% percentage, the empathy dimension with a 46% percentage. Whereas in the dimensions of physical evidence the level of satisfaction and dissatisfaction is at the same level that is as much as 46%. And the majority of

respondents were dissatisfied, namely the collateral dimension with a percentage of 44%. From the number of percentages between the categories of satisfaction and dissatisfaction in the five dimensions of service quality, the results of the study stated that respondents tend to feel satisfied. This shows that in general the services provided are good but there is still something that needs attention.

Tourist satisfaction is motivated by the quality of the services provided is quite good, but there are still two dimensions of service quality that are less satisfactory in terms of infrastructure, guarantee for people, management attention, and cleanliness. Judging from the number of tourist dissatisfaction percentages that are classified as large, namely 44% in the assurance dimension and 46% in the physical evidence dimension, this indicates that management needs to prioritize these two dimensions of service quality to be improved, so as not to cause negative reviews which will harm management itself later. The results of this study are consistent with the results of research by Ellen Grace Tangkere and Lorraine. W. Th. Sondak (2017) which shows that in general visitors to the Temboan Peak attraction are satisfied with the quality of services provided by the manager of the Temboan Peak attraction at the level of 75.59%.

III. Conclusion

Based on the results of the study concluded that analysis of service quality is known to the level of tourist satisfaction in Tegenungan waterfall, Gianyar Regency, most of them have a satisfied attitude on the dimensions of reliability, responsiveness and empathy, while on the dimensions of physical evidence, tourists who feel satisfied and dissatisfied are located at the same level which is as much as 46%. And the majority of tourists who

are dissatisfied are on the guarantee dimension. If seen from each dimension are as follows:

1. The quality of the Tegenungan waterfall tourist attraction viewed from the dimensions of physical evidence (tangibility) has a comparison between the categories of satisfaction and dissatisfaction, namely 46%: 46%. It can be concluded that on the dimensions of physical evidence (tangibility) tourists who feel satisfied and dissatisfied are at the same level.
2. The quality of the Tegenungan waterfall tourist attraction viewed from the reliability dimension has a comparison between the satisfied and dissatisfied categories, namely 50%: 40%. In the reliability dimension, the majority of tourists are at the level of satisfaction.
3. The quality of the Tegenungan waterfall tourist attraction viewed from the assurance dimension has a comparison between the satisfied and unsatisfied categories that is 42%: 44%. In the assurance dimension, the majority of tourists are dissatisfied.
4. The quality of servants seen from the dimensions of empathy (empathy) has a comparison between satisfied and unsatisfied categories that is 46%: 40%. It can be concluded that on the empathy dimension (empathy) the majority of tourists are at the level of satisfaction.
5. The quality of the Tegenungan waterfall tourist attraction viewed from the responsiveness dimension (responsiveness) has a comparison between the satisfied and unsatisfied categories that is 46%: 38%. It can be concluded that in the dimension of responsiveness (responsiveness) the majority of tourists are at the level of satisfaction.

IV. Suggestion

Based on the conclusions of the results of this study, several suggestions can be submitted to the management of Tegenungan waterfalls as follows:

1. Management of Tegenungan waterfall attractions, need to pay more attention to service quality on tangibility and assurance dimensions, such as: Management needs to pay more attention to the cleanliness of public facilities such as toilets, changing rooms, and parking lots, and river cleanliness, especially in parts that are lacking attention is paid to the officers, such as in the bushes or trenches, because in this section there are still plastic trash that is caught and seen by tourists, giving rise to the impression of a lack of management attention to environmental cleanliness. Then in the security dimension, security officers and lifeguards did not die too often.
2. Potential Tegenungan waterfall attractions can still be developed to increase tourist satisfaction by providing some additional attraction services. For example, management can improvise in providing services to tourists such as the Pancoran water vehicle located next to the temple of Tirtha Mertha Jiwa, supporting facilities should be provided to carry out a procession of bathing (licking) in the water, such as recurrence and saput water, so that it will create a sacred impression. when tourists take a shower in the Tirtha Mertha Joran water, which makes the experience of visiting Tegenungan waterfall more memorable. Then it can invest a portion of its income to buy attraction equipment such as flyingfox and provide training to officers to operate the attache.

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Subak: Violence in Agricultural Practise In Bali

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Abstract

The pressures received by farmers, both materially and psychologically, create self-distrust from the farming community. Poverty, insecurity and non-knowledge make them an oppressed and marginalized group. As a group that is oppressed and marginalized, the farming community experiences pressure in the psychological structure built by the dominant group. Existing as a marginalized community, the farming community has an effort to deconstruct (dismantle) and reject its position. Various efforts to deconstruct the farming community as a marginalized group (subaltern) have been made, but farmers are still in a position that experiences both material and psychological violence. This violence received by farmers has serious implications for the overall implementation of agriculture in the subak system in Bali. The purpose of this study is to know and examine violence in agricultural practices in subak in Bali. This research is a qualitative, interpretative research. The data collected comes from field data and document studies. Data analysis through three stages of the process are namely: data reduction, data presentation and conclusion. Based on the results of the study it can be concluded that the violence of agricultural practices in Subak in Bali is caused by several factors (1) the existence of environmental damage, (2) the negative side of the implementation of the green revolution, (3) Lack of knowledge from farmers.

Key words: violence, subak, agricultural practice.

I. Introduction

Benchmarks for the success of a country can be viewed from various aspects of national life and one of them is independence in managing agricultural resources for food security. Agriculture has direct implications for the economy of a nation, country and even the world. In the management and utilization of agricultural aspects in Indonesia, synergy between institutions is the main thing to manage and make the agricultural aspects optimally beneficial.

In the 21st century, the problem of agriculture and food can no longer be seen simply, namely the provision of food, especially rice for the population that has not been so developed, but now the agricultural problem has shifted very drastically. Agriculture has a very complex

mission characterized by various problems that are interrelated with one another.

Agriculture is not just planting rice and gardening, agriculture has a very broad scope, including fisheries, livestock, forestry, from upstream to downstream activities, transforming inputs into output in the form of food, clothing, shelter and a comfortable environment for living things. The above shows how wide the scope of agriculture is, the potential is very large and is one of the backbone of the economy to prosper the nation.

So strategic as well as the enormous potential of agriculture in the welfare of the nation, the agricultural system and agricultural actors in this case should be able to live very well, but the opposite happens. Farmers are even worse off, poverty piles up and poverty destroys farmers in Indonesia, especially in Bali. At

the end of May 2006, it was reported in the mass media that the prices of fertilizers were high and scarce. The price of urea fertilizer reaches Rp. 1,150.00 - Rp. 1,250.00 per kilogram. While the price of rice is stagnant, it tends to decline, the cost of the rice production process is not balanced with the results of the sale of its products (Oetama, 2006). Farmers are getting worse because fertilizer prices are increasingly increasing. This was confirmed in Minister of Agriculture Regulation No. 47/Permentan/SR.310/12/2017, that the latest price information for subsidized fertilizer for urea is Rp. 1,800.00 per kilogram, while non-subsidized ones reach Rp. 5,000.00 per kilogram (Anonymous, 2019). Violence experienced by farmers in the implementation of agriculture is not only caused by fertilizers but many other things that cause this to happen.

The pressures received by farmers, both materially and psychologically, create self-distrust from the farming community. Poverty, insecurity, non-knowledge make it an oppressed and marginalized group. As a group that is oppressed and marginalized, the farming community experiences pressure in the psychological structure built by the dominant group. Its existence as a marginalized community, the farming community has an effort to deconstruct (dismantle), reject the position positioned to it. Various efforts have been made, as an effort to deconstruct the farming community as a marginalized group (subaltern), but farmers are still in a position to experience both material and psychological violence. Violence received by farmers, both materially and psychologically has serious implications

for the overall implementation of agriculture in the subak system in Bali. Subak as Bali's traditional distribution of irrigation water in paddy fields, have to reorganize the system of irrigation in rice fields (Yuliana, 2015). In this context there is an interesting problem to be studied, as formulated in the following research questions: to know and examine violence in agricultural practices in subak in Bali.

II. Research Methods

The approach used in this study is a qualitative research, with respect to the research, the emphasis is not on measurement but on a descriptive analysis of the viscous (Bungin, 2006). The study was conducted in *Subak* in Bali. Types of data collected in this study is qualitative data supported by quantitative data as supporting data. The data collected in this study were derived from field data and document. Data was analyzed using qualitative analysis, through a three-stage process: data reduction, data presentation and conclusion.

III. Results and Discussion

Several factors that influence violence in the agricultural system in subak in Bali can be identified as follows.

A. Environmental Damage

One problem that is increasingly recognized as a complex and serious problem faced by humanity is an ecological (environmental) problem. The continued increase in the world's population and limited natural resources, which has led to the widespread application of modern technologies that

are pollutant and exploitative towards nature, have in fact resulted in increasingly deteriorating environmental quality. The earth is getting hotter, air, land, rivers and oceans are getting dirty and poisoned, the presence of clean water is increasingly scarce, the ozone layer is damaged, and so on. Draining natural and mineral resources, polluting and destroying the environment, causing ecological imbalances, the occurrence of many erosion, floods, droughts, etc., are serious problems that are being and will occupy humanity.

Departing from the idea that one of the causes of problems and even the ecological crisis today is widespread and the influence of the cosmological view is called "scientific materialism". According to this view the cosmos (world nature) with all its contents basically consists of elements of material whose laws can be known and explained thoroughly by science. The cosmos with all its contents is a fabric of material elements, each of which is independent, and only externally related to the other. This world of nature is nothing but a big machine. In this view, the world of nature in itself is impersonal, meaningless, worthless, and aimless. The meaning, value, and purpose are completely removed from all forms of scientific explanation. The meaning, value, and purpose exist only in human life, and human life is a reality that is completely separate from nature, and fosters human exploitative attitudes towards nature (Descartes in Sudarminta, 2006).

Faced with this kind of situation it is not surprising that the ideas of how humans should act so that the preservation and integrity of the environment can be

maintained properly, or in other words the thoughts surrounding the interests of the environment, increasingly need attention.

Even though it may not be the only cause, the emergence of environmental problems apparently cannot be separated from a cosmological view of scientific materialism as described above, which in fact has grown an exploitative attitude towards nature. The development of environmental ethics presupposes a fundamental change from the cosmological view of scientific materialism that has cultivated an exploitative attitude towards nature to a cosmological view that fosters an attitude of "respect and friendship" with nature. One such cosmological view is the cosmological view put forward by Alfred North Whitehead and known as the "Process Philosophy" or known as "Organic Philosophy". This organic philosophy contains several ideas, among others: (1) the idea that the universe or cosmos is a large organism that is formed from many small organisms that are related to their environment as part of one whole, (2) humans as part of nature, although thanks complexity of its mental aspects, humans are not entirely dependent on nature, humans are basically part of nature, it appears from the fact that natural law also applies to humans and that natural elements are also found in humans (Sudarminta, 2006).

An important implication of the idea that the universe as a whole, which is a large organism formed from small organisms as an organic part, is that the whole cosmos is an ecosystem. This means that the organisms influence and depend on each other, what happens to the

organisms as part of the whole, will affect the overall system, and vice versa. If the universe or as a whole is understood as an ecosystem, then damage, contamination, and draining that occur in one part will also have negative consequences on other parts, and the overall quality of the environment will be affected by the quality of organisms shape it (Sudarminta, 2006).

If humans are said to be a part of nature, this means that humans cannot act as they wish for nature such as mastering and exploiting nature completely, without bringing negative consequences that will affect humans themselves. Humans cannot use arbitrarily everything contained in nature such as animals, plants, minerals and so on, to meet their economic interests. Natural resources are limited, and some things cannot be renewed or at least it will take a very long time for natural renewal. The overall well-being of human beings and future generations will depend on health and natural sustainability as the source of livelihood and the only environment in which they live.

The ecological problems faced by the world are also experienced by subak-subak in Bali. This is in accordance with the opinion of one of the informants, Mr. Nengah Suarsana (age 58) as follows.

“...The agricultural land in general is already damaged, the land is so hard to be processed, without being given fertilizer, these lands are like dead. Efforts must be made to repair the soil that is no longer based on chemical fertilizer use. The use of chemicals in agriculture makes the land even more dying ... ”(Interview, March 2019).

From what was revealed by Nengah Suarsana above, it may open the minds of many people that the agricultural lands that are currently in general have been damaged a lot, and this will have an impact on decreasing the level of production and ultimately lowering farmers' income, so that the welfare of farmers also decreased. Even a wider impact can occur which is on the damage to the ecosystem as a whole. This is in line with Yuliana's (2011) opinion, the application of green revolution technology based on chemicals in the Betan Wangaya Subak, especially the use of inorganic fertilizers and pesticides, causing ecological degradation in particular the degradation of the quality of rice fields. In addition to land quality degradation, Yuliana (2015) also stated that there had been degradation in both the quality and quantity of irrigation water. Specter haunting the world community and farmers about environmental damage, caused by many things one application of irrigation technology that is not appropriate and environmentally unfriendly implications kill the earth and the farmers themselves (Yuliana., *at al*, 2019a). Even more Yuliana., *at al* (2019b) stated that due to the degradation of quality and quantity of water, further implications for competition in water use in various sectors, especially the agricultural sector.

Solutions to overcome this must be sought as soon as possible. When it comes to ecological problems, just one thought will not be empowered without being supported by legal rules that can guarantee the implementation and take action against

its violations. For this reason, political alignments and the power that guarantees them are factors that cannot be ignored (Yuliana dan Dharmika, 2018). Ecological problems are indeed complex problems that need to be dealt with simultaneously from many scientific disciplines and by various parties.

B. The Negative Side of the Implementation of the Green Revolution

Amid a vortex of concerns about the food crisis, a new breakthrough to increase the growth of food production in the world has been offered. The new breakthrough is a food industrialization program that applies a package of modern technology in agriculture, called the green revolution. Not closing the reality of the growth of food production at an unprecedented level, in the last 30 years (1969-1999) came true, and even in Indonesia in 1984 there was self-sufficiency in food.

Arguing to maximize production for food security (even though in practice it is only for commodification and food speculation), the food industrialization program (green revolution) was enforced forcefully throughout the world. National government regimes, especially in developing countries, world bodies, and international regimes, such as the food industry, multinational trade, are proponents of the success of the program. The first volume of green revolution, which is intensification with hybrid seeds and chemical intake, which continues with the second volume of green revolution namely intensification of agriculture with

transgenic seeds and chemical intake, runs successfully (Widyanta and Purwanto, 2008).

The uniformity program that is structurally and systematically very oppressive to subsistence farmers, it turns out, is also able to homogenize the mindsets of many people. So that the chemically intensive farming practices carried out by its worshipers and affirmed by its regimes are believed to be the panacea for achieving world food security. Gandrung green revolution, increasingly unstoppable and farming culture among farmers also faded. In this context, there was a massive eviction of something traditional, something traditional had to be removed and replaced with modernity oriented towards the West.

The application of the green revolution in Indonesia is inseparable from the hegemony of leadership and at the same time the dominance of the New Order government towards farmers. Borrowing the concept of Althusser (1984), in carrying out domination and hegemony towards farmers, the New Order government mobilized two forces, namely the power of ideology and repressive power. The power of playing ideology to do hegemony influences the mind, ideas, ideas of society (farmers) to be subtle in order to support/accept the green revolution. While the repressive power plays to dominate the community (farmers) agar wants to implement programs in the green revolution. Domination is carried out if necessary by force by using symbols of state power such as Hansip, Police, Military, Prosecutor's Office, and even the Court.

As expressed by Mr. Gatot Surono, a farmer who applies natural (organic) agriculture, in 1989 also experienced dominance, emphasis and oppression by the government to want to implement the green revolution (Widyanta and Purwanto, 2008), as follows.

"... still fresh in my memory how Rasaya became an enemy of the state, my rice plants were suddenly revoked by Koramil officers, soldiers. I was threatened, what was the point of being arrested? ... "

What was said by Mr. Gatot Surono, a former police detainee, who was jailed for four years without going through this court process, is one form of government domination of farmers, in an effort to impose his will so that farmers follow the recommended program of implementing modern agriculture.

Domination and modern hegemony oriented towards the West have castrated farmers, the hegemony behind the form of seeds and chemicals is the most important, which also has an impact on other accompanying hegemony, which increasingly presses farmers. Domination and hegemony has castrated and enslaved the peasants, so that the ideology they embrace is the ideology of resistance in order to achieve the liberation of the peasants from the snare of dependence and helplessness due to systematized global structural hegemony.

With this symptom, there is dominance and hegemony of science and technology towards traditional knowledge and technology (Giddens in Atmaja, 2005). As a result, a lot of traditional

knowledge and technology has been displaced or adapted so that its practical value is increased. Along with that, the production costs that they have to spend are also getting bigger. Given that whatever form of capital technology they use cannot be self-produced, it can be passed through the market. Without capital, the lives of farmers experience tremendous difficulties, both for carrying out their farming activities, and supporting the life of their routines. Finally, whatever form of lifestyle they display, money becomes very important (Atmaja, 2005).

Likewise, how much money should the government squander on fertilizer and seed subsidies, to fulfill ambitions for food self-sufficiency (but only for one year). After that the land is damaged, production continues to decline, and who really enjoys multiple profits, farmers? It is ironic, ironically, that profits flow into the pockets of the capitalists, not the farmers, by extorting farmers from being able to scream again. The price of fertilizer is still expensive and farmers buy fertilizer, which is difficult due to scarcity of fertilizer in the market. The question of farmers is that agriculture is cheaper so they are no longer dependent on the availability of chemical fertilizers and seeds?

Today the model of capitalistic agriculture is an inseparable part of the life of the farmer, so that things that were previously unknown by farmers such as competition, efficiency, etc. become integrated with their lives. Similarly, the capitalistic pattern of socio-economic formation is part of the life of farmers (Fakih in Atmaja, 2005). All of this is an economic space that is very important for

the development of the Market Religion which is owned by capitalists who are attached to globalization. As well as no less important fertile land must be provided to sow the ideology (Religion Market). In these conditions, farmers are becoming increasingly absorbed in the exposure of globalization (Atmaja, 2005). Instead of providing benefits to farmers, it only brings good fortune, which is increasingly oppressive and marginalizes poor farmers to become poorer, in the flow of globalizing capitalism.

Insofar as the farming community is only always the "object of sale" of the fertilizer and seed factory, then food sovereignty will disappear. The values of hard work, perseverance, patience, simplicity will fade. Local wisdom and farming culture will disappear. Farmers as food heroes are no longer dignified. Indeed, farmers are kings, but the lives of the peasants are slumped at the bottom of the social stratification of the people, becoming the Shudras, servants only. So who defends the peasants? (Widyanta and Purwanto, 2008). Is there an alternative farming system that is able to raise farmers' sovereignty to be more dignified in a sustainable manner.

C. Knowledge

Violence that occurs in farmers is exacerbated due to their lagging in obtaining information (knowledge). There are parties who take advantage of these conditions by further aggravating the conditions of farmers, for example the conversion of land from agricultural land to industrial or residential land, etc. by "luring" high selling prices in the process

of land conversion. Whereas by earning money from the sale of land, farmers may be said to lose everything, agricultural land is their heart and blood. Farmers are caught up in cultural shocks, not because of ignorance but by money sheets that they did not expect and saw before (Oetama, 2006).

Farmers get worse, slumped by the small opportunity to increase knowledge and skills caused by limited funds and opportunities. Decreased by the inability to compete in the global era because their production is not competitive in the global market. Downturned by policies that do not favor their interests, plummeted due to their non-knowledge conditions that are used by those who are only trade-motivated, farmers are encouraged to improve their fate. The downturn is also experienced by farmers in subak in Bali, poverty, low welfare, and production prices that are not balanced with production costs, so most farmers "close the hole digging holes" in living their lives.

Regarding the above, one of the farmers in Subak in Tabanan, namely Mangku (55 years old), stated as follows.

"... if our lives as farmers were so difficult. This life in its daily life always closes the hole digging, income as a farmer is not able to meet the necessities of life until the next planting season, we always lack insufficient to live a daily life, so we always owe. Life as a farmer has become increasingly heavy ..."
"(Interview, April 2019).

From the phrase stated above, it can be seen an overview of the lives of

farmers in Indonesia, especially in subak in Bali. Distress and concern are always their life partners in everyday life. Farmers want to improve their fortune, change their fortune into luck, and get higher profits from their farming so that poverty decreases and welfare increases.

The pressures received by the farmers both materially and psychologically create distrust from the farming community. Poverty, insecurity, non-knowledge make it an oppressed and marginalized group. As a group that is oppressed and marginalized, the farming community experiences pressure in the psychological structure built by the dominant group. Its existence as a marginalized community, the farming community has an effort to deconstruct (dismantle), reject the position positioned to it.

IV. Conclusions and Suggestions

A. Conclusion

Internal violence in the practice of agricultural systems in subak in Bali is caused by several factors, namely (1) caused by environmental damage which has implications for damage to agricultural land, (2) the negative side of implementing the Green Revolution, (3) the absence of knowledge from the farmer.

B. Suggestion

Some things that can be suggested are (1) finding alternative implementation of an environmentally friendly agricultural system, (2) as much as possible reducing the contribution of agriculture in damaging the environment by reducing the use of

chemicals, (3) increasing knowledge from farmers.

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The Dynamics of Chinese Ethnic in the Colonial History in Bali

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Abstract

This study discusses the strategy of the Chinese community in their struggle for life, in the socio-cultural environment in the Balinese region during the colonial period. Their historical dynamics show a tendency to blend in with the culture of the people in the area where they live. The characteristics of the Chinese people who in general have a high enthusiasm in the business world, encourage it to adapt and maintain harmony with the conditions of the surrounding community. Assimilation, for example, occurred in the fields of adat, religion and language. The successful assimilation was able to bring its position closer to the power elite. The colonial government placed the Chinese people as intermediary traders in rural and urban areas, with the accompanying privileges. It can be said that the elasticity of the intermingling strategy becomes social capital to empower their skills, in the midst of the sometimes volatile historical dynamics. For this reason it is important to be explored further, namely how much their role in the history of Bali in the colonial period? Why were the Chinese people able to carry out this role? Can their history contribute to the present?

Keywords : dynamic, strategy, Chinese Ethnic, Colonial History, assimilation

I. Introduction

The history of the Chinese community in Indonesia shows an interesting dynamic. Their historical journey in general is closely related to their role in socio-economic activities. The ability in entrepreneurship (trade), has placed it in a position that is quite important in the socio-economic life of the community. They are even able to build a path of interaction to penetrate the elite circle of power. However, this relationship experienced ups and downs, along with the dynamics of social and political conditions that occurred. The political events of 1965 placed the Chinese people in a disadvantage. This deteriorating socio-

political condition coincided with a peak of people's emotional outbursts against a declining economic condition, while the economic/trade position was largely controlled by Chinese community groups. In Bali, a number of Chinese-owned shops located on Jl. Gajah Mada Denpasar were damaged by an emotional community, related to the alleged connection of the Chinese elite to the political events above. Along with returning to normal conditions, the Chinese community was able to rise again to carry out its role in history.

This shows the ability of Chinese people to adapt to all situations that occur. This is a very beneficial talent for the Chinese community in carrying out

strategies for the success of their lives. The description of historical reality can be seen in the Ethnic History of China in its dynamics during the colonial era (Dutch) 19th century/early 20th century in Bali. Diltthey states that humans as historical creatures can only be understood through history, in a *verstehen* way (Kuntowijoyo, 2008: 3,4). One of their characters that stands out is the tendency to easily blend in with their social environment. The cultural aspect becomes an important part in the assimilation of the Chinese in Bali, on the other hand its characteristic of being diligent in entrepreneurship, makes it a successful trader and is able to place it in an important position, as an intermediary in trading activities in cities and villages. His ability to deal with trade made them as trustees of the colonial government which linked him to the indigenous government and the people of Bali. Language and religion are forms of assimilation carried out by the Chinese. This intermingling strategy has succeeded in creating peace and security which is an important condition in the smooth running of trade. Furthermore, this becomes a social capital to empower their skills, in the midst of the sometimes volatile historical dynamics vortex.

For this reason, it is necessary to explore further the role of the Chinese in the history of Bali in the colonial period; Why are they able to do that; What are their contributions to the present day. The answer to the problem will be obtained through research and writing conducted in accordance with historical methods that end in historiography about the dynamics of ethnic Chinese in colonial history in Bali.

II. Description of the Chinese Community in Bali

A. Profile and Settlement

The arrival of Chinese people in Bali is estimated to have occurred in the 6th century, through the trade of sea lanes, with merchandise produced in his country, such as bowls, plates and jars. They were part of Chinese migrants who came and later spread in several areas in the Dutch East Indies. In their new place, they live according to the customs and culture prevailing in their home country. Usually this group is called *totok* Chinese. Children resulting from marriages between Chinese migrants and local natives or fellow Chinese, are referred to as *peranakan* Chinese. They became the focus of research in the history of the Chinese community in the Dutch East Indies, including in Bali in

the 19/20 century. In general they come from the provinces of Fukien and Kwantung. The population of Kwantung Province is the majority of other ethnic Chinese who migrate abroad (Nio Joe Lan, 1952: 252).

In Bali, Chinese people mostly live in urban areas, while others spread to rural areas, such as in Carangsari, Blahbatuh, Kintamai, Pupuan and Petang. In urban areas, they usually choose to live around markets or trade centers. This is understandable considering their profession as traders. The Chinese community occupies a walled house and forms a settlement in a Chinatown, which is chaired by a captain (Serat Purwatjarita Bali, without a year without a yard). This form of settlement, is characteristic of overseas Chinese communities. Not only in Bali, but in Java (Batavia/Jakarta), South Kalimantan, West, where since the 18th century the Chinese community has been active as a trader and other business entrepreneur. Its success in this economic activity even led them to obtain special privileges from native rulers and VOC people. They are given permission to occupy strategic areas and form special settlements, usually close to centers of economic activity, such as ports, and have a position as head of port/*sahbandar*

(Beschrijving van T Groot Eijland Borneo, 1780).

Chinatown in Denpasar was originally a shop/shop house building located in the Banjar Wangaya Kelod area which runs along the right and left of Jalan Kartini now. While in the Wangaya Kaja region there are only a few shop houses in the vicinity where there are many indigenous houses. Now, the existing Chinatown complex is located along Jalan Gajahmada. In this place, Chinese people build a shop house as a place to live, as well as to sell. They generally sell daily necessities, such as plates, cups, soap, toothbrushes, as well as businesses in photography and entertainment services. In 1919 the Chinese built a new trade center along and towards Puri Pemecutan and Puri Denpasar, next to Tukad Badung from West to East (Nyoman Wijaya, 2003: 55-57).

III. Livelihood

Dutch Colonial Government in Bali in the mid-19th century did not change the position of the Chinese in the trade in Bali. Their ability to run trade, and their experience since the kingdom of Bali, the government (colonial) still gave trust to the Chinese people as

intermediaries with all the privileges that accompanied it. With a leap system the government gives the right to collect tax in every merchandise transaction and every economic activity. The right to collect taxes on companies in Tabanan and other areas in Bali is entirely in the hands of the Chinese. Meanwhile, the export tax on cattle, pigs and opium trade is also their right. Coffee farmers usually sell their crops to Chinese traders (H. Van Kol, 1903: 233,415).

In village-level trade, Chinese traders have a large role to play. They play a role in the sale and purchase of daily necessities for villagers, including clothing, oil, sugar and spices. While Chinese traders buy crops from local residents, such as coconuts, rice, coffee, pigs and cattle. Bicycles also become merchandise which they sell in the village. These imported bicycles are sold by installments or cash. To expedite their work, this Chinese trader strives to establish good communication with the local population. This was implemented by strengthening the interaction through their participation in each customary activity, such as giving donations in the form of money and goods in traditional activities in the banjar and the village. There are even some who are married to

local residents/Balinese, and follow social institutions that apply in Hindu Balinese, such as ngayah in temples. In Lebih and Carangsari villages, Chinese people enter as members of traditional villages, with the same rights and obligations as the local Balinese (I Wayan Ardika, 2008: 5). While in Negara and Denpasar cities many Chinese people make a living as wholesalers and retailers. . As retailers, they toured villages in the Badung region to Blahkiuh, Plaga, Krobokan, Pedungan and Banjar Tampakgangsul.

Why they are able to carry out their role as business people who reach out to the wider community in cities and villages, then that can be seen from the historical journey in Bali. During the Badung kingdom whose economic activities were focused on trade centered in the port of Kuta (6th century), the Chinese traders also dominated the transaction of goods in that place. In fact they have a close relationship with the king of Badung. When the colonial government came to power in Bali, the Chinese had long carried out their roles in economic activities in Bali, especially as traders. This prompted the Dutch colonial government to make them as one of its trusted trading partners. This condition is

possible because at that time the population of Bali in its economic activities were still oriented to agriculture and animal husbandry.

As an intermediary trader, the Chinese collect goods and sell them directly to exporters who are monopolized by the Dutch. It is these Chinese intermediary traders who make direct contact with residents to remote villages. It could be said that this intermediary trader was part of the Dutch colonial economic system.

Besides trading, Chinese people are also active in the industrial field. With a business license granted by the colonial government, they established a coconut oil factory and a rice mill in the village of Kapal. Coconut and rice as oil and rice are imported from Badung village. As an area that can provide a guarantee of life and security, Badung has become a destination that is highly sought after by Chinese people to live permanently, especially in Denpasar. They were able to overcome their trading rivals which consisted of Europeans and Arabs, as well as a smaller number of other Eastern foreigners. According to the 1930 population census, the number of Chinese people living in Denpasar

reached 1075 people, almost double compared to ten years ago. In the 1920 census, the number of Chinese in Denpasar reached 613 people (C. Lekkerkerker, 1923: 9). The increasing number of Chinese residents in this city is also due to the fact that the colonial government deliberately brought them to work as intermediary traders or distributors. They also carry out their function as lenders for farmers with fairly high interest rates. Therefore Chinese creditors are referred to as Chinese mindering (Onghokham, 2005: 27).

IV. Integration in the Field of Social Culture

In urban areas such as Denpasar, in general the Chinese are registered as members of the administrative banjar. While the Chinese who live in rural areas, such as Lebih Gianyar Village, and Carangsari Badungmasuk are members of traditional villages, many of them even embrace Hinduism. If at the beginning of the 20th century there were still differences in the level of assimilation/acculturation of the Chinese community at the urban and rural levels, now that is not so visible anymore. Balinese and Malay/Indonesian languages are used by Chinese people both living in cities and villages, although

they are still interspersed with terms in Chinese, such as kamshia, which means thank you. Now the use of Balinese in the Chinese community, especially in the city shows the origin of his birthplace. When born in Bali, he will usually use the language of Bali, but if born outside the territory of Bali, usually they will use the Indonesian language. Chinese language itself is apparently not popular as a language used daily by the Peranakan Chinese community. Even since the 1800s, peranakan Chinese could hardly speak and write Chinese characters (Elizaeth Seeger, 1951: 97).

Changing the Chinese name to Indonesian name is one indication of the acculturation process. Presidential Decree No.127/U/Kep/1966 concerning name change for Indonesian citizens of Chinese descent, became the legal basis for the renaming of the Tionghoa community in the later period. In Bali, Chinese people who live in cities like Denpasar, generally use the name Indonesia. At present, children born to Chinese families will automatically get the name Indonesia. In the village many Chinese changed their name to the name of Bali. The Chinese community in the villages of Blahbatuh and Carangsari in the 1900s even changed their original (Chinese)

names to Balinese names, such as Putu, Made, Nyoman and Ketut. The renaming in turn becomes access to their integration process with the local community (Bali), because with the same name encourages a sense of togetherness between the two groups in a socio-cultural manner.

The efforts of the Chinese to integrate themselves with the local socio-cultural environment, were also realized through administrative and adat activities. In cities like Denpasar, they are actively working together to clean up the neighborhood of the Banjar area or play an active role in fundraising activities through the procurement of the banjar teruna teruni teruni bazaar. (Interview with Edi Suyono 37 years, on October 11, 2019, on Jl. Seroja Denpasar). While in the village of Carangsari, many Chinese participated in mutual cooperation to work traditionally in temples. They also joined as members of traditional villages.

The steps towards assimilation/acculturation are also carried out through the introduction of typical Chinese culinary delights, such as: steamed buns, bowls and noodles. Cakes and Chinese special food is a favorite food for the people of Bali and other

regions in Indonesia. Cupcakes even become a cake that is often used as a means of complementary offerings by the Balinese Hindu community. Meanwhile incense (hio) and Uang Kepeng (pis perforated), which are also important tools for praying for Chinese people, are important prayer equipment for the Balinese Hindu community. Now, noodles in various kinds of processed foods are preferred by a wide range of people not only in Bali but in almost all parts of the world. This phenomenon shows that the efforts of the Chinese community to always blend in with their social environment become part of their life struggle strategy, to achieve a prosperous life goal in a new area that is far away and has different socio-cultural conditions. Not only did they succeed in adapting the culture of their new social environment, but they were also able to introduce their culture (culinary) and it was accepted and adapted by their community environment.

Besides culinary, the Chinese community also integrates themselves with the socio-cultural environment of Bali through the field of religion. The conversion of the Chinese into Hindus in Lebih and Blahbatuh villages proves this. On the other hand in the first half of the

20th century there was an acculturation process through the conversion made by some Balinese into Christians. Christianity entered Bali through a Chinese evangelist named Tsang To Hang, a messenger from the CFMU (Chinese Foreign Missionary Union) evangelism. In 1931 Tsang To Hang went to Bali with the main objective to serve the interests of worshipping Chinese Christians in this place. In the same year the evangelist succeeded in baptizing (a ceremony that served to legalize a person to become a Christian) 12 Balinese. A year later this number increased to 300 people. This shows an extraordinary increase in numbers, while also proving that Balinese society in general is open to outside influences. Until now the events above were the beginning for the growth and development of Christianity among the Chinese and Balinese communities. Ethnic differences between them, integrated in a unity through religion, Hinduism and Christianity. Given the Balinese people who are open and the tendency of Chinese people who always want to blend in with the social and cultural environment of Balinese Hinduism, this condition allows the creation of diversity in the lives of Balinese people. Now there is a family

consisting of husband and wife, each of whom are of Chinese and Javanese descent, and are Muslim. They live with their three Hindu and Christian children. (Interview with Lily Trisnawati, 30 years old. Address Jl. Seroja Denpasar).

Integration in education matters is based more on the concept of national education, including for Chinese students. So students of Chinese descent are required to attend national education, because they are born and will work in Indonesia. An important point of the concept is integrated education on a national scale. Chinese people try to follow the nationality concept in educational activities. In Denpasar there is a Catholic Christian educational institution from elementary school to high school called Swastiastu. This school has students from Bali, Java and most of them are of Chinese descent. For this reason the name Swastiastu is intended as a form of assimilation of the Chinese community with the socio-cultural environment of Bali. Now the school has changed its name to St. Joseph's High School. Nowadays, there are quite a lot of Chinese people attending education at state universities in Denpasar, although they are still limited to certain fields of science.

V. Conclusion

The role of the Chinese in the dynamics of history in Bali during the colonial period, was more dominated by its ability to run its trading business. This ability is a characteristic of his soul that always directs his life's struggle for the success and glory of his business/trading business. For this reason, they tend to try to create conditions and conditions that are safe, so that they can run their business smoothly, because security is a guarantee for the smooth and successful trading activities. In a place far away from their ancestral lands, they need to adapt local conditions by mixing with the local socio-cultural environment/Bali. Assimilation is carried out through the fields of adat, religion and education.

The tendency to adapt to the social environment, not only creates a harmonious relationship with the people of Bali, but also with the Dutch in Bali. Even the Dutch colonial government gave confidence to these Chinese traders as intermediary traders, linking trade at the city and village level as a source of agricultural products. The basic needs and daily necessities of the Dutch and other city dwellers were met by Chinese traders who bought directly from farmers outside of Denpasar. On the other hand,

Chinese traders bring necessities, such as clothes for the villagers. As an intermediary trader has a good relationship with the population of Bali and the people of the Dutch colonial government.

The tendency to always blend in with the social environment of Balinese society that is open, now has an influence on the creation of a diverse and integrated community life in Bali. Chinese cuisine such as noodles has become a widely preferred food among people in Bali. The tolerance of religious life, and the participation of Chinese, Balinese, Javanese and others in the field of education, proves that the history of the Chinese people who tend to blend in with their social environment during the colonial period, has had an influence on integrated Balinese society. This condition creates a safe situation that is relevant for cultural tourism businesses in Bali.

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Effect of 1500 m Run Training on Maximum Oxygen Volume (VO₂max)

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Abstract

Physical training has an important role to maintain and improve the degree of physical fitness seen from the ability of VO₂Max. This study aims to determine the effect of 1500 m run training can increase VO₂Max. This type of experimental research with the randomized pretest posttest control group design. The sample was 20 participants divided into 2 groups. Group 1 was given 1500 m run training and Group 2 was the control group, with exercise frequency 3 times a week for 4 weeks. VO₂Max is measured by the Bleeps Test (MFT) instrument. The results of normality and homogeneity test data show the distribution of normal and homogeneous data. The mean intra-group difference test VO₂Max was tested by t-paired test. Different test results with t-paired before and after training, Group 1 and Group 2 were significantly different ($p < 0.05$). In Group 1, the average VO₂Max (L/m) before training was 25.75 and the average after training was 50.28 with a difference of 24.53 and the percentage increase was 95%. While in Group 2, the mean VO₂Max before training was 25.70 and the average after training was 28.32 with a difference of 2.62 and the percentage increase was 10%. The results of increasing VO₂Max between the two groups before and after training were tested by t-independent. The mean VO₂Max in both groups before training with a value of $p = 0.95$ ($p > 0.05$) and after training with a value of $p = 0.00$ ($p < 0.05$). This shows that group 1 and group 2 both had an increase effect ($p < 0.05$). But improvement in group 1 is better than group 2. It can be concluded that 1500 m run training increases VO₂Max.

Keywords: 1500 m run training, VO₂Max

I. Introduction

Physical condition training plays an important role in maintaining and increasing the degree of physical fitness. There are ten components of physical condition namely strength, endurance, explosive power (power), speed, flexibility, agility, accuracy, balance and coordination reactions. An athlete who has good tactics and techniques will not show their best performance during a match/race without being supported by excellent physical abilities, especially heart endurance, breathing and blood circulation (cardiorespiratory endurance) [1]. This endurance is closely related to maximal oxygen volume (VO₂Max) which is a parameter of physical fitness. Maximum oxygen consumption is abbreviated VO₂Max, meaning that it

shows the maximum volume of oxygen consumed by the body and expressed in liters or milliliters per minute. The maximum ability of the organs of the lungs and the heart is an assessment to measure the ability of a person's maximum oxygen consumption. In improving VO₂Max the training program must be carried out appropriately, carefully, systematically, orderly, and progressively following the principles and methods of training that are accurate in order to achieve the expected goals [2].

Decrease in physical fitness from the reality in the school environment such as: (1) many students who do not receive specific fostering, (2) take very little time to exercise only at school when getting sports lessons, (3) many students are not utilizing free time to achieve higher

sports achievements. High School Period (SMA) is the most appropriate time to provide coaching for training. This is due to the age ranging from 15-18 years, entering the adoliscensi period which is the most appropriate time to improve optimal physical abilities. In addition, this period is a period of rapid growth, characterized by complex biological developments. Seen from the school's achievements, in athletics in recent years, namely in run 1500 m decreased performance and has not won a race.

Run is an accelerated frequency of steps so that when running there is a tendency for the body to float, meaning that when running both feet do not touch the ground at least one foot remains touching the ground [3]. Run 1500 m, which is maintaining the determination of the steps when running is very important. This is the first transition from sprinting and to regular running, and in each of these running segments, a constant step must always be maintained. An intermediate distance runner must learn to relax, maintain balance, control footwork, hip rotation and controlled arm movements. A basic guideline that must be kept in mind is the slower race, shorter stride distance, faster race, longer stride [4].

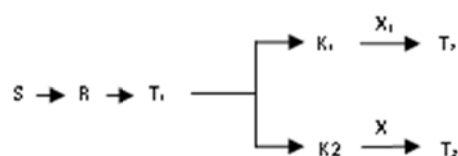
The intermediate distance running motion (1500 m) is slightly different from the sprint running movement, but in general there are many similarities. The difference is mainly in the way the feet tread, in the middle distance running the foot treads in a "ball heel-ball" is to tread on the toe of the heel and refuse with the toe, whereas in the sprint tread with the toes, the heel touches the ground very little. In addition, middle-distance running is done as if it is more economical, to save energy. The most important principle for middle distance

runners is "know oneself", meaning that they are able to master the running speed based on their abilities [5].

1500 m run training is a form of physical training of moving footsteps carried out in such a way that there is a floating attitude when doing step by step with 1500 m mileage. The advantage of this training is that it is very easy to implement, does not need much expense, does not need expensive equipment and can provide a pleasant experience in training, so that it will have implications for good physical conditions, especially on the VO2Max ability of students and sporting achievements at SMA Negeri 3 Singaraja

II. Research Method

This type of research is experimental (true experimental) with the research design used in this study is "The randomized control group pretest posttest design" [6]. The research design can be seen in the following chart.



In the research sample given 1500 m run training was athletic extracurricular male students of SMA Negeri 3 Singaraja in the academic year 2013/2014, amounting to 20 people. The instrument used to measure the ability of VO2Max is to use the bleeps test (multistage fitness test) with the validity and reliability of the test of 0.99. The length of training provided in this study was 4 weeks or 12 times training, with training frequency 3 times a week. The time for the training is in the afternoon at 16.00-18.00 WITA, located in the public

field of SMA Negeri 3 Singaraja and the Secata Singaraja field.

Before conducting data analysis, several requirements that must be met are the data normality test and the data homogeneity test. The data normality test is intended to show that the subjects/study samples are from normally distributed populations. The data normality test in this study used the Kolmogorov-Smirnov technique with the help of the Statistical Program Service Solution (SPSS) 16.0 program at the significance level $\alpha = 0.05$. Homogeneity test data in this study using the Levene test with the help of a computer program SPSS 16.0 significance level $\alpha = 0.05$ [7]. The results of data analysis are normally distributed and homogeneous, followed by parametric analysis.

Paired t test was used to analyze the mean increase in maximal oxygen volume between before and after training in the intra-group, on normally distributed and homogeneous data. The mean maximal oxygen volume (VO2Max) results, before and after intra-group training had p values less than 0.05, showed that the mean maximal oxygen volume (VO2Max) results in intra-groups were significantly different ($p < 0.05$).

Hypothesis testing there is the effect of 1500 m running training on maximal oxygen volume (VO2Max), using inferential tests with independent t-tests on normally distributed and homogeneous data (parametric statistical tests). Decision making criteria that is a significance value less than 0.05 means that there is a significant increase in the treatment given between groups. Thus the average maximal oxygen volume before training is comparable. While the difference in maximal oxygen volume

(VO2Max) after training was significantly different ($p < 0.05$).

III. Research Result

To determine the distribution of the study sample, normality tests were carried out using Kolmogorov-Smirnov and homogeneity of data with the Levene Test. Tests were carried out on data obtained in both groups both before and after the training.

1. Test the Normality and Homogeneity of the Research Group

To find out the data distribution of the study sample, normality test was done using Kolmogorov-Smirnov and homogeneity of data with the Levene Test, Table 1.

Table 1. VO2Max Data Normality and Homogeneity Test Results Before and After Training

Variable	Training	(p) Normalitas Test (Kolmogorov-Smirnov)		(p) Homogeneity Test (Levene Test)
		K 1	K 2	
VO ₂ Max (L/s)	Before	0,14	0,18	0,79
	After	0,20	0,20	0,52

Table 1. Shows that the analysis of data with normality and homogeneity test results of maximal oxygen volume results before and after training, obtained both groups have a p value greater than 0.05 ($p > 0.05$), which means that the maximum oxygen volume results before and after the training is normally distributed and homogeneous data variations so that further tests use parametric statistical tests.

2. T-paired test (paired-t test)

Different test results are used to determine and compare the maximum oxygen volume results before and after training.

Table 2. Results of VO2Max Average Difference Test Before and After Intra Group Training

Maximum Oxygen Volume (L/s)	N	Average	t	p
K 1 before training	10	25,75		
After training		50,28	40,95	0,00
K2 before training	10	25,70		
after training		28,32	-5,67	0,00

Table 2. Shows that the average maximal oxygen volume results before and after training between the two groups has a p value less than 0.05. This shows that the mean result of maximal oxygen volume after training in each group occurred significantly ($p < 0.05$). Thus the results of the average maximal oxygen volume difference before training between Group 1 and Group 2 are comparable. The difference in maximal oxygen volume after training is significantly different, meaning the difference in the end result is due to the different types of training for each group. The mean maximal oxygen volume between before and after training in group 1 and group 2 had a p value less than 0.05 ($p < 0.05$). This means that in group 1 and group 2 there were significant differences in the results of maximal oxygen volume between before and after training. So the hypothesis is proven, 1500 m running training can increase the maximum oxygen volume.

3. T-independent sample test

To find out the maximum increase in oxygen volume between the two groups both before and after the training. The results of the significance analysis with the t-independent test, Table 3.

Table 3. Results of VO2Max Increase Test Before and After Intergroup Training.

Variable	Training	Average		t	p
		K 1	K 2		
VO ₂ Max (L/s)	Before	25,75	25,70	0,56	0,95

Table 3. Shows that the average maximal oxygen volume before training between the two training groups has a p value greater than 0.05, whereas after training it has a p value less than 0.05. This means that the mean maximal oxygen volume data before training between the two groups was not significantly different ($p > 0.05$). Thus the average maximal oxygen volume before training is comparable. While the difference in maximal oxygen volume after training was significantly different ($p < 0.05$), it meant that the results of maximal oxygen volume between Group 1 and Group 2 were significantly different.

4. Percentage Increase in Maximum Oxygen Volume in Both Groups

After 4 weeks of training, there was a difference between increase and percentage. Percentage increase in maximal oxygen volume in both groups, using formula [8]:

$$P = \frac{T2 - T1}{T1} \times (100\%)$$

Table 4. Maximum Oxygen Volume Percentage (VO2Max)

VO2Maks (L/s)	Group 1 (1500 m Run)	Group 2 (Control)
Before Training (T1)	25,75	25,70
After Training (T2)	50,28	28,32
Increase Difference (T2– T1)	24,53	2,62
Percentage Increase (%)	95%	10%

Table 4. Shows that the increase in maximal oxygen volume after training in Group 1 is greater than in Group 2. This shows that both treatment groups had an increased effect after running training. The percentage increase in maximal oxygen volume in Group 1 training had a better effect than in Group 2 training. So the hypothesis was proven that the increase that occurred in group 1 with 1500 m run training was better than group 2 as a control in increasing maximal oxygen volume.

IV. Discussion

The effect 1500 m Run Training Influences VO2 Max Increase

Theoretically the results of this study can be explained that training is a physical movement or mental activity carried out systematically and repeatedly (repetitively) for a long period of time with a progressively increasing loading aimed at improving the physiological and psychological functioning system of the body at a time do sports activities in order to achieve maximum results [9]. Sports training with aerobic energy systems is a form of physical training that gives a burden to the organs of the body being trained. This loading will provide an opportunity to increase the ability of

the cardiorespiratory system to channel oxygen to all body tissues.

Training for all races from sprints, mid-range to long-distance running requires increased anaerobic and aerobic endurance. In the 1500 m run training the predominant uses an aerobic energy system, where aerobic endurance is controlled by the capacity of the heart, lungs, and respiratory system to provide oxygen to the muscles. 1500 m running training method with the gradual and progressive addition of weights from either set or repetition per exercise per week. As a form of training with the aerobic energy system, this method has a positive influence on the increase in VO2Max which is a dominant factor in showing the ability of one's body and VO2Max ability will give an idea of the amount of motor ability (motoric power) on one's aerobic process. The results of this study are supported by a research journal revealed by Pahalawidi in 2007 that athletic training (running) can improve physical fitness and student achievement, so that if an athlete is trained on VO2Max, then his aerobic endurance ability increases [10].

Physiologically VO2Max is influenced by the ability of the cardiorespiratory system to deliver blood to actively working tissue and the ability of muscles to use oxygen carried by the blood. Efforts to increase VO2Max can be done through training that can improve one or both of these factors. An increase in the cardiorespiratory system and the muscular system will increase the ability of VO2Max. Some changes that occur after doing aerobic endurance exercise (maximal oxygen consumption) [2]:

1) Cardiorespiratory Change

Cardiorespiratory changes caused by aerobic endurance exercise, also including the oxygen transport system. The oxygen transport system also involves a circulatory, respiratory and tissue system to work together in one goal, namely releasing or delivering oxygen to the muscles that are at work. With aerobic endurance exercise can increase the heart's response to activities and it can also be expected that trained people can work more efficiently at all their jobs. Capillary blood vessels in the muscles multiply to allow diffusion of oxygen in the muscles more easily, consequently having the ability to transport and use the average oxygen is greater than in untrained people. Because it can consume more oxygen per unit of muscle mass and can work longer.

2) Increased Muscle Endurance

Muscle endurance is related to the ability of a group of muscles to maintain an effort for a long time and the ability to supply oxygen during muscle contractions in progress. Most sports physiologists argue that this aerobic capacity is the best indicator of one's endurance. High aerobic capacity can only be achieved by doing endurance exercises on a regular basis. This is caused by changes in the mitochondria as an energy-producing system that contributes to an increase in respiratory capacity. Actually mitochondria are mainly involved in the use of oxygen for the production of ATP, while the oxygen present in mitochondria comes from muscle cells transported by myoglobin which functions to store and transport oxygen from muscle cells to mitochondria.

According to Wiarto (2013: 46) physical exercise can provide changes to all bodily system functions. Changes that occur during training are called responses. While the changes that occur due to ongoing and programmed training in accordance with the principles of training are called adaptations. The fast heart rate when exercising is a response from the heart, but after a long period of practice the heartbeat slowly becomes stable because the heart muscle strength increases to pump blood, this is the heart's adaptation to the physical exercise that is undertaken. The heavier physical activity undertaken while exercising, the greater the oxygen demand in the body, to compensate for this the heart and circulatory system must work more to meet the oxygen demand in body tissues [11].

In the 1500 m run training the predominant uses an aerobic energy system, where aerobic endurance is controlled by the capacity of the heart, lungs, and respiratory system to provide oxygen to the muscles. 1500 m run training method with the gradual and progressive addition of weights from either set or repetition per exercise per week. As a form of training with the aerobic energy system, this method has a positive influence on the increase in VO2Max which is a dominant factor in showing the ability of one's body and VO2Max ability will give an idea of the amount of motor ability (motoric power) on one's aerobic process. Maximum ability of heart function, lungs are the best assessment of a person's body's ability to measure maximum oxygen consumption. VO2Max has a profound effect on a person's physical endurance, namely in the use and transport of oxygen by muscles.

According to Hairy (1998: 89) the level of oxygen consumption depends on the size and level of one's activity. There are several factors that determine VO2Max including the capacity of the heart, the ability of the cardiorespiratory system to function properly, the function of the heart, the volume of blood, the number of red blood cells, the concentration of hemoglobin must be normal and the blood vessels capable of flowing blood from inactive tissue to active tissue, and tissues especially muscles must have normal capacity to use oxygen or have normal metabolism, as well as mitochondrial function [2].

The results of this study are supported by a research journal revealed by Purwanto (2012) that running training (jogging) can increase the level of physical fitness, so that if an athlete is trained on VO2Max with run training, then his aerobic endurance ability increases [12].

V. Conclusion and Suggestion

A. Conclusion

1500 m run training increases the maximum oxygen volume (VO2Max) for male students participating in the athletic extracurricular at SMA Negeri 3 Singaraja.

B. Suggestion

It is recommended for sports coaches, sports coaches, physical education teachers and athletes as well as other sports players to use a well-programmed 1500 m run as an alternative to improving physical fitness elements, especially maximal oxygen volume (VO2Max). For other researchers, if you want to conduct a similar study, use different variables and subjects or

research samples, taking into account the strengths and weaknesses of this study as a comparison.

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Sustainability of Bali Traditional Residential Architectural Practices in the Perspective of Bourdieu Capital Concept

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ABSTRACT

This study aims to reveal the sustainability of Balinese traditional residential architectural practices which are based on the provisions of traditional ethnic Balinese social stratification and are not separate from capital ownership in Bourdieu's (economic, cultural, social and symbolic). At present, there are dynamics of ownership and capital conversion in the traditional social strata which affect the sustainability of traditional residential architecture practices. The traditional Balinese residential architecture in this study is understood to be the spatial layout and traditional residential buildings of the Middle Bali era. Its sustainability today is seen from the concept of capital in the perspective of Generative Structural Theory from Pierre Bourdieu. The basic assumption of Bourdieu's theory is basically that humans are in the field of social struggle, where individuals or groups struggle to emerge victorious by competing with one another. This study is a qualitative research with interpretative descriptive method. Primary data were obtained from selected informants (purposive) and from field observations, as well as secondary data from the literature. The study findings show that traditional residential architecture practices in the Middle Bali era were strongly influenced by capital ownership (economic, cultural, social, and symbolic) with various forms of conversion to traditional Balinese aristocratic (*triwangsa*). Development at this time has opened the opportunity to control various capital for ordinary community (*jabawangsa*), so that the realm of Balinese traditional housing becomes a medium of struggle as well as a symbol of success in social struggle. On the other hand the contestation of Balinese traditional residential architectural practices means its sustainability in the arena of social struggle of Balinese society today.

Keywords: capital, sustainability, traditional Balinese residential architecture practices

I. Introduction

The traditional social stratification of ethnic Balinese shows that there is a phenomenon of dominance in the governance of the community. This statement as Haryatmoko asserted that in all societies, there was always someone who controlled and was controlled. This dominance relationship depends on the situation, resources (capital) and the actor's strategy. The mapping of power relations is based on the ownership of capital and the capital composition [1]. Capital in Bourdieu's theory there are four namely economic capital, cultural capital, social capital, and symbolic capital [2][3]. Economic capital is a resource

concerning financial and production facilities. This economic capital is most easily converted into other forms of capital. Furthermore, cultural capital can be in the form of knowledge, diplomas, cultural codes, writing skills, ways of speaking, ways of being carried out, ways of getting along that play a role in determining social position. Social capital is a network of relationships as a resource for determining social position. Symbolic capital produces symbolic power, so symbolic power often requires power symbols such as position, luxury car, prestige office, title, high status, famous family name or nobility. Thus, symbolic capital is all forms of recognition by groups either institutionally or not [1].

The description directs the understanding, so strong is its relation to the context of traditional Balinese ethnic housing, when viewed from the basis of its development based on the status of its owner which is in accordance with the traditional social stratification of ethnic Balinese because of birth called *caturwangsa* [4][5]. *Caturwangsa* consists of two large groups, namely *triwangsa* (*brahmana*, *ksatrya*, and *wesia*) and *jabawangsa* (ordinary people) [6][7]. The dichotomy of the *triwangsa-jabawangsa* called the *menak-jaba* or the aristocratic-ordinary people is very contrasting in terms of the ownership of the four capital in the Bourdieu language. *Triwangsa* tend to have greater capital or central control over resources than the *jabawangsa*, which then has a very large influence in the arena of social struggle. This is also reflected in the architectural appearance of each dwelling, because this dichotomy also very strongly regulates the determination of the right to use the size, type, shape, material, texture and color of buildings in the royal past, which in practice tends to be dominated by aristocrats (*menak*).

Development of capital ownership by the *jabawangsa* today, due to the opening of opportunities for higher education, business opportunities, high positions or in short as a successful professional, leads to the strengthening of economic, cultural, social and symbolic capital. This has changed the understanding of the traditional social structure of ethnic Balinese today. Strengthening the capital of the Javanese also had implications for the architectural appearance of the dwelling. The struggle for traditional social status (birth and profession) with ownership, composition and capital play in Bourdieu's view in the realm of traditional ethnic Balinese dwellings, so that the practice of traditional architecture of Balinese ethnic dwellings can continue until now, interestingly studied, as described in the discussion.

II. Method

This study is a qualitative research with interpretative descriptive method. Analysis of primary data (obtained from determined

informants/purposive and from field observations, in addition to secondary data from the literature), is based on Generative Structural theory from Pierre Bourdieu. Bourdieu's theory has a basic assumption that humans are in the arena of social struggle, where there is competition with each other both individuals and groups to fight to become winners. Bourdieu provides a number of concepts in order to understand the arena of social struggle which in this study focuses on the concept of capital. The purpose of this study is to uncover the connection between the *triwangsa* dichotomy and *jabawangsa* (Balinese ethnic social coatings) on traditional architectural guidelines, with ownership and conversion of capital (economic, cultural, social and symbolic) in Bourdieu's thinking in the realm of Balinese ethnic residential architecture in the developmental influence of Balinese development in the present.

III. Results and Discussion

Traditional Balinese residential architecture is understood as the layout and building of ethnic Balinese dwellings. This ethnic Balinese dwelling is called *karang sikut satak* or *karang desa*, because the plot is actually owned by the *desa adat* (traditional village) given to its citizens with "responsibilities" called *ayahan desa*. Thus, the residents who occupy it are strongly related to joint responsibility in the management of traditional activities in a traditional village area, such as the implementation and maintenance of *Kahyangan Tiga* Temple (*Desa*, *Puseh*, and *Dalem* Temple), also related to activities among fellow communities local customs, in addition to joint responsibility for the sustainability and preservation of the territorial environment of the local traditional village.

One interesting thing in the social interaction of ethnic Balinese, which is then related to the existence of residential architecture is the existence of social stratification or traditional community coating. This coating system is called *caturwangsa*. *Caturwangsa* groups people into two big groups, namely the *triwangsa*

and the *jabawangsa*. The dichotomy of these indigenous people is more popularly called *menak* and *jaba* or noble and ordinary people. The political system of royal power in the Majapahit era (Middle Bali era XIV-XVIII AD) strongly emphasized the traditional social stratification system based on *caturwangsa* so that it was well established [8][9], even well maintained during the colonialism era in Bali because it was in line with the political policy of '*devide at impera*', After independence, the dichotomy of *menak-jaba* is still well established as a traditional cultural practice that is deemed necessary to be encouraged, at least this can be seen from the slogan "*Ajeg Bali*" which was popular in the 2002s [10].

This dichotomy has massively placed the mastery or ownership of various resources called "capital" in Bourdieu's view of economic, cultural, social and symbolic capital, greater or centralized to the *menak*. Conditions like this directly affect the dominance of the *menak* over the *jaba* in almost all traditional social relations, not the exception of the residential architecture. Capital ownership and a large composition among the *menak*, placing architecture (spatial planning and building) of Balinese traditional dwelling as a medium of social struggle.

Large resources related to financial ownership (money and property) that are very potential as a means of production or economic capital in the language of Bourdieu owned by the *menak*, become a fundamental resource in building housing with types, materials, colors that are more permanent and luxurious. Likewise this economic capital is most easily converted to other capital. Strong economic capital provides opportunities for learning at a higher level, so that the cultural capital of the growing number of *menak* with the acquisition of knowledge and diploma ownership becomes evidence of the achievement of higher education levels, mastery of high cultural codes, ways of speaking and writing skills, ways of being carried out as well as ways getting more along plays in increasing the social position of the *menak*.

The higher of economic and cultural capital, the more the network of social interactions that can be developed by the *triwangsa*, as Haryatmoko said, that social capital in the form of this network of relationships, as a resource for determining social position. Furthermore, the most important achievement is symbolic capital ownership. Mastery of symbolic capital will produce symbolic power. So to support symbolic power often requires symbols of power as mentioned above [1]. For the *triwangsa* the nobility as a symbolic capital is inherited from birth, so that it remains to be nurtured in a network of social interactions as an amplifier of social capital. Thus, the choice to strengthen traditional power symbols shifts to the traditional appearance of residential architecture.

The rules for spatial planning and traditional residential buildings of the *triwangsa* have also been determined in the traditional Balinese architecture both in *Kosala Kosala* and *Asta Bumi*, in addition to the other of architecture design guidelines. Mastery of this traditional design knowledge on the other hand is also a cultural capital. This traditional design guide places *triwangsa* with rights to land area, size, type of building, which is relatively larger (monumental) than *jabawangsa*, besides the use of the texture and color of their rights are also more dominated by the *menak*. This is understood as a form of symbolic violence by Bourdieu. Violence that is not felt as a form of violence for the party that is dominated, even felt naturally must be so [11][12]. The *jabawangsa* people accept without questioning the use rights of smaller sizes, shapes, materials or colors in traditional residential designs that are simpler.

This design knowledge which is laden with symbolic capital is a form of recognition by institutional groups (*adat*). This is in other languages, a form of sustainability of traditional Balinese residential architecture since the kingdom or era of the Middle Bali. The next question is how is its development in the present, after the wide open opportunities for the whole community to receive education (increasing cultural capital), which then will also have the

potential to develop economic, social and even symbolic capital? What is the dynamics of symbolic violence in the arena of social struggle and how does this affect the sustainability of traditional residential architecture?

The rapid of development in all fields at the present time, as well as the progress of tourism in several regions of Bali, has indirectly changed the order of the agrarian community to industrial services. This, on the other hand, can be seen as an opportunity for self-improvement for the *jabawangsa*, who were previously limited to working in the agricultural sector. Business opportunities are increasingly wide open, which is captured by the *jabawangsa* as an opportunity to improve the economy. This condition affects the increase in overall financial and economic income for the *jabawangsa*. Increased economic capital in the Bourdieu language, is also converted to increase cultural capital by continuing education to a higher level. At the same time social capital also increases with the increasingly broad network of social interactions, as opportunities for interaction become wider and more diverse. The high level of educational attainment (cultural capital) is also an opportunity to gain a high position, which indirectly also influences higher income (economic capital). Strengthening economic capital, then again can be converted and composed into other capitals as Haryatmoko said above [1]. Economic capital can also be converted to get symbolic capital, in addition to luxury goods (movable objects), also in the form of residential architecture.

Strengthening economic, cultural, and social capital to equal *menak*, some even exceeding the ownership of the *triwangsa*, also indirectly triggers and stimulates a desire to further strengthen symbolic capital. Symbolic capital that is expressed as symbolic power also appears in symbols of power, such as luxury car ownership, high positions, academic achievements, prestigious offices, and today's lifestyles. One thing that is also a symbol of power is displayed through a form of traditional Balinese style residential architecture that is better than before; For example, by choosing

the type and use of building materials, completion techniques, naming of occupancy (*Grya*, *Puri*, *Jero*), even the standard size also uses the standard size of the *triwangsa*. This is done because the achievements of the position (whether in politics/government, religion, business/economy, social/*adat*) achieved have reached a peak point, equivalent to the status of the *triwangsa*. The traditional Balinese residential architecture for the *jaba*, is thus also used as a tool of social struggle.



Fig. 1. Sample of Balinese Traditional Architecture with Simple Design



Fig. 2. Sample of Balinese Traditional Architecture with Ornamental Design

If expressed in other words, the contestation of the development of traditional Balinese dwelling, both by the *triwangsa* who indeed inherited (according to birth) the ownership of capital in Bourdieu's thought (economic, cultural, social and symbolic capital), as well as that carried out by the *jabawangsa* who fought (in accordance profession) strengthening the four capitals, can be interpreted together to make a form of traditional Balinese residential architecture as

a medium of social struggle. Behind all these struggles, the winner is “the sustainability of Balinese traditional residential architecture in the present”. In addition, there has been a renewed understanding in understanding the status of Balinese ethnic social stratification, which is re-developing the strengthening of understanding of *caturwarna* (status according to profession), which coexists with the still existence of *caturwangsa* (status according to birth).

IV. Conclusion

The existence of traditional Balinese architectural design of residential housing in the Middle Bali era, not apart from the strong influence of social stratification system, *caturwangsa* in the Balinese ethnic who dichotomized the structure of the ethnic Balinese into *triwangsa* (*brahmana*, *ksatria*, *wesia*) and *jabawangsa* or the *menak-jaba* (aristocracy-ordinary people). The concentration of ownership of capital in Bourdieu's (economic, cultural, social, and symbolic capital) in the *menak*, its causes the domination of the *menak* of the *jaba* in all aspects of life, including the architectural forms of their dwellings.

Development at this time has opened the opportunity to control the four capitals for the *jabawangsa*, so that the contestation of the development of traditional Balinese dwelling, both by the *menak* and by the *jaba*, can be interpreted together make a form of traditional Balinese residential architecture as a medium of social struggle. Behind all these struggles, the winner is the sustainability of Balinese traditional residential architecture today. In addition, the understanding of *caturwarna* again strengthened (one's status according to the profession), which coexists with the still existence of *caturwangsa* (status according to birth).

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The Relationship between Body Posture Against Dynamic Balance and Fall Risk in Elderly

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ABSTRACT

Introduction: As we get older, the elderly vulnerable to changes in posture due to the aging process. The increased prevalence of kyphosis posture in the elderly can be caused by various factors both internal and external. Kyphosis posture can cause various problems such as impaired balance and an increased fall risk. The purpose of this study was to determine the relationship between body posture against dynamic balance and fall risk in the elderly. **Method:** A cross-sectional study design was conducted on 40 elderly which were selected by purposive sampling technique. Elderly data that have kyphosis posture are known through examination using flexi curve, while dynamic balance data is measured using Time Up and Go Test and fall risk is measured using Four Square Step Test. **Results:** The results showed that from 25 research subjects with kyphosis posture, 19 research subjects experienced impaired balance and 22 research subjects had a fall risk. While from 15 research subjects with normal body posture, obtained by 2 research subjects' experienced impaired balance and a subject has a fall risk. Based on data analysis using the Chi-Square Test to determine the relationship of changes in body posture to dynamic balance and fall risk in the elderly, each value of $p = 0,000$ ($p < 0.05$). **Conclusion:** There is a relationship between body posture against dynamic balance and fall risk in the elderly

Keywords: Kyphosis, Balance, Fall Risk, Elderly

I. Introduction

Currently the world is facing problems regarding the elderly population. Increasing the number of elderly has not simple consequences. Various kinds of challenges due to aging of the population have touched various aspects of life. Over a period of almost five decades (1971-2019), the percentage of Indonesia's elderly population has doubled. In 2019, the percentage of elderly will reach 9.60 percent or around 25.64 million people ^[1]. Based on population demographic data, in 2017 there were 23.4 million elderly people in Indonesia or 8.48% ^[2]. The prediction of the number of elderly population in 2020 will reach 27.08 million, in 2025 reaching 33.69 million, in 2030 reaching 40.95 million and in 2035 reaching 48.19 million ^[3].

The population of elderly is spread both in urban and rural areas, where the elderly who live in urban areas are higher than rural areas (52.80 percent compared to 47.20 percent). The percentage of elderly in Indonesia is

dominated by young elderly (age group 60-69 years) with a percentage reaching 63.82 percent, the rest are middle aged people (age group 70-79 years) by 27.68 percent and elderly (age group 80+ year) of 8.50 percent ^[1]. The aging process becomes a social trend that will affect the lives of the elderly. Nowadays, economic conditions result in people more inclined to live in cities than in villages because of the development of technology is evolving rapidly. This will cause demographic and social changes in the family where fewer parents will live with their family who care for them. With declining support from families, people will need better information and tools to ensure the welfare of the aging population in the world ^[4].

Increasing age will cause a decrease in the body system, especially in the musculoskeletal system which will decrease in muscle strength and muscle contraction, muscle elasticity and flexibility, and speed and reaction time. This can cause changes in bone structure, especially the vertebrae that

will affect his posture. Most of the elderly postures undergo changes in posture that will become kyphosis. Changes in posture result in a decreased ability to maintain posture balance in the elderly. So that, it has a high possibility of fall risk in the elderly who have a poor body balance ^[5]. Based on research conducted by Fernandes in 2018, it is stated that the elderly with kyphosis body posture have a fall risk twice as often as the elderly who have normal posture ^[6]. As many as 30-50% of the elderly population in the world aged 65 years and over experience a fall every year and an increase of 32-42% in the elderly aged over 70 years and elderly people aged 55-64 years who experience impaired balance of 63,8%, and aged 65–74 years by 68.7% ^[7].

The incidence of falls in the elderly is often caused by a disturbance of balance which is charged to the inability of the posture control system to react quickly and efficiently. About 10-15% of falls occur due to poor balance and abnormal walking. The resulting effects vary, ranging from head injuries, soft tissue injuries to fractures. It is estimated that about 1% of elderly people who fall have collum femur fractures, 5% other bone fractures such as ribs, humerus, pelvis, and others and 5% had soft tissue injuries and fractures ^[8].

Based on the data above, the author is interested in conducting research on the relationship between body posture against dynamic balance and the fall risk in the elderly.

II. Methods

The study design was cross sectional analytic study. The dependent and independent variables are observed simultaneously. This research was conducted in January 2020 located at the Banjar Dirgahayu Hall, Gerih, Abiansemal Badung. The number of population are 60 subjects which taken in Banjar Dirgahayu, Gerih Abiansemal Badung. The study sample was selected from populations that had inclusion criteria : (1) 65-80 years old, (2) willing to be voluntary as a research subject to the end by signing an informed consent, while the

exclusion criteria are (1) having a balance disorder due to other conditions, such as vestibular disorders, osteoarthritis (2) research subjects experiencing strain, or strain in the lower limb.

The sample size was determined using total sampling. The number of samples are 40 subjects. The independent variable was posture kyphosis and the dependent variables were dynamic balance and risk fall, and the control variable was age. The kyphosis posture was measured by Flexi curve, while dynamic balance was measured by using TUGT (Time Up and Go Test) and fall risk was measured by FSST (Four Square Step Test). Data analysis of the relationship between kyphosis posture on dynamic balance and the fall risk in the elderly was performed with the Chi-Square test.

III. Results

A. Subject Characteristic

Table 5. Subject Characteristic based on age, sex, vertebra curve, balance, and fall risk

Variables	Frequency	Percentage (%)
Age		
– 65-70	15	37,5
– 71-75	14	35,0
– 76-80	11	27,5
Gender		
– Male	18	45,0
– Female	22	55,0
Vertebrae Curve		
– Normal Curve	25	62,5
– Kyphosis	15	37,5
Balance		
– Balance	19	47,5
– Imbalance	21	52,5
Fall Risk		
– No Fall Risk	17	42,5
– Fall Risk	23	57,5

Based on Table 1, it can be seen that the age range of subjects was 65-80 years which is dominated by female subjects. Variables measured were vertebral curves, balance and fall risk.

B. The Relationship Between Body Posture with Balance

Table 6. The Relationship Between Body Posture with Balance in Elderly

	Vertebrae Curve		p
	Normal Curve	Kyphosis	
Balance			
Balance	13	6	0,000
Imbalance	2	19	

Based on Table 2, the result shows that there was a relationship between body posture with balance in the elderly with a p value = 0,000 ($p < 0,05$). Kyphosis can cause imbalance in the elderly.

C. The Relationship Between Body Posture with Fall Risk

Table 7. The Relationship Between Body Posture with fall risk in Elderly

Vertebrae Curve			p
Normal Curve	Kyphosis		
Fall Risk			
No Fall Risk	14	3	0,000
Fall Risk	1	22	

Based on Table 4, the result shows that there was a relationship between body posture and the fall risk in the elderly with a p value = 0,000 ($p < 0,05$). Kyphosis can increase the fall risk in the elderly.

D. The Relationship Between Balance and Fall Risk

Table 8. The Relationship Between Balance with Fall Risk in Elderly

	Balance		p
	Balance	Imbalance	
Fall Risk			
No Fall Risk	15	2	0,000
Fall Risk	4	19	

Based on Table 4, the result shows that there was a relationship between balance and the fall risk in the elderly with a p value = 0,000 ($p < 0,05$). The more imbalanced the elderly, the more the fall risk in the elderly.

IV. Discussion

Based on this study, it was found that there was a relationship between body posture with balance and fall risk. It also shows that there is a relationship between balance and fall risk. This is consistent with the results of research conducted by Shobrina in 2019 which states that there was a correlation between kyphosis posture and dynamic balance in the elderly. The greater the value of kyphosis posture, the higher the dynamic balance^[9].

In supporting the government's development program, especially in the health sector is to increase the degree of life expectancy in Indonesia. Thus, the elderly population will increase every year. An increase in population will have an impact on various aspects of life, one of which is the health aspect^[10]. Decreased physical health in the elderly affects various systems in the body, one of them is the musculoskeletal system. The elderly muscle tissue has decreased strength, elasticity, flexibility, and inadequate reflex response^[11]. The decreasing function of the musculoskeletal system, the posture of the elderly will increasingly change. Most of the changes in elderly posture are changes in bending forward or often referred to as kyphosis. Kyphosis is a form of abnormality that occurs in the human spine that becomes bent^[12].

In the elderly who have a decrease in physiological body, especially changes in body posture such as kyphosis will affect the body's balance in maintaining body position, so the balance becomes unstable. Posture control is influenced by Center of Gravity (COG), Basic of Support (BOS), Line of Gravity (LOG). Kyphosis body posture will change the location of LOG, COG and BOS on the body, so that body balance becomes unstable and easily falls^[13].

This condition can disrupt the independence of the elderly in carrying out daily activities. Balance is needed to maintain position and stability when moving from one position to another. This is accordance with research that conducted by Noorhidayah in 2015 about the relationship of posture with the fall risk in the elderly,

with a total sample of 65 respondents. This study uses a cross section design survey method with a purposive sampling technique. From the results of statistical tests, the p value of 0,057 shows that there is a relationship between posture and the fall risk in the elderly ^[14].

The fall risk is a big problem for the elderly. Balance disorders are among the most common causes of falls in older adults and often lead to injury, disability, loss of independence, and limitations in quality of life. Falls are an important cause of morbidity and mortality and the leading cause of fatal and nonfatal injuries among older adults ^[15]. Impaired balance and mobility are also important risk factors that contribute to the incidence of falls in the elderly group. If the postural balance of the elderly is not controlled, it can increase the fall risk in the elderly ^[16]. Falls in the elderly can cause many health problems in the elderly such as skin injuries, broken bones, impaired physical mobility and death. Based on a survey in the United States society, about 30% of elderly people over the age of 65 years fall every year, half of that number have broken bones ^[17].

Therefore, this research is expected to provide information for the public, especially the elderly about the importance of maintaining posture to prevent an imbalance condition that will increase the fall risk.

VI. Conclusion

In Summary, there was a relationship between body posture against dynamic balance and fall risk in elderly.

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Community Perceptions and Behavior in Waste Management at Peguyangan Sub-district

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ABSTRACT

Waste management is one aspect of the environmental pillar that will determine the realization of sustainable development. Waste management carried out by the community is related to people's perceptions and behavior towards waste management. This study aims to determine perceptions, behaviors, and relationships between community perceptions and behavior in waste management in Peguyangan Sub-district, Denpasar. The method used in this study is a survey method by distributing questionnaires to respondents. Purposive sampling technique with location/banjar/hamlet criteria around the Garbage Bank in Peguyangan Sub-district. The sample used in this study amounted to 94 respondents living in Banjar Dangkap, Tagtag (united) and Pulugambang. Data were analyzed statistically by the Spearman Rank correlation test. The results showed that community perceptions in the Peguyangan Sub-district in overall waste management were categorized as good with an average score of 2.77 to 2.99. Furthermore, the behavior of the Peguyangan Sub-district community in the management of waste is categorized quite well with the average score of 1.78 to 2.92. Although there are differences in the categories of behavior with perceptions, but statistically the mean score indicates that there is a significant relationship between perception and community behavior in waste management in Peguyangan Sub-district with a value of $r = 0.445$ and $p = 0.000$.

Keywords: Perception, Behavior, and Waste Management

I. Introduction

Based on USEPA, 2013 has insight into six aspects on the three pillars of development (environmental, social and economic) that will determine the realization of sustainable development. One aspect of the environmental pillar is ensuring waste management. The role of the community has always been a major element in waste management in urban areas. The role of the community is important in waste management because the community is a big producer of waste. Waste production will increase in accordance with an increase in population and the level of public consumption. Waste production will continuously build a pile of garbage that mounts and pollutes the environment [1].

Waste problems in urban areas will not be solved if the citizens do not take part in waste management. The Denpasar city government has made a strategic effort in overcoming the problem of waste by encouraging community

participation in waste management starting from its source through the 3R concept, which consists of reducing (reducing) waste at the source, reuse and recycle in the hope that the volume of waste transported or brought to the Final Disposal Site (TPA) is reduced.

Theoretically, if reducing waste with an integrated system is carried out, it can reduce the volume/weight of waste, so that the number of trucks and landfills will be reduced according to the reduction in the amount of waste, thus the integrated waste management system is very supportive of cleaning programs in the region urban, and offers a solution to the main issue of landfill land limitations. In addition to community empowerment, the city government is also preparing various facilities and infrastructure for waste reduction such as the Garbage Bank, garbage ATM and others in the hope that the community will be willing to sort waste so that there is an additional economic value obtained from the waste.

Likewise, the application of regulations through the Waste Management Regulation and the Decision of the Mayor of Denpasar governing the time and place of waste disposal all lead to efforts to minimize waste at the source so that the amount of waste transported to the landfill decreases. However, the various policies and instruments carried out by the government have not given optimal results. This is indicated by the increasing volume of waste transported by both public and private vehicles to the landfill. Based on this, the study of how people's perceptions and participation as waste producers in waste management becomes very interesting and strategic to be studied. This research was conducted in the Peguyangan Sub-district in Denpasar City, with the consideration that the city had implemented the government's strategic efforts in waste management by implementing the 3R concept and the Peguyangan Sub-district already had a Waste Bank. This study aims to determine the perceptions and behavior of the community in waste management and to determine the relationship of perception with behavior in waste management in Peguyangan sub-district, North Denpasar District

II. Method

Location, Population and Research Samples

This research was conducted in Peguyangan Sub-district, North Denpasar District. The total household population in this Sub-district is 4,864 households, which are divided into 11 neighborhoods/banjar (BPS Denpasar, 2016). The research location was chosen purposively in the banjar around the location of the Garbage Bank in Peguyangan Sub-district. So the location used as research is the banjar (Br.) which has the nearest Trash Bank namely: Br. Sudden (Garuda Wastu Waste Bank), Br. United Tagtag (Abukasa Garbage Bank), and Br. Pulugambang (Garbage Bank of Sarana Gathi). Samples/respondents were 94 respondents taken by random sampling in the three banjars.

Method of Collecting Data

This study uses a survey method with observational data collection techniques to determine the description of the study area; document recording, and interviews using a questionnaire to get data related to community perceptions and behavior in waste management.

Data Analysis Methods

Public perceptions of waste and community behavior towards the 3R system related to waste management were analyzed using qualitative descriptive methods. Components of people's perceptions and behavior are made scores. Interval class is calculated by the difference between the maximum score and minimum score divided by the interval class. Then conclusions can be obtained as follows: a) 1,00 - 1,66 = perception/behavior of the community is bad b) 1.67 - 2.33 = perception/behavior of the community is sufficient; c) 2,34 - 3,00 = community perception/behavior is good

While the relationship between perception and behavior of the community on the 3R system (waste management) was analyzed by bivariate analysis, namely Spearman Rank correlation analysis. The formula used is as follows.

$$rho_{xy} = 1 - \frac{6 \sum D^2}{n(n^2 - 1)}$$

Fig.1 Spearman Rank correlation analysis formula

III. Results and Discussion

General Description of Peguyangan Sub-district

Peguyangan Sub-district consists of 13 adat banjars in 11 dinas banjar. BPS Data of the City of Denpasar (District of North Denpasar in Figures 2016) states Peguyangan Sub-district is one of the largest areas in North Denpasar District, covering an area of 6.44 Km², with 6,895 households and total population reaching 16,465 people, so that the population density is around 2,556.73 per Km². If the standard calculation for settlement waste generation (Dinas PU Cipta Karya) is used, an average of 0.5 to 0.8 kg

per person per day, the potential for daily waste production per person in Peguyangan Sub-district is 8,232.5 to 13,172 kg or reaching 8.23 to 13.17 tons per day.

Waste Management in Peguyangan Sub-district

Solid waste management in Peguyangan Sub-district is generally handled by the Denpasar City Sanitation and Parks Agency (DKP). Waste management in Peguyangan Sub-district at the household or business level in the area is done conventionally. Schematic results of observations on waste management in Peguyangan Sub-district can be seen in the following figure 2.

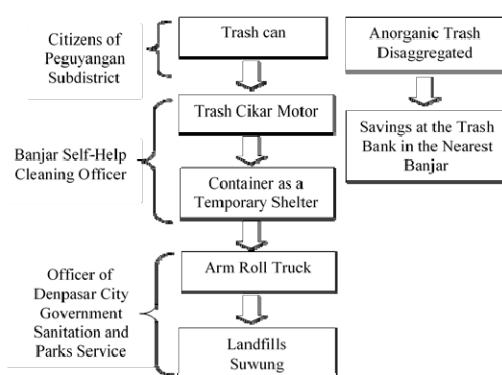


Fig. 2. Waste Management Scheme in Peguyangan Sub-district

Community Perception of Peguyangan Sub-district in Waste Management

Perception in relation to the environment, namely as a process of organizing and the process of interpreting someone's sense of someone who will give meaning to their environment. With the perception there will be formed an attitude that is a stable tendency to act in certain situations in certain situations, Robbins in [2]. One's perception of the environment according to Asngari (1984) in [3], is an important factor because it will continue in determining the individual's actions.

Thus from some of the concepts of perception above it can be concluded that perception is the process of organizing and interpreting a person's process of stimulation

that is influenced by various knowledge, desires and experiences that are relevant to stimulation that is influenced by human behavior in determining his life choices.

The public perception seen in this study is the public's view or understanding of waste management as measured through the distribution of a questionnaire consisting of 15 statements. The questionnaire distributed consisted of 3 answer choices, namely: Agree (S), Disagree (KS), and Disagree (TS) the results of which are set out in Table 1 below:

Table 1. Community Perceptions in Waste Management in Peguyangan Sub district

No	Statement	S N %	KS N %	TS N %	Re- rata ± SD
1.	Household waste needs to be managed every day	91/ 96,8	3/ 3,2	0/ 0,0	2,97 ±0,18
2.	Waste that has accumulated has a negative impact on the environment and health	92/ 97,8	1/ 1,1	1/ 1,1	2,97 ±0,23
3.	Waste should be divided into two, organic and an organic before disposal	85/ 90,4	7/ 7,4	2/ 2,1	2,88 ±0,38
4.	The principle of reduce is effective in reducing waste production/accumulation	88/ 93,6	4/ 4,3	2/ 2,1	2,91 ±0,35
5.	In daily use, plastic should be reduced	84/ 89,4	9/ 9,6	1/ 1,1	2,88 ±0,36
6.	The use of napkins is better than the use of tissue to reduce the accumulation of waste	85/ 90,4	8/ 8,5	1/ 1,1	2,89 ±0,34
7.	When shopping, you should bring your own container	75/ 79,8	16/ 17,0	3/ 3,2	2,77 ±0,50
8.	The reuse principle is effective in reducing waste production	80/ 85,1	14/ 14,9	0/ 0,0	2,85 ±0,36
9.	Trash that can still be used should be reused	81/ 86,2	11/ 11,7	2/ 2,1	2,84 ±0,42
10.	Principle recycle is effective in reducing waste production	91/ 96,8	3/ 3,2	0/ 0,0	2,97 ±0,17
11.	Organic waste should be recycled	77/ 81,9	12/ 12,8	5/ 5,3	2,77 ±0,54
12.	Managing waste into compost provides environmental benefits	89/ 44,6	4/ 4,3	1/ 1,1	2,94 ±0,29
13.	Managing waste into crafts provides benefits that can reduce landfill waste and increase sources of income	90/ 95,7	4/ 4,3	0/ 0,0	2,96 ±0,20
14.	Payment of retribution for waste needs to be done every month	87/ 92,1	6/ 6,4	1/ 1,1	2,91 ±0,32

15.	Counseling on waste management needs to be done in each banjar	93/ 98,9	1/ 1,1	0/ 0,0	2,99 ±0,10
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Source: Analysis, 2019

The average score of respondents answers from all statements about community perceptions in waste management is between 2.77 - 2.99 (Table 1), this shows that the community of Peguyangan Sub-district has a good perception of waste management, in accordance with the conclusion of the interval class at intervals of 2.34 - 3.00 which means good public perception.

This category of good community perception is thought to be caused by the community of Peguyangan Sub-district already accustomed to waste management activities. Besides that there are counseling or socialization activities about waste management, negative impacts on health arising from waste that is not managed properly, as well as the economic benefits of recycled waste.

Socialization activities carried out in the banjars can add to the community's insight about the importance of waste management related to public health and welfare. So from the socialization activities, the community has the view that many benefits can be felt after carrying out waste management both in terms of health and welfare. This understanding forms a good perception of the community about waste management. This is in accordance with the opinion of [4], that perception is a kind of information management activity that connects a person with his environment, and further social perception is concluded as a process of understanding by someone towards another person or the reality of life.

Socialization activities on waste management carried out in the banjars lead to changes in people's views of waste, thus raising awareness to process waste by collecting, sorting and processing waste through the 3R pattern (reduce, reuse and recycle). This public awareness forms a good perception of waste management.

Perception according to [5] can occur from objects causing stimuli that are received

by the senses (receptors), passed on by sensory nerves to the brain, so that individuals are aware of what is seen, heard, touched, and felt. This process is called psychological process. The final process of perception is that individuals are aware of what is received by the sense organs. Perception which is interpreted as the process of observing someone on everything in his environment by using the senses that are owned so that they become aware of everything in the environment (Dali, 1982 in [6]).

Based on Table 1 shows the perception or opinion of the people who answered the most agree about the principle of recycle (recycling) is effective in reducing waste production this is because most of the community Peguyangan Sub-district has been educated through socialization in the banjar conducted by banjar 'caretakers' the department and adat collaborate with the garbage bank and related agencies, besides additional information obtained through mass media shows (Astawa, interview September 2019).

Community perception is also getting better with the existence of routine mutual cooperation activities related to environmental cleanliness in each banjar/local environment. The basic thing also in increasing public perception is the increasingly recognizable positive value of management by waste banks both related to environmental cleanliness, security from illegal scavengers who enter the house, and also financial benefits (additional income from saving in a garbage bank).

Involving children, especially primary school children in Peguyangan, is a long-term investment for strengthening perceptions of waste management from an early age (Warsa, interview, October 2019).

Furthermore, based on Table 1, the public perception or view of waste management from all statements given by the majority of respondents answered agree with a range of 44.60% s.d. 98.90%. This shows that the public already has a positive perception or view, that it is very important to do waste

management every day, either through monthly paid self-help waste management services, or to become an active customer of the nearest garbage bank.

Table 1, especially the statement about the payment of retribution for waste needs to be done every month which reaches 87 people (92.1%) shows that the community perception of Peguyangan Sub District is very understanding about the logical consequences related to the reasonable costs of investing to get a clean environment and to support operational costs daily moci (motor cikal) as a means of transporting waste and also the salary of the operator's personnel, including maintenance costs and so on.

The community perception of Peguyangan Sub-district related to the point about counseling on waste management needs to be done in each banjar, Table 1 shows that as many as 93 people (98.9%) of the community agreed. This illustrates that most of the community's perceptions have been very good for the importance of ongoing socialization and information disclosure related to waste management systems independently and independently.

Dissemination of constructive positive values in increasing community empowerment through their active participation in utilizing banjar's waste management services, so that they no longer throw garbage in any place (sewer or empty land) and no longer burn trash. Information through counseling is also understood to further deepen the understanding of the benefits of being a customer of the nearest garbage bank from where they live and also spurred activity in the clean-up cooperation program in the banjar.

Community Behavior of Peguyangan Sub District in Waste Management

Human behavior is all human activities or activities that can be directly observed or that cannot be directly observed [7]. Community behavior in waste management in this study was measured by submitting a questionnaire consisting of 11 statement sentences, in the form of respondents' statements in the form

of direct or indirect participation. In order to know people's behavior in waste management, they are given 3 choices of answers: often, rarely or never. Based on the results of the distribution of questionnaires about community behavior in waste management in Peguyangan Sub-district, the results are set out in Table 2.

Table 2 Community Behavior in Waste Management at Peguyangan Sub-district

No.	Statement	S	J	TP	Re-Rata ± SD
		N (%)	N (%)	N (%)	
1	Sort organic and inorganic waste before dumping it in the trash	33/ 35,1	40/ 42,6	21/ 22,3	2,13± 0,75
2	Using plastic repeatedly	43/ 45,7	44/ 46,8	7/ 7,4	2,38± 0,62
3	Bring your own container when shopping	36/ 38,3	41/ 43,6	17/ 18,1	2,20± 0,73
4	Use cloth napkins instead of tissue	55/ 58,5	35/ 37,2	4/ 4,3	2,54± 0,58
5	Use products that can be recharged	53/ 56,4	34/ 36,2	7/ 7,4	2,49± 0,64
6	Reuse containers that can still be used	63/ 67,0	25/ 26,6	6/ 6,4	2,61± 0,61
7	Utilizing waste into compost	36/ 38,3	22/ 23,4	36/ 38,3	2,00± 0,88
8	Utilizing waste in handicrafts	30/ 31,9	31/ 33,0	33/ 35,1	1,97± 0,82
9	Following the counseling on composting	25/ 26,6	23/ 24,5	46/ 48,9	1,78± 0,84
10	Following training in making handicrafts from used goods	28/ 29,8	24/ 25,5	42/ 44,7	1,85± 0,86
11	Paying waste management fees every month	88/ 93,6	4/ 4,3	2/ 2,1	2,91± 0,35

Source: analysis 2019

The lowest average score in the statement stated in the questionnaire is in statement no. 9, which follows counseling on composting which is 1.78 (Table 2). The low score is due to the fact that most people rarely take part in composting counseling due to limited land in urban yards to make compost in households, so this is the main reason they are not interested in following the training, although on the other hand they are very enthusiastic use compost by buying it from the nearest

garden trader, to fertilize the garden in pots or in a small garden in the corner of their yard. The low score is also due to the respondent's answer that there are several banjars that have never had compost counseling.

While the highest average score (2.92) was obtained in statement no. 11 namely paying waste management levies every month. The high score on the statement is due to the majority of the community in the answers to the questionnaire including stating, "must obey the rules of conduct", "retribution can improve the welfare of waste employees", "so that garbage can be collected on time", "it is an obligation" running smoothly". "To participate in self-help in waste management", "to finance moci/motor cikor (waste motorcycle)".

This illustrates good behavior in the form of awareness of paying waste fees that will later be used for daily operational costs of waste management, salaries of managers, as well as for the usual allocation of repairs to garbage transport vehicles.

Based on interviews with respondents regarding waste segregation, they stated that they were ready to do it if the garbage carrier or the municipal or banjar government provided separate waste bins (organic and inorganic) and were distributed to each household, likewise the garbage transport moci must also be separate the cart, specifically for organic and inorganic waste, is not mixed as it is today.

Table 2 shows the most common behavior of the Peguyangan Sub-district after statement No. 11, is statement No. 6 about re-using containers that can still be used as many as 63 people (67,%). This is because most of the people give the reason "reusing containers can reduce the volume of waste and can save costs". This shows the community has implemented one of the 3R systems, namely in terms of reducing waste.

On the other hand enthusiastic students with the support of the teachers by creating mini waste bank depots in each school, and establishing cooperation (MoU) with the

garbage bank closest to the school, also showed positive behavior in independent waste management. Increasing the balance in a garbage bank account is also a motivation for children to be more active in choosing organic waste to be saved in the garbage bank. The same thing applies to society, community groups, agencies or businesses that have increasingly understood the important role of garbage banks.

Furthermore, the score value of the lowest answer after statement no. 9, is statement no. 10 namely: following training in making handicrafts from used goods. Of 97 respondents, 42 people (44.7%) answered never, 24 people (25.5%) answered rarely and 28 people (29.8%) answered often. Most people answered that they rarely attended the training with several reasons: there was never any socialization, there was no such activity, there was rarely such activity, time constraints, busy, lazy to follow, no talent in the field of crafts.

In addition to the above based on interviews with the community, the basic reason people have never attended training to make handicrafts from used goods, they said they were not yet interested in making handicrafts from used goods because of the busyness of the household related to domestic, customary, and social activities), and also the density of religious holidays.

One of the factors that led to the low score on the statement of behavior was the lack of socialization of the activity to the community. According to Karr in [7] states, the action that will be taken by someone if the accessibility of information or related information is available.

Participation will emerge when people begin to realize the problems faced and are able to identify their needs. The growing awareness in the community of Peguyangan Sub-district made them participate in waste management. Many benefits have been felt by the community such as: social benefits and economic benefits.

Relationship between Perception and Community Behavior in Waste Management

The relationship between community perception and behavior in waste management in this study can be seen in Table 3, as follows.

Table 3. Correlation Spearman Rank Results Perceptions and Community Behavior in Waste Management at Peguyangan Sub-district.

Description	n	Min.	Max.	Rerata	SD	R	p
1. Perception	94	1,87	3,00	2,90	0,17	0,445	0,000
2. Behavior	94	1,18	3,00	2,26	0,49		

Source: analysis, 2019

Based on the Spearman Rank analysis, to determine the relationship between perception and community behavior in waste management, $r = 0.225$ and $p = 0.00$ (Table 3) is obtained, this means that there is a significant relationship between perception and community behavior in Peguyangan Denpasar in waste management.

This significant relationship is reflected in the results of community perception analysis in Peguyangan Denpasar, categorized as good with an average score of 2.77 - 2.99 (Table 1), this shows that the community already has a positive perception or view of waste management and has been applied by the community in the form of good behavior. This is evidenced from the results of a questionnaire analysis about community behavior in waste management, most of the average scores obtained were categorized as good and none were classified as bad criteria.

Perception is essentially a cognitive process experienced by everyone in understanding information about their environment through vision, hearing, appreciation, feeling and smell [8]. The formation of perception in a person according to [9] is when a very complex stimuli enter the brain and through a very complicated process will produce meaning, meaning, interpretation of the stimulus.

Perception is a psychological factor that has an important role in influencing a person's behavior, Reference [10] in a behavior plan (Theory of behavior) that behavior is influenced by an individual's beliefs or perceptions of social norms for doing or not doing behavior which subsequently forms intense or interest in certain behaviors. Thus a person's perception as a process

involving the entry of information into the brain through the five senses which then provides a response or information on an object so that it can influence behavior.

Based on Table 2, it can be seen that there is a significant relationship between community perception and participation in household waste management. The results of data processing with SPSS show the value of the linear correlation coefficient (r) between the perceptions of participation is 0.726. This means that there is a very strong and positive linear relationship between perception and participation in household waste management. This means that the better the community's perception of household waste management, the higher the level of community participation in household waste management, and vice versa, the more negative one's perception of household waste management, the lower the participation in household waste management. The value of p (0.000) $< \alpha$ (0.05) means that the hypothesis of this study that suggests that there is a real relationship between community perceptions of household waste management and community participation in household waste management is acceptable.

The results of this study are in line with the results of Juarsyah's (2007) study which explains that participation by a person is based on perception, and perception has a significant relationship with participation. In addition [7] explained that an action taken by someone would not be immediately realized because it required supporting factors or conditions that allow for an action to be realized.

Perception is a supporting factor for the realization of these actions so that they are closely related to one's actions. Peguyangan Village community has a positive perception and environment conducive to carrying out waste management as a supporting factor for the realization of participation. These factors encourage citizens to participate in waste management.

There is a significant relationship between perception and community participation in waste management. That is, when a person's perception of household waste management is positive, then the level of individual participation in household waste management will be high. With the positive perception of Peguyangan Kelurahan people regarding waste management, community participation is also high so that this area has won the clean environment category of the DKP

fostered category in Denpasar City and has a waste bank that is used as a pilot project.

IV. Conclusion

The Based on the results of research and discussion, the conclusions can be summarized as follows.

- a. Community perception in Peguyangan Sub-district in overall waste management is categorized as good with an average score of 2.77 to 2.99.
- b. The behavior of Peguyangan Sub-district community in the management of waste is categorized sufficiently to good with an average score of 1.78 to 2.92, where the behavior of the community which is categorized sufficiently is in statement no. 1,3,7,8 and 9 with the average score on the score of 1.78 to 2.20, while the community behavior that is categorized as good is on statement no. 2, 4, 5, 6, and 11 with the average score on the score 2.38 to 2.92.
- c. Even though there are differences in the categories of behavior with perceptions, statistically the mean scores indicate that there is a significant relationship between perception and community behavior in waste management in Peguyangan Sub-district with $r = 0.445$ and $p = 0,000$.

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Informants:

Astawa, interview September 2019.

Warsa, interview October 2019

Revitalization Kendran Village, Gianyar Towards Cultural Tourism Village

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ABSTRACT

Revitalization is an effort to restore the vitality and attractiveness of an area so that it can encourage and direct development through the optimal use of available resources that include natural and human components as well as economic, social and cultural activities. Kenderan Village has the potential to be developed as a cultural tourism village, demonstrated by hundreds of years of heritage in the form of sarcophagu and nekara, Water Cleansing (*petirtan*) Telaga Waja, Geria Sakti Manuaba temple, Balinese traditional house, cultural and beautiful arts and natural scenery, but the development lately in the Kenderan Village based on economic considerations that ignore the consideration of traditional and historical values. Revitalization of Kenderan Village is basically an effort to preserve Kenderan village as a strategy to develop Kenderan Village as a cultural tourism village

Keywords: Revitalization and Cultural Tourism Village

I. Introduction

The tourism sector concerns the development of the economic sector, preservation and protection of the natural and cultural environment. Integrating tourism development with other sectors as a way to maintain a sustainable development process (McKean 1973). The objective of spatial rural development is the creation of an independent, environmentally friendly, harmonious, harmonious and synergized rural area with other regions through holistic and sustainable development to create a peaceful, democratic, just, competitive, advanced and prosperous society that provides employment opportunities, business opportunities and income based on the approach of environmental development, business development and human development (Adisasmita 2006).

Kenderan Village is one of the villages in Bali, located in Tegalalang, Gianyar Regency, which is still thick with its customs and culture. One of the traditional aspects of this village is demonstrated by hundreds of years old relics in the form of Sarcophagus

and Nekara, Water Claensing Telaga Waja, Puri Kendran, Puri Manuaba, Geria Sakti Manuaba Temple, and beautiful natural scenery, and Manuaba waterfalls are very beautiful and enchanting.

Development in the Kenderan Village at present tends to ignore the consideration of traditional, historical and environmental values. Environment planning and area has not been done regularly. The potential of the Kenderan Village is worth developing into a cultural tourism area. Many interesting and unique things to study, maintain, preserve, and can be developed as one of the cultural tourism villages that are sustainable through revitalization activities so that the vitality of the underutilized Kenderan Village can be optimized and re-empowered. This research is to find out the extent of the potential of Kenderan Village today to be developed into a cultural tourism village, and what strategies should be carried out.

II. Research Method

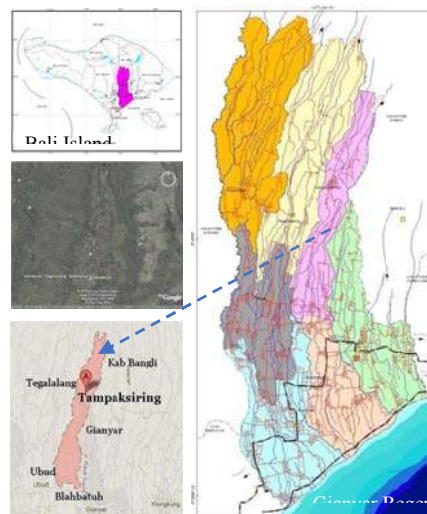
The research method used is descriptive qualitative-phenomenological method. Data collection is done by direct observation and

interviews in the field then conducted a literature review and documentation to obtain accurate, clear and accurate data. Methods of data analysis by data reduction, presentation and conclusion drawing (Mathew Miles 1992). The data presentation technique is narrative and descriptive in the form of images, photographs and maps. The research location is in the Kenderan Village, Gianyar Regency

III. Potential and Problems of the Kenderan Village to be developed into a Cultural Tourism Village

Kenderan Village is one of seven villages within the Tegalalang District, Gianyar Regency, Bali Province. The location of Kenderan Village is in the east of Tegalalang Village, Gianyar. This mountainous village in Gianyar Regency has an area of 640.34 hectares, stretching sideways from the north to the south, which is a fertile agricultural land with sufficient water, a temperate climate of 450 above sea level. Geographically, the kenderan village has territorial boundaries (*Monografi Desa Kenderan (2007)*): North side: Kedisan Village, west side: Tegalalang Village, south: Subdistrict Ubud, east Side: Tampak Siring Subdistrict.

In Kenderan Village there are 3 (three) customary village namely: Dlod Bungbang customary village, Manuaba customary village and Kenderan customary village. The Dlod Bungbang customary village is supported by one Customary Banjar, namely Banjar Dlod Bungbang. The Manuaba customary village is supported by six banjars namely: Banjar Pande, Banjar Tangkas, Banjar Tengah, Banjar Triwangsa, Banjar Gunaksa, Banjar Dukuh. The Kenderan traditional village is supported by 3 (three) traditional banjars each: Banjar Kenderan, Banjar Kepitu and Banjar Pinjul



Map Kenderan Village
 Source: Google map, has been processed

The potential and problems of the Kenderan Village are as follows:

a. Village and Nature Potential

Panoramic views of the countryside with rice fields as a natural feature of Bali. There are white storks flying around the Kenderan village. There are farmers who work on the ground, as well as ripples of free flowing water while walking in the fields..



Beautiful rice fields

Source: personal

Revitalization Kenderan village to restructure pedestrians on main roads and alleys, parks, signage and street furniture, infrastructure and utilities, and road landscape

a. Puri Kenderan dan Puri Manuaba

Puri Kenderan has traditional Balinese architecture that is still good with a garden in front. The principles of traditional Balinese architecture which have historical value have been maintained since a long time ago, while

in Puri Manuaba the garden in front has been used for shop and shop business activities..



Puri Kenderan

Source: personal documentation



Dulu

Sekarang

Puri Manuaba

Source: personal documentation

Very rapid economic development has influenced the acceleration of physical growth in village road corridors. Commercial activities on the roadside can damage the image and quality of the environment

b. Water Cleansing (Petirtan) Telaga Waja.

This place is a hermitage, this is evidenced by the existence of recesses to meditate and rest the hermits, baths and holy water. On the lips of the largest cave there are reliefs in the form of letters the same year with Goa Garba, Pejeng Village and at the Padarman Gunung Kawi temple. This letter is of the type of Kadiri-Kadiri Squadrat from the X-XI century.

This evidence gives a clue that Water Cleansing (Petirtan) Telaga Waja is a relic that has a high spiritual value. Being in a valley with a natural panorama. The current condition of the Waja lake needs to be better organized by adding other supporting facilities, such as the arrangement of the path to the tramway, dressing room, guest rest area, and street furniture.



Petirtan Telaga Waja

Source: personal ocumentation

c. Geria Sakti Manuaba Temple

In the XVII century, during the reign of Dalem Di Made who was residing in Gelgel, there had come to the village of Manuaba a priest named Pedanda Sakti Buruan. He is the grandson of Dang Hyang Niratha. A priest who prioritizes religious life as proven he built a temple which was later given the name Pura Geria Sakti Manuaba. This name is reminiscent of the priest's magic and ability in areas of expertise such as agriculture by building dams and irrigation systems that are still functioning very well.

The *mapeed* tradition is very unique to be carried out by walking up to tens of kilometers during a ceremony at the Geria Sakti Manuaba temple. The tradition of taking holy water in Damukeling Temple. All *pratima* and heirlooms and high gebogans are carried along from Geria Sakti Temple to Damukeling Temple. All youths are tasked with taking water holy then put in bamboo with a length of less than 1 (one) meter and then decorated with leaf and flowers, then the youths walk towards to Geria Sakti Manuaba temple.



Geria Sakti Manuaba Temple

Source: personal documentation

Need to arrange the Geria Sakti Manuaba temple such as parking, public toilets, shops, multipurpose buildings in the parking area, the arrangement of the road around the

temple and the arrangement of other supporting facilities

d. Sarcophagus and Nekara

The village of Manuaba was found in pieces of a bronze-molded Nekara printer that had to do with a bronze nekara in Penataran Sasih Temple in Pejeng Village. The size and height of this printer is like the height and height of Pejeng, as well as the geometric decoration on this printing press. Some archeology scholars such as Bernet kampers, M. Soekarto, estimate that the printing press found in the village of Manuaba is one of the contemporary printing presses.



Sarcopagus and Nekara

Source: personal documentation

e. Art and culture

Balinese cultural arts that are well-known abroad and of high value, are still maintained by the community, one of them is sculpture and carving



Kenderan Village Culture and Art

f. Manuaba Waterfall

Manuaba Waterfall is located in Banjar Manuaba, north of the Geria Sakti Manuaba temple. The location of the waterfall has a natural atmosphere that is calm and peaceful because it is far from the crowd. The atmosphere is more privacy and more free to enjoy the enchanting natural beauty. The height of the Manuaba waterfall is around 10 meters, with the flow of the waterfall between the cliff and nature still green and beautiful. Shrub trees and green moss thrive in the area around the waterfall..

Under the waterfall there is a natural pool that is not so deep, the pool is surrounded by circular rocks, although not so broad it can be a place to soak in the fresh water of Manuaba. Visitors must park their motorbike and walk to the Manuaba waterfall via a dirt road that has not been arranged properly and for those who are not accustomed to being classified as slippery.



Manuaba Waterfall

Source: <https://www.balitoursclub.net/>

IV. Revitalization Kenderan Village

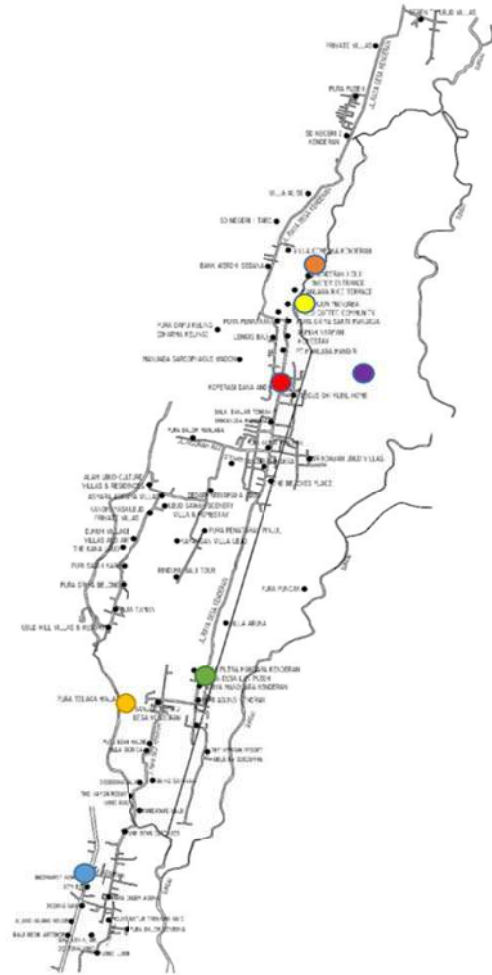
Revitalization of the Kenderan Village is basically an effort to preserve the village environment so that it is suitable as a cultural tourism village, through a mutually agreed upon arrangement concept, between the community, village stakeholders and the government. Control and develop the village to rediscover its potential. Revitalization is expected to provide improved environmental quality for the present and the future. Optimizing village potential while maintaining a balance between development and environment so that it is better organized so that it can improve the community's economy.

Developing and empowering people must be done with; 1) build, motivate and develop awareness of the potential of resources owned by the people of Kenderan Village to

be empowered and developed, 2) instill modern cultural values while maintaining traditions and heritage that must be preserved, 3) the role and active participation of the community from planning to on the management and development of cultural tourism, 4) local residents in order to absorb tourism businesses without causing social conflict, and can improve the welfare of the community by forming tourism management institutions.

Revitalization of Kenderan Village is carried out by; 1) arranging areas that are irregular and not well organized, 2) increasing areas that have the potential of strategic and religious values, 3) returning the quality of areas that have decreased to be more empowered so as to obtain optimal added value to economic productivity, social and cultural, 4) improve the quality of facilities and infrastructure as well as develop regional accessibility, 5) tourism must be introduced as a positive activity by providing mutual benefits to the community, the environment and tourists themselves, 6) tourism management must highlight local wisdom and uniqueness of cultural heritage and the unique environment of Kenderan Village, 7) tourism must be introduced as a positive activity by providing mutual benefits to the community, the environment and tourists themselves, 8) tourism management must pay attention to local wisdom and the uniqueness of cultural heritage and environmental uniqueness

The revitalization that can be carried out is as follows: improvement of the Kenderan Village entrance gate and village roads that further characterize the Kenderan Village by adding signage, improvement water cleansing Telaga Waja, village road infrastructure and utilities such as drainage management, waste management, parking on tourist objects, revitalizing village markets, development of supporting tourism infrastructure such as restaurants, art shops, tickets, ticket windows, repair of parks and main road networks and alleys, landscape management, signage, street furniture, and tracking paths



- Repair of the Gate to the Kenderan Village
- Water Cleansing (Petirtaan) Telaga Waja arrangements
- Parking arrangements and activation of the Kenderan Village Market
- Parking arrangements and activation of the Manuaba Village Market & Revitalization at Puri Manuaba
- Arrangement of parking, infrastructure, and utilities, landscaping, signage, and street furniture in the Geria Sakti Manuaba temple area
- Manuaba Waterfall Arrangement
- Tegal Sari Temple Arrangement

VII. Conclusions & Recommendations

Kenderan Village has a lot of potentials so that through revitalization activities can be developed into sustainable cultural tourism villages through human, economic and environmental empowerment such as: conducting training programs for the community and providing stimulants to encourage increased economic activities; improve facilities and infrastructure that can support village development; explore local economic potential and develop based on the aspirations of stakeholders; provide space for the community to participate and carry out activities in it, and encourage the development of a labor-intensive tourism industry that is able to create job opportunities for the local community..

1. Kenderan Village has the potential to be developed into a Cultural Tourism Village, demonstrated by hundreds of years old relics in the form of Sarcophagus and nekara, water Clesnsing Telaga Waja, Geria Sakti Manuaba Temple, cultural art and unspoiled scenery, and Manuaba waterfall
2. Revitalization of Kenderan Village is basically an effort to preserve the village, through the concept of structuring that is mutually agreed upon between the

community, village stakeholders and the government, which in turn will be the basis for managing developments in Kenderan Village as Kenderan Village as a cultural tourism village through human empowerment, economy and environmental empowerment.

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The Typology of Banjar Hall in Legian Tourism Area, Kuta District, Badung Regency

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Abstracts

The concept of a village in Bali is a hereditary legacy whose development was conceptualized by MPU Kuturan. This Indigenous Village now has two functions, namely a traditional village and an official village. The adat's village is a unit of customary law communities in the Bali area, which has a unity of tradition and community life and Hindu community while Dinas village is a unit that regulates village administration and governance. The banjar members consist of a group of banjar lanang (male member of the banjar) members of the banjar istri (female member of the) member group. The development of Banjar in modern times has changed both in terms of function and in physical terms. In each Balai Banjar experiences different developments along with the change in the dynamics of an agrarian society into a modern society and the development of local economic progress. Likewise, the Legia tourism village experienced a change in function as well as the addition of the function of the Banjar Hall. Therefore, it will be investigated about changes and what influences the development of the Banjar typology in the Legian tourist area. The methodology used in this research is descriptive method obtained through interviews, direct observations in the field and literature studies. The location of this study is in the tourist areas of Legian, Legian village, Kuta District and the banjar Balai studied included: Banjar Legian Kaje, Banjar Pekandelan Legian Tengah and Banjar Legian Kelod. From the study note that Balai Banjar in the Legian Tourism village is experiencing development and additional functions, due to the development of local banjar residents' activities, especially in the socio-cultural and religious fields. This development is in line with the development of local cultural customs which are supported by the economic level of the local community in the field of tourism which is developing due to the influence of the tourism sector. The increase in economic activity has had a significant positive impact on the development of the local banquet hall. Due to an increase in traditional and cultural activities, space is needed to accommodate these activities. The need for space and wide function with limited land conditions, causing Balai Banjar Hall to develop vertically by making floors, without ignoring the concept of Tri Mandala and Tri Hita Karana Concepts. The existence of this activity also made Banjar Legian Kaja create a New adat hall at a different location.

Keyword : Banjar' Halls, Vertical development, Tri Mandala, Tri Hita Karana concept, Space function

I. Background

Humans are social creatures who must understand and interpret the environment and their experiences, and become a framework for realizing and encouraging the realization of behavior. There are types of traditional institutions in Balinese society such as village, banjar, subak, and sekehe which are the embodiment of humans as social creatures (Bappeda, 1982: 30). Adat Village is a traditional community unit based on territorial integrity. in Bali, it

has two functions, namely traditional villages and official villages. The traditional village is a unit of customary law communities in the area of Bali, which has a unity of tradition and social relations of Hindu society, who have been hereditary in the village's holy shrire called Kahyangan Tiga ties which have certain areas , and its own assets and have the right to manage their own households. Banjar is an institution or collection of indigenous communities which is a collection of several family

heads with local domicile. The banjar members consist of a group of banjar lanang (male) members of the banjar wife (female) member, a group of truni truni members, a group of sekuh musicians, sekeha santi and seka dance. Banjar in another area is called the Rukun Tetangga also has the function of helping official services in government, development and community tasks, besides functioning in terms of adat. The existence of this banjar is a manifestation of the influence of Hindu teachings governing the behavior of the people by 3 (three) elements of the basic framework, namely; 1). *Tatwa* or philosophy; 2). Decency or ethics; 3). Rituals or rituals (Parisada, 1978: 16 which is a guide for the people to achieve the goal (Dharma), which is mentioned in the Vedas; "*Moksartham Jagadhita Ya Ca iti Dharma*).

The banjar members' association has a public building that functions as a meeting place (*sangkep*) for the banjar's member association activities. Bale Banjar is a village community building as a gathering place with a range of areas scattered in every village pakraman in Bali. Bale Banjar functions primarily as a place for deliberation, accommodating traditional activities, religion, and other social forms (Windhu, 1979). A traditional Bale Banjar usually consists of several sacred buildings, traditional bale, meeting bale, kulkul bale and kitchen (Gantini, et al. 2012). When viewed from its location Bale Banjar is generally located in a strategic position, such as at an intersection corner or fork in the middle of a residential neighborhood.

The Indigenous Village of Legian is one of the pekraman villages in the Kuta Sub-district area, Badung Regency which consists of 3 Indigenous Banjar who are also members of the customary banjar as a member of the official banjar. The three Banjars are; Banjar Legian Kaja, Legian Kelod and Banjar Pekandelan Legian Tengah. These three Banjars have public buildings as centers of activity for their members. This building is the center of activities when there are meetings or sangkep members of the banjar, one of the tourism areas also has a banjar bale building as a gathering place for banjar members, members of the banjar lanang, wife, or youth, and as a training ground for sekehe members in the banjar environment. Dance, percussion or pesantian training for Banjar sect members in Banjar. Basically, Bale Banjar was originally a Banjar (village) community gathering place for deliberations in producing customary decisions. Bale Banjar also has a communal function as a social space for interacting residents. But over time Bale Banjar has experienced land use development. The phenomenon of land use development is now beginning many are found, including in Bale Banjar there are markets, shops, sports spaces, kindergartens, offices, and minimarkets. The development of land use has become a phenomenon of the present era that touches Bale Banjar's public space. Bearing in mind that Banjar Bale is not only a place but a place that has become Balinese human civilization Along with the changing times, related to economic development and population demographic development in the Legian

Tourism area, Balai Banjar has experienced changes, developments and additional functions. Balai Banjar which initially functioned only as a center for social, cultural and religious activities, has recently expanded its function. Balai Banjar in the Legian Tourism Area experiences additional functions by utilizing land that is used or leased for practical economic purposes. So some of the Banjar Balai land has been used to get benefits in the form of some money by renting the Banjar Balai land and used as an economic place.

Banjar Bale has become Balinese human civilization. Basically, Bale Banjar was a village community gathering place for deliberations in producing customary decisions. Bale Banjar also has a communal function as a social space for interacting residents. But over time Bale Banjar has experienced land use development. The phenomenon of land use development is now beginning many are found, including in Bale Banjar there are markets, shops, sports spaces, kindergartens, offices, and minimarkets. The development of land use has become a phenomenon of the present era that touches Bale Banjar's public space.

Along with the changing times, related to economic development and population demographic development in the Legian Tourism area, Balai Banjar has experienced changes, developments and additional functions. Balai Banjar which initially functioned only as a center for social, cultural and religious activities, has recently expanded its function. Balai Banjar in the Legian Tourism Area

experiences additional functions by utilizing land that is used or leased for practical economic purposes. So some of the Banjar Balai land has been used to get benefits in the form of some money by renting the Banjar Balai land and used as an economic place. In addition, due to the development of the number of banjar members and the number of activities that occur, each banjar in Legian has a new traditional hall outside the area which is used for customary purposes due to an inadequate area of the banjar and an increasing number of banjar members.

1.2 Problem Formulation

From the background the problems can be formulated as follows:

1. What is the typology of the development of the Banjar Center and the factors that influence it
2. Knowing the design and changes in the Banjar spatial after experiencing changes and additions to the Bale Banjar function

1.3 Research Objectives

The reasearch objectives are :

1. To know the typology of the development of the Banjar Center and the factors that influence it
2. Knowing the design and changes in the Banjar spatial after experiencing changes and additions to the Bale Banjar function

1.4 Research Benefits

The benefits of this research are as follows:

1. For the academic world in Architecture and Civil is to provide additional study literature, especially regarding the typology of land use development in a public space with its unique culture and

tradition, as well as the factors that influence the development of land use.

2. It is expected that the community can contribute ideas in the future for Planners in planning related to the development of land use in Bale Banjar to make it more beneficial for

This study focuses on looking at the typology of developments and changes in land use and space of the Banjar Bale that is happening now compared to the existing ones. And to find out the factors that influence the development of Bale Banjar land use. The analysis was carried out on Bale Banjar in Legian.

1.5 Limitation of Problems

The research area is located in the Banjar of Adat Legian Village, which consists of 3 Banjars, namely Banjar Legian Kaja, Banjar Legian Tengah, and Banjar Legian Kelod. This location was chosen because the Indigenous Village of Legian is a tourist village that experiences many cases of the phenomenon of the development of Bale land use

2. Theory

2.1. The History of Bale Banjar

Bali is known as an island that has unique customs and culture. Actually the Balinese people are known as dynamic humans. The dynamic of the Balinese people is the dynamics of the group, which is blown away. Everyday dynamics can clearly be seen in the Banjar kinship pattern. So many activities of Balinese people, from birth, get a mate, and die never separated from the involvement of the banjar. The banjar group becomes very important, absolute, and determines the identity of the Balinese. Avoidance of the banjar can be interpreted as denial as a Balinese man.

As a group, Banjar has awig-awig (adat rules). Besides that, Banjar has sangkep activities, which are routine meetings that are useful in discussing issues or equating vision. Sangkep is done in a room called Bale Banjar. Bale Banjar developed not only as a place but as a civilization. If Bale Banjar is damaged or neglected by civilization, it will be a mess. For this reason, Banjar Bale is very important for Balinese people, who can be a barometer of Balinese human existence (Soethama, 2014)

2.2 Bale Banjar

The history of Bale Banjar, in Bali is inseparable from human history that is nomadic until settled. By settling then forming an association. The concept of Banjar arose in the 10th-11th century together with the emergence of a Pakraman village similar to the appearance of Subak. The Balinese are familiar with the sedentary system of living which was previously still nomadic. Banjar including the village (wanua). Banjar began to be known when the community system began to settle where the community began farming to meet their needs. Banjar is a social entity, a place where people who have the same place of residence reside in a certain place based on agreement. Banjar is an organization because of the similarity of regions, the similarity of places and specific destinations.

To strengthen the organization of a Banjar unit, a place to gather for the community is called Bale Banjar. In its journey, Bale Banjar is like a second

home for the community where its members communicate among residents in Banjar, playing children, carrying out rice milling activities in Bale Banjar Bale Banjar is visited by people everyday from ancient times until now.

2.2.1 Bale Banjar Terminology

Bale Banjar consists of the words bale and Banjar. Banjar is further reviewed from the origin of the word which comes from the word "banjah" which means parallel. Parallel leads to the meaning that Banjar is a group of people who have the same rights and obligations (equal). Banjar is a residential area in a village in Bali. Banjar is part and is under the customary village. In a customary government system in Bali, Banjar is headed by a Kelian Banjar. The Banjar in the governmental service system is in line with the residents' harmony (Ngoerah, 1975). Bali has a dualism in its government system. Adat has a function in regulating matters of a religious and cultural nature related to tradition, while the department functions to regulate matters of administrative nature on a national scale (KTP, Marriage Certificate, Domicile, etc.).

2.2.2 Typology

Typology is an attempt at classification and taxonomy. Taxonomy is defined as the formulation of rules from a number of information about objects through a hierarchical arrangement of categories. In classification, categorization is done by looking at the contrast dimensions that exist in each category. Categories are dimensions for seeing differences. So that typology can be seen in common and

diversity as well. Typologies fall into the classification category, which in the course of typology is often also used to classify the physical form or function of buildings (Salura 2010).

2.3 Indigenous Village Attributes

The main attributes of a small community that are manifested as traditional villages in Bali are summarized in the Tri Hita Karana conception as follows:

1. Kahyangan Tiga, which consists of three temples as a center of worship for villagers, namely Puseh Temple, Bale Agung and Dalem Temple. For the banjar unit, which is a sub-village, there are public facilities in the form of a Banjar Bale equipped with a Bale Kulkul and a banjar temple.
2. Pawongan Desa, namely all villagers concerned. As a core citizen, is there any married couple who has a family? According to the number of members, the banjar in Bali can be divided into two, namely: the big banjar, if the number of members is more than 50 kuren (head of the family), the banjar is small if the members are less than 50 kuren. The effective amount in traditional villages in Bali is around 200 families per banjar. So if on average there are five people in each family, each banjar (stating) consists of about a thousand people. Prof.'s research Antonic of traditional villages and offices in Bali sums up the effective amount for a village of five thousand people (Bappeda, 1976: 14).
3. Palemahan Desa, the village area which is a housing area for villagers. Housing is on both sides following the pattern of the road, Bale Banjar as a social facility is generally located in a strategic position, such as at one corner

of a crossing or three-way intersection in the middle of the dawn environment (Putra, 1988).

In addition to these basic attributes, it is still necessary to state some of the village facilities and services that symbolize a Balinese community manifested as an adat village, namely: 1). Assembly Hall (Banjar) where village meetings are held, 2). Village graves which are usually located close to the palace, 3). Village crossroad is a place that is considered sacred and also as a place of ceremony, 4). The housing arrangement that follows the Tri Mandala concept, namely: Main, Intermediate, and Nista.

Customary village as a community with a focus on functions in the fields of adat and religion, such as; Odalan, Galungan, Nyepi (Tawur Kesanga) ceremonies, while on the banjar adat scale. as; temple maintenance, wedding ceremonies, death and building a house. In carrying out this function, each customary village has an autonomous position, in the sense that each customary village stands alone according to the rules (awig-awig desa). The field of government is in the hands of official village affairs, handling functions, including: government administration, village development, national ceremonies and village security. In terms of official service, the service village oversees a number of service banjars.

2.4 Tri Hita Karana

Tri Hita Karana Tri Hita Karana which literally means Tri three; Hita means prosperity, good, happy, happy and sustainable; and Karana means the cause,

cause or source of cause (cause), or three causes/elements that make life (goodness), namely: 1). Atma (living agent or soul/spirit), 2). Prana (energy), 3). Angga (corpse/physical) (Council of Customary Institutions, 1992: 15). Great Bhuana (universe) which is very broad cannot be described by humans (bhuana alit), but between the two has the same element, namely Tri Hita Karana, therefore humans are used as a reflection. Tri Hita Karana's conception is used in the identified traditional housing patterns; Parhyangan/Kahyangan Tiga as an element of Atma/soul, Krama/citizen as an element of energy Prana and Palemahan/land as an element of Anga/body (Kaler, 1983: 44). Tri Hita Karana's conception underlies the realization of the composition of the cosmos from the most macro (great bhuana/universe) to the most micro (bhuana alit/human). In the universe of the soul is paramatma (God Almighty), energy is various natural forces and the body is the Five Great Bhuta. In housing (village level); the soul is parhyangan (village temple), power is pawongan (community) and the body is palemahan (village area). Banjar: the soul is parhyangan (banjar temple), power is pawongan (banjar citizen) and the body is palemahan (banjar area). In the house of the soul is the disclaimer of the sacred (holy place), energy is the occupant and the body is the yard. Whereas in humans, the soul is the atman, energy is the words of the limp and the body is the strasarira/human body. A description of the concept of Tri Hita Karana in the cosmos arrangement can be seen in Table 1.

Table 1. Tri Hita Karana on Cosmos Stucture			
Element stucture	Soul/Atma	Force power/ Prana	Phisical/ Angga
Alam Semesta (<i>Bhuana Agung</i>)	<i>Paramatman</i> (Tuhan Yang Maha Esa)	Power/force (Power create the cosmos)	The Five Element of cosmos or <i>the panca maha bhuta</i>
Village	<i>Kahyangan Tiga</i> (The village's Temple)	<i>Pawongan</i> (Village's member)	<i>Palemahan</i> (The Village area)
Banjar	<i>Parhyangan</i> (Banjar's Temple)	<i>Pawongan</i> (Banjar's member)	<i>Palemahan</i> (The banjar area)
House hold	<i>Sanggah</i> (Household holy shrine)	<i>Penghuni rumah</i>	Household area
Human (<i>Bhuana Alit</i>)	<i>Atman</i> (human soul)	<i>Prana</i> (tenaga <i>sabda bayu idep</i>)	<i>Angga</i> (human's body)

A. Traditions and Cultural Transformation

As part of an architectural product, a traditional house undergoes a process of transformation throughout time. This transformation is parallel with the process of transforming cultural values and beliefs of a community. In this case cultural values and beliefs are translated into architectural forms and forms (Rapoport 1969)

The basic meaning of tradition is that it is very capable of adapting and possibly transforming in an intergenerational transmission process. The transmission of a tradition refers to the response given by society to an old tradition with or without change (Shils 1971, 1981). Transmission of tradition focuses on intergenerational interaction which is a chain and a communication bridge to transfer traditions within a particular social structure (Shils 1971, pp. 125, 134). Like other traditions, memories of past characteristics can be displayed in

contemporary objects such as buildings. The durability of building materials and the existence of building patterns are factors that demonstrate and demonstrate the existence of old traditions in contemporary buildings (Shills 1981). Expressions of traditions are still contained in contemporary buildings because the architectural traditions of the past offer economic benefits, comfort and desire of residents for past memories as well as linkages with the beliefs of their inhabitants. Residential buildings continue as a tradition that is maintained in a variety of adaptations, modifications and replacements (Shills 1981).

Related to the process of transmitting tradition, Balinese culture is also a process of transmitting tradition where the culture is the result of the response and interaction of Balinese people with outside cultures from generation to generation . In this case, culture is a form of communal action that represents a unique response to dealing with new social conditions. A culture is not just an imitation of past ideas, but is a unique response as a process that continues and without end). In the process of transmitting Balinese culture, new ideas have permeated local traditions through collective participation and collaboration. External traditions are combined with local culture and are slowly being recognized as Balinese traditions New ideas have permeated the ancient Balinese traditions such as natural and ancestral concepts, family structures and systems, offerings and offerings, physical construction and spatial orientation. These traditions can still be seen today, although various outside cultures

including cultures from India, China, Java, Europe, have caused various transformations of religion and social structure in Bali.

B. Typology of Building Architecture

Typology is a study relating to the type of several objects that have the same type. Typology is a field of study that classifies, and classifies objects with the characteristics of the same formal structure and the similarity of basic properties into certain types by sorting out the forms of diversity and species similarity. Aspect of classification in the introduction of typology leads to efforts to classify, explain, classify objects based on certain aspects/rules. Aspects that can be classified can be in the form of function, shape, or style. Typology is the study of everything related to type.

The meaning of the word 'type' itself comes from the Greek *typos* which means 'the root of ...', or in Indonesian is interpreted as 'root of ...' (Loekito, 1994). Moneo (1976) in Loekito (1994), conceptually defines typology as a concept that describes a group of objects on the basis of the similarity of the basic forms of character. the nature that seeks to sort or classify forms of diversity and species similarity. In

this, typology is the result of elaboration of architectural characteristics, which are composed of various local and external cultural elements that are specific in a classification structure, both in the classification of functions, geometrics, and styles/styles. In general, typology is based on the possibility of grouping several objects, because they have

similarities in their basic properties. Typology can also be interpreted as an act of thinking in the framework of grouping (Loekito 19

This research belongs to the type of exploratory case study with the aim to reveal broadly and deeply about the causes or things that influence the occurrence of something from the field. Through case studies, it is expected to be able to answer in-depth research questions regarding the development of Bale Banjar land use and the factors that influence the development of land use that occurs at Bale Banjar. Furthermore, it can explain the typology of the development that occurs and the factors that influence it.

3.1 Research Case Selection

According to Gerring (2007) in Rachmawati (2011), case studies are in-depth studies of single cases, but can be a combination of several cases (multiple cases) and allow to divide one case into several case units (case within case). In this study the case chosen was the development of the typology of Bale Banjar in the Indigenous Village of Legian as a single case. However, this case was built from three cases of Bale Banjar that experienced changes in land use.

Some considerations in choosing Bale Banjar in the Indigenous Village of Legian, that is :

1. The Indigenous Village of Legian has a Bale Banjar as a public space that is unique in its historical value that experiences development and changes in the use of space

2. It is a convenience for researchers because the Banjar Institute in the Indigenous Village of Legian has the characteristics and characteristics of each which tends to be homogeneous based on the proximity of the position of the region. The Bale Banjar case chosen was Bale Banjar, which experienced land use development.

II. Analysis

In this study is a unit that will be analyzed in depth. The analyst unit is extracting information through data in the field. The analysis unit studied is the analysis of land use development that occurs in each Bale Banjar arranged in categories to get general factors and specific factors from each of the factors that influence the development of Bale Banjar land use.

The Indigenous Village of Legian is a popular tourist destination with its \pm 3 km long beach from the south to the north side of the Legian area and white sand and good waves for surfing

The village of Legian is inseparable from the supporting factors as follows:

- The beauty of the beach with a view of the sunset (sunset). The beauty of the beach with excellent waves for surfing. The year-round sunshine allows tourists to sunbathe on the side of the beach with an abundance of umbrella rentals and a place to sunbathe causing tourists to feel at home visiting this area.
- Religious nuances that are very thick of the population that provides the blazing power for tourist visits so as to improve the socio-economic community of the Indigenous Village of Legian.
- High socio-cultural and customary life with warm hospitality and a high sense of

mutual cooperation so that they are still able to display the traditional traditions and arts that are of concern to tourists.

- The existence of a variety of facilities for tourists such as hotels, restaurants, bars, artshop, rent car transportation that strongly supports the development and development in the traditional village of Legian.

- Other supporting factors as well as security and comfort as well as cultural events such as Balinese dance, Legian Beach Festival and the development of adequate infrastructure which is the success of the development impact on tourism

Development of the Bale Banjar Typology in the Tourist Area in the Indigenous Village of Legian

This category focuses on the development of Bale Banjar land use in the tourism area. The area in question is located in the Legian tourism area, in Kuta District. The Legian area is a fast-growing area that was originally a neglected moor then developed into a settlement. The Indigenous Village of Legian is surrounded by beautiful white sand beaches which make this area a tourist attraction. Over time, tourism developed rapidly and then the residential function developed into a function of trade and services. Not only the development of functions, existing buildings also experience physical development with the development of building intensity. The Legian tourism area is now filled with tourism infrastructure such as hotels, lodging, restaurants, supermarkets, minimarkets, cafes and art attractions.

In addition to dwellings and upland fields that have experienced land and physical development developments, land use developments have also occurred in Bale Banjar as a means of citizen public space.

A. Balai Banjar Legian Kelod

the floor with the Bale Banjar room on the second floor and the business room on the first floor and the meeting room or wantilan on the first floor. Physical Bale Banjar Legian Kelod building changed into two

Merajan Banjar is under the Northeast part. Balai Kulkul underwent a change in which under Balai Kulkul functioned as a minimarket. Then Bale

Simply put, the initial idea of the Balai Banjar design was to be able to accommodate its functions, accommodate the number of citizens in carrying out activities, be unique, have values that could be accepted by the community, and be harmonious with the environment. In the design process, the constraints are the location of the Banjar hall, area, shape of the land, so special design thinking is needed so that in addition to making a two-story building, the building will be used as a meeting room, a performance room, a practice site. Utilization of the bale kulkul massif space is also now commonplace, where the bale kulkul is made of two floors, but the lower space is used as a multipurpose room, for example for rental space. The table can be seen on Table 2.1

Table 2.1 Spacial utilization

No	Spaces	Functions	Locations
1	Holy Shrine	Holy shrine	North East
2	Wantilan room	Meeting room, aetc	1 st floor - West
3	Stage	Art	1 st floor,

		performance	Center
4	North building	Place of offerings	Kaja
5	Balai Kulkul	Kulkul	South East
6	Bawah Balai kulkul	Minimarket	1 st floor South East
7	Kitchen	Kitchen	Nort west
8	Ware house	Store	South
9	Ruang Kantor Kelian Adat	Office of the head of Banjar Adat	2 nd floor
10	Ruang Kantor Kelian DInas	Office of the head of the Banjar Dinas	2 nd floor
11	Balkoni	Stage of performance hall	2 nd floor
12	Toilet	Toilet	West

Source : Analyzed Data, 2019

The application of traditional architectural principles is carried out by interpreting, identifying, negotiating and actualizing. Its architectural appearance is more of an architectural engineering that represents the two poles opposite traditional and modern architecture, by displaying the transition between them to produce a harmony, balance, and unity in a composition.

B. Banjar Pekandelan Legian Tengah

It can be seen that the building area is the same as the land area, so all existing land is used as the physical space of the building. Bale Banjar is experiencing development in land use with a variety of uses and physical development of the dominant building. Because of limited land, the use of land is as optimal as possible using existing land. Because of the minimal land, the banjar building was made of two stories. The top floor is a sacred space that is a place of worship in the form of banjar temple, bale dangin, a place of ceremony and bale delod, a place of sanctuary, gender and warehouse for

ceremonial equipment. The lower floor is a common room that is used as a conference room and meeting room. The space can be seen in the following table

Tabel 4.2 The Banjar of Legian Tengah Space Utilization

No	Space	Function	Locations
1.	Banjar Holy Shrine	Places of worship	2 nd floor, North east
2.	North Building /Bale dangin	Place of offerings	2 nd - East
3	South building/Bale delod	Place of pesantian, /Balinese chanting	2 nd - South
4	Madya Mandala	Worship space	2 nd - West
5	Bale kulkul	Tempat kulkul	2 nd – South West
6	Performance stage	Meeting and performance	1 st - Center
7	Warehouse	Warehouse	2 nd – North East
8	Gamelan room	Gamelan warehouse	East
9	Kitchen	Kitchen	1 st South East
10	Toilet	Toilet	

Source : Analyzed Data, 2019

Bale Banjar Legian Tengah is experiencing developments with the use of Bale Banjar as a minimarket and artshop.

C. Balai Banjar Legian Kaja

Balai Banjar Legian Kaja experiencing development where Balai Kulkul is on the second floor. Utilization of space as economic space is not done because of limited space. To overcome this limited space, the Balai banjar was developed by creating another traditional Banjar hall. This traditional hall is located in the northern part of the Banjar Legian Kaja location. While the physical Bale Banjar Legian building has not changed. More can be seen in Table 4.3

Tabel 4.3 The Legian Kaja Space Utilization

No	Spaces	Fuction	Position
1.	Banjar holy shrine	Places of worship	2 nd floor, North East
2.	North buiding	Places of offerings worship	2 nd floor - North
4.	Madya Mandala	Places of worship	2 nd floor - West
5.	Bale kulkul	Tempat kulkul	1 st floor - South East
6.	Performanc e Stage	Performance space	1 st floor - South
7.	Warehouse	Warehouse	1 st floor - West
8.	Wantilan	Meeting hall	Balai Adat – Legian Kaja
9.	Kitchen	Balinese cooking	Balai Adat – Legian Kaja

Source : Analyzed Data, 2019

This amount of space is not generally applicable, but depends on the needs and depends on the size of the land owned by a Banjar

III. Factors affecting Changes in Function and Form of Bale Banjar

Overall the factors that influence the development of land use include. However, in the Legian area because the intensity of the meeting of members of the community is relatively fixed and even tends to increase including the increase in the number of clubbing and increased activities of PKK mothers and young people causing the need for additional rooms. The development of tourism apparently did not change the mindset of the people in Legian area towards the social culture of the community. Even the development of tourism has a positive impact both economic and socio-cultural and indigenous peoples, especially in terms of customs and culture. Because the community is aware that customary and

cultural activities have a positive influence on increasing tourist visits to the Legian area. Increasing the number of tourists visiting Legian can provide increased economic activity for the Legian community in general. With the increase in traditional arts and cultural activities this has led to an increase in the activities carried out in Banjar. As an increase in the number of percussion, dance sekehe, art activities of the teruna teruni teruni also experienced an increase. It turned out that the increase in economic activity and outside world hedonism had a positive influence on banjar activities in the Legian tourist area, not on the contrary weakening existing activities in Banjar.

As for the economic influence, the Banjar residents changed the designation of the Balai banjar from a social one to an economic one. The use of the banjar hall into valuable land for the economy began to develop in Legian. The banjar community adds value to the banjar hall economy by utilizing it as a rental space that can generate income for Banjar. With this additional income, it can reduce the burden on Banjar members in their piodalan ceremony obligations at Merajan Banjarnya, financing social activities related to social culture, etc.

The factors that influence the development of Banjar typology in the Indigenous Village of Legian are:

1. Banjar strategic location factors,
2. Factors guaranteeing the welfare of Banjar residents
3. The needs and utilization factors of Bale Banjar as a social facility,
4. Income sources for financing Banjar activities

5. Limited land factor.

The community is able to manage activities well, and is able to regulate the use of Bale Banjar spaces. In its development, Bale Banjar as a public space continues to perform its main function, so that the development that occurs can provide benefits for each banjar member.

IV. Conclusions and Suggestions

Conclusions can be drawn as follows :

1. Balai Banjar in the Legian Tourism village is experiencing development and additional functions, due to the development of local banjar residents' activities, especially in the socio-cultural and religious fields. This development is in line with the development of local cultural customs which are supported by the economic level of the local community in the field of tourism which is developing due to the influence of the tourism sector. However, activities that utilize the banjar bale room are increasing along with the development of community activities in Balai Banjar in the Legian area, due to the increasing awareness of the community on social activities.
2. The design of the banjar bale of the three banjars in Legian has changed in the use of space, the addition of space for the needs of official space, the expansion of the wantilan space, bale daja and the addition of Mrajan Banjar placed on the second floor. with the impression of design as if the kulkul is massive but the space below is used as an economic space.

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Environmental Education Practices: Project-Based Learning through Recycling

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ABSTRACT

The main goal of environmental education is environment awareness that is followed by concrete action. Recycling is a concrete action to support the implementation of environmental education. This study described how teachers can apply the Project-Based Learning (PjBL) model through recycling to integrate learning material with environmental education practices and its influence on students' learning outcomes. This research was a pre-experimental design that used one group pretest-posttest design. The samples were 30 students of class X from one of the Go Green Schools in Denpasar, Bali, who were determined by using purposive sampling technique. Science process skills rubric was used as instrument in this research. The data obtained were analyzed using Wilcoxon Matched Pairs through the SPSS for windows program. The results showed that the PjBL model with recycling was a concrete action in environmental education that can be taken by teachers who teach biology/ science and influenced the science process skills of students ($p = 0,000 < 0.05$).

Keywords: environment education, PjBL, recycling

I. Introduction

Waste, especially plastic, is now a problem that threatens the environment. Indonesia has become the largest contributor to marine plastic waste in Southeast Asia and the second largest in the world with a total of 3.2 million tons of plastic waste (Puteri, 2018). These facts indicate the need to increase public awareness of the environment. Environmental awareness comprehension should be given early, during the school period by providing environmental education. Teachers have the opportunity to teach about environmental through natural science subjects, especially biology.

Based on the observations at one of the Go Green schools, students are there still littering. Students apparently cannot be given understanding only through abstract examples but need real action in an effort to increase environmental awareness and to affect their science process skills (SPS). Science process skills are as follows; the ability to predict, make hypotheses, design or

experiment, ask questions, communicate and draw conclusions (Aksari, 2012).

One of innovative models that can be used is Project Based Learning (PjBL). The PjBL model focuses on the main principles and concepts of a discipline that involves students to work independently and build understanding of their learning (Putriari, 2013). The steps of the PjBL learning model are (1) determining fundamental questions, (2) designing project planning, (3) developing the project, (4) monitoring students and project progress, (5) testing the results, (6) evaluating experiences (Rustaman, 2003; Widyantini, 2012).

Related to the problem of plastic waste, and to improve SPS, the PjBL learning model is required to make recycling products. Recycling movement is activity that utilizes plastic waste into useful materials, for example make recycling products that can be used in learning. Recycling products making by using the PjBL model is a concrete example of environmental education and

expected to be able to; provide a positive influence on students' understanding of the environment, create an atmosphere of active learning, motivate students to build their knowledge, work together in groups so as to improve science process skills.

II. Material and Methods

This type of research is a pre-experimental design with a one-group pretest-posttest design. The research samples were 30 students of class X Go Green schools in Denpasar, determined by purposive sampling technique. The main instrument used in this study is a rubric to measure science process skills (SPS) to make recycling products. This assessment used a Likert scale with a maximum score of 24. Other supporting instruments are lesson plans and worksheet. The data analyzed in this study were science process skills which is quantitative data. The data were first calculated to figure out the mean. After tabulating, the Range and Gained Score were also searched, then statistically test using the Wilcoxon Matched Pairs test with the help of the SPSS for Windows Program.

III. Result and Discussion

Plastic waste that threatens the environment can be transformed into a variety of useful things through learning in schools. This is an integrated form of environmental education in biology subject, pollution, and sub-material about waste taught in class X. The stages of the research namely; 1) designing lesson plans and worksheets to introduce the model and recycling, 2) giving a pretest, 3) teaching according to the lesson plan and using the worksheets, 4) giving a posttest, 5) giving an assessment. Teachers who teach recycling should know how to recycle before teach, so that they can practice directly on students.

There are six aspects observed from science process skills in making recycling products, namely: (1) predicting (MRL), (2) making hypotheses (MHI), (3) designing manufacturing (MPN), (4) asking questions (MPY), (5) communicating the results of observations (MHP), and (6) drawing

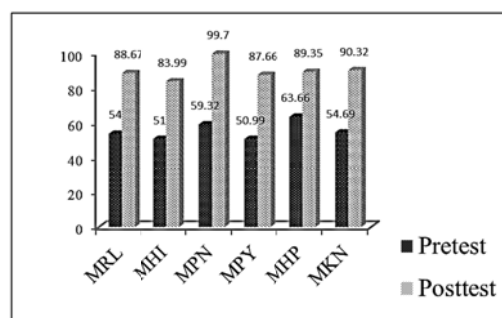
conclusions (MKN). When students start to make recycling products, science process skills begin to be observed. Based on the assessment carried out, it can be seen the scores of the six aspects of the science process skills between before apply the PjBL (pretest) model and after apply the PjBL (posttest) model. The comparison of the science process skills can be seen in Table 1 as follows.

Table 1. Student science process skills through Range Formula

No.	Interval	Category	Pretest		Posttest	
			n	f(%)	n	f(%)
1	6 – 9.5	Unskillful	9	30	0	0
2	10.5 – 14	Quiet skillful	21	70	0	0
3	15 – 18.5	Skillful	0	0	19	63,3
4	19.5 – 24	Very Skillful	0	0	11	36,7

There was an increase in science process skills at the posttest compared to at the pretest. The difference total score between the pretest and posttest can be made in the form of a bar chart in Figure 1 as follows.

Fig. 1. Total pretest and posttest scores of science process skill



The increase in scores on aspects of science process skills in the making of recycling products during the pretest and posttest can be seen through the gained score analysis in Table 2.

Table 2. Science Proses Skills Result with Gained Score Formula

No	Gain Score Interval	Category	SPS	
			Pretest – Posttest (N=30)	
			Gain score	%
1	≥ 0.7	High	2	6.67
	$\geq 0.3 - < 0.7$	Moderate	27	90
	< 0.3	Low	1	3.33

In Table 2 can be seen the value of the gained score of students' science process skills at the pretest and posttest. In intervals ≥ 0.7 with high category two gain scores obtained with a percentage of 6.67%, in intervals $\geq 0.3 - < 0.7$ with moderate category, gain scores 27 with a percentage of 90% and at intervals < 0.3 with a low category, obtained a gained score of one with a percentage of 3.33%.

Based on the two related non-parametric tests, the Wilcoxon Matched Pairs test turned out to be a very significant difference ($p = 0,000 < 0.005$), in each aspect between the posttest compared to the pretest. Overall, there is a very significant difference between the total KPS posttest and the total KPS pretest ($Z = 4.784$ p; $0,000 < 0.005$). In other words, the Project Based Learning (PjBL) learning model by making recycling products influences students' science process skills. This is in accordance with what was stated by Mahanal, et al. (2010), that the PjBL model is appropriately used to encourage students to be more active in learning. Recycling is well appointed as a problem in applying the PjBL model because through this model students organize learning activities in their groups, conduct assessments, solve problems and synthesize information. By carrying out learning activities that involve cognitive, manual and social skills, students practice their science process skills (Rustaman, 2003).

IV. Conclusion

Learning about recycling is a form of environmental education integrated in biology subjects. The Project Based Learning (PjBL) learning model by making recycling products influences students' science process skills.

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Legal Pluralism in Forest Protection (A Comparative Perspective in the Bali Aga Customary Village, Bali Apanaga Customary Village and The Bali Anyar Customary in Bali)

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ABSTRACT

Customary villages in Bali based on typology are divided into Bali Aga customary villages, Bali Apanaga customary villages, and Bali Anyar customary villages. The division of typology is based on historical and geographical aspects of the customary village. The customary village has a forest that is in some areas of the customary village. One way to preserve forests is through legal protection. It is interesting to study especially in Bali that the legal protection of forests is not only done through the State legal instruments, in fact there are Hindu religious rituals as a form of respect for nature and the existence of customary law that is owned by customary villages in an effort to protect the forest. Theoretically this is what is called legal pluralism, where state law, religious values and customary law simultaneously protect forests in the area of customary villages, both in the area of the Bali Aga customary village, Bali Apanaga customary village, and Bali Anyar customary village. There are several research questions raised. First, how is the protection of state law, Hindu religious values and customary law for forests in the area of the Bali Aga customary village, Bali Apanaga customary village, and Bali Anyar customary village. Second, how is the legal pluralism model for protecting forests in the area of Bali Aga customary villages, Bali Apanaga customary villages, and Bali Anyar customary villages. Research methods include normative legal research, using primary and secondary legal material sources. The analysis was done descriptively analytically.

Keywords, Legal Pluralism, Forest Protection, Customary Village.

I. Background

Once the importance of forests for the Hindu community in Bali is needed to preserve it. Keeping away from irresponsible human efforts to destroy the forest is the responsibility of all elements of society in Bali, including customary villages. Customary villages in Bali have the power to regulate and protect the forests around their territories.

The instruments used by customary villages in regulating and protecting forests in their territories are *awig-awig*. All customary villages in Bali already have *awig-awig* which have been written in Latin letters. In *awig-awig* customary village in general is set about the philosophy of life of the Hindus namely Tri Hita Karana, which consists of procedures and procedures, and procedures, and rituals. Regarding forest

protection in the customary village area in Bali, *awig-awig* should be included in the elements of participatory procedures, but not all customary village, *awig-awig* regulate this issue in detail even though they have forests in their area. In general, *awig-awig* in Bali contains more rules on procedures for rules and rituals.

The need for the participation of customary villages in Bali in protecting forests in Bali as described above becomes the background for writing this scientific work. In this paper, legal protection is conceptualized as protection based on customary law, in this case *awig-awig* in Bali as a legal instrument used in a customary village area in Bali. Forest is conceptualized as a natural resource that needs to be protected because it has an important role both ecological, hydrological, climatological, and social, religious and cultural for human life and other living things. As well as the Customary Village conceptualized as a customary village that has customary rights to manage their own households based on established rules and adhered to for generations in Bali.

II. Forest Protection in *Awig-awig* Customary Village in Bali

A. Forest Protection in *Awig-awig Tenganan Pagringsingan* Customary Village

Customary village of *Tenganan Pagringsingan* as one type of customary village of Bali Aga has a simple *awig-awig* arrangement. *awig-awig Tenganan Pagringsingan* customary village consists of 61 Articles which were perfected on Friday Pon, Wara Tambir, Sasih 1, Panglong Ping 10, Rah 7, Tanggek 4, Isaka 1847 (Masehi 1925).

The provisions of the provisions relating to protection of forests in *awig-awig Tenganan Pagringsingan* customary village, are as follows:

Article 14 regulates:

Mwah wong desa ika sinalih toenggal angeker wit kajoe ring sawawengkon desa Tenganan Pagringsingan, rawoehing sagoemin Tenganan Pagringsingan, lwir kajoene kakeker, wit kajoe angka, wit tehep, wit tingkih, wit pangi, wit tjempaka, wit doeren, wit djaka, ne sadawoeh pangkoeng sabalor desa tan kawasa ngrebeah djaka kari mabiloekloek, jan woes tlas biloeloekipoene, ika djakane wnang rebah, jan ana amoeroeg angrebah kajoe mwah djaka, wnang kang amoeroeg kadanda olih wong desa goeng arta 400, toer kang karebah wnang kadawoet olih desa, manoet trap kadi saban. Sadangin desa mangraris kagoenoenge kangin, tka kawasa angrebah djaka. Mwah jan ana wong desa ne sinalih toenggal, matatoendjelan sawawengkone dan tinoendjel, sagraha kni nilap wit-witan papajon salwire umang kang sememdjal mengatos kang kadilap, mwah kang roesak kadi djnaar, toer kang anoendjal tka wnang kadanda olih kang ngdrwe ne

*roesak, ingan agoeng alit dandane, teer
wnang mamrestista manoet trap kadi saban.*

Translate

And whoever the villagers are looking after wood trees in the *Tenganan Pagringsingan* village area, including in the *Tenganan Pagringsingan* moor land, as for the preserved wooden trees (meaning being closed and used for necessary things), jackfruit trees, *tehep* trees, *tingkih* trees, *pangi* trees, *cempaka* trees, durian trees, palm trees, which are in the west of the river north of the village, are prohibited from cutting palm trees that are still flowering (fruiting), if they have finished fruiting, they may be cut down, if there is a violation of cutting down the wooden or *enau* tree, it is worth violating the fine amounting to 400, and those that are cut should be confiscated by the village in accordance with those already in force. In the east the village continues until a hill in the east is allowed to cut *enau* trees. And if there is any item that a village person burns in his place within the village area, eventually burning trees or sacred buildings, for example, it is appropriate for the burner to replace the burning, or the damage as before, and those who burn should be fined by those who have damage, in accordance with the size of the error and must carry out purification (cleaning according to custom) in accordance with what already applies.

Article 54 regulates:

Mwah tatkalaning I krama desa ring Tenganan Pagringsingan ngambeng sadjeng abijane sane atjoetak kakninin sadjeng akaling, janija nora mdal sadjeng, tka wnanng kadanda goeng arta 400, danda ika mantoek kadesa sawoengkoel. Mwah kalaning I krama desa ring Tenganan Pagringsingan ngwangoenang poedja kerti, kawasa ngrampag sarwa pala ring abijan mwah ring

tjarik sawengkon praboemijan Tenganan Pagringsingan, janija rampage who klapa, kni pitoeng baengkoel kang satjoetak, who pisang aidjeng kang satjoetak, who djambe aidjeng kang satjoetak, who-wohan sane patoet kangge ring desa akisa roras kang satjoetak, who nangka aboengkoel kang satjoetak, mwah baboengkilan lwirniya kladi asija wit kung satjoetak, isen asija witkung satjoetak, woebi akisa roras kang satjoetak. Mwah tatkalaning papajon roesak salwirniya sane kaempenin antoek wong desa ne ring Tenganan Pagringsingan kawasa I wong desa ngramag ring abijan-abijan lwiripoenewit klapa awit kang satjoetak, wit djambe awit kang satjoetak, wit djaka, awit kang satjoetak, tihing akatih kang salingseh, jan ana wongo ainalih toenggal tan ngawehin I wong desa ngranpag tka wnanng kedanda goeng arta 10.000, danda ika, mantoek kadesa sawoengkoel.

Translate

And when the manners of *Tenganan Pagringsingan* village need *sadjeng* (roomie water), a plot of field is subjected to one water (a kind of porcelain material jug), if it does not produce roomie, then it is worth a fine of 400, and the fine goes to all villages. And when the manners of the village in *Tenganan Pagringsingan* hold a worship ceremony entitled to seize a variety of fruits (yields) on the fields or rice fields in the *Tenganan Pagringsingan* village area, when taking (stealing) coconuts in order to 7 grains of land, bananas a plot of land, betel nuts and parcels of land, fruits that must be used in one village *kisa* (a kind of basket from the leaves of the head) contains 12 seeds, which is a piece of land, a jackfruit fruit that is a plot, and tubers such as taro 9 trees that are a plot, *isen* (turmeric-like plant) 9 trees that are a plot of land, cassava one *kisa* (basket) contains 12 seeds that are plot. And when the damage to buildings, for example, is maintained by the villagers in *Tenganan Pagringsingan*

village, the villagers are entitled to *ngrampag* in the fields, for example, a coconut tree that is a piece of land, a piece of a piece of land, a palm tree that is a piece of land, a piece of bamboo allied, if there is anyone who does not give the village people *ngrampag*, then it is worth the 10,000 fine to go to the village all.

Article 55 Regulates

Mwah jan ana wong desa ne ring Tenganan Pagringsingan sinalih toenggil memaling ngalap whowohan larangan desa lwirniya who doeren, tehep, pangi, tingkih, pada tan kawasa, jan ana wonge mameroeg tka wnanng kadanda goeng arta 2000, danda ika mantoek kedesa sawoengkoel. Mwah jan ana wong angendok mwah angoengsi karija magnah ring wawengkon praboemijan Tenganan Pagringsingan mamaling ngalap woh-wohan mwah mamaling manoedoek larangan desa lwirniya who doeren, who tehep,, pangi, tingkih, pada tan kawana, jan ana mameroeg tka wnanng kadanda goeng arta 4000, danda ika mantoek ka desa sawoengkoel ka desa sawoengkoel, janija nora naoer danda tka wnanng kaboedalang, tan kawasa magnah ring wawengkon praboemijan Tenganan Pagringsingan.

Translate

And if there are any goods, villagers in *Tenganan Pagringsingan* steal fruit picking from the village prohibition, for example: *durian, tehep, pangi, tingkih* are absolutely prohibited, if there are people who violate it, then it is worth a fine of 2000, the fine goes to all villages. And if someone arrives and steals work in the village of *Tenganan Pagringsingan*, steals picking fruits or steals, for example; *durian fruit, tehep fruit, pangi, tingkih*, absolutely prohibited, if there is a violation it should be fined a fine of 4000, the fine goes to all villages, if he does not pay a fine it should be expelled

is prohibited from silence in the *Tenganan Pagringsingan* village area.

Article 61 Regulates

Mwah jan ana kajoe rebahang angin ring wawengkon praboemijan Tenganan Pagringsingan, kajoe larangan desa lwirniya doeren, tingkih kawasa kadjoerag wolih wonge ring Tenganan Pagringsingan, janija kajoe thep, mwah nangka, tjempaka tan kawasa djoerur, wnanng kajoe ika mantoek kadesa sawoengkoel, jan ana wonge mamosroeg ngardi kajoe ika tan ana soepaksa ring desa, tkawnang kadanda goeng arta 2000, nwah kajoe ika wnanng kadawoet wolih desa.

Translate

And if there is a wind-fallen wooden tree in the village area of *Tenganan Pagringsingan*, the village prohibited timber for example: *durian trees, tingkih* may be collected (taken) by people in *Tenganan Pagringsingan*, if *tehep* trees, jackfruit, *cempaka* are prohibited from taking, it should be entered into all villages. If someone violates working on the wood without checking with the village, then it should be fined 2000, and the wood should be confiscated by the village.

Based on *awig-awig* *Tenganan Pagringsingan* village above, sustainability and environmental balance are highly maintained. Therefore, *awig-awig* forbid their citizens to cut trees carelessly. Especially if the tree is still alive, except for firewood, it is permissible to cut live wood as long as it is not from wood for building materials.

Although the customary village of Tenganan Pagringsingan prohibits logging for the sake of forest preservation, there are special rules allowing logging for special reasons, which are called arrows, weaners and *tumapung*. The term Arrowo means being able to cut trees for the purpose of protecting other plants, but the owner of the tree must deposit half of the price of the wood to the village after being deducted by the handyman fee. The term weaning means the thinning of a type of tree, for example in one location growing three trees in one species, the tree may be cut down, but the determination may be cut down is decided by three examiners sent by Kelian Adat by paying attention to the function and designation so that personal desires can be suppressed and also to slow down deforestation. The term *tumapung* means special privileges granted to someone who has just married. According to village rules, three months after the wedding ceremony, the bride must separate from her parents and build a new household. The customary village party gave the new family a plot of land covering an area of +5 acres, to build a house on top of that, the bride and groom were allowed to cut down enough wood trees.

B. Forest Protection in Awig-awig Sangeh Customary Village

In *awig-awig* of the Sangeh customary village, the role of the customary *prajuru* in preserving the nutmeg forest is set out in Article 47 (2) which states “*Kulawarga desa adat Sangeh tan kengin ngusak-asik ring sajeroning alas minakadi ngambil taru, rencek, buah pala, menyan lan sane siosan sadurung polih pamutus saking Prajuru Adat Sangeh*”. Based on the sound of Pawaw 47 (2), it outline states the role of the customary *prajuru* as a breaker in the consideration of village manners who want to take wood that is prohibited in the *awig-awig* of the customary village. Then in the Sangeh customary village Pararem as an explanation of the Sangeh customary village *awig-awig* stated on wilangan 10: “*Yening wenten kulawarga sane mamurug pawos 47, nomor 2 awig-awig desa adat Sangeh kadanda antuk jinah bolong asli 200 kepeng*”. Based on the perarem sound as an explanation of the Sangeh customary village *awig-awig* regulating the sanctions imposed on village manners in violation of article 47 (2) the *awig-awig* of the customary village will be subject to a fine of 200 *kepeng*.

C. Forest Protection in Awig-awig Serangan Customary Village

Regarding legal protection related to mangrove / mangrove forests in the customary village area Serangan is not specifically regulated in the customary village. Nevertheless, as the implementation of the *Tri Hita Karana* teachings, especially those concerning the inheritance of governance, the mangrove / mangrove forests in the customary village area of Serangan are preserved by the indigenous people. In addition, indigenous peoples also play an active role in preserving forests by planting mangrove / mangrove seeds again in places that need them as well as activities to clean mangrove / mangrove forests from piles of plastic waste.

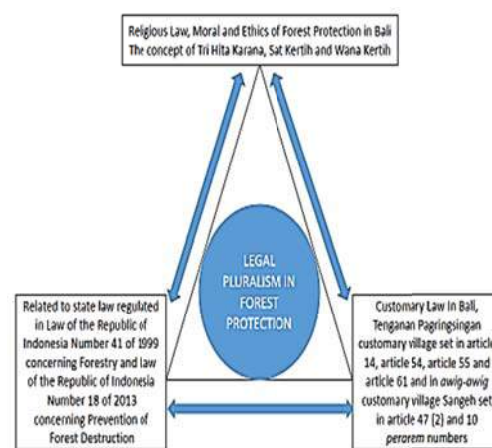
III. Model of Legal Pluralism in Forest Protection in Customary Villages in Bali

The legal pluralism referred to here contains more than one law governing forests in Bali. These rules include religious, moral and ethical law, State law and customary law. Religious law, Hindu teachings governing forest protection are the concept of *tri hita karana*, the concept of *sat kertih* and *wana kertih*. Related to state law

regulated in Law of the Republic of Indonesia Number 41 of 1999 concerning Forestry and Law of the Republic of Indonesia Number 18 of 2013 concerning Prevention of Forest Destruction. The country's law provides a legal umbrella for forest protection in Indonesia. While in customary law can be seen in the rules of *awig-awig* customary villages, for example in the Tenganan Pagringsingan customary village set in article 14, article 54, article 55 and article 61. While in *awig-awig* customary village Sangeh set in article 47 (2) and 10 *perarem* numbers.

Model of Legal Pluralism in Forest Protection in Customary Villages in Bali can be seen in the image below.

Figure 1



IV. Conclusion

Legal pluralism includes religious, moral and ethical law, State law and customary law. Religious law, Hindu teachings governing forest

protection are the concept of *tri hita karana*, the concept of *sat kertih* and *wana kertih*. Related to state law regulated in Law of the Republic of Indonesia Number 41 of 1999 concerning Forestry and Law of the Republic of Indonesia Number 18 of 2013 concerning Prevention of Forest Destruction. The country's law provides a legal umbrella for forest protection in Indonesia. While in customary law can be seen in the rules of *awig-awig* customary villages, for example in the Tenganan Pagringsingan customary village set in article 14, article 54, article 55 and article 61. While in *awig-awig* customary village Sangeh set in article 47 (2) and 10 *perarem* numbers.

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Useful Plant Species in Bukit Kangin Forest, Tenganan Pegringsingan Village, Karangasem: Analysis of Composition, Mapping, Diversity, and Utilization Based on The Socio Cultural

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Abstract

The objectives of this research are (1) to find out the composition of useful plant species in the Bukit Kangin forest, (2) the production of vegetation maps of useful plant species, (3) index of diversity of useful plant species, and (4) utilization of useful plant species based on the socio-cultural Balinese Aga Tenganan Pegringsingan. This research was an explorative and descriptive research. It was taken place in Bukit Kangin forest of Tenganan Pegringsingan Village, Karangasem regency. The populations of this research were the entire area of Bukit Kangin forest and all of its vegetation. The mapping sample was the entire area of Bukit Kangin forest and the species diversity sample were all the plants covered by 65 squares sized 20x20m², 10x10m², and 1x1m². The mapping method was conducted by simple measurement technique. The method of collecting plant species data used the quadratic method with systematic technique sampling. Data related to the use of socio-cultural plants based on Bali Aga Tenganan Pegringsingan community by using literature studies, in-depth interviews, questionnaires, and observations. Data were analyzed statistically ecologically and descriptively. The results of this research showed: (1) The composition of useful plant species consists of 46 species, which are included in 31 families; (2) Map of distribution of useful plant species has been produced, dominated by palm trees; (3) Index of diversity of useful plant species is obtained at 2.87 which belongs to the medium category; and (4) the use of useful plant species in the village of Tenganan Pegringsingan, Karangasem, based on the socio-cultural Balinese Aga Tenganan Pegringsingan.

Keywords: Useful Plants, Vegetation Mapping, Diversity, Tenganan Pegringsingan

Introduction

Bali has been known in the world in terms of cultural tourism. However, actually in terms of natural scenery is no less interesting as a tourist attraction. This includes forests as natural destinations that combine culture in the form of local wisdom and the rich flora and fauna in the forest ecosystem. Bali

has several traditional forests which function as tourism and conservation forests. The existing tourism forests in Bali such as Alas Kedaton, Sangeh and Monkey Forest; meanwhile its conservation forests are Tenganan Pegringsingan forest, Taro Village Forest in Gianyar, Lemukih forest in Buleleng and Penglipuran forest in Bangli. Those

tourims and conservation forests have their own special attractions because they are managed by the village based on the local wisdom. Therefore, those forests are still sustainable (Wijana, 2016; Wijana and Setiawan, 2019a,b).

As mentioned earlier, one of the forests in Bali is the Tenganan Pegringsingan Customary Forest, which functions as a conservation forest. Aside from being a conservation forest, it is often also functioned as a tourism forest. With this concept, the forests in Bukit Kangin, Pegringsingan are often visited by tourists. Geographically, Tenganan Pegringsingan Village is located in the height of 50-500 above the sea level, with rainfall of 620 mm/year, and temperature range of 28-30°C. This traditional village lies from north (Bukit Kaja area) to the south (around Candi Dasa Beach). The land area of Tenganan Pegringsingan Village is 1.034 Ha, in which the land consists of 499,74 Ha plantation; 243,315 Ha agriculture and forest areas; 95,825 Ha temple areas; 80.000 Ha settlement; 40.00 Ha graveyard; 0,030 Ha pool. The village is flanked by two hills and bounded by the Village of Macang on the south, on the east it is bounded by Bungaya Village and Asak Village, on the south side it is bonded by Pasedahan

Village, and on the west it is bounded by Ngis Village. Most of the Tenganan people work as farmer and some of them work in tourism industry. The community members were only 688 people with 232 families in total in which consist of 333 males and 355 females (Wijana, 2016). Tenganan Pegringsingan Village consists of five official residents association (*Banjar*), namely: (1) Banjar Tenganan Pegringsingan; (2) Banjar Gumung; (3) Banjar Tenganan Dauh Tukad; (4) Banjar Kangin; and (5) Banjar Kauh. Tenganan Pegringsingan traditional village consists of traditional residents association, namely: Banjar Kauh, Banjar Tengah, and Banjar Kangin (Banjar Pande) (Marla and Rupa, 2017), (Sumunar, dkk, 2017).

The concept of vegetation mapping is a depiction of the position of plants in their natural origin based on GPS or their coordinate points. The results of mapping of vegetation, we come to know where plant species can exist and grow in the ecosystem. Not many studies have described and mapped the point of growth of a plant species in its original nature. With this vegetation mapping, conservation will be easier to do (Wijana, 2014; Mueller-Dombois & Ellenberg, 1974). On the other hand, it needs to be said about the concept of

species diversity. The concept of diversity is a variety or difference between groups. In ecology, diversity generally refers to species diversity, which is measured by the number of species in the community and their relative abundance. Species diversity consists of two components, namely the number of species that exist, generally leading to species richness and the relative abundance of species that leads to the similarity or evenness of species. Thus, species diversity is a combination of the concepts of Richness and Equitability of certain species (Wijana, 2014; 2016), (Barbour et al, 1987; Mueller-Dombois & Ellenberg, 1974; Cox (1976); Ludwig dan Reynold (1988). According to Canter (1996) who stated species diversity is a variation of the diversity of species both growing, animals and organisms that live in an ecosystem or a certain place. Species diversity is the existence of differences that can be found in groups or communities in various species that live in a habitat. Hasanah (2011) stated that useful plants in Indonesia based on their utilization can be grouped into several forms of use, including clothing, food, shelter, and household appliances, medicine, cosmetics, rigging and plaiting,

as well as for social and religious activities. In addition, useful plants in Indonesia are also often used as ornamental plants, aromatics, coloring agents and as feed for livestock. Other experts categorizing the use of plants consist of clothing, shelter, food, medicine, household needs, and religious ceremonies. Plant parts that are used include roots, stems, leaves, flowers and fruit (Heyne, 1987).

There have been many studies by the author, who support this research including plant body symbols, diversity of terrestrial species, mapping of vegetation, and conservation based on local wisdom, such as the results of research: Wijana,(2018a, 2018b, 2017a, 2017b, 2016, 2008), Wijana dan Setiawan. 2017, 2018, 2019a). The place of this research is in Monkey Forest, Penglipuran Village, Alas Kedaton and in Bali Aga and Bali Majapahit Villages, also in Tenganan Pegringsingan Village. The objects of the study include the rare plants with their mapping and distribution; the plants symbolizing the human body in Bali Aga and Bali Majapahit Villages, as well as the conservation of the plants in Tenganan Pegringsingan Village. From the results of the above research can be used to

support the research carried out this includes mapping of vegetation, diversity of species, and their use by local communities. The objectives of this study were (1) to find out the composition of useful plant species in the Bukit Kangin forest, (2) the production of vegetation maps of useful plant species, (3) index of diversity of useful plant species, and (4) utilization of useful plant species based on the socio-cultural Balinese Aga Tenganan Pegringsingan.

Material and Methods

This research was an explorative and descriptive research. It was taken place in Bukit Kangin forest of Tenganan Pegringsingan Village, Karangasem regency. The populations of this research were the entire area of Bukit Kangin forest and all of its vegetation. The mapping sample was the entire area of Bukit Kangin forest, and the distribution pattern sample were all the plants covered by 65 squares sized 20x20m², 10x10m², and 1x1m². The research instruments regarding the mapping were GPS (*Global Positioning System*), compass, Hilling, pegs, and nails. The instruments for vegetation sampling were strings of raffia, pegs, Hag meter, Enviromental thermometer, Soil tester, Anemometer, Hygrometer, Lux meter, and Pita meter.

The mapping method was conducted by simple measurement technique referring to Sunaryanto (1976); Teten et al, (1999) on a simple mapping and boundary note.

Work Steps

The work steps in this study include the work steps of mapping of vegetation, ecosystem/vegetation and sociosystem.

A. Mapping Aspects

Mapping the distribution of useful plant species was taken after the process of measuring the research location. Location measurement was used for the data calculation, processing and correction to determine the position (coordinate) of every measured point in the mapping area. The applied mapping method was simple measuring technical according to Soenaryanto (1976) on map and boundary layout simple mapping notes. The steps of simple mapping work are described as follow:

1. Piling temporary points by determining the measuring points (peg). How to set the point can be seen in Figure 1.

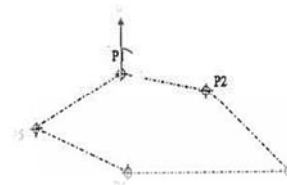


Figure 1. Peg Measurement Point (Source: Soenaryanto (1976), (Teten, et al (1999))

1. The points that had been made on the research location must be easily found, these points were marked with wood (stakes) sized 15 x 15 cm² which were planted on the ground and then those stakes were numbered and nailed on the top. The distance of the peg was adjusted to the research location.
2. Direct measuring the distance between the pegs with a length measuring tool completed with lines and numbers in meter. The tool was placed horizontally so that the distance could be measured correctly.
3. Calculating the difference of land surface height between the pegs with a helling.
4. Performing simple definitive measurements with sliding system polygon compass method according to Teten, et al (1999).
 - a. Angular or azimuth measurement on each peg which had been placed on the location points to form a closed polygon.
 - b. Calculate the compass polygon point coordinates by identifying the starting and ending points, and then determining the geographical azimuth.

The mapping distribution of useful plant species was taken by using explorative method with species data collection using GPS to determine the plants location as presented in the distribution map of useful plant species.

B. Vegetation Aspect

The data collection of useful plant species was carried out in two stages, they were preparation stage and implementation stage

Preparation Stage

- 1) Research Location Observation is observing of the location, its layout and the plant species in Bukit Kangin Forest of Tenganan Pegringsingan Village.
- 2) Research Permit from Tenganan Pegringsingan Official.
- 3) Preparing the research schedule with the source person.
- 4) Preparing the ools and materials

Implementation Stage

The implementation stage in collecting data on Bukit Kangin Forest, Tenganan Pegringsingan Village was with the following steps.

1. Divide the forest area into two zones.
2. Spread the transect line as a compass line.
3. Laying the squares on the compass line alternately.

4. The interval between the one square and the other was 10 meters each.
5. Data collection of plant species was carried out on tree habitus plant species with a square size of 20 x 20 m, sapling with a size of 10 x 10 m, and seedling with a size of 1 x 1 m, with a total of 65 squares. (See Figure 2.)
6. Record the number of each plant species on each sample point and systemically measure the stem diameter. To make it easier to work on the field, the data obtained were recorded in a book that had been prepared with a work table which contained the local name of the plants, scientific name, number of species individuals and the stem circumference.
8. Documenting every plant species found.
9. Sampling plant species in the research field and collecting plant samples into the plastic bags which had been labeled as herbarium supplies.
10. Conduct laboratory observation by identifying the plant species through literature study. (Wijana, 2014; 2016), (Barbour et al, 1987; Mueller-Dombois & Ellenberg, 1974; Cox (1976); Ludwig dan Reynold (1988);

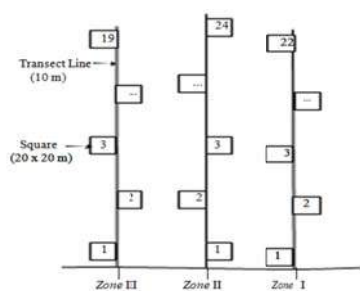


Figure 2..Squares Laying in the Field (Source :Wijana,2014;Barbour et al, 1987; Mueller-Dombois & Ellenberg,1974; Cox (1976)

7. Measuring the research supporting parameters such as temperature, humidity, location height, light intensity, soil organic material, soil moisture and pH.
- Socio-system Aspects
- A. Preparation Steps
- In this stage the following activities were carried out (1) Requested permission to conduct a research in Tenganan Pgringsingan Village to the office of Tenganan Pegringsingan Village (2) Observation of the location and the product which used plants of Bukit Kangin forest, and (3) Preparing the study instrument which was interview guidelines.
- B. Implementation Steps
- After the preparation steps, the data were taken by interview method addressed to the predetermined informant by asking questions related to the types of

the useful plants utilization, the parts of the plant used and the way they processed (Best, 1977).

RESULT AND DISCUSSION

The Composition of Useful Plant Species

The results of exploration of plant species in Bukit Kangin, obtained as many as 77 species of plants. Of the 77 plant species, including 40 families, with

a total of 2.574 individual species. Furthermore, from the 77 plant species found, based on interviews, literature studies, and field observations, 46 plant species were obtained which were used by the local community traditionally. The results of the study related to the composition of useful plant species in Bukit Kangin, and utilization are presented in Table 1.

Table 1..The Composition and Utilization of Useful Plant Species in Bukit Kangin Forest

No.	Local Name	Scientific Name	Family	Individual Number	Cl	Fd	Sh	Md	Rg	In
1	Cogongrass	<i>Imperata cylindrica</i> (L.) P.Beauv.	Poaceae	7		+		+		
2	Avocado	<i>Persea americana</i> Mill.	Lauraceae	1				+	+	
3	Tamarind	<i>Tamarindus indica</i> L.	Fabaceae	2				+	+	
4	Ata	<i>Lygodium circinatum</i> (Burm.) Sw.	Lygodiaceae	79					+	+
5	Badung	<i>Garcinia dulcis</i> (Roxb.) Kurz	Clusiaceae	5					+	
6	Rope Bamboo	<i>Gigantochloa apus</i> Kurz	Poaceae	76			+		+	
7	Bayur	<i>Pterospermum celebicum</i> Miq.	Malvaceae	188			+	+		
8	Belalu	<i>Hopea celebica</i> Burck	Dipterocarpaceae	20			+			
9	Belalu Bali	<i>Hopea sp.</i>	Dipterocarpaceae	1			+			
10	Bilimbi	<i>Averrhoa bilimbi</i> L.	Oxalidaceae	4		+		+	+	
11	Banyan	<i>Ficus benjamina</i> L.	Moraceae	4					+	
12	White Magnolia	<i>Michelia alba</i> DC.	Magnoliaceae	21			+		+	
13	Dracontomelon	<i>Dracontomelon mangiferum</i> Bl.	Anacardiaceae	1					+	
14	Durian	<i>Durio zibethinus</i> Murr.	Bombacaceae	34		+	+		+	
15	Sugar Palm	<i>Arenga pinnata</i> Merr.	Arecaceae	1.091		+	+	+	+	
16	Bitter Ginger	<i>Zingiber aromaticum</i> Valetton	Zingiberaceae	32				+	+	
17	Gegirang	<i>Leea sp.</i>	Leeaceae	27					+	
18	Ilak	<i>Amomum sp.</i>	Zingiberaceae	25					+	
19	Guava	<i>Psidium guajava</i> L.	Myrtaceae	1		+		+		
20	Bay Leaf	<i>Syzygium polyanthum</i> Miq.	Myrtaceae	1				+		
21	Grapefruit	<i>Citrus maxima</i> (Burm.) Merr.	Rutaceae	3		+			+	
22	Jeruk Lemo	<i>Citrus amblycarpa</i> Ochse	Rutaceae	3		+			+	
23	Java Plum	<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	1		+		+		
24	Cinnamon	<i>Sauropus androgynous</i> (L.) Merr.	Euphorbiaceae	10				+		
25	Coconut	<i>Cocos nucifera</i> L.	Arecaceae	37		+	+	+	+	
26	Candlenut	<i>Aleurites moluccanus</i> Willd.	Euphorbiaceae	30	+				+	+
27	Kepundung	<i>Baccaurea racemosa</i> Mull.Arg.	Phyllanthaceae	21	+	+	+			
28	West Indian Lantana	<i>Lantana camara</i> L.	Verbenaceae	14				+		
29	Kutat	<i>Planchonia valida</i> Blume	Lechytidaceae	38			+			
30	Majegau	<i>Dysoxylum densiflorum</i> Miq.	Meliaceae	3			+	+		
31	Mango	<i>Mangifera indica</i> L.	Anacardiaceae	38		+	+			
32	Mangosteen	<i>Garcinia mangostana</i> L.	Clusiaceae	4		+	+			
33	Pineapple	<i>Ananas comosus</i> (L.) Merr.	Bromeliaceae	7		+			+	
34	Jakcfruit	<i>Artocarpus heterophyllus</i> Lam.	Moraceae	46		+	+		+	
35	Pakel	<i>Mangifera odorata</i> Griff.	Anacardiaceae	59					+	
36	Thatch Screwpine	<i>Pandanus tectorius</i> B.C. Stone	Pandanaceae	3					+	
37	Pangi	<i>Pangium edule</i> Reinw.	Achariaceae	5					+	
38	Areca Palm	<i>Areca catechu</i> L.	Clusiaceae	11				+	+	

39	Banana	<i>Musa paradisiaca</i> L.	Musaceae	72		+			+	
40	Pule	<i>Alstonia scholaris</i> (L.) R.Br.	Apocynaceae	145				+		
41	Pulet	<i>Urena lobata</i> L.	Malvaceae	11				+		
42	Rambutan	<i>Nephelium lappaceum</i> L.	Sapindaceae	3		+			+	
43	Snake fruit	<i>Salacca zalacca</i> (Gaertn.) Voss	Aecaceae	1		+			+	
44	Breadfruit	<i>Artocarpus altilis</i> (Parkinson) Fosberg	Moraceae	7				+		
45	Tabia Bun	<i>Piper retrofractum</i> Vahl	Piperaceae	3					+	
46	Taro	<i>Colocasia esculenta</i> (L.) Schott	Araceae	54					+	
Total		46	31	2,249						

Information: Types of Utilization Cl = Clothing Fd = Food Sh=Shelter Md = Medicine Rg = Religious ceremony, In = Industrial

Based on Table 1 above, there are 31 families consisting of 46 species of useful plants with a total number of individual species of 2,249 individuals. The family that has the highest number of individuals is the Arecaceae family. The families with the lowest number of individuals are the Aecaceae, Cucurbitaceae and Lauraceae families. The most useful plant species found were sugar palm (*Arenga pinnata* Merr) (48.51%), bayur (*Pterospermum celebicum* Miq.) (8.35%), pule (*Alstonia scholaris* (L.) R.Br.) (6.44%), and Ata (*Lygodium circinatum* (Burm.) Sw.) (3.51%). Based on Table 1.2 too, the number of individuals as a whole, there are as many as 2,574 plants in Bukit Kangin. Based on the total number of plants in Bukit Kangin, 2,249 individuals (87%) are included in useful plants, while non-useful plants are 325 individuals or 13%. Based on data on the total plant species found in Bukit Kangin, there are 77 species, 46 species (60%) of which are plants that are useful for the local

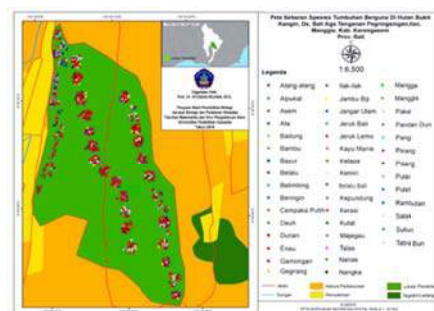
community, while 31 species (40%) are included in plants that are not useful or are not used by local communities based on social culture of Bali Aga, Tenganan Pegringsingan Village. Based on the above data it can be interpreted that the majority (60%) of these plants is used by the local community and 40% are not traditionally used by the local community. Useful plants traditionally utilized by local communities are for the purposes of religious ceremonial material (Hindu) as many as 29 plant species (35.80%), for medicinal purposes as many as 18 plant species (27.70%), as many as 17 plant species food (20.99%), the need for board materials is 13 plant species (16.05%), the need for clothing and industrial materials is 2 plant species (2.47%).

Mapping Vegetation

From the Table 2, then the mapping of plant distribution was conducted. The mapping of these useful plant species which were utilized by the

community of Bali Aga Tenganan Pegringsingan is presented in the form of their distribution map in Bukit Kangin forest. This plant species distribution map is completed with their actual coordinate positions in Universal Transverse Mercator (UTM). The data of these useful plant species distributions are presented on the map as shown in Figure 3. Based on the figure it can be seen that the map shows the distribution of 46 useful plant species in the area of Bukit Kangin forest. Of the plant species appearing on the map, enau (palm) grew the most in Bukit Kangin Forest. Enau was the dominant species in Bukit Kangin forest. The Bukit Kangin forest was also called Bukit Jaka or Bet Jaka (palm hill) by the local people.

categorize the Diversity Index of useful plant species based on the Shannon-Wiener Diversity Index has been presented in Table 1.1. From the calculation of the Species Diversity Index, it is then continued with an analysis of equity (E) and species richness (R). The size of the square used for data collection of useful plant species was based on its habitus i.e. tree/mature (20x20 m), sapling (10x10 m) and seedling (1x1 m).



species
st

Diversity Species Index

Recording the diversity of useful plant species in the Bukit Kangin Forest used the Shannon-Wiener Diversity Index. The range of values used to

The recapitulation results of the calculation of the Diversity Index, Equity and Richness of useful plant species can be seen in Table 2.

Table 2. Recapitulation of Diversity Index, Equity, and Species Richness Useful Plants in Bukit Kangin Forest

No	Habitus	H''			E			R		
		I	II	III	I	II	III	I	II	III
1	Seedlings	2,68	2,48	3,63	1,377	1,034	1,415	1,104	1,83	2,37
2	Saplings	2,46	2,51	3,07	0,82	0,802	1,165	3,48	4,223	2,506
3	Trees	1,86	2,21	2,89	0,632	0,766	1,066	2,894	3,045	2,526
4	General	2,87			0,751			5,83		

Information: H''= Shannon-Wiener Diversity Index. E= Equity (Evenness). R= Richness. I= Zone I. II= Zone II. III= Zone III

Based on the combined data of Zone I, II, and III in Table 1.2, it can be observed that the diversity index value in the Bukit Kangin forest vegetation was 2.87. Seen from the Shannon-Wiener diversity index category, Bukit Kangin forest vegetation was included in the medium diversity category. It can be concluded that the community of useful plant species in Bukit Kangin belongs to quite a variety. Useful plant species found in Bukit Kangin had a high index of species richness value of 5.83 ($R > 5.0$), whereas the evenness value of individual species was 0.751 ($E > 0.6$). Based on these data it means that useful plants in Bukit Kangin had a lower evenness value of individual species compared to the value of species richness. This means that the number of plant species in Bukit Kangin was higher when compared to the evenness of the individual species. Thus the species richness component is a factor that is more influential on the emergence of differences in the value of the natural diversity index in Bukit Kangin forest vegetation. Based on the above data it can be interpreted that the diversity of vegetation making up the Bukit Kangin forest vegetation is classified into the category of moderate diversity (Diversity

Index = 2.87) which means it has moderate diversity. So it can be concluded that the useful plant community in Bukit Kangin is quite diverse.

Utilization Useful Plants

The results of the plant species utilized by the community of Tenganan Pegringsingan village are shown in Table 1.

Based on the above Table 1, there were 31 families of plants which consisted of 46 useful plant species with 2,249 total individual species. The highest individual number was from Arecaceae family and the lowest was Lauraceae family. The most plant species found were enau (48,51%), bayur (8,35%), Pule (6,44%) and Ata (3,51%). Based on the whole data of the plant species in Bukit Kangin as many as 77 species, 46 (60%) of them were useful plant species to the local community, meanwhile the other 31 (40%) were plants that were not utilized by the community according to the Bali Aga Tenganan Pegringsingan socio cultural. Thus, it can be understood that most of the plants (60%) were utilized and 40% of them were not traditionally used by the local community. Based on their usefulness, those plant species were utilized for housing, medicine, food,

clothing, industrial and religious (Hindu) purposes. One plant species were used for one to four types of usefulness. The

utilization of those plant species in Bukit Kangin Forest is presented on Table 3.

Table 3. The Type of Utilization of Plant Species in Bukit Kangin Forest

No	Number of Utilization Types	Allotment of Plant Utilization	Number of Species	Percentage (%)	Total of Percentatation (%)
1	1 Utilization Type	Housing	3	6,5	41,4
2		Medicine	6	13,1	
3		Religious Ceremony	10	21,8	
4	2 Utilization Types	Food and Medicine	3	6,5	43,3
5		Food and Housing	2	4,3	
6		Food and Religious Ceremony	6	13,1	
7		Housing and Medicine	2	4,3	
8		Housing and Religious Ceremenony	2	4,3	
9		Medicine and Religious Ceremony	4	8,7	
10		Religious Ceremony and Industrial	1	2,2	
11	3 Utilization Types	Clothing, Food, and Housing	1	2,2	10,9
12		Clothing, Religious Ceremony, and Industrial	1	2,2	
13		Food, Housing and Religious Ceremony	2	4,3	
14		Housing, Medicine and Religious Ceremony	1	2,2	
15		Food, Housing, Medicine, and Religious Ceremony	2	4,3	4,3
Total			46	100	100

From the above it can be seen that there were 41,4% of the plant species used for one utilization type, 43,3% for two utilization types, 10,9% for three utilization types and 4,3% of them were for four utilization types. Therefore, it can be stated that the local community utilized the plants from one to four utilization types based on the socio cultural of Bali Aga Tenganan Pegringsingan Village.

DISCUSSION

From the results of this study, there were 46 plant species of 26 plant families in Bukit Kangin forest that were utilized by the people of Tenganan Pegringsingan Village. Those plants were used by the

community for clothing, housing, ceremony, traditional medicine, and industrial purposes. Of the 46 plant species recorded, the dominant plants were Enau (*Arenga pinata*), Bayur (*Plerospermum celebicum*) and Pulau (*Alstonia scholaris*). Enau (*Arenga pinata*) were mostly found in Zone I which the altitude was 233-303 meter above sea level and pH 5 in average. According to Fatah, et al (2015), palm can grow in various soil conditions, whether it is clayey soil, calcareous or sandy soil. However, palm cannot grow well in an excessive pH soil. According to Adjij (2002) Enau (*Arenga pinata*) can grow well at an altitude 0-1.400 meter above sea level. Futhermore, Based on data

from all plants in Bukit Kangin, sugar palm trees (*Arenga pinnata* Merr) were the most dominant plants found with a total of 1.091 individuals. The dominance of a plant species can be seen from 1) the highest number of species; 2) the large diameter of the stem; 3) dominant growth (Fachrul, 2007). Furthermore, Damayanti (2017) stated that species that dominates means having a wider environmental range compared to other species, so with a broad range of tolerance to environmental factors cause plant species

will have a wide distribution. This is consistent with the conditions on the study field; it appears that sugar palm trees have a wide range or distribution. So that Bukit Kangin forest of Tenganan Pegringsingan Village is called *Alas Jaka* (arenga forest) by the local community.

The results of mapping the plant species distribution are in line with the results of the study conducted by Wijana and Setiawan (2017) about rare plants in some tourism forests in Bali as shown in Figure 4.



Figure 4. The Map of Rare Plant Species Distribution in Tourism Forests in Bali. A. Penglipuran Tourism Forest. B. Monkey Forest. C. Alas Kedaton.

Based on the study results in Bukit Kangin forest, there were 46 useful plant species there. The plant species distribution patterns were 3 different patterns; they are regular, random and cluster distribution patterns. These distribution patterns were affected by biotic factor. They can happen due to conservation/cultivation or accidentally other living things throw fruits or seeds which help the process of these plant species distributions become wider (Wijana, 2008).

The useful plant species generally had cluster distribution patterns because each plant species spreading both its fruits and seeds influenced by the gravity. Therefore, the seeds tend to grow and mature in the areas close to the source plants, so that these species tend to grow cluster in several areas according to the presence of their source plants. Besides, the environmental factors also affect the plant species life success. The species which has specific environmental growth requirements will only be able to grow in

certain area, so the species cluster distribution pattern is formed (Wijana, 2014, 2016), (Wijana and Setiawan, 2017), Barbour *et al*, 1987).

Muhadiono (2001) stated that diversity of a species community is very dependent on the number of species and the number of individuals found in the community. This is consistent with the statement Wijana (2016) which stated that species diversity is a combination of the concepts of equity (evenness) and richness of certain species. Sriastuti (2005) said that the number of species in a community is called species richness, while the evenness of species refers to the number of individuals among species. Nahlunnisa (2016) added that low evenness value due to species that have a high number of individuals or dominant species and the number of individuals is not the same or uneven. From the statement above, this is consistent with the results of observations that there were dominating species. And for the overall forest vegetation in Bukit Kangin was dominated by species of palm trees (*Arenga pinnata* Merr) with a total of 1,091 individuals. The factors that affect species diversity are soil organic matter, soil moisture, soil pH,

temperature, humidity, and light intensity. The edaphic and climatic factors are one of the determinants of the survival of organisms that live in and above the ground. Edaphic factors and climatic is a factor related to the physiology of a vegetation. The average value of edafic factors in Bukit Kangin forest, namely soil organic matter, is 2.88%. According to Sarna (2006) good soil organic matter for the growth of a plant is 5%. So based on that the content of soil organic matter in Bukit Kangin did not support the growth of vegetation.

The number of the plants used by the local community shows the close relationship among the people's cultivation ability, intelligence, and the plants in Bukit Kangin Forest. The people's intelligence is based on the people's belief which is, Hinduism. As an example, the usage of plants for medication purposes is identical to the religious ones ^[10]. This is because the medication efforts are identical to the religious ceremony which aims at invoking healing from God (*Ida Sang Hyang Widhi Wasa*). In this case, the parts of plant generally used are the leaves (32.40%), the fruits (30.99%), and the flowers (5.64%).

The cultivation ability shows that the relationship between the forest exixtency and the life of the local people. The forest is the germ plasm to the locals. Thus, it creates an agrarian world, forestry/forester which is characterized with the farm land or the forest. Their life is to utilize the germplasm around them. However, the usage of the germ plasm needs to be regulated so that it will not be used up. The traditional regulation is called *awig-awig*. Tenganan Pegringsingan is one of the villages included in Bali Aga Villages. The life of the Tenganan Pegringsingan people is not much affected by the flow of modernization because they have a strong attachmenet to the *awig-awig* or the village regulations. The traditional regulation was created since 11 century, updated in 1842 and recently used as the reference in implementing the daily life of the community (Hidayat, 2014); Setiono, 2015).

Besides *awig-awig*, there are another local wisdoms applied to preserve the forest in Tenganan Pegringsinagn Village. The forest management is regulated in order to maintain the community welfare. However, the traditional village has prerogative rights to *ngalang*, *ngambeng*,

ngambang, *ngerampag* for the purpose of religious ceremony in the village. *Ngalang* is the right to get 7 coconuts, 5 bunches of bananas, 9 pin apples, 1 jackfruit, mangoes, *wani*, *duku*, *kepundung*, *ron*, *busung* (young coconut leaves) and 1 bar of bamboo. *Ngambeng* is the right to take palm *atakeh* and *acutak* (traditional volume size or unit), based on the needs. *Ngambang* is the right to catch the one chick per hen. While, *ngerampag* is the right to cut down one tree every *cutak* (traditional volume size) (Wijana, 2008).

The other unique local wisdom is to consider the plants in the forest as social plants. It means, there are certain trees which fruits can be consumed socially be the people in the village. The way to have the fruits is through a traditional rule called *nuduk ulung-ulungan*, or a rule to pick up 4 kinds of fruits which fall in the forest, they are *durian*, *pangi*, *kemiri*, and *tehep*. Those four fruits cannot be picked by the land owner, but the fallen fruits of them can be picked up by anyone (Wijana, 2008).

Enau is the most dominant plant in Bukit Kangin forest so that the forest is called *Jaka* Forest or *Bet Jaka*. Enau produces *ijuk*, *tuak*, dan *beluluk*. The

interesting tradition in Tenganan Pegringsingan Village is that the ijuk and tuak cannot be sold outside the village. All the products are for the village needs only. It is a conservation and sustainability concepts so that the plants remain ecological. Ijuk, tuak and beluluk/kolang-kaling as the village needs are limited, so that their use does not overly exploit the natural resources (Wijana, 2008).

CONCLUSION

From the results of this study it can be concluded: (1) The composition of useful plant species consists of 46 species, which are included in 31 families; (2) Map of distribution of useful plant species has been produced, dominated by palm trees; (3) Index of diversity of useful plant species is obtained at 2.87 which belongs to the medium category; and (4) the use of useful plant species in the village of Tenganan Pegringsingan, Karangasem, based on the socio-cultural Bali Aga Tenganan Pegringsingan. From this conclusion, it can be recommended (1) Conservation of plant species in Bukit Kangin, can be done by implementing vegetation maps that have been produced in this study, and (2) Socio-culture of

Bali Aga Tenganan Pegringsingan remains preserved and at the same time this can be used as the concept of forest conservation in the village.

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Eco-tourism Potential in Batik Laweyan Village

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ABSTRACT

The development of ecology-based tourism is increasing, as tourists' awareness of environmentally friendly insights. The socio-cultural and economic empowerment aspects of the local community are important in eco-tourism activities. The Laweyan batik village of Surakarta is a center of traditional batik production with an environmentally friendly theme. The method in this paper is descriptive-qualitative, through observation, data collection, interviews, literature studies and documentation of research locations. The purpose of this study is to determine the eco-tourism potential of an area, especially the producer of environmentally friendly batik dyes, which is the village Laweyan of Surakarta. The findings of this study are the positive response of tourists to eco-tourism based on local natural potential, very relevant in creating an understanding of tourists towards a sustainable environment and maintaining the earth to remain a unity of harmony.

Keywords: *batik, eco-tourism, responsibility*

I. Introduction

The development of eco-tourism is currently growing very rapidly. Tourism activities are not just for observing the local nature, tracking the wilderness, but eco-tourism is also related to the concept of forest conservation and local residents. Eco-tourism has developed into a combination of various interests that have arisen based on environmental, economic and socio-cultural concerns. Eco-tourism activities cannot be separated from conservation activities, hence eco-tourism can be said as responsible tourism activities [1]. This rapid and encouraging growth should be supported by all stakeholders.

The potential for responsible tourism, especially for batik tourism areas, has also increased. The eco-tourism area of batik is environmentally friendly because it uses natural materials, such as roots, leaves, flowers, does not use chemicals at all and has added value to local cultures that are environmentally friendly [2]. Utilization of the potential of the environment in the community needs to be optimized properly. Identification of the potential of natural

resources and the human environment needs to be done, based on local wisdom in a good and sustainable manner. Awareness of responsible tourism is very urgent to maintain the continuity of human life on earth today.

Eco-tourism activities are part of the tourism industry which reflects an ethos of being environmentally responsible and related to local culture. The term eco-tourism was formally introduced in 1983 by environmental activist and Mexican architect Héctor Ceballos-Lascuráin, from the first organization aimed at eco-tourism - The International Eco-tourism Society (TIES) which was founded in 1990. Since then, eco-tourism has become one of the sectors with growth the fastest in world tourism. Eco-tourism has been widely promoted as an important conservation tool and one way for communities to have a positive impact on the environment. Eco-tourism has the potential to improve public education about cultural and biological diversity, preserve wild habitats, and improve economic conditions for the host country [3]. Eco-tourism activities offer activities that are responsible for humans and protect the local environment.

Eco batik is the understanding of an environmentally friendly production process based on clean production. According to the Ministry of Environment [4] the notion of clean production is: "Environmental management strategies that are preventive, integrated, and applied continuously on every activity from upstream to downstream, related to production processes, products, and services to improve the efficiency of use natural resources, preventing environmental pollution and reducing the formation of waste at the source so as to minimize risks to human health and safety and environmental damage". Based on that problems, the question that arises in this paper, is how potential of eco-tourism, especially batik in Laweyan batik village, has it been implemented?

II. Methodology

This article uses a descriptive-qualitative approach. The descriptive notion is "A prose paper whose subject matter is visual. An essay that records or records a subject " [5]. The basis of this paper using the description approach is that the object studied is described according to the available facts. The description approach aims to describe the existing conditions and describe them, through observation, data collection, interviews, literature studies and documentation of research Laweyan batik village. In its application, the concept of 5R is known as Rethink, Reuse, Reduction, Recovery, Recycling [6].

III. Result and Discussion

a. History

The Laweyan batik area, Surakarta is the first batik industry village in Indonesia. The Laweyan batik area has been going on for a long time and is a cultural heritage. At this time, the condition of the Laweyan tourist area has changed a lot, eroded by modern activities, which are overlapping, uncontrolled. The existence of the Laweyan tourist area has changed a lot from the first time it was built [7]. This change is also commonly found in various regions in

Indonesia, initially starting from simple craft activities, then growing into a very complex modern industry.

The early history of the Laweyan batik area is closely related to the Giyanti Treaty in 1755. The Giyanti Treaty is also known as Palihan Nagari or the largest royal division on the island of Java. This agreement divides the kingdom of Mataram into the Surakarta Hadiningrat Palace and the Ngayogyakarta Palace. One of the points of the division of the kingdom is that all the greatness of the kingdom of Mataram was brought to the Yogyakarta palace and belonged to Ngayogyakarta. This point encouraged the Surakarta king Paku Buwono III to create their own traditions of creative batik. Paku Buwono III ordered the courtiers to make their own batik motifs called Surakarta Gagrak batik. Based on the order, the courtiers and the people of Surakarta then competed to make new batik designs [8].

As the biggest batik area, Laweyan is also in contact with political and economic aspects. Historical records in 1911, showed the close relationship of batik with the political activities of Sarikat Dagang Islam (SDI), which was founded by KH. Samanhudi [9]. The existence of the Islamic Trade Sarikat arises because of the high economic activity of the Surakarta people in economic and political activities. Directly, the existence of SDI is able to bind batik producers to join together and become stronger.

Until now after Indonesia's independence, the Laweyan batik area continues to grow rapidly. Batik activities and trading are still ongoing. This activity even supports other batik-producing areas such as Pekalongan, Cirebon, Tuban, or Madura as a batik producers.

b. Facts

The legal basis of the Laweyan area refers to the Surakarta Mayor Decree number: 646/116/1997 is a historic area and includes a cultural heritage. The Laweyan area has also been declared a center for batik producers and tourism destinations in the city of Surakarta. The existence of the Laweyan

Region according to sources of local population figures, has existed since 1500 [10]. The age of Laweyan's long existence has become one of the legal bases for the issuance of the Surakarta Mayor Decree.

The physical area of Laweyan batik has an area of 2.08 hectares, with a KDB of 50%, KLB 1.8 and Building Borders 4 meters. The existence of the Laweyan area is related to the characteristics of the Surakarta Hadiningrat city and palace, which needs to be done in an effort to unify Education, recreation and conservation facilities, as activities that are responsible for preserving Surakarta batik. The Laweyan batik area needs to be supported as a responsible tourism destination and needs to be preserved.

The following is a map (Fig. 1) of the Laweyan batik area, Surakarta. The Laweyan area is bordering with Kecamatan Banjarsari and Kecamatan Serengan, Surakarta.

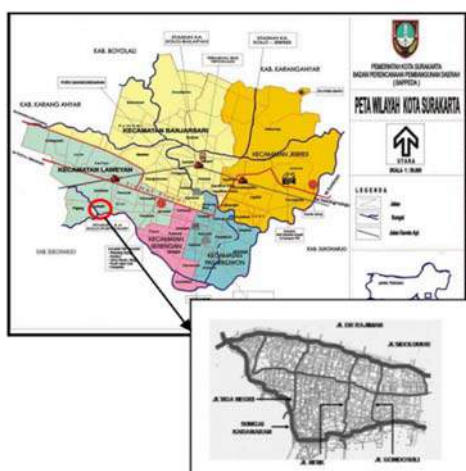


Fig. 1. Map of Laweyan (source: Bappeda Surakarta, 2019)

Batik activities are activities that are mostly done in the city of Surakarta. Batik craft is able to turn the wheels of the economy, for the majority of the people of the city of Surakarta. It can even be said that the ability of batik production in the city of Surakarta, which reaches 85%, is done by batik merchants in the Laweyan Region [10]. The amount of batik activity is very large when compared to other regions outside

Surakarta, such as in Yogyakarta for example. This potential should also be preserved as an environmentally friendly eco-tourism area.

Understanding tourist destinations contained in Law no. 10 of 2009 concerning Tourism of the Republic of Indonesia, it is stated that the definition of a tourist destination is a geographical area within one or more administrative regions in which there are tourist attractions, public facilities, tourism facilities, accessibility, and communities which are interrelated and complement the realization of tourism [11]. There are various types of tours that are well known and are very diverse, one of which is eco-tourism which is arranged in the form of a small group scale, preserving the environment and balancing the socio-cultural aspects of the community. This eco-tourism activity can be called as an alternative for large-scale tourism.

A.

c. Concept

To apply the potential of eco-tourism in an area, especially Laweyan batik village, Surakarta, the concept of 5 R. Rethink, Reuse, Reduction, Recovery, Recycling is as a diagram as follows:



Diagram 1. The 5R concept.

First stage is **Rethink** which is the act of rethinking. Rethink is an attempt to think again before the batik production process begins to the end. In this process is associated with positive changes in thinking patterns, attitudes, and behaviors related to environmentally friendly production and consumption. During this batik production

process in Laweyan, many use chemicals that are poisonous, pollute the environment and become waste. Through rethink, the use of natural, plant-based dyes, leaves, roots, seeds, stems, can be a solution. Then also waste, special shelter containers need to be prepared, so that toxic waste can be reduced.



Fig. 2. Rethink Laweyan Batik. [12]

The second stage is **Re-use**, the process of reusing the remaining batik material to be realized in a product without the need for chemical, biological and physical treatments. Reuse can be done for lilin wax, which has been much discarded or left over. Waste wax can be reused. The reuse action can also be done on clothing materials made from cotton, white, which can be re-processed into new clothing with natural dyes batik patterns.



Fig. 3. Re-use Batik wax. [13]

The third stage is **Reduction** of waste at the initial source by using materials that are harmless and toxic. An example of a reduction is to reduce the level of toxins in a dyestuff waste, through the creation of a

settling dye agent. When wastewater is stored for 30 days, the level of harmful toxins can be reduced. Wastewater Treatment Plant (WWTP) is one way to reduce toxic waste from batik activities.



Fig 4. WWTP for Reduction. [14]

The fourth stage is **Recovery**, to restore the original condition to the effects of waste from batik waste. Including the recovery stage is to restore the condition of rivers, gutters, reservoirs that are exposed to batik waste water. This includes soil conditions that become less fertile, by adding soil nutrients, or planting new plants in the areas traversed or surrounding batik activities.



Fig 5. Recovery with natural dyes [15]

The final stage is **Recycling** as a process of reusing batik products and waste materials so that they can be reused. An example of recycling is the reprocessing of batik craft products, scarves, cloth, into new batik products, such as patchwork. Reusing old batik cloth into new products can also be done by combining with other techniques, such as quilts. Through quilt techniques, new batik cloth creations can be produced such as mattress covers, bed covers, curtains, upholstery, and others.



Fig 6. Batik Recycling as a new Products. [16] B.

V. Conclusion

Human activities are increasingly demanded to be responsible for the surrounding environment. Awareness that the earth we live in today belongs to our children and grandchildren is one of those responsible attitudes. Laweyan batik village, Surakarta is an area that implements eco-tourism activities and is responsible for carrying out pre-production and post-production batik processes responsibly. The growth of eco-tourism in various parts of the world must be supported by the government and the community itself in order to give birth to sustainable activities.

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Traditional Balinese Medicinal Agriculture: From Biodiversity Conservation towards Culture Preservation and Environmental Sustainability

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ABSTRACT

Traditional Balinese medicinal practice or better known as *usada Bali* has been known since the 15th century AD through palm-leaf *usada* scriptures (manuscripts about treatment systems, medicinal ingredients and traditional methods of treatment). This practice has been passed down from generation to generation. When modern medicines begin to cause new problems due to high chemical substances in them, traditional Balinese medicine finds its existence again. In traditional medication, the use of medicinal plants is one of the main elements. This later encourages development of medicinal agriculture in Bali. Taking the setting at the Institute of Natural Resource Development (IPSA) located in Bengkel Village, Busungbiu, Buleleng Regency by using qualitative methods, this article aims to describe how the cultivation of medicinal plants develops not only to meet the needs of producers of traditional medicinal plants but also to act as an effort to conserve biodiversity and Balinese culture, as well as to promote the development of sustainable medicinal agriculture. The result of the study shows that Balinese medicinal agriculture plays an important role in helping the preservation of medicinal plants. Besides the current potency of the medicine, it is also able to become a renewable source for new types of medicine. At the same time, its cultivation can be a solution to preserve *usada Bali* as a cultural product for future generations.

Key words: *traditional medicine, biodiversity, culture preservation, environmental sustainability*

I. Introduction

The use of medicinal plants in Bali to overcome human's health problems has a long history. This practice is estimated to have existed during the reign of the King Waturenggong in Gelgel, Bali (1460-1550). At that time the writing of palm-leaf *usada* scriptures (manuscripts about the treatment system, medicinal ingredients and traditional treatment methods) became one of the main priorities [1].

There are more than 490 species of medicinal plants recorded in 50,000 sheets of palm-leaf scriptures in Bali [2-4]. Based on these records medicinal plants are used for various needs. For example as an ingredient for *loloh*, it contains medicine for diabetes, diuretics, headaches, heartburn, to stimulate appetite, as a nutraceutical food ingredient and to treat other diseases. Parts of plants that can be used as medicine varies from leaves, buds, tree bark, roots, fruits, sap, and tubers [5,6].

Actually the existence of local wisdom in terms of utilization of medicinal plants is not only found in Bali, but also in almost all regions of Indonesia [6-9]. This is due to botanical diversity in Indonesia. Bali is only one example representing many traditions on uses of medicinal plants in Indonesian culture.

In Bali, this tradition is still well-preserved. Medicinal plants still become priority in treatments of various types of disease. Utilization of medicinal plants is considered as ancestral heritage which is still proven to be effective and safe based on empirical evidence. The Balinese have a belief that all diseases can be cured with the help of nature. This way of thinking is based on interpretation and understanding of various natural phenomena. The belief is then strengthened by the belief that God has provided cures for all illnesses. Therefore, the use of medicinal plants to alleviate health problems is still one of the deeply-rooted elements of Balinese culture [10].

Worries about negative effects of chemical drugs, the increasing number of people questioning on the effectiveness of taking allopathic medicines and betterment of public access to health information, as well as the desire to develop Bali as a herbal tourist destination and education [11] are some other reasons which support the existence of medicinal plants as one of the sources of traditional medication in Bali [12-14].

Currently the medicinal plants in Bali are not only used as traditional medicines for household consumption, but also have been processed as basic ingredients in the production of herbal medicines and traditional medicines within industrial scale [15]. The cultivation of medicinal plants is also present to meet the needs of quality raw ingredients, as well as as an effort to preserve certain types of medicinal plants whose

existence and number are decreasing due to the high rate of land conversion in Bali [16].

Cultivation of medicinal plants has now become an integral part in the traditional medicinal industry in Bali. However, until now there are still limited studies that discuss how the actual process of cultivation of medicinal plants develops and how far the extent of its contribution to the preservation of culture, including the community's economy has gone. In fact, the study is important as a knowledge basis to investigate the development of medicinal plants in Bali and its management to meet the health needs and livelihoods of the community.

Taking the setting at the Institute of Natural Resource Development (IPSA) located in Bengkel Village, Busungbiu, Buleleng Regency, this article describes how the cultivation of medicinal plants grows and develops, how its potential and production are being conducted, and what are its impact on the culture and economy of the surrounding community. The results of this study are expected to contribute to the direction of determining policies related to the preservation of medicinal plants in Bali and its potential to be developed in a sustainable manner.

II. Materials and Methods

2.1 Study Area

IPSA is a natural resource development and research institute. In the IPSA area there are spices and medicinal plants covering an area of 5 hectares, serving as a production garden to supply the raw ingredients for the *Pak Oles* Traditional Medicine Industry (*Jamu*). IPSA was founded by Gede Ngurah Wididana in 1997. This institution was established in collaboration with several institutions including IKNFS (Indonesian Kyusei Nature Farming Societies), EMRO (Effective Microorganisms Research Organization), APNAN (Asia Pacific Natural Agricultural Network), and INFRIC

(International Nature Farming Research Center).

2.2 Interviews and Data Collection

Information obtained from two methods, namely interview and observation. Interviews were conducted to fifteen informants who are IPSA officers, as well as residents who lived around the location of the cultivation of medicinal plants. Meanwhile, observations were made by visiting the IPSA plantation and Bengkel Village.

III. Findings and Discussion

3.1 Cultivation of Medicinal Plant Comodity

There are 161 types of medicinal plants that are officially recorded in the IPSA plant database (table 1). However, based on observations in the field there are estimated to be more than 200 types of medicinal plants unrecorded for they belong to types of wild medicinal plants

Table 1 : List of Menicinal Plants Commodity Cultivated at the IPSA.

List of Medicinal Plant Commodity	
Common names	Scientfic names
1. Asoka	<i>Ixora paludosa</i> L.
2. Andong	<i>Cordyline fruticosa</i> (L) A. Cheval
3. Straw grass	<i>Imperata cylindrical</i> (L) Beauv
4. Avocado	<i>Persea gragratisissima</i> Gaertn.
5. Anyang-anyang	<i>Elaeocarpus grandiflora</i> J.E Smith
6. Sweetroot	<i>Vetiveria zizonioides</i> (L) Nash ex Small
7. Tulip	<i>Crynum asiaticum</i> L.
8. Bangley curcuma	<i>Zingiber montanum</i>
9. Indian fleabane	<i>Pluchea indica</i> (L.) Less
10. Bougenville	<i>Bougaincillea glabra</i> Choicy
11. Canna lily	<i>Canna Indica</i> Linn
12. Pagoda flower	<i>Clerodendrum japonicum</i>
13. Candle flower	<i>Pachystachys Lueta</i> L.
14. Sour Starfruit	<i>Averrhoa Belimbi</i> L.
15. Rosella	<i>Hibiscus sabdariffa</i> L.
16. Sunflower	<i>Helianthus annuus</i> L.
17. Spinach	<i>Amaranthus spinosus</i> Linn
18. Brotowali	<i>Tinospora Crispa</i> (L) Miers
19. Binahong	<i>Anredera Cordifolia</i> (Ten) Steenis
20. Yellow bamboo	<i>Bambusa Vulgaris</i> Var. <i>Striata</i>
21. Read fruit	<i>Pandanus Conoideus</i> Lamk.
22. Sweet starfruit	<i>Averrhoa Carambola</i> L.
23. Brojo Lintang	<i>Belamcanda chinensis</i> (L.) DC
24. Dayak onion	<i>Eleutherine palmifolia</i> Merr
25. Epiphyte	<i>Loranthus Jacq</i>
26. Clove	<i>Caryophyllus aromaticus</i> L.
27. Grass jelly	<i>Cyclea Barbata</i> Miers.
28. Magnolia	<i>Michelia Champaca</i> L.
29. Camu-Camu	<i>Myrciaria Dubia</i> (Kunth) McVaugh
30. Cayenne pepper	<i>Capsicum frutescens</i> L.
31. Javanese chilli pepper	<i>Piper retrofractum</i> Vahl.
32. Durian	<i>Durio Zibethinus</i> L.
33. Dewandaru	<i>Eugeia Uniflora</i> L.
34. Wungu leaf	<i>Graptophyllumpictum</i> (L) Griff
35. Pomegranate	<i>Punica granatum</i> L.
36. Encok leaf	<i>Plumbago zeylanica</i> L.
37. Dilem leaf	<i>Pogostemon cablin</i> (Blanco) Benth
38. Dandang Gendis	<i>Clinicanthus Nutans</i> Lindau

Community, Ecology, and Religion:
Interdisciplinary and Civic Engagements towards Sustainable Living
15th February, 2019 – UNHI, Denpasar, Bali

39. Mint	<i>Mentha Piperita</i> L.
40. African leaf	<i>Vernonia Amygdalina</i> Delile
41. Cat's tail	<i>Acalypha hispida</i> Burm.f.
42. Water hyacinth	<i>Eichhornia crassipes</i> (Mart.) Solms
43. Greges Otot	<i>Equisetum dibile</i> Roxb.
44. Gempur Batu	<i>Ruellia napifera</i> Zoll & Mor
45. Neem	<i>Azadirachta Indica</i> A.Juss
46. Coleus	<i>Coleus Atropurpureus</i> Benth/C. <i>scutellarioides</i> (L.) Benth
47. Jempiring	<i>Gardenia Augusta</i> Merr.
48. Lime	<i>Citrus aurantifolia</i> Swink.
49. Lemon	<i>Citrus Amblycarpa</i> (Hassk) Ochese.
50. Balinese castor	<i>Jatropha Podagrica</i> Hook
51. Guava	<i>Ixora paludosa</i> L.
52. Rose apple	<i>Cordyline fruticosa</i> (L) A. Cheval
53. Ginger	<i>Imperata cylindrical</i> (L) Beauv
54. Common castor	<i>Persea gratissima</i> Gaertn.
55. Watery rose apple	<i>Elaeocarpus grandiflora</i> J.E Smith
56. Jakang	<i>Vetiveria zizanioides</i> (L) Nash ex Small
57. Jali	<i>Coix lachrymal-jobi</i> L
58. Orange	<i>Citrus hystrix</i> DC
59. Cumin	<i>Coleus amboinicus</i> Lour
60. Dlingo	<i>Acorus calamus</i>
61. Hibiscus	<i>Hibiscus rosa sinensis</i> L.
62. Coconut	<i>Cocos Nucifera</i> L.
63. Peacock flower	<i>Caesalpinia Pulcherrima</i> L.
64. Keji Beling	<i>Strobilanthes crispus</i> BI
65. Katu	<i>Sauropus androgynous</i> (L) Merr
66. Cat's whisker	<i>Orthosiphon stameneus</i> Benth
67. Frangipani	<i>Plumeria acuminata</i> ait
68. Marvel of Peru	<i>Mirabilis jalapa</i> L.
69. Kelor	<i>Moringa oleifera</i> Lamk.
70. Kuangen/lampes leaf	<i>Ocimum Sanctum</i>
71. Ki Tolod	<i>Isotoma longiflora</i> Presl.
72. Basil	<i>Ocimum xcitriodorum</i> Vis.
73. Cardamom	<i>Amomum cardamomum</i> Willd
74. Purslane	<i>Portulaca oleracea</i> L.
75. Kecubung	<i>Datura metel</i> L.
76. Kemuning	<i>Murraya pniculata</i> L.
77. Cinnamon	<i>Cinnamomum burmanni</i> (Nees & Th.Nees)
78. Kesumba keling	<i>Bixa Orellana</i> L.
79. Cajuputi	<i>Melaluca cakuputi</i> sub sp. <i>Cajuputi</i>
80. Rat taro	<i>Typhonium flagelliforma</i> (Lodd) BI
81. Candlenut	<i>Aleurites moluccana</i> (L) Willd
82. Aromatic galangal	<i>Kaempferia galanga</i> L.
83. White turmeric	<i>Kaempferia rotunda</i> L.
84. Turmeric	<i>Curcuma domestica</i> Vahl.
85. Brown flower	<i>Zephyranthes candida</i> L.
86. Kastuba	<i>Euphorbia pulcherrima</i> Will. Ex.Klottzch
87. Kecombrang	<i>Etlingera elatior</i> (Jack) R.M. Smith
88. Sansevieria	<i>Sansevieria trifasciata</i> Prain
89. Comon galangal	<i>Alpimia galangal</i> (L) Willd
90. Aloevera	<i>Aloe vera</i> L.
91. Legundi	<i>Vitex trifolia</i> L.
92. Lamtoro	<i>Leucaena galuca</i> (L) Benth
93. Jasmine	<i>Jasminum sambac</i> (L) W Ait
94. Pepper	<i>Piper nigrum</i> L.
95. Passion fruit	<i>Passiflora edulis</i> L.
96. Mangkokan	<i>Polyscias scutellaria</i> Merr
97. Morinda	<i>Morinda cirifolia</i> l.

Community, Ecology, and Religion:
Interdisciplinary and Civic Engagements towards Sustainable Living
15th February, 2019 – UNHI, Denpasar, Bali

98. Mahkota Dewa	<i>Phaleria macrocarpa</i> (Scheff) Boerl.
99. Mangosteen	<i>Garcinia mangostana</i> L.
100. Meniran	<i>Phyllanthus urinaria</i> Linn.
101. Murbei	<i>Morus alba</i> / <i>Morus australis</i> Poir
102. Mahogany	<i>Swietenia mahagoni</i> (L.) Jacq
103. Matoa	<i>Pometia Pinnata</i> L.
104. Majapahit	<i>Aegle marmelos</i> (L.) Corr
105. Nusa Indah	<i>Mussaenda pubescens</i> Ait.f.
106. Shell pineapple	<i>Rhoeo discolor</i> (L.Her) Hance
107. Jackfruit	<i>Artocarpus heterophyllus</i> Lmk.
108. Ophiopogon	<i>Ophiogon Japanicas</i> (L.) Ker-Gawl
109. Aromatic pandanus	<i>Pandanus Amaryllifolius</i> L.
110. Banana	<i>Musa paradisiaca</i> L.
111. Pencil cactus	<i>Euphorbia Tirucalli</i> L.
112. Horse whip plant	<i>Stachytarpheta Jamaicensis</i> (L) Vahl.
113. Bitter melon	<i>Momordica charantia</i> L.
114. Papaya	<i>Carica papaya</i> L.
115. Water balsamina	<i>Impatiens balsamina</i> Linn.
116. Pacing	<i>Costus speciosus</i> (Koenig) J.E. Smith
117. Betel nut	<i>Areca catechu</i> L.
118. Croton	<i>Codiaeum variegatum</i> (L) BL
119. Gotu kola	<i>Cenrella asiatica</i> (L.) Urban
120. Nutmeg	<i>Myrtica fragrans</i> Houtt.
121. Purnajiwa	<i>Euhresta horsfieldii</i> Benn
122. Rambutan	<i>Nephelium Lappaceum</i> L.
123. Bay leaf	<i>Syzygium polyanthum</i>
124. Celery	<i>Apium graveolens</i> L.
125. Sawo	<i>Manilkara zapota</i> L.
126. Soursop	<i>Annona muricata</i> L.
127. Lemongrass	<i>Andropogon citratus</i> DC
128. Cananga	<i>Cananga odorata</i> L.
129. Sambiloto	<i>Andoraphis paniculata</i> Ness.
130. Sosor Bebek	<i>Kalanchoe pinnata</i> (lam) Pers
131. Sisik Naga	<i>Drymogloossum piloselloides</i> (L) Presl.
132. Sambang Darah	<i>Excocaria cochinchinensis</i> Lour.
133. Wild heliotrope	<i>Blumea balsamifera</i>
134. Sente	<i>Alocasia macrorrhiza</i> (L.) Schott.
135. Common lemongrass	<i>Cymbopogon citratus</i>
136. Sidowayah	<i>Woodfordia floribunda</i> Salisb.
137. Longevity spinach	<i>Gynura procumbens</i> (Blume) Miq.
138. Sangitan	<i>Sambucus Javanica</i> Reinw.
139. Betel leaf	<i>Piper betle</i>
140. Red betel leaf	<i>Piper crocatum</i> Ruiz.
141. Suji wood	<i>Pleomele Angustifolia</i> N.E.Brown.
142. Sweet basil	<i>Ocimum basilicum</i> L.
143. Som Jawa	<i>Talinum paniculatum</i> Jacq Gaertn.
144. Sappanwood	<i>Caesalpinia sappan</i> L.
145. Sweet lemongrass	<i>Cymbopogin nardus</i> L./ <i>Citronella</i> grass L.
146. Deer horn fern	<i>Platyterium bifurcatum</i> Desv.
147. Waterlily	<i>Nympahea lotus</i> L.
148. Madagascascar periwingkle	<i>Catharanthus roseus</i> (L.) G.Don
149. Scaber	<i>Elephantopus scaber</i> L.
150. Takokak	<i>Solanum torvum</i> Swartz
151. Turi	<i>Sesbania grandiflora</i> (L.) Pers
152. Curcuma	<i>Curcuma xanthorrhiza</i> Roxb.
153. Giring curcuma	<i>Curcuma heyneana</i>
154. Black curcuma	<i>Curcuma aeruginosa</i> Roxb.
155. Fingerroot	<i>Boesenbergia padurata</i> (Roxb.) Schlet
156. White curcuma	<i>Curcuma zedoaria</i>

157. Temu Tis	<i>Curcuma purpuraacens</i> Bl
158. Waru Landak	<i>Hibiscus mutabilis</i> L.
159. Nocturnal lotus (wijaya kusuma)	<i>Epiphyllum oxypetalum</i> Haw
160. Spadewood	<i>Hibiscus tiliaceus</i> L.
161. Zigzag	<i>Pedilanthus tithymaloides</i> (L.) Poit

Based on the list of medicinal plants under supervision of the Ministry of Agriculture (based on Minister of Agriculture Decree Number 511 Year 2006) only 33 species (50%) of the list were successfully cultivated in a sustainable manner (table 2) at IPSA. Other types of medicinal plants not included in the list are planted on the basis of two considerations, namely its potential as a medicinal plant is based on local wisdom of the local community and continuity of efforts to preserve the existence of these types of medicinal plants because they are considered to have become rare. Thus, in the next period a more in-depth study can be carried out to see the potential of these medicinal plants so that they can be developed into new types of traditional medicines or complement the formulations of existing types of traditional medicines.

Types of medicinal plants which are cultivated are still considered based on the scale of economic importance (from high to low). Types of medicinal plants that occupy the most composition in a traditional medicinal product will occupy the largest portion to be cultivated. Rhizomes such as ginger (*Imperata cylindrical* (L) Beauv), turmeric (*Curcuma domestica* Vahl.), Galangal (*Galangal alchemy* (L) Willd), kencur (*Kaempferia galanga* L.), and curcuma (*Curcuma xanthorrhiza* Roxb) are the most popular types.

Voluntary cultivation of medicinal plants which is used as raw ingredients for making traditional medicinal plants by IPSA is one of the strategic steps to optimize yields and ensure product quality. Domestication and cultivation also reduce the pressure of collecting wild medicinal plants whose quality might not meet the production

standards. Product quality is very important to maintain the safety and efficacy of traditional medicines, as well as to maintain the credibility and trust of consumers [17-19].

In addition, cultivation is also intended to reduce over-exploitation and unsustainable harvesting, as a major problem in illegal collection systems. Utilization of medicinal plants without conservation efforts often leads to species scarcity, especially for endangered species [20-22], as for example what happened in Java and Borneo [23,24].

Medicinal Plant Commodity	
Indonesian/common names	Scientific names
1. Narcissus	<i>Crynum asiaticum</i> L.
2. Bangle ginger	<i>Zingiber montanum</i>
3. Indian fleabane	<i>Pluchea indica</i> (L.) Less
4. Bitter grape	<i>Tinospora Crispa</i> (L) Miers
5. Red fruit	<i>Pandanus Conoideus</i> Lamk.
6. Grass jelly	<i>Cyclea Barbata</i> Miers.
7. Wungu spinach	<i>Graptophyllum pictum</i> (L) Griff
8. Ginger	<i>Imperata cylindrical</i> (L) Beauv
9. Lime	<i>Citrus aurantifolia</i> Swingk.
10. Cardamom	<i>Amomum cardamomum</i> Willd
11. Kecubung	<i>Amomum cardamomum</i> Willd
12. Basil	<i>Ocimum xcitriodorum</i> Vis.
13. Galangal	<i>Kaempferia galanga</i> L.
14. Turmeric	<i>Curcuma domestica</i> Vahl.
15. Common galangal	<i>Alpinia galangal</i> (L) Willd
16. Aloe vera	<i>Aloe vera</i> L.
17. Mahkota Dewa	<i>Phaleria macrocarpa</i> (Scheff) Boerl.
18. Morinda fruit	<i>Morinda cirifolia</i> l.
19. Shell pineapple	<i>Rhoeo discolor</i> (L.Her) Hance
20. Water	<i>Impatiens balsamina</i> Linn.
21. Bay leaf	<i>Syzygium polyanthum</i>
22. Sambiloto	<i>Andoraphis paniculata</i> Ness.
23. Sweet basil	<i>Ocimum basilicum</i> L.
24. Sembung	<i>Blumea balsamifera</i>
25. Lemongrass	<i>Cymbopogon citratus</i>
26. Betel leaf	<i>Piper betle</i>
27. Tapkliman	<i>Elephantopus scaber</i> L.
28. Giring curcuma	<i>Curcuma heyneana</i>
29. Black curcuma	<i>Curcuma aeruginosa</i> Roxb.
30. Fingerroot	<i>Boesenbergia padurata</i> (Roxb.) Schlet
31. Curcuma	<i>Curcuma xanthorrhiza</i> Roxb
32. White curcuma	<i>Curcuma zedoaria</i>
33. Night lotus	<i>Epiphyllum oxypetalum</i> Haw

Based on the list of medicinal plants under supervision of the Ministry of Agriculture (based on Minister of Agriculture Decree Number 511 Year 2006) only 33 species (50%) of the list were successfully cultivated in a sustainable manner (table 2) at IPSA. Other types of medicinal plants not included in the list are planted on the basis of two considerations, namely its potential as a medicinal plant is based on local wisdom of the local community and continuity of efforts to preserve the existence of these types of medicinal plants because they are considered to have become rare. Thus, in the next period a more in-depth study can be carried out to see the potential of these medicinal plants so that they can be developed into new types of traditional medicines or complement the formulations of existing types of traditional medicines.

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Table 2: List of supervised medicinal plant commodity by ministry of agriculture as cultivated at the IPSA.

Medicinal Plant Commodity	
Indonesian/common names	Scientific names
1. Narcissus	<i>Crynum asiaticum</i> L.
2. Bangley ginger	<i>Zingiber montanum</i>
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13. Galangal	<i>Kaempferia galanga</i> L.
14. Turmeric	<i>Curcuma domestica</i> Vahl.
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18. Morinda fruit	<i>Morinda cirifolia</i> l.
19. Shell pineapple	<i>Rhoeo discolor</i> (L.Her) Hance
20. Water	<i>Impatiens balsamina</i> Linn.
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22. Sambiloto	<i>Andoraphis paniculata</i> Ness.
23. Sweet basil	<i>Ocimum basilicum</i> L.
24. Sembung	<i>Blumea balsamifera</i>
25. Lemongrass	<i>Cymbopogon citratus</i>
26. Betel leaf	<i>Piper betle</i>
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28. Giring curcuma	<i>Curcuma heyneana</i>
29. Black curcuma	<i>Curcuma aeruginosa</i> Roxb.
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31. Curcuma	<i>Curcuma xanthorrhiza</i> Roxb
32. White curcuma	<i>Curcuma zedoaria</i>
33. Night lotus	<i>Epiphyllum oxypetalum</i> Haw

3.2 Maintaining Sustainable Stock of Medicinal Plant

Along with the rapid development of traditional medicinal industry, maintaining the sustainability of medicinal plants is very important. Organic farming is the way used by IPSA in the cultivation of medicinal

plants to keep the existence of medicinal plants.

The choice of method is based on several rationales. First, organic option can provide protection to medicinal plant ecosystems from chemical residues due to the use of synthetic pesticides, chemical fertilizers, and other additives. Second, the naturalness and integrity of product results can be maintained. Third, consumer interest in the use of organic products can be increased.

Effective micro-organisms (EM) technology has been developed to support organic cultivation in producing safer, healthier consumption of medicines and free of harmful chemicals. EM technology is a mixed culture of beneficial and natural microorganisms that is applied as an inoculant to increase the diversity of soil microbes, plants, livestock, and ecosystems in order to be maintained in a sustainable way. EM contains selected microorganism species such as:

- Lactic acid bacteria: *Lactobacillus plantarum*; *L. casei*; *Streptococcus Lactis*.
- Photosynthetic bacteria: *Rhodopseudomonas palustris*; *Rhodobacter sphaeroides*.
- Yeast: *Saccharomyces cerevisiae*; *Candida utilis*. (Commonly known as *Torula*, *Pichia Jadinii*).
- *Actinomycetes*: *Streptomyces albus*; *S. griseus*.
- Fermented mushrooms: *Aspergillus oryzae*; *Mucor hiemalis*.

All micro-organisms are compatible with each other and coexist in liquid or dry culture. EM is an additional dimension for optimizing agricultural and environmental management practices [25].

EM technology is based on the results of research [25] which shows that soil microorganisms are important in breaking down organic matter and recycling their

nutrients to be absorbed by plants. Soil productivity is generally reduced because soil organic matters diminish (caused by soil erosion, the presence of residual waste absorbed by the soil, or absorption of chemical wastes). When this happens, the total soil microbial population and biodiversity will tend to decrease.

As soon as this technology is applied to the soil surface or leaves of plants, the population of photosynthetic bacteria and nitrogen-fixing bacteria increases dramatically. This phenomenon is related to stronger plant growth, higher crop yields, and better plant quality (based on vitamin C content and higher sugar in fruits) compared to without EM treatment. It is estimated that high amounts of photosynthetic bacteria and nitrogen-fixing bacteria in the soil and leaf surfaces might increase photosynthesis rates and plant efficiency, and their nitrogen-binding capacity [25].

Organic farming methods that combine scientific knowledge about ecology and modern technology with the cultivation of traditional medicinal plants can be an ecological production management system that can enhance and promote biodiversity, biological cycles and biological activities of soils. With the support of the health of the soil ecosystem, the wealth of traditional medicinal plants can be maintained in the long period of time.

When explored more deeply, the cultivation of medicinal plants with due regard to harmony with nature is inseparable from the influence of the cultural point of view of the Balinese people in seeing nature that leads to ecocentrism [26]. Human relations and nature are seen as an inseparable or independent entity, but related to the other. This is considered very important because actually life also depends on geological and geomorphological aspects to maintain it and biodiversity also has

intrinsic value [27,28]. The concept of local wisdom is always a reminder that:

- Environmental sustainability plays an important role because it does not only relate to humans but also to God.
- Respecting the traditions that have been passed down for generations to protect the environment is very important.
- People are the environment and the environment is the people; people are united and identified with nature. A sustainable environment reflects the people who live in harmony, and vice versa when there is damage to nature, people's lives in it tend to be in disharmony.
- The environment provides sustenance, but people need to use it appropriately and in a sustainable way.

3.3 Sosio-Cultural and Economic Dynamic

Traditional herbal medicines are rooted in the indigenous knowledge system (local genius) of the local community. This cognitive system plays an important role in decision making regarding the use of medicinal plant resources that are embedded in the culture and lifestyle of Bengkel Village community.

Medicinal plants were originally planted in the yard as a household natural drugstock if family members experience health complaints. People prefer to use medicinal plants as first aid, because it has fewer side effects and is easy to find in the environment around them.

The most widely planted species are rhizomes because they are easily planted under any conditions and with limited land. This type of plant is also most often used and consumed by families on a small scale as a need for spices by the local community.

The methods of processing medicinal plants are very diverse, some are done by boiling, frying, baking, kneading, pounding, pulverizing, and fermenting. How to use it

varies. The methods used are *simbuh* 'sprayed', *ketel* 'dripped', *encak* 'crushed', *boreh* 'balm', drunk, eaten, swallowed, compressed, and smeared.

The main aspect that can be seen from the practice of using medicinal plants in Bengkel Village is its subjectivity to the community and culture where they are. Practically, the use of medicinal plants is very closely related to existing plant resources, culture, and beliefs held by the local community [29]. The prescription for drug uses is written in the palm-leaf manuscripts which are only passed down from generation to generation in a family. This then makes it exclusive and unique.

Utilization of local wisdom-based plants is then developed by IPSA by utilizing modern technology (EM technology). IPSA researchers work backwards to look for compounds that are clinically useful in medicinal plants used traditionally and how to maximize them using technology. The combination of traditional and modern knowledge then produces traditional medicinal products that have been clinically tested and standardized. Such a system is considered to provide many benefits:

- It can preserve the original knowledge (local genius) of the local community regarding the use of medicinal plants to deal with health problems.
- It maximizes the potential of the drug possessed
- It Emerges new drug potentials
- It Expands the reach of marketing traditional medicines, along with the increasing interest in traditional medicines due to the assumption that modern health facilities are expensive, dangerous, and less friendly.

The existence of IPSA more or less eventually changed the perspective of local communities about medicinal plants. They realize that besides the health benefits there is an economic value that they can get from the medicinal plants they have. Many villagers began to plant medicinal plants needed by IPSA to produce traditional medicines. Medicinal plants that they originally planted to meet the needs of families, are now being grown for the purposes of meeting the raw ingredients of the traditional medicinal industry.

Cultivation of medicinal plants involves many stakeholders ranging from the process of planting, caring, harvesting, drying, transporting, extracting, as well as providing economic benefits for local residents. All processes are carried out by local people, although the role of gender in the chain of processing activities is not very clear.

Some of the facts above clearly show that the cultivation of medicinal plants in IPSA has led to many positive impacts both on the existence of the preservation of medicinal plants, culture, and the economy of the surrounding community.

IV. Conclusion

This study shows that the Balinese still preserve their rich ethnobotanical knowledge through the cultivation of medicinal plants. There are 161 types of medicinal plants that have been successfully cultivated, 33 of which are types of plants supervised by the Ministry of Agriculture. The development of organic medicinal plant cultivation using EM technology can maintain ecological balance, increase the safety of agricultural products, and support the sustainability of biodiversity.

Medicinal plant cultivation at IPSA, Bengkel Village has succeeded in changing the development of conventional agriculture into medicinal plant cultivation that is able to integrate environmental construction with cultural preservation and economic

development. One third of this cultivation can ultimately protect the preservation of biodiversity, local culture in terms of utilization of medicinal plants, while increasing the stability and sustainability of ecosystems and increasing economic development of Bengkel Village.

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Ornament Commodification of *Tatah Bade* in The *Ngaben* Ceremony in Denpasar

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Abstract

The technology development in modern Balinese era in Denpasar influence towards the making of *Tatah Bade* ornaments in *Ngaben* ceremony which commoditized into new form that is as an individual economics tools so that the author is interested to study into a research with title: Ornament Commodification of *Tatah Bade* in *Ngaben* Ceremony in Denpasar. With research problem: What causes the ornament commodification of *Tatah Bade* in *Ngaben* ceremony in Denpasar, how is the form of the commodification, and is there implication that happen in society related to the ornament commodification of *Tatah Bade* in *Ngaben* ceremony in Denpasar. This research aimed to know the commodification level that occur in the ornament of *Tatah Bade* in *Ngaben* ceremony in Denpasar which is mass-print produced as a sign of commodity for the benefit of the market. As well as it is useful as documentation knowledge development related to the ornament commodification of *Tatah Bade* to the next generation in the world of fine art of Hindu religion. This research is the form of scientific qualitative research, the words that happen in the field according to the opinion of scientist Milles Huberman. It uses 3 theory bases, such as popular culture theory, commodification theory, and social changes theory. The data collection technique used observation, interview, and documentation study with the interpretation of Milles Huberman's interpretative descriptive data analysis. The analysis result can be concluded are what causes the occurrence of ornament commodification of *Tatah Bade* in *Ngaben* ceremony in Denpasar are internal factors include the lack of culture, solidarity, tradition transmission, external factors include education, economy, technology and media, tourism. The form of ornament commodification of *Tatah Bade* in *Ngaben* ceremony in Denpasar. Production (production process: printed/screen printing: sketch, *ngorten*, *copy skringk*, printed/screen printing, Distribution (marketing into screen printing artisan, *Bade* maker). Consumption (*Ngaben* ceremony tools) (Decoration and Art). Implication impact that occurs in society related to ornament commodification of *Tatah Bade* in *Ngaben* ceremony: the impact of changes in religious rituals, the changes of society's mindset, solidarity.

Keywords: commodification, ornament, *Tatah Bade*, *Ngaben*, Denpasar

I. Introduction

Tatah Bade ornaments in *Ngaben* ceremony in Denpasar is an unique artwork which is full of educational value of Hindu's fine art in it. *Tatah Bade* ornaments as a medium of purifying symbol in

Ngaben ceremony in Denpasar.

Tatah Bade ornaments are made by sangging, artist, carving undagi, with process of sacralization begin with choosing a good day to make sketch, *ngorten*, carving, decorating, Nyawi until *mengurip-urip* and *pemplaspasan* *Bade's* *Pasupati*. In

accordance with the development of globalization era in making of *Tatah Bade* ornaments, it was made through religious ritual process, now, it is done and produced massively through screen printing technique, without considering ritual value contained in it with purpose of achieving market profit. Until now *Tatah Bade* ornaments have undergone commodification and commercialization. Thus, the writer is interested with the uniqueness and the happening phenomenon to be investigated in this research with title: Commodification *Tatah Bade* Ornaments in *Ngaben* ceremony in Denpasar. The research problems are: 1. What caused the happening of commodification of *Tatah Bade* ornaments in *Ngaben* ceremony in Denpasar? 2. How is the form of commodification of *Tatah Bade* ornaments in *Ngaben* ceremony in Denpasar? 3. What are the implication impacts that happen in society related to the commodification of *Tatah Bade* ornaments in *Ngaben* ceremony in Denpasar?

The purpose of this research is to know the level of commodification that happen in *Tatah Bade* ornaments in *Ngaben* ceremony in Denpasar which are produced through massive printing as a commodity for market interests. This research is also useful as the development of scientific documentation for the regeneration of successors in the world of Hindu's fine art.

II. Discussion

A. What caused the happening of commodification of Tatah Bade ornaments in Ngaben ceremony in Denpasar?

a. Internal Factor

1) The lack of cultural transmission

Changing can be defined conceptually as development, shifting, component or certain cultural sub-system substitution in certain development and also happen in certain social environment, Aron Meko Mbete (2006:19) stated that the shrinking function of cultural components, are also the features of cultural dynamics.

The above scientist explained that culture can develop and shift from the real form leads to a form of cultural shift and novelty. Related to this research, commodification *Tatah Bade* ornaments in *Ngaben* ceremony which used to be sacred object that is believed by the people of various ritual object, in this global era has become profane objects that has been modified in the form of novelty that refers to the world of global marketing. It is caused by the lack of cultural transmission from the eldest, spiritualist who pursues the world of ornaments to the regeneration of successors of the cultural component icon where the ancestors in certain places could not transmit the world of speech culture transmission to their child and grandchild. This caused the culture in this globalization era is quickly overhauled and practically changed without considering the religious ritual norms. From the explanation of the scientist above related to the commodification of *Tatah Bade* ornaments in Denpasar in *Ngaben* ceremony caused by the lack of

cultural transmission which gradually decreased.

2) Solidarity

(Geertz, 1992:97) stated that solidarity is actually shows how the related society sees, feels, and thinks about their world and act over their cultural values.

Scientist Geertz explained that in doing their living habits in certain places clearly can see their culture, feel the owned and think about world and act to preserve their cultural values that contained in it which are done with solidarity from children to elder adapted with high solidarity towards their environment. If we compare in this modern era, solidarity has decreased such as in believing cultural values related in this research. Thus, solidarity brings important role in preserving the live and the development of something in its environment, where the solidarity can bring forward and backward, shifting and firmness of the attitude in culture. Related to this research shows the lack of solidarity of social society according to the scientist above until it fell into cultural standard of ornaments in religious

ritual becomes shifted to the world of novelty, of course we as the society of Denpasar should look inside, think to fix this world of commodification.

Tradition

A construction is the imagination of the people in the world of understanding objects through symbols in understanding something power that is outside themselves. (Tanner, 1976:19).

From the description of scientist Turner above explained that *Tatah Bade* ornaments is an understanding of imagination constructive objects in the world of understanding objects which cannot be seen with the power of illusion world, therefore it is made a construction object that has various form creatively, where in Hindu society in Bali has become habit tradition from racial genealogical history of ancestors up to now and in the future is made into a tradition that was received from our ancestors. Therefore, we as Hindu's people are very important to believe and preserve the world of tradition related to symbol of *Tatah Bade* ornaments in this research. Thus, if society feels less and degenerates

where the tradition understanding will cause the destruction of cultural aspect they have so the tradition is the fundamental power to preserve a culture in certain place.

B) External factor

1) Education

Education is the process of changing attitude in an attempt to mature the people through the process of education that related to knowledge (Tim Penyusun, 2009:204) Hamalik (2003:2), later stated that education is the conscious and planned attempt that education is held based on mature, steady, clear, complete, comprehensive plan based on the rational and objective thought. Related to above matter, education is also interpreted as cultural transformation; education means the activity of cultural inheritance from one generation to another generation. The cultural values undergo the process of transformation that is the values that suitable to be continued, for example the honesty values, sense of responsibility, etc. (Tirta Rahardja 2010:33) so that education is a conscious component which is

done to its direction which is held responsible for growth and development of a child so that the growth and development of the child which later on can grow into good person physically and spiritually. The process of education does not only take place formally at school, family, but also take place in all social environments. In the process of child education gains the educational knowledge, science, insight, and skill from other ways that later can be useful in their lives.

Related to this research, from the educational knowledge system owned by the product entrepreneur will flow the sense of learning to look for something that looks different in front of the colleagues, as well as in development of commodification that need knowledge of responsibility with honesty personality in itself in the face of global market.

2) Economy

Economy is the cause of commodification of *Tatah Bade* ornaments in *Ngaben* ceremony in Denpasar. The involvement of screen

printing figures, artists, and Bade makers in economy sector were motivated because of the desire to increase the family income to create a prosperous family. With the child education that suitable with the development of globalization will commensurate with the demands of increasing needs in all aspects of live (ITB, 1993:47). Moreover, the development of economy in Balinese tourism also supports the Bade artists to actualize themselves to become independent business Bade artist in Denpasar. For the Bade business in Denpasar, they get influence from the direction of economy that bring major role to develop aspirations, hopes, and images of aspired future.

Economy brings influence of the formation in all live inspirations that cannot be freed from two things namely:

1. The desire to develop ourselves (interest/encouragement, individual ideals) is the impulse that comes from within.
2. The desire to fulfill responsibility in accordance to what being expected in individual social environment (Ihmromi, 1995:316),

from the opinion of scientist Ihmromi above, it can explain that economy bring major influence in the development in all field both spiritually and physically because as individual creatures have desire to live, develop to fulfill daily needs because of being motivated to actualize themselves to increase the economical family welfare.

3) Technology and Media

Modern technology like screen printing, printing technique are the answer to overcome the problem of fulfilling the needs of commodities of *Tatah Bade* ornaments in *Ngaben* ceremony in Denpasar in large number and massive. This means practicality and efficiency cannot be denied. As said by John Naisbit in his book “High Tech High Touch” (Soetrisno, dkk, TT: 70-71), technology brings us the more modern life that demands an easy-paced, fast paced, and better, which means technology does not stop to offer quick solution and technology vow to make human’s life become better, make people smarter, improve the people’s performance and make people become happy, technology

can enter all people life’s order from heredity cultural tradition to the middle class society to modernization.

Printed media develop harmoniously with the development of technology in society realm, other than electronic mass media, printed mass media is also used to promote *Tatah Bade* ornaments to every *Bade* craftsman or ceremony organizer. According to Kasiyan (2009:159) is a static media and prioritize the visual messages.

Several printed media have been used by *Bade* business in Denpasar that have big role and influence the creation of commodities so that it vastly well-known abroad, so that the consumer become vastly aware of the artwork product of the creator.

4) Tourism

The development of tourism in Denpasar bring major influence of the rapid commodification of the products, until it enter the realm of religious tools as productivity like *Tatah Bade* ornaments that is used in *Ngaben* ceremony until it is being in demand as tourism performance. Other than as foreigner motivation to

visit Denpasar and around that have custom and unique religious practical way like natural beauty, climate, weather, art, history, foods, hospitality of the people, ability, and convenience of travelling in certain places until the cultural ways, ritual tools, its religious (Spillane, 1994:64), so that from years to years the arrival of foreigner guests to visit tourism in Bali has increased, that open the opportunity to bring up various job like commodification of *Tatah Bade* ornaments in *Ngaben* ceremony that has purpose as the source of complex livelihood, so that this opportunity is increasingly in demand as the arena of foreign tourism destination.

2] How is the form of commodification of *Tatah Bade* ornaments in *Ngaben* ceremony in Denpasar?

A] Production

The production of *Tatah Bade* ornaments in *Ngaben* ceremony in Denpasar use cooperation model that felt to be more profitable, because in the short time and limited labor, it can produce same type of *Tatah*

Bade ornaments in a much bigger number. Very different with the conventionally made *Tatah Bade* ornaments which is carved by hand because it requires energy, thought, and longer time to make an ornament. In connection with the general opinion above, scientist Jaques Ellul (Poesporoardojo 1989:88-89) stated that the use of technology in modern society makes the society become technological in nature. The life patterns of modern society are determined by the motive of pursuing productivity both in the form of goods and labor, prioritizing work efficiency, and regulating life in mechanically rational order. In relation with the opinion of the scientist above, the working production of *Tatah Bade* ornaments in *Ngaben* ceremony in Denpasar use screen printing technique, because it felt more practical, efficient in term of time and produce artwork in a big number. The production process begin with initial step started with sketch, that is making image pattern in a paper, after the pattern is believed to be right and good, continue with the process of

pengortenan that is sharpen the sketch with pen, and after being *orten*, the artwork is copied into *skrink* paper, the last is screen printing process in a rectangular span frame with lubricating oil. Regarding with the screen printing technique that is being used in producing *Tatah Bade* ornaments especially in *Ngaben* ceremony in Denpasar, as stated by *Tatah Bade* craftsman.

I produce *Tatah Bade* ornaments in the making of *Tatah Bade* because of time and power limitation, I felt overwhelmed if there is a lot of *Bade* orders at the same time. So that, in the stage of carving ornamentation, I use screen printing technique to speed up my production, I felt that if I carved manually, *Tatah Bade* ornaments will take a long time. (Interview at 02 January 2020, the craftsman: Ida Bagus Artayana).

The production system of *Tatah Bade* ornaments is done by determination between offering maker, *Bade* craftsman, *Ngaben* ceremony organizer, and screen printing artisan that tightly intertwined in rotating the wages for

the interest of market production, so this production way is called as production relation according to Marx (Berry 1983:200).

The production relationship is the social relationship, the idea of production ways as well as capitalist society that describe the relationship between workers and employer, equipment used by coworkers and the form of activity.

The grouping method that has been and being used in producing *Tatah Bade* ornaments is the input of many parties between screen printing man, container craftsman, draw men, and offering maker, and *Ngaben* ceremony organizer that work based on clear labor division system, each of which has clear responsibilities. Each has responsibility for the production of elements of *Bade* ornaments that become one of characteristics of Fordism organization (Barker, 2005:136) namely the organization of labor based on specialization and division of labor.

Looking at the work production above, it can be stated that *Tatah Bade* ornaments which is screen

printed in *Ngaben* ceremony in Denpasar is produced by economical measuring and calculation that eventually become a commodification that is decent for sale and purchase.



Production of screen printing technique of *Tatah Bade* Ornaments

Doc : I Kadek Sumadiyasa, on 28th December 2019

B] Distribution

Related to the market ideology of *Tatah Bade* ornaments in Denpasar which is distributed to the production relations namely by establishing cooperation in business relation and participated by a number of workers that is distributed to the draw men, Bade craftsman, offering maker, and *Ngaben* ceremony organizer, almost

all workers that involved in the distribution system drained their energy to get wages, then *Tatah Bade* ornaments is distributed and offered with various ways with purpose to attract as many consumers as possible, the logic is that the more consumers, the more profit being obtained.

C] Consumption

When the production and distribution of *Tatah Bade* ornaments is carried out in Hindu modern life in Denpasar, it is based more on the desire to add market needs (read: seeking profit) and is not emphasized in deepening the people mental spiritual, thus the capitalism image cannot be avoided. The cause of this condition or commonly called as commodification is the globalization in which it loaded with Neoliberalism cored with market ideology. The possible idea of Bourdieu (Fashri 2009:164), Neoliberalism has some characteristics cored that everything is item that can be traded to get profit, related to the scientist opinion above that as the basis of consumption (the religious

ceremony/*Ngaben* organizer) chooses as consumer of *Tatah Bade* ornaments in *Ngaben* ceremony to be sold and purchased as means of necessity.



Tatah Bade Ornaments that has become religious artwork of Hindu
 Doc : I Kadek Sumadiyasa, on 02nd January 2020

As decoration of *Tatah Bade* ornaments is functioned as decoration ornaments of holy building *Bade Piasan*, *Bale* building of *periangan*, *pelemahan*, *pewongan*, to beautify space decoration. As art, it means beauty (Diksi Rupa by Miksusanto 2000:20). The work of commodification of *Tatah Bade* ornaments in the contemporary times as imagination subject matter in artwork to develop knowledge and ideas in art both painting and drawing and others.

3] The impacts that happen in society related to the commodification of *Tatah Bade* ornaments in *Ngaben* ceremony

A] The Changing Religious Ritual Impact

Following the idea of Marx, the expansion commodification of the capitalist needs in Denpasar society that has extend impact to influence the super ideology structure including in it is the religious ritual system that increasingly depleting and even seemingly empty. Example in making *Tatah Bade* ornaments in *Ngaben* ceremony, for example as a ritual tools and a religious process that should be carried out as religious ethics, are now transformed into mass screen printing activity that is pioneered by capitalist groups, where in *Tatah Bade* ornaments or in the process there is sign of life symbols that we always glorify, for the organizer now become traded commodity, or the market of making *Tatah Bade* ornaments that deliberately conceived, produced, and packaged to be offered to the people that use it until there is buying and selling practices (market) in the realm of religious ritual that strongly influenced by market ideology. In the implied practices or

purpose that is to seek for money profit.

B] Lack of Social Solidarity

Observing the development of social religious life in the present time in Denpasar in preparing the religious symbol equipment like the equipment of *Ngaben* ceremony especially in making *Tatah Bade* ornaments, requires considerably lot of time and energy. In this era, the happening of declining of social solidarity of the society is because they are required to work instantly fast and practice in presentation. Society in fulfilling the standard process of the making of *Tatah Bade* ornaments in *Ngaben* ceremony, they tend to buy the carving of the *Tatah Bade* in screen printing posts, printing craftsman and offering maker markets that present it, it related to market ideology adopted by the cooperation between capitalists that is based on the economical calculation, cost that need to be spent to be able to consume the facilities of *Tatah Bade* ornaments cheaply, do not spent a lot of time and energy used. Therefore, time and energy can be used as work

to get wages, means that they do not need to prepare, conceptualize, and do everything that very troublesome, according to them, it is practical, efficient, and fast according to condition of this era that full of dynamic. It causes the social solidarity feeling of Denpasar society weakened and even there is no grouping system to prepare the tradition of carving *Tatah Bade* in this era, until the feeling of *segilik selunglung sebayantaka paras paros sarponaya* of social solidarity is lessened.

C] The Changing of Society Mindset

The equipments in making *Tatah Bade* ornaments in *Ngaben* ceremony now are increasingly splendor being sold as commodities good that bring impact in changing of society mindset.

Various complicated ornaments are now screen printed and being sold with practical style, produced with the purpose for them that include in the work system relationship between the draw men, screen printing craftsman, skrink craftsman, and the organizer of

Ngaben ceremony, in the production relationship always hope to gain profit wages. As the characteristic of capitalist society where movement and time are very valuable, always calculated based on efficiency and affectivity and measured by value, because this is later can be exchanged with various goods to fulfill the life needs. Therefore the market economic system has entered into realm of changing the society mindset both social and religious. Market economic system in this case has purpose as economy system that being dominated by market force (Nugroho, 2006:6) means that goods, objects, and/or service are deliberately produced and become commodities and sold, seek the buyers, or marketed and the value of a commodity is determined by money.

The market economy system does not only determine every aspects of people's life, but also make the money power more increasing, now money is not only as the medium of exchange to get goods, service, or others in market, but also has important role in the

realm of social religious life as this understanding is used as reference in examining the concepts and ideas in Bali, the changing of social religious mindset of society in Denpasar in the making of *Tatah Bade* ornaments in *Ngaben* ceremony.

III. CONCLUSION

1. What caused the happening of commodification of *Tatah Bade* ornaments in *Ngaben* ceremony in Denpasar, such as:

1.1 Internal factor that is the lack of cultural transmission, lack of solidarity, and tradition

1.2 External factor that is education, technology and media, economy, and tourism

2. The form of commodification of *Tatah Bade* in *Ngaben* ceremony in Denpasar

2.1 Screen Printing Production

The production process through the making of sketch pattern, contouring, copy skrink, screen printed. Production system is cooperatively from the draw man, screen printing craftsman, container/Bade maker, offering maker, and the organizer of *Ngaben* ceremony that tightly intertwined.

2.2 Distribution (The process of marketing is done between the draw men, screen printing craftsman, container/Bade maker, the organizer of *Ngaben* ceremony, offering maker).

2.3 Consumption (as the medium of *Ngaben* ceremony, decoration, art).

3. Implication impacts that happen in society related to commodification of *Tatah Bade* ornaments in *Ngaben* ceremony in Denpasar:

3.1 Impact in changing religious ritual from the sacred event to materialistic pragmatic profane

3.2 Impact in changing the mindset and religious life style of the society.

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Harmonization of Balinese Community in *Bale Banjar* Environment Reactualized Function

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Abstract: The process or effort in the form of action, existence, and experience to harmonize so as to produce something that is good and harmonious in society, is very necessary in the current era of globalization. Banjar as a traditional Balinese social organization is a gathering place for Balinese people as well as a space for internalizing values, such as personality, culture and social values. The impact of globalization, among others, advances in technology, information, and socio-economy, resulting in high demand for space, making the banjar experience functional re-actualization, mostly in the city of Denpasar which is the capital of the Province of Bali. This research uses descriptive qualitative method by determining the sample by purposive sampling. Functional reactualization in the banjar building as a container for Balinese human society activities (banjar manners), still applies the Tri Hita Karana concept. Local customary rules or awig-awig, regulate activities related to religious ceremonies, fun activities (menyame braye), and efforts to protect the banjar environment. Although the participation of the banjar manners in various kinds of traditional activities is reduced, it does not reduce the value of community in the banjar container. The concept of Tat Twam Asi, mutual respect and mutual give and take. Deliberation and consensus for mutual interests (sangkep) are also routinely carried out. Profit and practicality are common things but the basic concepts of Balinese human life in the banjar container, are still applied relatively well, because in addition to awareness, hereditary habits, the existence of awig-awig also plays an important role in creating and maintaining social harmony.

Keywords: Harmonization, community, banjar, function actualization

1. Introduction

The basic principles of Balinese social system according to Geria (2000: 63) rests on four main foundations, namely kinship, territory, agriculture, and special interests. Kinship ties have formed a kinship system and kinship groups. Kinship groups range from the smallest unit, the nuclear family, extending to the middle unit of the extended family, to the patrilineal clan. Regional unity bonds are manifested in the form of traditional village communities with their sub-systems in the banjar. Furthermore,

in the bonding of special interest groups it is realized as a sekaa organization.

Traditional institutions are institutions that have existed since ancient times, maintained and adhered to for generations, from one generation to the next. Every community in Indonesia knows or has known this traditional institution. The name or mention is also different from one area to another. Some traditional institutions that are still sustainable in the archipelago, are institutions in traditional Balinese society, namely the Customary

Villages, the Customary Banjar, the Subak and the Sekeha (Rise, 2011).

Bali is one of the regions in Indonesia that is still thick with culture. In this era of globalization, Balinese people tend to adopt modern culture (which may be considered more practical than local culture), while on the other hand, Balinese people are at a crossroads, because they are still promoting adat (Suwardani, 2015). One of the customs that is still maintained and implemented in Bali is the application of the banjar adat or banjar joy and sorrow. Banjar likes and sorrows bind its members based on common customs and cultural traditions that aim to increase the community togetherness in carrying out all activities in joy and sorrow (Wihantari, 2013). Banjar (suka duka) can still survive until now because it has several functions, namely functions in the field of religion; functions in the area of adat, social and culture; and functions in the fields of economy, security, and politics / government (Noviasi, Waleleng, & Tampi, 2015). Kastama (2013) explains that the most important principle in the bond of social awareness at the banjar level is joy and sorrow. This principle is the main basis for activating all activities contained therein.

Banjar adat uses the basic philosophy of balance between man and man, man and nature, and man and his Lord, known as Tri Hita Karana. These three elements are manifested in three zones, namely:

(1) Parhyangan, in the form of a zone where the harmony between humans and God can be realized; (2) Pawongan, in the form of a zone of harmony between humans and their fellow humans; and (3) Palemahan, which is the zone where humans create harmony with their natural environment. Tri Hita Karana and Tat Twam Asi are teachings which are a concept to create harmonious relationships that include human relations with God, human relations and human relationships with the natural environment.

In the current era of modernization, banjars, especially those in the city of Denpasar display a different face. The rapid population growth, the high demand for economic space due to the emergence of a capitalist economy, changes in the mindset of the community, from an agrarian society to an industrial society with high production demands, make the banjar experience functional reactualization. So do not be surprised if many bale banjars in the city of Denpasar become a place to sell, parking, and centers of economic activity.

With reference to the views of Goldsmith and Abdullah in Suryawati (2018), it can be said that the expansion of the function of the banjo bale, especially in the city of Denpasar cannot be separated from the emergence of a money economy that results in socio-cultural mobility in society. Renewal of the banjo bale function from a socio-cultural function to an economic function and

life style is a form of the socio-cultural mobility of the city community which has been uprooted from its traditional values. Bale banjar is not only understood as a space for the formation of social solidarity and internalization of cultural values, but in reactualization (renewal) as an effective value space that can provide long-term economic impact to maintain the existence of banjar life. The expansion of the banjar bale function in Denpasar shows that there is a reorientation and reinterpretation of values in the banjar manners. They re-actualized the function of the banjar bale to the development of the times for the continuation of life in the banjar. The actualization of the function of the banjo bale is done because it is undeniable that the progress of the times has touched all layers of people's lives, including the Balinese people. Whereas Bale banjar is a cultural product of Balinese people which includes socio-cultural activities.

Banjar adat with a system of kinship and culture of mutual cooperation are now transformed into traditional institutions that are full of religious values, customs, arts and culture. This certainly becomes interesting to study further considering the existence of traditional institutions is so difficult to find even marginalized due to the development of the era and globalization. Traditional institutions, especially traditional banjars, are important to understand

their functions and roles because they are one of the supporting elements of the harmonious and harmonious life of ethnic Balinese.

2. Literature Study

2.1 Banjar concept

Socio-culturally religious, the Balinese are formed in a container called the Pakraman village. Micro, in the 'body' of pakraman village, there are also banjar pakraman which are smaller territories. Banjar is a small unit of Balinese social system in carrying out activities as manners bound by a value system covering morals, law and culture. Banjar is also the socio-cultural space of the Balinese people where they carry out communicative actions and cultural education. This is why the banjar's role is very important in Bali. Because since Bali is no longer in the patronage of the castle, the banjar is the cultural space of the people. It can be said that banjar is a cultural product that enlivens and even maintains the existence of Balinese manners over the years. Historically the term banjar is thought to appear in the 12th century.

According to Noviasi et al., (2015) states that adat banjar as an organization or social institution where Balinese interact and share joys and sorrows is very appropriate when examined with structural functionalism theory because it is related to the structure and function of each has a role that cannot be

ignored . In order to maintain the continuity and balance between customs, traditions, culture, economy, and religion in the lives of Balinese people, the banjar adat are formed on the basis of the agreements and interests of their members.

Banjar in Bali is indeed synonymous with social ties of mourning. Banjar is a gathering place for Balinese to discuss common interests. Banjar also becomes a space for internalizing values, both personality, cultural and social values, because manners in one banjar are given social, cultural and religious responsibilities towards other manners. So manners that are in one banjar region are bound to the social norms that exist in the banjar. The existence of the banjar in Bali is indeed very strategic, because ideally the banjar is able to become a bastion of Balinese people in maintaining their socio-cultural identity.

Banjar which is based on social values is known as matching braya, which is the value of life that considers all members of the community are brothers so it is obligatory to help one another and work together. The noble value that has been planted long ago, namely mutual cooperation, has the aim of making people's lives take place in an orderly, natural and peaceful way. No less important, the banjar becomes a space for the creativity and art of young people. In the midst of the narrow land in urban areas, the banjar has become a center of

cultural education for young people. So it can be concluded, the banjar function is not only reflected socially, but also culturally and religiously. It is these three functions that make the banjar immerse a perfect value system.

The current of globalization, of course, has greatly influenced human life, which makes mutual cooperation can experience change because citizens tend to think more modern (Anggorowati & Sarmini, 2015).

2.2 Reactualization of the Bale Banjar Function

Reactualization is a refresher and renewal of community life values. Talcott Parsons defines functions as all activities directed at meeting the needs or requirements of a system. The system, in this case is the customary banjar organization needs space to be able to carry out its functions and roles well in society. Space or facilities that exist are not only a container but also a tangible manifestation that the banjar adat is an important organization that is recognized, run and even managed independently and hereditary in ethnic Balinese communities. Therefore, each traditional banjar must have a traditional banjar bale, as well as other facilities that also play a role in every program and activity in the traditional banjar such as the Temple, Bale Kulkul, Pewaregan (kitchen), and bathroom. The functions of the buildings and facilities are:

- a. Bale Banjar; Bale (in Balinese), also means "balai" (in Indonesian) which means building, house (public), or open building. The main function of Bale Banjar is as a place for sangkep (meetings), paruman (deliberations), as well as a place to prepare traditional and religious ceremonial facilities. In its development bale banjar is also used for government outreach activities, as a place to preserve art such as dance or gamelan, PKK ladies' activities, youth activities. When the Bale Banjar elections are also often used as a polling station (TPS).
 - b. Kulkul (Kentongan Besar); Kulkul functions as a non-verbal communication media to disseminate information to members of the banjar adat. The information is for example about sangkep / meetings, there are deaths, marriages, or shade (mutual assistance).
 - c. Banjar Temple; is a sacred building to hold Hindu religious ceremonies (rituals). On certain holy days that have been designated as worship days at Banjar Temple, all members of the banjar adat come to worship as an expression of gratitude and at the same time ask for grace to Ida Bhagawan Penyarikan so that they will always be given the gift of a harmonious, peaceful, prosperous and harmonious life.
 - d. Pewaregan (Kitchen); serves as a place for cooking or processing food ingredients that will be used in rituals and for consumption together with all members of the banjar adat.
 - e. Washroom (Toilet); This facility is a form of preservation of environmental hygiene and health, especially the environment in the traditional banjar.
- Regarding the function of traditional banjar adat institutions / organizations, it can be divided into three, namely (1) traditional banjar adat functions in the religious field; (2) the function of adat banjar in the fields of adat, social and culture; and (3) customary banjar functions in the economic, security and political / governance sectors.
- a. The Function of Indigenous Banjar in the Field of Religion; Balinese traditional institutions or social organizations that are general such as traditional banjars are actually based on Hinduism and Balinese local wisdom, so that they contain spiritual, aesthetic, and solidarity values (Pitana, 1994: 158). So from a functionalist view, adat institutions simultaneously function to improve religiosity in order to maintain the balance of the entire social system (Hadi, 2006: 57). Banjar adat is also an effective medium for spiritual development.

- b. Banjar Function in the Field of Customary, Social and Cultural Affairs; traditional societies and some modern societies in Indonesia generally are familiar with the existence of a mutual cooperation system, which is a practice carried out by a group of people to do work simultaneously without getting paid in cash or in a certain form (Nasikun, 2003).
- c. Customary Banjar Function in the Field of Economy, Security and Politics / Government; The traditional Banjar becomes the media as well as the target of the socialization / dialogue of village government programs specifically those related to adat and culture. The village government plays an active role in delivering its programs and activities to community members in an adat banjar, of course by continuing to involve the relevant adat leaders. Facilities that are representative enough to make bale banjar adat are often used as the location of polling stations (TPS) in every election or election.

2.3 Society

According to Selo Sumardjan (1964), people are people who live together and produce a culture. According to Paul B. Harton, the notion of society is a group of people who are relatively mandiri, live together in a relatively long time, inhabit a certain area, have the same culture, and

carry out most of the activities in the human group.

A society can be recognized from the characteristics that are in it. The characteristics of society are as follows:

- a. Located in a Specific Area

Referring to the above understanding of society, a group of people inhabits a certain area together and has a system that regulates the relationships between individuals.

- b. Live in groups

Humans are social creatures and will always form groups based on shared needs. This group of people will grow in size and turn into a society that is interdependent.

- c. There is a culture

A culture can only be created if there is a community. Therefore, a group of people who have lived together for a period of time will give birth to a culture that has always been adapted and passed down from generation to generation.

- d. Change Happened

A society will experience changes from time to time because basically the community has a dynamic nature. Changes that occur in the community will be adjusted to the culture that previously existed.

e. There is Social Interaction

Social interaction will always occur in a society. This interaction can occur when individuals meet one another.

f. There is a leader

Rules and norms are needed in a society so that harmonious life can be realized. For this reason, a leader is needed to follow up on the agreed matters so that they can proceed as they should

g. There is Social Stratification

Within the community certain groups will be formed, both based on their duties and responsibilities, as well as their religiosity. In this case stratafikasi done by placing individuals in certain positions in accordance with their expertise and abilities.

In general, society can be divided into two types, namely primitive society and modern society:

a. Primitive / Simple Society

This is the type of society in which there has been no significant development in terms of science and technology in their lives. Generally these communities are still isolated and very rarely interact with other people outside their community.

The characteristics of primitive / simple society are as follows;

1) People are still poor in knowledge and wealth.

2) Still based on ancestral culture.

3) Refuse foreign culture in the community.

4) The leader is chosen based on lineage.

b. Modern Society

This is the type of people who are familiar with the latest science and technology, and use it everyday. Generally the people are very open with new things and often interact with the outside community.

The characteristics of modern society are as follows;

1) The people are very open with new things.

2) Every individual in modern society really values time.

3) Leaders are chosen based on their abilities.

4) Rely more on logic and rational action.

5) The community consists of various tribes and groups.

2.4 Definition of Harmonization

Everything that is good can be translated into harmony. Everything should always be harmonious, in harmony, in balance. The just and the prosperous are harmonious. All behaviors and actions depart from a

harmonious situation to a new harmonious situation.

The elements that can be drawn from the formulation of the sense of harmonization, include:

- a. Excessive tension
- b. Align the two plans by using their respective parts to form a system
- c. A process or an effort to realize harmony, compatibility, compatibility and balance
- d. Collaboration between various factors is such that these factors produce sublime unity.

2.5 Tri Hita Karana and Tat Twam Asi Concepts

In the Hindu concept to create harmony and harmony among fellow human beings, especially religious people and the environment and all the creations of God Almighty (Brahman / Ida Sang Hyang Widi Wasa) are guided by the teachings of Tri Hita Karana and Tat Twam Asi. The teaching is made a very essential concept about how to live harmoniously and harmoniously in a multicultural atmosphere in Indonesia which has its own character compared to other countries in the World. This teaching is sourced from the Vedic Scriptures as a source of teachings for Hindus who must be known, understood and practiced in everyday life both in social, religious, national and state life.

Tri Hita Karana has the understanding of three causes of harmony, namely: harmony of the relationship between humans and Hyang Widi Wasa (God Almighty), harmony of relationships between fellow human beings and harmonious relations between humanity and the natural environment. While the understanding of the Tat Twam Asi that you are me and I am you. The two teachings which become the concept to create harmony and harmony are not only known and understood but the most important thing is to be practiced as well as possible in the community so that the atmosphere that becomes a shared desire can be felt.

Tat Twam Asi means that you are me and I am you. The basic meaning that can be drawn from Tat Twam Asi is how to love oneself as well as to love others even the environment. On that basis, the act of respect for fellow religious communities is very necessary even must be done in everyday life both in the life of society, nation and state.

According to Gantini (2012), bale banjar adat architecture is an architecture that can carry a number of functions (multifunctionality) in architecture, 2) bale banjar adat architecture acts more as a use in architecture, rather than as a function.

2.6 Globalization

Globalization is a worldwide social relationship which is then

connected to each other so that events from different places can also affect other places. Giddens (1994) that the strong influence of global values engulfed this country to remote rural areas, making values in the lives of local people undergo transformation into global values that tend to be materialistic capitalistic. Simply put, the era of globalization can be understood as an era where the advancement of science, technology and means of transportation that drive human life becomes without limitations. Whether it's geographical or cultural boundaries. The theory put forward by Cochrane and Pain which states that there are 3 important main actors in Globalization, namely globalists, traditionalists, transformals.

a. The Theory of Globalization of Globalists

Globalists say that with this globalization will have direct consequences on life throughout the world that there will be a homogeneous cultural attack that will spread throughout the world. Regarding this, positive globalists say that it can make the world community who have a more open mind and tolerant of culture from outside their own culture, but negative globalists say that it can dilute the original culture of each society and consider it also one of the efforts of the superpower to colonize other cultures.

b. The Theory of Globalization of Traditionalists

In this theory are people who do not consider that Globalization is happening, they assume that the current process is the impact of changes that have occurred since ancient times.

c. Theory of Globalization of the Transformalis

is a person who is between globalists and traditionalists, who thinks that it is true that Globalization is happening but is being overrated.

d. Another Theory of Globalization

The second theory of globalization was mentioned by an expert named George Ritzer who said that the era of globalization was marked by developments in the field of communication such as the emergence of telephone and television and then ended with global public awareness about it.

Globalization has its own impact in various sectors of society. The impact of globalization or the effect of globalization can be positive and negative. and among them

a. Positive Impacts of Globalization

- 1) Ease of obtaining information and knowledge
- 2) Increased socioeconomic life

3) Advances in technology, communication, transportation and information that make it easier for humans.

b. The Negative Impact of Globalization

1) The ease with which Western culture enters and influences local cultural values.

2) The fading of cultural values such as mutual cooperation and so on.

3) Environmental damage and increased air pollution

4) The rise of smuggling of illegal and prohibited goods

Then globalization also affects various fields, be it politics, economics, education and the like.

III Research Methodology

This type of research will be used is a type of descriptive qualitative research, which is a research strategy that produces data or information that can. Describe social realities and related events in people's lives. The process of this research is cyclical, not linear, as in quantitative research (Sugiyono, 1992). According to Moelong (2002), said that this qualitative research requires more data in the form of a series of words rather than numbers. Primary data related in this study are data obtained from the first source through direct interviews with informants in Banjar adat, in the city of Denpasar, such as,

Customary Complaints, and religious leaders (pasraman), as well as community leaders who understand that.

Data collection technique

Without knowing data collection techniques, the researcher will not get data that meets the data standards set (Sugiyono, 2006). The data collection techniques used in this study are observation, interviews, literature, documentation and data analysis.

Data analysis technique

Data analysis technique is a method of data processing which is done by using a certain analysis technique so that a valid data is obtained, according to the data analyzed for the technique used is descriptive analysis technique. Analysis is the process of arranging data sequences, organizing them into one basic pattern, category and description unit so that they can be interpreted. Interpretation or interpretation means giving meaning to analysis, explaining patterns or categories and looking for relationships between various concepts. This is done continuously from the beginning to the end of the study to further draw conclusions from the results of the study. In this qualitative approach, data analysis is carried out by connecting and tabulating various findings in the field, then given an interpretation in accordance with the quality of the data and information found so that finally a research report can be presented. Babbie (1979: 221-

224), suggested in conducting research a number of things to be carried out include the following:

- Data analysis was carried out intertwined with the observation process.
- Find similarities and differences regarding the observed social phenomena.
- Form a classification of observed social phenomena.
- Evaluate theoretically to produce conclusions.

The collected data is analyzed qualitatively by using the sharpness of the ratio in analyzing the data obtained by combining the logic of deduction and induction so that the conclusions of the analysis can be obtained.

4. Result and Discussion

The results of observations, surveys, observations, documentation and interviews are as follows:



Figure 4.1 Bale banjar with two floors, the first floor rented is used as a place of business (selling), bale kulkul stands on the roof plate of the

building below it (source: Researcher (2019))



Figure 4.2 Bale banjar with three floors, the first floor rented is used as a place of business (selling), bale kulkul stands on the roof plate of the building below. Looks like a shop building. Source: Researcher (2019)



Figure 4.3 Bale banjar with two and three floors, the first floor rented is used as a savings and loan cooperative, the bale kulkul stands on the roof plate of the building underneath, there are also those standing on the ground.

Source: Researcher (2019)



Figure 4.4 Bale banjar with two and three floors, the first floor rented is used as a fruit selling place, PAUD and kindergarten schools, bale kulkul standing on the roof plate of the building underneath, some are standing on the ground. In one area of the banjar bale building, there are three traditional banjars and at the same time three bale kulkul.

Source: Researcher (2019)



Figure 4.4 Sangkep activity or banjar paruman to discuss something that is done routinely.

Source: Researcher (2019)



Figure 4.5 Religious, art and cultural activities that are still carried out periodically

Source: Researcher (2019)



Figure 4.6 *Ngayah* activities and trainings are still conducted periodically

Source: Researcher (2019)

Most of the banjar bale in the city of Denpasar experienced the actualization of functions, based on field searches of several banjo bale who re-actualized their functions, as a place to sell fruit, food, savings and loan cooperatives, selling clothing, textile materials to schools. Kindergarten early childhood education.

The cause of the actualization of Bale Banjar in Denpasar was the first modernization of the life of the Banjar Manners. Second, the actualization of the function of the banjar bale in Denpasar City is also due to the economic orientation of the community. In the life of modern society, everything is considered to

have economic value - including cultural objects such as the Bale Banjar. Third, the actualization of the function of the banjar bale in Denpasar is also caused by the development of tourism in Denpasar City. The four causes of the actualization of the function of the banjar bale in Denpasar are the accommodative attitude towards government programs. Viewed from the system culture, the actualization of the function of the banjo bale carried out by the banjar manners indirectly changes the way of thinking, ideas and conceptions of society about the function of the banjo bale so far. Furthermore, the impact can also be seen from the material culture, this can be seen from the change in style and appearance of the banjar bale room in Denpasar City which resembles a shop building. More and more bale banjar bale banjars are also designed, two or even three floors.

Reactualization of the function of the banjar bale in Denpasar which is more pro to economic effectiveness has an impact on the weakening of social relations between the manners of banjar so far, in terms of the quantity or number of traditional banjar manners who carry out activities like fun and sad in the traditional environment with the bale banjar as a container for these activities. The re-actualization of the function of the banjo bale in Denpasar has implications for the culture of the community including the way of

thinking, conception, and ideas about culture, as well as cultural objects, as well as art which is part of culture. Even though the participation of the banjar manners in various kinds of traditional activities is reduced, it does not reduce the value of community life in the banjar container (not by not doing adat activities at all). Harmonization according to the Tat Twam Asi concept, mutual respect and mutual give and take, is relatively well implemented. Deliberation and consensus for mutual interests (sangkep) are also routinely carried out. Religious arts, culture and social activities, such as ngayah activities and training to strengthen the kinship in an adat environment, are still relatively well done. In the era of globalization, profit and practicality are common things, but the basic concepts of Balinese human life in the banjar container, are still relatively good, because besides awareness, hereditary habits, the existence of awig-awig also plays an important role in creating and maintaining social harmony.

5. Conclusion

From the foregoing description, it can be concluded that the actualization of the function of the banjar bale as a "place" or container in carrying out various activities has an impact on the weakening of mutual cooperation values through the menyame braye pattern in carrying out activities of ups and downs of the banjar adat in the banjar adat. Denpasar city. This can

be seen especially in the quantity or number of traditional banjar manners that are quiet during ongoing religious, artistic, cultural and social activities carried out at the Bale Banjar periodically. But in terms of carrying out the activities of Brame Braye in carrying out the joyful activities of the traditional banjar manners, as a whole the banjar manners are relatively capable of realizing the banjar adat functions in the fields of religion, customs, culture, social and economy. The activity was also carried out as a form of tolerance of personal relationships (suka duka) with the community, so as to create a harmonious relationship between humans and God, human relations with humans, and human relationships with nature / environment, based on the Tri Hita Karanan concept and the Tat Wam Asi concept.

Suggestion

Some suggestions that can be given related to the results of this study, namely, so that customary activities related to the function of the customary banjar itself, can be carried out continuously and sustainably, considering the banjar is one of the places to carry out socio-cultural activities and is a legacy in the previous generation that must be preserved and need to evaluate the actualization of the banjar's function so as not to displace the traditional banjar bale itself

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***Vimâna*'s gravity-defying airship: Non-places, aeromobility and environmental concern in Baladeva Comics**

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ABSTRACT

Since ancient times, movement, journey making, and mobility is part of human endeavor, those representing not only the need of bodily motion but the transcended imagination of transgressing corporeal limitation, including Daedalian escapism. The Paleolithic cave painting in Lascaux, medieval Bayeux Tapestry, and the seventh century's Borobudur's reliefs were implying the prehistorical and ancient human movement and mobility, domesticated in the visual art which fueled the further imagination of kinetic performance of humanity. More than other era in human history, movement and mobilities became a common feature of our contemporary lives and seemingly normal in the globalized world; those in facts an "ideology and utopia of the twenty-first century" as observed by John Urry (2011). Hospitality and transportation industries might be the hallmark of those condition that emphasis not only spatial knowledge, leisure, and curiosity as those might be a production of a socio-religious imagination, self-perception, perception of others, power relations, and consumption. Nonetheless, the increasing cases of displacement people, asylum seekers, and migration, and on the other hand environmental devastation produced by the fossil-based energy consumption, burdened such neo-liberal dreams. The present article is an examination of Bali-based comic production, Baladeva comics in relationship with the environmental concern and mobility, in line with the ancient tradition of visualizing human mobility. While the concern was not apparent in the comic panels, further exploration through the interview with the producer, a more nuanced explanation revealed. The concern revolved in the presentation of vimana (*vimâna*), the mystical vehicle in Hindu mythology in which both in the traditional narrative and the comics appeared as a gravity-defy airship. The discussion will touch upon the projection of the pristine religious tradition and the glory of the past reflected in the visual art, in response to the challenge of modern aeromobility, which entailed technological risk and air pollution. The given comic as an intersecting space of visual literacy, vernacular commentary on environmental peril, and religious narrative provided a new space for public education in an engaging way.

Keywords: Indonesian comics, public education, religion and environment

I. Introduction

The present paper is discussing a visual art production, the Baladeva comic series, as a sample of "social commentary" upon contemporary issues. The obvious "commentary" appeared in the form of representation of Indonesian past through the recasting the history of Hindu Mataram Kingdom, in which appeared in its popular name, Medang Kingdom. A more subtle "commentary" might connote to the concern

of the producer, Ary Wicahyana upon the current Indonesian situation, which is perceived as rootless, over-religious, and "surrendered" to the foreign influences, hence losing the national identity. The comic was produced in order to cope with those challenges and appeared as an educational material projecting the glorious past in order to raise the awareness and pride of the younger Indonesian generation.

Weaving into those two concerns, a third appeared in a subversive aspiration, through

which it was not only Indonesian past was glorious but also envious as through technological achievements, such as architectural building of the temples, and as the object of the present paper, gravitational-defy technology in the technique called *laghima ahgima* (becoming almost weightless). In the comic this technique epitomized among others by the presence of *vimana* as an aeromobile vehicle. Further discussion with the publisher revealed this concern that *vimana* is an outcome of ecological friendly technology, a more sustainable technology.

The present paper is exploring the three concerns while focusing on *vimana* presentation as an example how visual art become the medium of public education and the environmental ensued through this presentation. Moreover, it is the site of social commentary through which religious and socio-political aspirations interweaved. “Religion” in this regard falls into the “vernacular religion,” and the comic is a medium for religion of the “non-expert” [1], [2]. The comprehensive discussion of this comics are already appeared in the author’s two articles [3], [4].

Locating the production of the comics within the emergence of hospitality industry, in which aeromobility is one of its features, and the global concern of sustainability, the creative imagination appeared in the comics will be an important contribution devised through the visualized of experience of the “non-experts.” This might be a reflection of micro-cosmopolitanism that invested the attention to the location of the self within the larger world. Moreover, the offered micro-cosmopolitanism is also a cosmopolitanism from “below” that concerned with the intimate issue of daily lives such as freedom, openness, tolerance, respect for difference, and indeed, the sustainable of socio-cultural lives [5].

II. Baladeva Comics

Baladeva comics launched for the first time in 2013, produced by Tantraz Comics (hereinafter Tantraz) based in Denpasar, Bali, and captained by Ary Wicahyana (Putu Gde

Ary Wicahyana). Except for the first edition, the following editions appeared only in the electronic version through the Tantraz application for Android and iOS. It ceased to appear in public circulation after two *parvas* (series), as the publisher arrived at different business arrangement. Nevertheless, the public education of Tantraz endured through other publication material, including Instagram story of @katurnusantara. *Katur* or *kartun bertutur* (cartoon-telling) is a social media storytelling that focusing in the presentation of animated local *Nusantara* folktales. *Nusantara* connoted to an Old-Javanese term signifying the ancient and modern Indonesian archipelago. Traditionally, many of pre-colonial Nusantara’s was an array of “Indianized states” [6].

The comic belongs to superhero and action genres. Regardless the prominent entertaining element, the discussion stretched into the historical background of Medang and Hindu religious information. Those part are appeared on the back page of each edition, hence does not interrupting the flow of the story. It is visually colorful and attractive, nearly a painting-quality production. This even more impressive when it once appeared in the glossy printed version. According to one of the illustrators, the artistic of the comics was a mixed of several inspiration of illustration streams, among other DC and Marvel Comics, and Tony Wong, the Hongkong-based artist. The composite artistic provided a cosmopolitan body of the comic characters, i.e. muscular male and voluptuous female, thus confused the (stereo-)typical of Indonesian body features. The characters of the comics seem projected to be standing on par with “universal” superhero such as produced by DC and Marvel Comics.

The outline of the story is focusing in the character of Kebo Parang who undergone spiritual and martial art training under the direction of Nyai Kalini, a female master. She also a weapon producer that taking a huge order from Medang’s army. In one incident, Kebo Parang has to divert a huge meteorite attack that about to land in Medang territory. While he succeeded in diverting it, he suffered internal injury that the only cure

is resided in Himalaya mountain in the north India. The rest of the story is about the beginning of the quest of Kebo Parang to seek the cure. The terminal of the journey is tantalizing unreachable as the comic is no more in public circulation.

The relevant part of this story is the presence of *vimana*, the airship belonged to Medang airforce (Fig. 1 and 2). It was used to carry the ordered weapon from Nyai Kalini. The presence of airship, along with the capacity of flying among the comic's character hardly peculiar in this visual art production. Surely, we can easily relate it with other world cultural heritages and modern American superheroes. What inciting the curiosity was at the face value *vimana* (*vimâna/vilmâna*) is divine chariot in Hindu mythology [7, p. 163].

It is presented in elaborated ornamental vehicle that one might relate it with the complicated Balinese carving; thus, it was contextualized and absorbed into the local artistic imagination.

The navigation of the airship is like the airbender's power to control the air and wind in the Avatar movie series. In some of its episodes, that power might authorizing the aircraft to lift and maneuver, without the intervention of mechanics. Such inspiring as well the Vimana's vehicle as it controlled by human's power.

The comic and *vimana* portrayal displayed an innovative aspiration that drew inspiration from the homegrown vocabulary, combined with the modern legend and artistic approaches. However, Indonesia in general is also proud that such artistic achievement has long precedence, for instance in Borobudur magnificent relief panels, which became the "gigantic comic" itself [8]. Pursuit further, the ancient and classical artistic such as the Paleolithic cave painting in Lascaux, medieval Bayeux Tapestry. Interestingly, in all the above sites human kinetic performance and mobility are displayed prominently. Hence, in this regard, *vimana* in the comic is just reintroducing the deeper psyche of humanity to move beyond their restricted locality and the dream to overcome the sky.

III. Vimana: Aeromobility and the State of Non-Places

Beyond the mainstream academic circle, *vimana* has been discussed and explored for the plausibility of the technology, and became the sign of the ancient technological achievement over the modern, Western-induced technological discourse (see e.g. [9], [10]). *Vimana*, at this juncture at least functioned as a point of resistance toward the Western technological achievement and the Westernized world.

This motif is in fact subtle in the comic, but further discussion with the publisher revealed almost similar concern. First of all, he alluded that the Indonesian past already an envious civilization, such as became the center of Buddhism, through which Chinese monks constantly came to study, owning high technology to build temples (*candis*), and eventually having the aeromobility technology. He further employed that the technique in what is called *laghima ahgima* (becoming almost weightless) applied to the airship such as *vimana*. *Vimana* in the comic is apparently a reified version of what presumed the past technological achievement.

Laghima in Hindu's philosophy is one of the eight characters of God, that in this regard S/He is super lightweight hence S/He can fly over the sky [11]. In one of the stories of *vimana*, it carried the righteous King Janaka to the heaven [7, p. 163]. The choice of *vimana* in the comic might be seen as a vulgarized (de-mystified) of the sacredness of the vehicle by recasting it as a military vehicle. But when it came to be an imagined technological achievement of Indonesian past, it may signal the conflation between the carnal glory of the ancestors with the divine aspect of them: the ancestors have been transcended into the divine realm. Its presentation within the genre of superhero and action comics signaled the rhetoric of engagement with the younger audiences.

Vimana is territorialized vehicle, located in Medang (a pristine Nusantara/Indonesia), but at the same time deterritorialized as it is within the Hindu cosmological construction, and it may embrace India as paradigmatic

religious landscape. *Vimana* as a divine chariot might project a non-places state, easily roaming to any corner of the world, blurring the spatiality.

Vimana contesting the condition of time-space compression evident in the modern aeromobility that entail high-carbonites world. The producer of comic was deliberately claimed the environmentally friendly of *vimana* hence resisted in subversive way the modern aeromobility. Pursuit it further, by taking *vimana*, the divine chariot as the pristine past technology, it may reflect the fusion of heavenly environmental concern and human vocation to tending the creature.

IV. Conclusion

The presence of *vimana* is a critique and “social commentary” toward modern aeromobility. It is considered as an environmentally friendly vehicle and outgrew from local wisdom, which in comic has a strong affinity with Hinduism or Indic religious tradition. In general, there is a projection of a more “pristine” lives of Indonesian past that is claimed could provide cure for the present Indonesian problems, including the environmental devastation.

All things considered we might testify the important of the usage of popular culture such as comics for public education in engaging way and reach out larger audience. Through that, the campaign of sustainability could reach the people of all walks of lives.



Fig. 2. *Vimana*’s blueprint (courtesy Ary Wicahyana)

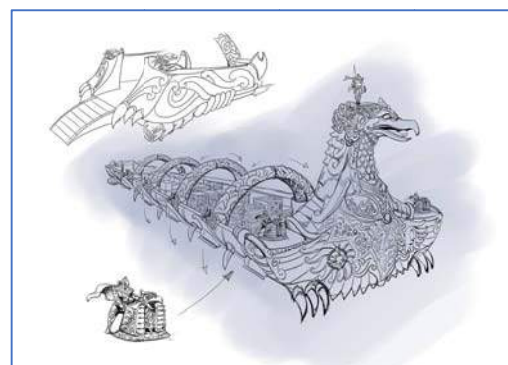


Fig. 3. *Vimana*’s blueprint (courtesy Ary Wicahyana)

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FATHER N. SHADEG.SVD: Local Figure and His Perceptions on the Balinese Culture

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Abstract

There are not many studies on the role of religion, particularly in the context of the role of missionaries regarding the emergence of the multiculturalism in Bali. From the era of the Dutch colonial period, the Dutch had strongly begun to contribute to the existence of the Christian and Catholic religions in Bali. Therefore, this study will discuss how the dynamics of the multicultural society in Bali started from the Dutch colonial era until at the present time. Due to this process, it can be said that there have been not only Hindu, but also Catholics, Christianity, Confucianism, Buddhism, and Muslim that play a major role as the formal religions that have been acknowledged by the Indonesian government. Therefore, there are three significant question that will be analysed in this paper, namely: firstly, how did Father Shadeg as a missionaries contribute in the context of multicultural society, secondly: What factors play a significant role in relation to multiculturalism and thirdly: what kinds of efforts that can be done in order to be able to strengthen the concept of multicultural society in Bali? By understanding these issues it is expected to have a better understanding in the context of multiculturalism in Bali in particular, and in Indonesia in general.

Keywords: missionaries, Catholicism, Balinese culture, and multiculturalism

I. Introduction

The concept of multiculturalism is always debatable. This can be understood since the concept has different meaning in terms of migration and historical processes between one to another country, in which those of people have different backgrounds in terms of tradition, language, religion, and beliefs. However, it is significant to understand why some communities have tried to identify their identities in accordance with the local

identities. This means that the indigenous or local people should aware about this process so that they can live together side by side in terms of peace and harmonious life.

Therefore, it is significant to understand the local culture, and try to understand the impact of the influence of the migrant culture in which one side it is considered to be a threat, but on the other side as an opportunity to improve the development in the context of global world (Ardhana, 2011: 1-2). This paper is try to analyze the important

role of Father N. Shadeg who was as a leading local figure from the Catholic Church and his perceptions on the Balinese culture.

II. Main Issues

There are some questions that will be discussed in this paper as follows: Firstly, how was the social background of the Balinese community experiencing changes to the formation of multicultural society by emphasizing the role of Catholicism as implemented by Father Shadeg as one of the leading figure in Bali? Secondly, what kind significant factors that played a significant role in relation to the creation multicultural society in Bali? Thirdly, what were the efforts made by Father Shadeg, so that it could strengthened the concept of multicultural society in Bali that has a different background of traditions, culture, language and customs? With this discussion is expected to gain a better understanding of how to manage multicultural society in Bali in particular, and in Indonesia in general.

By looking at these problems, this paper will elaborate the

background of Balinese culture in relation the acceptance of the Balinese to be a Catholic adherent. In addition to this, this paper will try to elaborate more deeply on the role of Father Shadeg in the creation of the Balinese culture, by looking at first: the background of the Balinese culture, second: some significant factors that played a major role in the context of multiculturalism, and third: the significant role of the Father Shadeg in the creation off the multicultural society in Bali. Through this analysis, it is expected to have a better understanding of the role of Father Shadeg and the creation of the multicultural society.

III. Theoretical Framework

The analysis used in the discussion on the role of Father Shadeg is done by using an intellectual history approach. Intellectual History or the history of thought can be defined as the study of the role of ideas in the history of events and processes (Kuntowijoyo, 1974:189).With the historical approach done so far, it is very important to see the role of the

character in particular Father Shadeg as a missionary who is considered a key actor who brought change in society. Here will be discussed about the background of the character, the state of the time that it surrounds, concepts of thought, aspects of idealism that the character and the recluses of the time that how to influence his thinking in Bali at that time. Therefore, a document analysis, a safe historical reference and a multidimensional approach are important, resulting in a comprehensive understanding of the discussion of the missionary group's role in relation to the formation of a multicultural society in Bali. In other words, it can be said that this mission activity is considered significant in relation to the formation of multicultural society in Bali.

IV. The Balinese Culture and Catholic Tradition

Since such a long time, the Balinese society is a multicultural society. There are many foreign cultural aspects that have strongly influenced the Balinese culture. However, it does not mean that there

is no other culture in Bali, such as what called the original culture that, that it can be seen in the north or eastern parts of the Bali Island. One the one hand, the influences of the Indic or Indian culture, and on the other hand the Chinese culture that already touched the Bali Island in the first century through the trade and economic trade route.

This gave some impacts on how the Balinese becoming Hindu and Buddhist adherents. In other words, it can be said that those influences occurred in the old or classical Balinese history in particular, and in the Indonesian history in general, as we can see in the context of the emergence of the classical Bali Hindu kingdoms in the regions and its surroundings.

More that centuries, from the historical evidences, it is noted that the influences of the western culture also took place in the Indonesian archipelago. That was a modern period started from 1500s in which certain foreign influences already accepted by the Balinese and also by other people in the Indonesian archipelago. It means that not only

the western people already visited the island of Bali, but also other religious activities for instance Islam and later the Christianity. In terms of the spread Catholicism it can be said that the Missionaries process has lasted in such a long time. There are some evidences show us that the initial of the Missionaries already lasted in the early of the seventeenth century through the trade and economic trade routes. It is surprising, that this activities started from Malacca in the western part of the Indonesian archipelago and to Timor in the eastern part of the Indonesian archipelago. Not only in terms of religious activities, but also many important aspect such as social, economic, and political aspects as a significant aspect in the context of the development of those islands.

At least, it can be said that the role of missionaries was significant to connect some people from the western parts and the several people from the eastern parts of the Islands of Indonesia. In other words, it can be said that the role of missionaries is significant if we want

to understand better the creation of multicultural society in Indonesia.

V. Bali in Modern Times: Catholicism and the Multicultural Society

It has already mentioned above that the missionaries activities already lasted in such a long time of the Balinese history, particularly in the early of the seventeenth century. It was only in the beginning of the twentieth century the role of missionaries is significant until at the present day of the Balinese development. It can be seen at the role of missionaries in Bali, for instance if we look at the role of Father Shadeg in Bali and its surrounding regions. Father Shadeg's full name is Norbertus Antonius Shadeg, SVD, born on December 10, 1921 in Farming Minnesota. Father Shadeg undertook missionary assignments to Indonesia and arrived at Singaraja on July 20, 1950. At first he passed the past by learning the cultural customs of Bali. He also teaches English at Singaraja High School. He was one of a leading figure of the Catholicism in Bali and

he witnessed the life standard of the people in certain region like in Tuka was still undeveloped and the poverty was still dominant in the region, in which the Tuka village, is a part of the Badung district. Before introducing the Catholicism in the Tuka village, most the people in the regions were Hindu adherents.

At that time the situation of the Balinese people in the countryside was very sad, many people were poor because they did not have a permanent job other than being a farmer. The suffering of the Balinese people is increasingly compounded by the economic crisis in 1930 (F.X Soenaryo, 2019:39). However, due to the certain aspects of their lives, most of them could not follow very well the Hindu tradition. It can be understood, since there was some gaps between the Balinese people who were rich and also the other Balinese who were poor. In certain cases, it can be said that they could not follow the old tradition and spent much money for the ritual and religious activities that occurred at that time. (Patriwirawan, 1974:1417)

These factors could be significant aspects why most of the people in there followed the Catholic traditions. Zending is a religious activity to attract other people to be a Christian. Initially, some people were introduced to the holy book such as Injil. Later some people were persuaded to convert to the new religion as a Christian. This can be understood, since there were many Balinese who did not know very well about the Christianity. It could be said that those people did their religious activities without knowing very well their religions in the context of the form and meaning of the religious lessons. This can be understood also, since the Hindu holy book, called was sacralized without no very well about the meanings. Therefore, on the one hand, many people did not understand the meaning of their holy books. On the other hand, the Christians and Catholic followers are able to understand their holy books, therefore, they persuaded to be Christian and Catholic followers, in which it is considered that they could understand better their daily

problems in accordance with the social and economic aspects at that time.

This is an opportunity for both the Christian and Catholic priests to give lessons to the village people in Tuka. It is important to note, that they are very open with the situation at that time. They can accept any changes as far as it can be fruitful for their daily life. The accepted not only the Balinese, but also the non- Balinese particularly from the outside Bali such as the Javanese, the people from Flores, the Sumatranese, the Ambonese and the like. Father Shadeg played a major role in managing those people and tried to communicate with other religions such as Hindu, Muslim, Buddhists and Confucianism. In 1959 Father Shadeg had even built a polyclinic in Gumbrih to treat sick villagers, then founded the First Seminary School in Gumbrih on July 9, 1953 and was transferred to Tuka in 1956 to educate prospective priests from Bali. He also founded the Bhakti Sasana Foundation to help children who are unable to go to school, establish the Widya Wahana

Library which has a collection of 20,000 books on religion, history, social, culture and literature. He also published the Balinese Vocabulary dictionary with 300 Basic Sentence and 198 pps appendices in 1977 and published the Bali Pocket Dictionary 'for religious efforts because without an understanding of the local language he could not communicate and the mission objectives would run smoothly.(Yulius Leo Suprobo, 1999: 46-62)

The contribution of Father Shadeg's thoughts on diversity is always thinking about how to maintain harmony among the people of Bali in particular and Indonesia in general so that they are harmoniously and closely intertwined, in accordance with Pancasila as the philosophical basis of the Indonesian nation. In leading the mass he also uses Balinese, in addition to the efforts made by Father Shadeg, among others, by always holding dialogue between religious communities including religious leaders in Bali.

Father Shadeg hoped that through dialogue, people would

understand other people's religions by learning other religions. Why do we study Catholicism or Hinduism so that we understand the teachings of their religion. Religion is the recognition of individual rights. Philosophically, spiritually emerged before religion. He realized that we have the same spirituality and therefore the need for dialogue between religious communities. According to the thought of Martin Buber, a German philosopher and theologian, dialogue is a synonym of ethical communication, thus dialogue requires self-disclosure and confirmation with others (Turnomo Rahadjo, 2005: 64). The benefit of dialogue is to prevent misunderstanding between ethnic groups and religions, especially among Hindus as the majority religion with other religions such as Catholicism and Islam. Because basically there is no single religion that teaches the attitude of opposing each other. If the adherents of religion are hostile to one another and make religion the reason for violence then it denies the core value of religion itself.

There are various factors that support Catholic religion can be accepted in Bali such as education, health and economic factors. In terms of faith it is important to explain that there is one factor why Balinese can accept Catholicism. This is important to be explained that there is one factor why the Balinese can accept the Catholic religion, since there is a similarity among them. For instance, in Catholic Church they use certain requirements such as flower, candle, water and fruits. This is similar in the Hindu Balinese, since they use also flower, fire and water. The Catholics do not rigidly practice his religion. They practice and preserve and maintain the local culture that already rooted in the community in such a long time.

VI. Conclusion

It is commonly said that the Catholicism has been successful developed in Bali. Through 24 households, they can develop a catholic community in the Palasari village in the Jembrana district. They can live side by side with other ethnic groups without having any

difficulties and conflicts one to each other. Kelurahan Ekasari, Kecamatan Melaya Kabupaten Jembrana. They can try to live side by side in a harmonious way in the context of a multicultural society. The thought of Father Shadeg is a relic of thought which is still maintained by religious people in Bali so that harmony can be maintained amid a multicultural society. Moreover, the current situation, amidst rapid technological advances, the use of social media in the community is very easy to cause conflict. Conflict arises with the frequent circulation of hoak news. Therefore, dialogue between religious communities should be maintained by religious leaders until now. Openness and accepting differences from one another are needed so that harmony in the community is maintained and peace is always in the community.

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Urgency of Desa Adat Stipulation as A Form of Recognition of Customary Law Community Unit

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Abstract

Explanation of Article 6 of Act Number 6 of 2014 about Desa (village) has caused different interpretations in Bali. First, choosing Desa Adat to prevent overlapping areas, authority, duplicating institutions between Desa and Desa Adat in 1 (one) region; secondly, with the same reason for choosing a Desa (in Bali commonly called Desa Dinas); and third, to not choose Desa or Desa Adat because there is no overlap, but Desa and Desa Adat live side by side. In the end, the period of time for choosing a Desa or Desa Adat has been exceeded, that is, at the latest 1 (one) year from the promulgation of this Act on January 15, 2014, the Regency / City Governments do not choose Desa Adat or Desa. On December 14, 2015, the Badung Regency Government promulgated the Badung District Regulation Number 9 of 2015 concerning Stipulation of Desa. However, the Regional Regulation of Badung Regency is not in the context of selecting Desa Adat or Desa, therefore Desa and Desa Adat still coexist. Even though the District / City Governments in Bali do not stipulate Regional Regulations regarding the Desa Adat in their area within the framework of the interpretation of Act No. 6 of 2014 on Desa, it does not mean there is no urgency to establish Desa Adat as a form of State recognition of customary law community unit in accordance with the mandate of Article 18B paragraph (2) of the Constitution of the Republic of Indonesia. This paper discusses the issue of urgency with the approach to Indonesian Constitutional Law, which is based on the principles and rules of law contained in the 1945 Constitution of the Republic of Indonesia and its derivatives. The result of the discussion was the constitutional obligation to establish Desa Adat as a form of recognition of Desa Adat as a customary law community unit, which has implications for the recognition of the rights inherent in Desa Adat as a customary law community unit, both traditional rights and legal rights and constitutional rights. Among them are the rights of the Desa Adat as an applicant in the testing of the Act in the Constitutional Court and the testing of legislation under the Act in the Supreme Court, the rights to natural resources, and the rights to obtain a grant from the local government.

Keywords: stipulation, recognition, customary village.

I. INTRODUCTION

Explanation of Article 6 of Act Number 6 Year 2014 concerning Villages has caused interpretations differences in Bali. First, choosing *Desa Adat* (Customary Villages) to prevent overlapping areas, authority, duplicating institutions between *Desa* and *Desa Adat* in 1 (one) region; secondly, with the same reason for choosing a Desa (in Bali commonly called *Desa Dinas*); and third, do not choose *Desa or Desa Adat* because there is no overlap, but the *Desa* and *Desa Adat* live side by side.

In the end, the time period for choosing a Village or Customary Village has been exceeded, that is, at the latest 1 (one) year from the promulgation of this Law on January 15, 2014, the Regency / City Government does not choose Indigenous Villages or Villages. On December 14, 2015, the Badung Regency

Government promulgated the Badung District Regulation Number 9 of 2015 concerning Determination of Villages. However, the Regional Regulation of Badung Regency is not in the context of selecting *Desa or Desa Adat*, therefore *Desa* and *Desa Adat* still coexist.

Even though the District / City Governments in Bali do not stipulate Regional Regulations regarding the *Desa Adat* in their area within the framework of the interpretation of Act No. 6 of 2014 concerning *Desa*, it does not mean there is no urgency to establish *Desa Adat* as a form of State recognition of customary law communities in accordance with the mandate of Article 18B paragraph (2) of the 1945 Constitution of the Republic of Indonesia.

This paper discusses the issue of urgency with the approach to Indonesian Constitutional Law, which is based on principles and legal rules contained in the 1945 Constitution of the Republic of Indonesia along with its derivatives.

II. FORM OF THE LAW OF ADAT DETERMINATION

Article 18B paragraph (2) of the State Law of the Republic of Indonesia of 1945 determines, the State recognizes and respects customary law community units along with their traditional rights as long as they are alive and in accordance with the development community and the principle of the Unitary State of the Republic of Indonesia, which is regulated by law.

The recognition requirements can be observed in the legal considerations of the Constitutional Court (Decree Number 31 / PUU-V / 2007 concerning the Testing of Act Number 31 of 2007 concerning the Establishment of Tual City in Maluku Province of the 1945 Constitution of the Republic of Indonesia), which gives meaning to each requirement. as can be summarized in the following table:¹⁵

table Requirements Recognition of Customary Law Community Unit (KMHA)

TERMS	MEANING OF
still life	KMHA A <i>defacto</i> still alive(<i>actual existence</i>)shall at least contain the following elements: 1. a society that its citizens have the feeling of the group(<i>in-group feeling</i>); 2. the existence of customary government institutions; 3. the existence of assets and / or customary objects; and 4. the existence of customary law norms; and

¹⁵ Gede Marhaendra Wija Atmaja, 2016, Politics of Legal Pluralism: Direction of Recognition of Unity of Customary Law Communities with Regional Regulations, Denpasar: Bali Printing Publisher, pp. 93-94.

TERMS	MEANING OF
	5. the existence of certain territories, specifically in the territorial of KMHA.
In accordance with the development of the community	<p>If a KMHA is:</p> <ol style="list-style-type: none"> 1. Its existence has been recognized based on the law that applies as a reflection of the development of values that are considered ideal in society today, both general and sectoral laws, such as the agrarian sector, forestry , fisheries, etc. as well as in regional regulations; and 2. The substance of these traditional rights is recognized and respected by the citizens of the community concerned as well as the wider community, and does not conflict with human rights.
In accordance with the principles of the Republic of Indonesia	<p>If a KMHA does not disturb the existence of the Unitary State of the Republic of Indonesia as a political unit and legal unity, in the sense that:</p> <ol style="list-style-type: none"> 1. Its existence does not threaten the sovereignty and integrity of the Unitary State of the Republic of Indonesia; and 2. The substance of customary law norms is appropriate and does not conflict with the laws and regulations.
Regulated in the Acts	based on the law, both general laws, sectoral laws, and in regional regulations.

Source: Processed from Decree Number 31 / PUU-V / 2007

Based on the legal considerations of the Constitutional Court, an understanding was obtained that the legal form of regulation was based on the recognition of customary law community units as stated in Article 18B paragraph (2) of the Republic of Indonesia 1945 Constitution means regulations based on law, both general laws, sectoral laws, and regional regulations.

Regional Regulations concerning the recognition of customary law community units are in relation to the regulation, in this case the regulation concerning the procedure for recognition of customary law community units. This is related to the concept of customary law community units in Article 18B paragraph (2) of the 1945 Constitution is a plural form of the customary law community unit. Recognition that is required of the state is the recognition of the existence of indigenous peoples' units along with their traditional rights. That is, recognition is given to one by one from the customary law community units, and therefore must be certain.¹⁶

¹⁶ Jimly Asshiddiqie, *Consolidation of the 1945 NRI Constitution*, (Yarsif Watampone Publisher, Jakarta, 2003), p. 24, 32-33, as quoted by H. Abdurrahman, "The Role of Customary Law in the Application of National and State Life" in the National Law Development Agency, *Seminar on Direction of Legal Development According to the 1945 Constitution of the Republic of Indonesia Amendment Results*, (Jakarta: National Legal Development Agency Legal Department and HAM RI, 2006), p. 3. H. Ateng Syafrudin and Suprin Na'a, *Village Republic: The Struggle of*

Recognition to one by one from customary law community units can also be called confirmation or determination. The legal form of inauguration or stipulation can use the Regional Regulation instrument or Decree of the Regional Government. The legal form of inauguration with a Regional Regulation is determined in a number of Acts, as stated in the following table.

Table of Regional Regulations as a form of law inauguration

NO	LAW	PROVISIONS FOR RECOGNITION	OF RECOGNITION LAW
0	1	2	3
1	Act Number 6 of 2014 about Villages	Article 98 paragraph (1) <i>Desa Adat</i> is stipulated by Regency / City Regional Regulation.	Regency / City Regulation.
2	Act No. 32 of 2009 about Environmental Protection and Management	Article 63 paragraph (1) letter t. In the protection and management of the environment, the Government has the duty and authority to establish policies regarding procedures for recognizing the existence of customary law communities, local wisdom, and the rights of customary law communities related to environmental protection and management; Paragraph (2) letter n. In the protection and management of the environment, the provincial government has the duty and authority to establish policies regarding the procedures for recognizing the existence of customary law communities, local wisdom, and the rights of indigenous peoples related to environmental protection and management at the provincial level; Paragraph (3) letter k In the protection and management of the environment, the district / city government has the duty and authority to implement policies regarding the recognition of the existence of customary law communities, local wisdom, and the rights of indigenous peoples related to environmental protection and management at the district level /city.	1. Not called the legal form of recognition. The interpretation is that the legal form of confirmation or stipulation will be further regulated by legislation under the law.
3	Act of the Republic of Indonesia Number 18 Year 2004 concerning Plantation	Article 9 paragraph (2) In the event that the land needed is land of communal rights customary law which in reality still exists, precedes giving rights as referred to in paragraph (1), the right applicant is obliged to	1. regional regulations. 2. its interpretation, the said regional regulation is a. Regency / city regulations; or

Traditional Law and Modern Law in Village Autonomy Design, (Bandung: Alumni, 2010), pp. 43-44.

NO	LAW	PROVISIONS FOR RECOGNITION	OF RECOGNITION LAW
0	1	2	3
		<p>conduct deliberations with the customary law community holders of customary rights and residents of the land rights concerned, to obtain an agreement regarding the surrender of land, and compensation.</p> <p>Explanation of Article 9 paragraph (2) Customary law community which in reality still exists, if it fulfills the following elements:</p> <ul style="list-style-type: none"> a. the community is still in the form of a community (rechtsgemeinschaft); b. there are institutions in the form of traditional ruling devices; c. there are clear areas of customary law; d. there are legal institutions and instruments, especially customary justice that are still adhered to; and e. there is confirmation by regional regulations. 	b. provincial regulations.
4	Act Number 41 of 1999 concerning Forestry as amended by Act Number 19 of 2004 concerning Stipulation of Government Regulation in Lieu of Act Number 1 Year 2004 concerning Amendment to Act Number 41 of 1999 concerning Forestry Becomes Act.	<p>CHAPTER IX INDIGENOUS LEGAL COMMUNITIES</p> <p>Article 67 a.(2) Inauguration of the existence and deletion of customary law communities as referred to in paragraph (1) shall be stipulated by Regional Regulation.</p>	<ul style="list-style-type: none"> 1. Local regulation. 2. The interpretation is that the regional regulation in question is <ul style="list-style-type: none"> a. regency / city regulations; or b. provincial regulations.

Following are the legal forms of inauguration with the Decree of the Regional Head determined in a number of Ministerial Regulations, as listed in the following table.

Table of Decrees of Regional Heads as a form of legal confirmation

NO	REGULATION OF THE MINISTER OF	PROVISIONS FOR RECOGNITION	OF FORMULATION LAW
0	1	2	3
1	Regulation of the Minister of Internal	1. Article 2. The Governor and regent /	1. The regent / mayor determines

NO	REGULATION OF THE MINISTER OF	PROVISIONS FOR RECOGNITION	OF FORMULATION LAW
0	1	2	3
	Affairs Number 52 of 2014 concerning Guidelines for Recognition and Protection of Customary Law Communities.	<p>mayor carry out the recognition and protection of the community customary law.</p> <p>2. Article 6 paragraph (1) District / city Customary Law Community Committees submit recommendations to Regent / Mayor based on the results of verification and validation as referred to in Article 5 paragraph (4).</p> <p>Paragraph (2) The regent / mayor shall determine the recognition and protection of customary law communities based on the recommendations of the Customary Law Community Committee with the Decree of the Regional Head.</p> <p>Paragraph (3) In the case of customary law communities in 2 (two) or more districts / cities, recognition and protection of customary law communities shall be stipulated by a Joint Decree of the Regional Head.</p>	<p>the recognition and protection of customary law communities by decree of the Regional Head.</p> <p>2. In the event that the customary law community is in 2 (two) or more districts / cities, the recognition and protection of customary law communities is stipulated by a Joint Decree of the Regional Head.</p>
2	Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number: P.32 / Menlhk-Setjen / 2015 Concerning	<p>1. Article 6 paragraph (1) The requirements for the application for the establishment of customary forests include:</p> <p>a. There are customary law communities or customary rights that</p>	<p>1. It does not require a form of legal recognition, but requires a customary law community or customary rights that has been</p>

NO	REGULATION OF THE MINISTER OF	PROVISIONS FOR RECOGNITION	OF FORMULATION LAW
0	1	2	3
	Forest Rights.	<p>have been recognized by the regional government through regional legal products;</p> <p>b. There are indigenous territories that are partially or entirely in the form of forests;</p> <p>c. A statement from the customary law community to determine their customary territory as customary forest.</p> <p>2. Article 12. The Minister can facilitate regional governments to prepare legal products that recognize customary law communities or customary rights.</p>	<p>recognized by the regional government through regional legal products.</p> <p>2. The legal form of recognition refers to Article 67 paragraph (2) of the Forestry Law, which is a form of legal recognition inform of Regional Regulation.</p>
3	Minister of Agrarian and Spatial Regulation / Head of the National Land Agency of the Republic of Indonesia Number 10 of 2016 concerning Procedures for Determining Communal Rights on Land of Customary Law Communities and Communities in Certain Areas.	<p>1. Article 18 paragraph (1) In the event that the report referred to in Article 16 [Article 17] states the existence of a Customary Law Community and its land, then:</p> <p>a. The Regent / Mayor determines the existence of the Customary Law Community and its land, in the case of land located in 1 (one) Regency / City; or</p> <p>b. The Governor established the existence of the Customary Law Community, in terms of land located in the Regency / City crossing.</p>	<p>Determination of customary law communities through</p> <p>1. Decree of the Regent / Mayor in the case of land located in 1 (one) Regency / City; or</p> <p>2. The Governor's Decree in terms of land is located in the Regency / City crossing.</p>
4	Regulation of the Minister of Environment and Forestry of the Republic of Indonesia	<p>1. Article 13 paragraph (3) Inventory contains at least data or information regarding:</p> <p>a. the name of the</p>	<p>1. Minister, governor or regent / mayor in accordance with the authority set</p>

NO	REGULATION OF THE MINISTER OF	PROVISIONS FOR RECOGNITION	OF FORMULATION LAW
0	1	2	3
	Number P.34 / Menlhk / Setjen / Kum.1 / 5/2017 about Recognition and Protection of Local Wisdom in the Management of Natural Resources and the Environment.	<p>Customary Law Community and the local community is Able to Improve Local Wisdom</p> <p>b. history of community development;</p> <p>c. custom or customary norms that are still valid;</p> <p>d. the existence and function of customary institutions, as well as the kinship system;</p> <p>e. community protocols and decision-making systems;</p> <p>f. knowledge of Genetic Resources or biological resources;</p> <p>g. knowledge of spatial planning and local wisdom area;</p> <p>h. knowledge of land and water;</p> <p>i. knowledge of taboo and sacred matters in the management of the environment and natural resources;</p> <p>j. traditional technology and equipment for the management of the environment and natural resources;</p> <p>k. tradition of preserving the functions of the environment and natural resources;</p> <p>l. patterns of environmental supervision and conflict resolution; and / or</p> <p>m. knowledge of succession, selection, and adaptation.</p>	<p>the recognition and protection of local wisdom in the form of:</p> <ul style="list-style-type: none"> ● Decree, ● the Decree of the governor, or ● the decision regent /mayor. <p>2. Based On the land Environmental Protection and Management, the determination of recognition and protection is for indigenous peoples.</p>

NO	REGULATION OF THE MINISTER OF	PROVISIONS FOR RECOGNITION	OF FORMULATION LAW
0	1	2	3
		<p>2. Article 15.</p> <p>In the event that there is no objection to the results of the inventory as referred to in Article 14 paragraph (2), the Minister, governor, or regent / mayor in accordance with his authority determines the recognition and protection of Local Wisdom in the form of Ministerial Decrees, governors, or regents / Mayor.</p>	
5	Regulation of the Minister of Marine and Fisheries of the Republic of Indonesia Number 8 / Permen-Kp / 2018 concerning Procedures for Determining Areas of Management of Customary Legal Communities in the Use of Space in Coastal Areas and Small Islands.	<p>1. Article 4 paragraph (1) Utilization of Coastal and Small Island Water and Water Spaces in the Managed Area by the Customary Law Community is the authority of the local Customary Law Community. Paragraph (3) Customary Law Community as referred to in paragraph (1) shall stipulate its recognition and protection by the regent / mayor.</p> <p>3. Article 12 paragraph (2) In the event that Customary Law Communities are in 2 (two) or more regency / city areas, the recognition and protection of Customary Law Communities shall be determined by a joint decision of the regent / mayor.</p>	<p>Determination of recognition and protection of Customary Law Communities by:</p> <p>a. the decision of the regent / mayor in the case of Customary Law Communities in 1 (one) district / city area; or</p> <p>b. decisions with regents / mayors in the case of Customary Law Communities are in 2 (two) or more district / city areas.</p>

The following is stated the practice of inauguration of customary law communities by Decree of the Regional Head and Regional Regulations, as stated in the following table.

Table Practice confirmation by the Head of Regional and Local Regulations

No .	Legal Forms Inauguration of	Contents Inauguration
1	Decision regent of Luwu Utara No. 300 of 2004 about Recognition of Indigenous Seko existence	<p>Article 2 the Local Government recognizes Indigenous Peoples of Seko as communities of Indigenous Peoples which has Values, Legal System Customary and Customary Institutions.</p> <p>Article 3 The Seko Customary Community is a community based on ancestral origins and inhabits the customary territories of Seko and has customary values and or norms and institutions adat that is recognized together for generations and has local wisdom.</p>
2	Bungo District Regulation Number 3 of 2006 concerning Indigenous Law Community Datuk Sinaro Putih Pelepat District, Bungo Regency	<p>Article 2 With this Regional Regulation, the Indigenous Law Community of Datuk Sinaro Putih is stipulated, Pelepat District, Bungo District.</p> <p>Article 3 (1) Baru Pelepat Village Community, Batu Kerbau Village and Lubuk Telau grove live in a union of customary law communities called the Customary Law Community of Datuk Sinaro Putih.</p> <p>(2) The customary law community unit association as referred to in paragraph (1) is included in the provisions of customary law <i>seinduk bak ayam</i></p>
3	Merangin District Regulation Number 8 of 2006 concerning Recognition and Protection of Customary Law Community of Marga Serampas	<p>Article 5 Under this Regional Regulation the Merangin District Government acknowledges and protects the existence and traditional rights of the Marga Serampas Customary Law Community.</p> <p>Article 6 Customary Law Community of Marga Serampas as referred to in Article 2 is a community unit that has fulfilled the elements of:</p> <ol style="list-style-type: none"> Still in the form of association, The existence of institutions in the form of customary concession equipment, There are clear customary law areas, There are customary institutions, especially customary courts that are still adhered to, Still carrying out collection of forest products in areas in the surrounding forest area to meet the needs of daily living.

The description and table show the choice of legal forms of confirmation or stipulation of customary law community units or traditional villages. In the process of discussing the Regional Regulation of Bali Province concerning *Desa Adat* there was an opinion about one of the articles relating to the stipulation or establishment of *Desa Adat* with Regional Regulations or Regional Head Regulations, in this case the Governor's Regulation. The choice of the legal form of the Regional Regulation strengthens the legitimacy of the establishment or establishment of the *Desa Adat* because it involves the people through the mechanism of the Regional People's Representative Council.

III. URGENCY OF *DESA ADAT* STIPULATION

The existence of a Regional Regulation on Customary Villages is not enough to guarantee customary law communities and their traditional rights, which basically contain arrangements, but other efforts are needed namely inauguration or establishment of certain customary law communities or certain traditional villages.

Inauguration or stipulation of *Desa Adat* is needed as a basis for realizing their rights, both traditional rights and constitutional rights or legal rights. Some of them are the right to appear as applicants in the examination of laws against the Constitution before the Constitutional Court or the testing of legislation under the law against the law before the Supreme Court. The following is described only one of which is concerning the customary law community unit as the applicant in testing the law against the Constitution before the Constitutional Court.

Act Number 24 of 2003 concerning the Constitutional Court as amended by the Law of the Republic of Indonesia Number 4 of 2014 concerning Determination of Government Regulation in Lieu of Act Number 1 Year 2013 concerning the Second Amendment to Act Number 24 Year 2003 concerning the Constitutional Court Acting In accordance with Article 51 paragraph (1) letter b, the Petitioner is a party who considers his constitutional rights and / or authorities to be impaired by the coming into effect of the law, namely the customary law community unit insofar as it is still alive and in accordance with the development of society and the principle of the Unitary Republic of Indonesia regulated in law.

Regarding the customary law community unit as the applicant, the Constitutional Court argued for its inauguration with Regional Regulations. This can be seen in the consideration of the Decision of the Constitutional Court Number 29 / PUU-IX / 2011 in the case of the petition for Testing Act Number 21 of 2001 which has been amended by Government Regulation in Lieu of Act

Number 1 Year 2008 stipulated by Act Number 35 of 2008 concerning the Special Autonomy for the Papua Province against the 1945 Constitution of the Republic of Indonesia.

The applicants are the unity of customary law communities and individuals. The unit of the customary law community as the applicant was David Barangea, Head of the Yawa Onat Tribe, Yapen Islands Regency, as Petitioner I.

The decree stated that it fully granted the Petitioners' petition. In terms of legal *standing*, the Constitutional Court concluded that the Petitioners had the legal *standing* to file the petition *a quo*.

The Yawa Onat tribe as one of the indigenous tribes in the Papua Province is a customary law community unit and has a legal *standing* to file petition *a quo*. Regarding the legal considerations of the Constitutional Court on the Yawa Onat Tribe as a customary law community unit that has legal *standing* can be specified as follows:

1. Considering that the Court needs to consider the existence of the Yawa Onat tribe as one of the indigenous tribes in the Papua Province.
2. Referring to the Constitutional Court Decision No. 31 / PUU-V / 2007 dated June 18, 2008 and the Decision of the Constitutional Court Number 6 / PUU-VI / 2008 dated June 19, 2008 which stated that the customary law community unit is said to be the *de facto* life or *actual existence*, either territorial, genealogical and functional nature, at least must fulfill the following elements: a. the existence of a community that has a group feeling or *in group feeling*; b. the existence of customary government institutions; c. the existence of assets and / or customary objects; d. the existence of customary law norms; e. the existence of certain regions, especially territorial customary communities.
3. Based on these criteria, it was linked to the statements of the Petitioners, testimony of witness Agus Tanawani and witness Hermanus Wariori, the Yawa Onat Tribe is one of the indigenous tribes that still lives and exists in the Papua Province in charge of 38 indigenous villages in the administrative area of the Yapen Islands Regency. The statements of the Petitioners and witnesses were not denied by witness Yoram Wambrauw, Provisional Chairperson of the MRP, who gave a statement representing the MRP, as well as a statement from the Government.
4. Therefore, even though there are no regional regulations that define the Yawa Onat Tribe as an indigenous community unit, according to the Court, the Yawa Onat Tribe is a customary law community unit that has traditional rights in the Papua Province which must be guaranteed and

constitutional protection as referred to in Article 18B paragraph (2) of the 1945 Constitution of NRI. The

5. absence of regional regulations that stipulate the existence of a customary law community unit does not mean that the customary law community is non-existent, because if the existence of customary communities in Papua Province depends on confession or inauguration based on regional regulations, then judicially there will not be any customary law community unit in the Papua Province until the confirmation is made.¹⁷

The decision of the Constitutional Court Number 29 / PUU-IX / 2011 confirms that the customary law community unit is a legal subject that has legal *standing* in the case of testing laws against the 1945 Constitution of the Republic of Indonesia in the Constitutional Court. The customary law community unit that has a legal position should be confirmed by a Regional Regulation. However, the Constitutional Court has progressively ruled, if the existence of customary law communities in Papua Province depends on recognition or confirmation based on regional regulations, the customary law community unit will never receive constitutional guarantees and protections as referred to in Article 18B paragraph (2) of the 1945 Constitution.

IV. CLOSING

Based on the description above, a number of statements can be repeated as a final note.

First, the mandate of Article 18B paragraph (2) is actually concerning the confirmation of certain indigenous peoples' units or the inauguration of certain *Desa Adat* as a unit of customary law communities. The choice of legal form of inauguration can be in the form of Regional Regulations, Regional Head Regulations, or Regional Head Decisions. However, the choice in Regional Regulations as a form of inauguration law in addition to having a stronger legitimacy because it involves people's approval through the mechanism of the Regional People's Legislative Assembly, also has stronger legality because it is ordered by law.

Second, the urgency of the inauguration of customary law communities or certain *Desa Adat* as a basis for realizing traditional rights and constitutional

¹⁷ Decision Number 29 / PUU-IX / 2011, p. 60-61. Gede Marhaendra Wija Atmaja, 2012, "Politics of Legal Pluralism in Recognition of Unity of Customary Law Societies with Regional Regulations", *Doctoral Dissertation*, Malang: Faculty of Law, Universitas Brawijaya, p. 173-175.

rights or legal rights, such as the right as an applicant in the examination of laws against the constitution before the Constitutional Court.

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Utilization of Three Species *Ocimum* in Traditional Balinese Medicine, *Usadha Bali*

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ABSTRACT

Ocimum plants have the characteristic form of fragrant smell on the leaves. Three species of *Ocimum* namely *Ocimum basilicum* L., *Ocimum tenuiflorum*, and *Ocimum gratissimum* have many benefits in the Balinese people. *Ocimum basilicum* L. is usually used as a spice in cooking because it can eliminate the fishy smell in fresh fish, and can be eaten as fresh vegetables. Whereas *Ocimum tenuiflorum* is usually used as a ritual plants in Hinduism, and *Ocimum gratissimum* is usually used as a medicinal plant. In Balinese traditional medicine, *Usadha Bali*, the plant are used as medicinal plants. Utilization of *Ocimum basilicum* L. is mentioned in the manuscript of *Usadha Punggung Tiwas*, *Usadha Tuwa* as a drug in dealing with stiff muscle, vomiting blood, the placenta cannot get out, *tamba rasa* (rheumatism). Whereas *Ocimum tenuiflorum* is mentioned in manuscript of *Usadha Rare*, *Usadha Tiwang*, *Usadha Tuwa*, *Punggung Tiwas*, *Taru Pramana*, and *usadha Caturkauripan*, which are used in dealing with *mokan* (neoplasm), *tiwang*, *tuju* (rheumatism), *pamali* (someone have sick but have inscrutable in medically), have no appetite, thrush and fever, coughing, asthma, worms in children, eye pain, constipation, flatulence, blurred eyes, the midriff ache, inflammation. *Ocimum gratissimum* is mention in manuscript of *Punggung Tiwas*, *Usadha Tiwang*, and *usadha Rare* which are used in dealing *banta*, coughing, *tiwang*, *gering baya*, and inflammation. Those plant are used in the form of a mixture with various other ingredients, and also can be used in the form of fresh or already in the boiled form.

Keywords: Usadha Bali, Ocimum basilicum L. Ocimum tenuiflorum, Ocimum gratissimum Medicinal Plants

INTRODUCTION

Plants have long been used as medicinal materials throughout the world, even the fossil record shows that plants were used at least in the mid-Paleolithic era, which is around 60,000 years ago (Solecki, 1975). Knowledge of traditional Balinese medicine, *Usadha Bali*, is mentioned in an ancient manuscript known as *Lontar*. *Usadha* comes from the word *Usadhi* which means medicinal plants (Nala, 1992). There are many *Lontar usadha*, e.g. *Punggung Tiwas*, *usadha Tuwa*, *usadha Rare*, *usadha*

Tiwang, *usadha Caturkahuripan*. The *Lontar* contains various species of medicinal plants.

In practice, traditional Balinese medicine, *Usadha Bali*, uses various species of medicinal plants. The medicinal plants are used individually or in mixture form of several species of medicinal plants. Its use can be in fresh or boiled form. One of the medicinal plants used in *Usadha Bali* is the genus *Ocimum*. This study aims to explore the medicinal plant of genus *Ocimum* in

traditional Balinese medicine, Usadha Bali.

METHODS

This research uses the literature method. The unit of analysis is the manuscript of Lontar Usadha. Total of 11 manuscript of Lontar Usadha have been traced. These Lontar has been translated from Balinese script to Latin script. Among of them are; *Kaputusan Taru Pramana* (Bugbug Village, Karangasem District, Karangasem Regency, rewritten by I Dewa Ayu Puspita Padmi, Jl. Untung Surapati, Gg. Flamboyan No 2 Karangasem, December 31, 1995), *Usada Taru Pramana* (book written on balinese script, owned by Wayan Catra, Pandak Gede, Kediri Tabanan, rewritten and typed by A.A. Ketut Rai on September 4, 1993), *Tutur Taru Pramana* (book written on balinese script, owned by I Ketut Sengod, Pidpid kaler, Abang, Karangsem, rewritten and typed by Ida I Dewa Gde Catra, Jl. Untung Surapati, Gg. Flamboyan No. 2 Karangasem on December 10, 1990), *Usada Tuwa* (No. III.d.97, collected by Kirtya, from Singaraja, rewritten on 12 October 1949, by Ktut Kaler, checked by Pt. Geria), *Usada Tuwa* (No. III.d.290, collected by Kirtya, from Akah (kelungkung), rewritten on 2 September 1949, by I Mangku Resi Kadjeng, checked by I Wajan Mendra), *Usada Tjaturkauripan* (No III.d 270, collected by Kirtya from Tegaldjadi (Tabanan), received on 27 December 1929, rewritten on 16 February 1950, by Putu Geria,

checked by K. Kaler). *Oesada tiwang* (No. 1016, collected by Kirtya, from Boesongbio (Pengastoelan), received on April 10, 1933, typed 12 December 1941, by Ni Made Tirta, checked by Ketut Kabir), *Usada rare* (No III.d.1017, collected by Kirtya, from Buleleng, received on April 10, 1933, rewritten on October 22, 1949, by Ktut Kaler, checked by Pt. Geria), *Usada rare* (No. 2239.III.d, collected by Kirtya from Singaraja, rewritten on 30 June 1949 by Ktut Kaler, checked by Pt. Geria), *Usada rare* (No. III.d.1015, collected by Kirtya, received on April 7, 1933, from Bungkulan, rewritten on December 23, 1949, by Ktut Kaler, checked by Pt. Geria), *Poenggoeng Tiwas* (No. 2260, Collected by Kirtya, from Singaraja, received on March 24, 1941, typed June 27, 1941 by Goesti Njoman Ngoerah Prongot, checked by I Kt. Badoeng). Documents were analyzed qualitatively, medicinal plant species were recorded. The data is then analyzed descriptively.

RESULT

Three species of *Ocimum* are mentioned in the traditional Balinese medicine, Usadha Bali, namely *Ocimum basilicum* L, *Ocimum tenuiflorum*, and *Ocimum gratissimum*. Utilization of *Ocimum basilicum* L is mentioned in the manuscript of *Usadha Punggung Tiwas*, *Usada Tuwa*. These plants are used as a drug in dealing with stiff muscle, vomiting blood, the placenta cannot get out, *tamba rasa*

(rheumatism). They are used in the form of a mixture with various other ingredients (Table 1).

Ocimum tenuiflorum is mentioned in manuscript of *Usadha Rare*, *Usada Tiwang*, *Usada Tuwa*, *Punggung Tiwas*, *Taru Pramana*, and *usadha Caturkauripan*, which are used in dealing with *Tiwing bragenjang*, *mokan* (neoplasm), *tuju* (rheumatism), coughing, *pamali* (someone have sick but have inscrutable in medically), *Tamba*

rasa (rheumatism), eye pain, have no appetite, thrush and fever, Inflammation, asthma, worms in children, constipation, flatulence, blurred eyes, the midriff ache (Table 2).

Ocimum gratissimum is mention in *Lontar Punggung Tiwas*, *Usadha Tiwang*, and *usadha Rare* which are used to treat *banta*, cough, *tiwang*, *gering baya*, and inflammation (Table 3).

Table 1. Utilization of *Ocimum basilicum* in Balinese Traditional Medicine and other medicinal plants as a mixture.

Diseases	The mixture	Lontar
Stiff muscle	<i>Umbi sungsang</i> , <i>Ocimum basilicum</i> L, sari kuning	<i>Poenggoeng tiwas</i> (No. 2260)
<i>Tamba rasa</i> (Rheumatism).	<i>Solanum verbascifolium</i> , <i>Blumea balsamifera</i> (L.) DC.) <i>Ocimum basilicum</i> , <i>Streblus asper</i> Lour. katrangan, the spices,	<i>Usada tuwa</i> No: III.d.97
vomiting blood	<i>Zingiber officinale</i> Roxb., <i>Ocimum basilicum</i> L, <i>Cynodon dactylon</i> (L.) Pers, <i>Aleurites moluccanus</i> (L.) Willd, <i>Curcuma demostica</i> .	<i>Usada tuwa</i> No: III.d.97
The placenta cannot get out	<i>Ocimum basilicum</i> L, <i>Zingiber officinale</i> Roxb, vineger,	<i>Usada tuwa</i> No: III.d.97

Table 2. Utilization of *Ocimum tenuiflorum* in Balinese Traditional Medicine and other medicinal plants as a mixture.

Diseases	The Mixture	Lontar
<i>Tiwing bragenjang</i>	<i>Tournefortia sarmentosa</i> Lam, <i>Coleus scutellarioides</i> , <i>Ocimum tenuiflorum</i> , <i>Ocimum gratissimum</i> , <i>Foeniculum vulgare</i> .	<i>usada tiwang</i>
<i>Mokan</i> (neoplasm),	<i>Ocimum tenuiflorum</i> , <i>Styrax benzoin</i> , <i>Santalum album</i> L., <i>Citrus aurantifolia</i> .	<i>usada tiwang</i>
<i>Tuju uci-uci</i> (rheumatism)	<i>Blumea balsamifera</i> (L.) DC, <i>Coleus scutellarioides</i> , <i>Ocimum tenuiflorum</i> , <i>Curcuma purpurascens</i> Blume, <i>Tamarindus indica</i> .	<i>usada tiwang</i>
Coughing	<i>Ocimum tenuiflorum</i> , <i>Cocos nucifera</i> , <i>Allium cepa</i> , <i>Kaempferia galanga</i> L.	<i>usada tiwang</i>

Diseases	The Mixture	Lontar
<i>Pamali kabebeng</i> (someone have sick but have inscrutable in medically)	<i>Ocimum tenuiflorum</i> , <i>Cordyline fruticosa</i> , <i>Aleurites moluccanus</i> (L.) Willd.	<i>usada tiwang</i>
<i>Tamba rasa</i> (rheumatism)	<i>Streblus asper</i> Lour, <i>Ocimum tenuiflorum</i> , <i>Oryza nivara</i> , <i>Foeniculum vulgare</i> .	(<i>usada tuwa</i> III.d 97
Eye pain	<i>Piper betle</i> L. <i>Ocimum tenuiflorum</i> , <i>Coleus scutellarioides</i> , <i>Areca catechu</i> .	(<i>usada tuwa</i> III.d 97
Have no appetite	<i>Blumea balsamifera</i> (L.) DC., <i>Alstonia scholaris</i> (L.) R. Br., <i>Coleus scutellarioides</i> , <i>Ocimum tenuiflorum</i> , <i>sarilungid</i> .	<i>Usada Tuwa</i> (No. III.d. 290)
<i>Tuju maluang awaknia kabeh</i> (rheumatism)	<i>Piper betle</i> L., <i>Elephantopus scaber</i> , <i>Ocimum tenuiflorum</i> , red saliva after eating betel.	<i>Usada Tuwa</i> (No. III.d. 290)
Thrush and fever	<i>Blumea balsamifera</i> (L.) DC., <i>Coleus scutellarioides</i> , <i>Ocimum tenuiflorum</i> , <i>Cocos nucifera</i> L, <i>Sarilungid</i> , <i>Coriandrum sativum</i> L, <i>Foeniculum vulgare</i> , <i>Alyxia stellata</i> Auct non R&S.	<i>Usada Tuwa</i> (No. III.d. 290)
<i>Awak bangsel</i> (inflammation)	<i>Blumea balsamifera</i> (L.) DC., <i>Alstonia scholaris</i> (L.) R. Br., <i>Curcuma purpurascens</i> Blume, <i>Ocimum tenuiflorum</i> , <i>Coleus scutellarioides</i> , <i>Cocos nucifera</i> L, <i>The spices</i>	<i>Usada Tuwa</i> (No. III.d. 290)
Coughing	<i>Ocimum tenuiflorum</i> , <i>Cocos nucifera</i> L, <i>Kaempferia galanga</i> L, <i>Allium cepa</i> , kayu sam-sam.	<i>Punggung tiwas</i>
<i>Panjakinja</i> (inflammation)	<i>Ocimum tenuiflorum</i> , <i>Coleus scutellarioides</i> , <i>Alpinia galangal</i> , kayu nasi, <i>Pterocarpus indicus</i> , <i>Curcuma demostica</i> , <i>Curcuma purpurascens</i> Blume, <i>Kaempferia pandurata</i> Roxb, <i>Tamarindus indica</i> , <i>Alyxia stellata</i> Auct non R&S, <i>gantilungid</i> , <i>Zingiber zerumbet</i> , coconut oil.	<i>Usada rare</i> 1017
Worms in children	<i>Ocimum tenuiflorum</i> , <i>Vernonia cinerea</i> L, <i>yeh tuak manis</i> , <i>trikatuka</i> (<i>Allium sativum</i> L, <i>Acorus calamus</i> , <i>Cryptocarya massoy</i> (Oken) Kosterm.).	<i>Usada rare</i> 1015
Asthma	<i>Alstonia scholaris</i> (L.) R. Br., <i>alpinia galangal</i> , <i>Ocimum tenuiflorum</i> , <i>Ketan gadjih</i> , <i>Alyxia stellata</i> Auct non	<i>Caturkahuripan</i>

Diseases	The Mixture	Lontar
	<i>R&S, Tamarindus indica, Cocos nucifera L, salt,</i>	
Asthma	<i>Aleurites moluccanus (L.) Willd., Moringa oleifera lamk, Pluchea indica (L.) Less. Ocimum tenuiflorum, Curcuma purpurascens blume, Syzygium aromaticum, Ketan gajih, Cocos nucifera L, Tamarindus indica, Carum capticum benth, Nigella sativa l., Sari jenar, salt.</i>	Caturkahuripan
Flatulence	<i>Citrus hystrix d. C, Alpinia galangal, Curcuma purpurascens blume, Ocimum tenuiflorum, Coleus scutellarioides, Allium cepa, coconut oil.</i>	Usada Caturkahuripan
Blurred eyes	<i>Curcuma demostica, Aleurites moluccanus (L.) Willd, Ocimum tenuiflorum, salt.</i>	Caturkahuripan
Asthma	<i>Alpinia galangal L, Alstonia scholaris (L.) R. Br. Ocimum tenuiflorum, Duhi aruman, Alyxia stellata auct non r&s, Sugar, salt.</i>	Caturkahuripan
The midriff ache	<i>Ocimum tenuiflorum , Piper betle L, Curcuma demostica, Plumeria rubra L.</i>	Caturkahuripan
Asthma	<i>Aleurites moluccanus (L.) Willd , Moringa oleifera Lamk, Pluchea indica (L.) Less. Ocimum tenuiflorum, Curcuma purpurascens Blume, Syzygium aromaticum, ginten ireng, ketan gajih, Cocos nucifera L, Tamarindus indica, sari jenar, salt</i>	Caturkahuripan
Constipation	<i>Ocimum tenuiflorum, blood of chicken, Curcuma demostica, honey, Santalum album L.</i>	Taru pramana

Table 3. Utilization of *Ocimum gratissimum* in Balinese Traditional Medicine and other medicinal plants as a mixture.

Diseases	The Mixture	Lontar
Banta	<i>Citrus maxima (Burm.f.) Merr, Ocimum gratissimum, Allium sativum L, Acorus calamus, Cryptocarya massoy (Oken) Kosterm</i>	(Punggung tiwas 2260)
cough	<i>Ocimum gratissimum, Murraya paniculata (L.) Jack, kayu padi, kayu pamor, Piper betle L, Alpinia galangal L, Curcuma demostica, the spices,</i>	Punggung tiwas 2260
Tiwan bragenjang	<i>Tournefortia sarmentosa Lam., Coleus scutellarioides</i>	Usada Tiwan (No. 1016)
	<i>Ocimum tenuiflorum, Ocimum gratissimum,</i>	

Diseases	The Mixture	Lontar
	<i>Foeniculum vulgare</i> .	
Gering baya	<i>Ocimum gratissimum</i> , <i>Allium sativum</i> L, <i>Acorus calamus</i> , <i>Cryptocarya massoy</i> (Oken) Kosterm.	Usada Tiwang (No. 1016)
Inflammation	<i>Ocimum gratissimum</i> , <i>Saccopetalum horsfieldii</i> Erythrina variegata, <i>Kaempferia galanga</i> L.	Usada rare 2239 III. d

DISCUSSION

Ocimum plants have the characteristic form of fragrant smell on the leaves. There are three species *Ocimum* used in traditional Balinese medicine, Usadha Bali, namely *Ocimum basilicum*, *Ocimum tenuiflorum*, and *Ocimum gratissimum*. *Ocimum basilicum* L is usually used as a spice in cooking because it can eliminate the fishy smell in fresh fish, and can be eaten as fresh vegetables. Whereas *Ocimum tenuiflorum* is usually used as a ritual plants in Hinduism, and *Ocimum gratissimum* is usually used as a medicinal plant. These plants are used in the form of a mixture with various other ingredients, and also can be used in the form of fresh or already in the boiled form.

Ocimum basilicum has been used in medicine throughout the world to treat various symptoms of the disease such as breast cancer (Torres et al., 2018), ward off anxiety and depression in Alzheimer's disease conditions (Gradinariu et al., 2015) (Ayuob et al., 2018), acts as an antimicrobial especially against *Staphylococcus aureus*, *Klebsiella pneumoniae* and *Bacillus subtilis* (Vadivel, 2011), has cardiogenic and adrenergic effects (Muralidharan & Dhananjayan, 2004). Ethylacetate, n-butanol, and water extracts from the leaves of *Ocimum basilicum* have strong

antioxidant activity (Kaurinovic et al., 2011), and have the potential to be anti-malaria (Akono Ntonga et al., 2014).

Ocimum tenuiflorum (synonym: *Ocimum sanctum*) can also ward off anxiety and depression in Alzheimer's disease (Gradinariu et al., 2015). In the Ayurveda system, *Ocimum tenuiflorum* becomes the main herbal ingredient because it can overcome symptoms caused by physical, chemical, metabolic, and psychological stress through a unique combination of pharmacological actions. *Ocimum tenuiflorum* can protect organs and tissues due to chemical stress from industrial pollution and heavy metals, and physical stress due to prolonged physical activity, ischemia. *Ocimum tenuiflorum* can also overcome metabolic stress through normalization of blood glucose, blood pressure and lipid levels. Overcoming psychological stress because it has a positive effect on memory and cognitive function as well as through anxiolytic and anti-depressive properties (Cohen, 2014).

Ocimum gratissimum although proven to have a hypoglycemic effect in cases of diabetes mellitus with evidence of reduced fructosamine, but can trigger infertility in male rats that are aggravated by diabetes mellitus (Shittu et al., 2019). As an effective

chemopreventive agent against pulmonary adenocarcinoma (Kao et al., 2011).

Ocimum basilicum and *Ocimum gratissimum* contain phenol compounds mainly are chicoric, caftaric, caffeic, and rosmarinic (Casanova et al., 2016). *Ocimum basilicum* and *Ocimum tenuiflorum* also contain essential oils such as 1,8-cineole, linalool, eugenol (Akono Ntonga et al., 2014; Gradinariu et al., 2015), and contain β -elemene, α -bergamote, bornyl-acetate, estragole (Gradinariu et al., 2015).

In traditional Balinese medicine, Usadha Bali, *Ocimum* is used to treat various types of diseases or symptoms of the disease. These diseases or symptoms can be categorized as medical or non-medical diseases. Medical illness is a disease whose symptoms and causes can be known medically such as vomiting blood, coughing, but non-medical illnesses, symptoms and causes are difficult to detect medically, such as *pamali* (someone have sick but have inscrutable in medically).

Traditional Balinese Medicine refers to the traditions, experiences, and hereditary skills of the Balinese people, both those that have not been recorded or that have been written in the *Lontar Usadha*, in education or training, and are applied in accordance with the norms prevailing in Balinese community (Pergub Bali No 55 of 2019). The practice of utilizing medicinal plants in traditional Balinese medicine, *Usadha Bali*, illustrates the complex relationship of knowledge, trust and utilization (*Corpus-Cosmos-Praxis*). The practice of utilizing medicinal

plants (praxis) is based on a strong belief system (cosmos) about illness or health and a system of knowledge (corpus) about plants. The Balinese believe that health and illness as an equilibrium of the *Panca Maha Bhuta*, the five elements in the body namely; liquid (*apah*), solid (*pertiwi*), wind (*bayu*), fire (*teja*), and soul (*akasa/ether*). On the basis of these beliefs, the treatment is carried out holistically by combining element of belief about health or illness (cosmos) and knowledge about medicinal plants (corpus) (Arsana, 2019).

The practice of traditional Balinese medicine combines medical and non-medical elements. Such treatment is widely known in the practice of culture in the world. For example, Traditional Chinese Medicine (TCM), which is based on the concepts of *yin-yang* and *Wuxing* and uses a variety of herbs, has been a practice of traditional Chinese medicine for thousands of years (Yuan et al., 2016). *Unani*, the practice of ancient Greek medicine based on the concept of four elements of humoral of hipocrates namely; blood (*dam*) which is hot and moist, *phlegma* (*balgham*) which is cold and moist, *safra* that is hot and dry, and *sauda* which is cold and dry. The equilibrium of nature of these elements (hot, cold, dry, and moist) then a person is said to be healthy (World-Health-Organization, 2010). *Kampo*, the practice of traditional Japanese medicine by combining mind and body as one unit, imbalances of mind and body cause illness (Watanabe et al., 2011; Yakubo et al., 2014; Yuan et al., 2016). *Ayurvedic* system in India

with three elements, *Pitta-Kapha-Vata* (Ventegodt et al., 2007).

CONCLUSION

There are three species of *Ocimum* used in traditional Balinese medicine, Usadha Bali, namely; *Ocimum basilicum* L, *Ocimum tenuiflorum*, and *Ocimum gratissimum*. The plant is used to treat disease or disease symptoms. The Balinese still believe in the traditional Balinese medicine system. The Balinese believe that health and disease due to an equilibrium of the five elements of the Panca Maha Bhuta, so the treatment is carried out holistically by combining elements of trust and knowledge.

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T-Shirt Design of the First Name Bali Ethnic: A Representation of Local Identity Images

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ABSTRACT

In the era of globalization, identity is something that is important and can be used as a differentiator from each other. Many things can be adapted into identity, one of which is local wisdom, and can be applied to various works. As an example of work in the field of design that adapts local identity, namely t-shirts with the design of the first name ethnic Bali. This t-shirt design is quite popular to be marketed to the wider community. This study aims to analyze the image of t-shirt designs that show local identity. Data collected through observation and interviews, and analysis using interpretative qualitative approaches. T-shirt production with Balinese ethnic first name design is a representation of the image of local identity (first name) that is owned by Balinese in general. This t-shirt is also used as an effort to improve the image of local identity (especially ethnic Balinese first names) to the international world. Enhancing the image of local identity is characterized by the use of a foreign language (English) as one of the supporting texts of the main text (ethnic Balinese first names).

Keywords: T-shirt design, Balinese ethnicity, image, local identity

I. PRELIMINARY

Identity becomes something important in people's lives in the current era of globalization. Identity as a differentiator and has characteristics among individuals, regions, nations, and countries. Many things can be explored by each individual to show their identity, region, and country. Not only individuals, regions, nations and countries need identity, but also private and companies need identity. The goal is to have characteristics and be easily recognized when compared to other companies. An identity can make it easier and faster to be recognized when promoted or introduced to the public.

In particular, Bali, although it has been known internationally, but there are still certain things that are characteristic of Bali can be explored. Explored to be an identity or to show other identities that exist in Bali than previously known. For example, recently, a t-shirt that was designed a Balinese ethnic first name appeared. Even though most people in the world have known the ethnic Balinese first name, but the presence of this t-shirt has become one of the people's consumption and is quite popular in the market. The design of this ethnic Balinese first name t-shirt emerged after previously circulating t-shirts with Balinese writing designs such as: *depang cang kene, beli mule kene, ulian metajen iluh payu*

kesalon and others that are quite popular in the community.

The presence of T-shirt designs with ethnic Balinese first names is a new phenomenon related to local identity. Therefore it can raise the question whether this is as an effort to introduce local identity? Or some people who produce, popularize, and consumers feel a crisis of Balinese local identity? Or even there is a desire for identity branding efforts through the media. To answer these problems, an in-depth analysis needs to be done. Data taken and collected through observation and interviews. The results of observations and

interviews are described and then interpreted.

II. DATA AND DISCUSSION

Data Description

T-shirt designs with ethnic Balinese first names are widely circulated in the digital market Facebook, Tokopedia Marketplace, Bukalapak, IG #kaosnamabali, and so on. Various captions also adorn every post. No exception the selling price is displayed in a variety and complete with a variety of design choices. T-shirt sales are not only online, but also sold in several *distro* in Bali.



Figure 1. T-shirt design of ethnic Balinese first names
 Source: Facebook, Tokopedia Marketplace, IG #kaosnamabali

Of the many designs that were produced showed different

variations. The first t-shirt design, using the ethnic Balinese first name

text as the main text combined with Balinese (*patra*) illustration. To complement/show Balinese identity, ethnic Balinese first names were made using supporting texts using Balinese script. There is also a text that reads "*kene keto mule keto*". The second t-shirt design, the design of the ethnic Balinese name uses the form of Balinese script text (following the Balinese script form). Also added is the Balinese script text (as a supporter) following the name or text above it (the main text). The third t-shirt design, the ethnic Balinese first name is made with plain text which only applies color gradation as the color of the text. Under the name text (the main text) is given the caption "balinese pride" and accompanied by the icon of the island of Bali. The fourth t-shirt design, the name text uses one color and is equipped with the caption "Balinese Pride" and the icon of the island of Bali. The fifth t-shirt design emphasizes more Balinese letters or Balinese script text for writing the main text, but Latin texts are still given as explanatory. Also equipped with the caption "balinese pride" and the icon of the island of Bali. There are also designs with the text *I'm Made 100% jemet megae, I' m Kadek 100% demen kedek, I 'm Komang anak ketiga di Bali, I' m Wayan anak pertama di Bali, and Kadek nak Bali.*

III. Discussion

The production of T-shirts with the first name ethnic Balinese is one of the representations of local identity images and expressions of pride related to the culture and traditions in Bali. According to Piliang and Jaelani (2018: 71-72), in contemporary culture, image is a very central and important element. Said to be important because the image is almost found in all aspects of life. Image can also play a role in shaping the world of contemporary life. While identity according to Barker (2014: 133) refers to something that is universal and timeless, an "essence" of self that is expressed by representations that are recognizable by ourselves and others. Likewise, Barker states that identity is entirely a social construction and cannot be 'existed' outside of cultural representation and acculturation (Barker, 2000: 170). In everyday life, identity refers to the uniqueness of an individual as a social group (Eriksen, 2004: 156). In addition, identity is also related to how people identify themselves and others. Identity is not a final, static entity, but rather something that continues to grow and develop.

The image of the cultural identity of the local traditions referred to in this study is the use of ethnic Balinese first names such as: Wayan, Gede, Putu, Kadek, Komang, Ketut and others. That first names are a cultural tradition of

ethnic Balinese people (Kadek Arini in kumparan.com). Kumbara (2019: 24) argues that cultural identity as something that is intentionally built and clearly related to a set of relative beliefs surrounding the concept of culture. Likewise what happened to the t-shirt design in this study, cultural identity was intentionally built based on Balinese cultural concepts and traditions. For t-shirt users, it can indirectly function as self-identification to the others. Balinese Ethnic who buy and use this t-shirt will certainly choose a t-shirt design in accordance with its name. For example, someone (Balinese ethnic) named Wayan would certainly choose a t-shirt design that reads Wayan. This attitude shows that the shirt is used as an image of self-identity. As Barker (2014: 133) said, identity is the essence that is characterized by a number of signs such as taste, belief, attitude, and lifestyle. When this t-shirt is used by outsiders other than Balinese ethnic, it will be meaningful as an expression of pride in one part of Balinese culture and tradition. They buy or use t-shirts (Balinese ethnic first name designs) because they are more feel of Bali. It can also be said as self-representation, the assumption is that by using the t-shirt, it feels indirectly as a Balinese person/ethnic. Indirectly also the local identity of Bali has been promoted through the design of t-shirts.

The representation of the image of local identity and pride is explicitly exposed in the t-shirt design. Barker (2014: 255) mentions that representation is an act of symbolism that reflects the world of independent objects. Cultural representations and meanings have a certain materiality, they are attached to sounds, inscriptions, objects, images, books, magazines, and television programs. One that can be used as an indicator of an image and expression of pride besides the first names of the Balinese ethnic as the main text is the supporting texts of the main texts. Supporting texts such as: *balinese pride, I'm Made 100% jemet megae, I'm Kadek 100% demen kedek, I'm Komang anak ketiga di Bali, I'm Wayan anak pertama di Bali, and Kadek nak Bali*. That texts seem to imply that anyone who uses a t-shirt (as an image) indirectly provides an atmosphere of pride towards Bali's locality. For ethnic Balinese, of course they are very confident when using a t-shirt that has the first name written on it and they will definitely choose a t-shirt that matches their first name. Therefore, as pride for the first name that has been pinned on his name. Some texts used to support the main texts were also made in English as an effort to improve the image of local Balinese identity to an international level. In addition, what is able to improve the image of local identity is

the use of Balinese script as a combination of supporting texts.

T-shirts with Balinese ethnic first name designs have become popular because of the existence of a culture of public consumption supported by the development of information technology or the will of the media that continues to popularize. As Pilliang stated, contemporary society is an important part of capitalist society (Piliang and Jaelani, 2018: 72). The Balinese ethnic first name t-shirts were popularized through the media and were part of the capitalist ideology. Because it is part of the will of capital, all means will be used to find new markets. According to Fitryarini (2012: 1), popular culture does not only talk about people, language, fashion, or even the necessities of life, but popular culture is rooted in commercial values (producing something of commercial value).

In connection with its distribution, currently some of the millennials, especially young people in Bali, tend to choose t-shirts that are sensational and even eccentric. For example, t-shirt designs that read eccentric words like: *depang cang kene*, *beli mule kene*, *ulian metajen iluh payu kesalon*, and others are quite popular with young people in 2010 to 2013. Perhaps as one of the reasons for choosing eccentric designs, because the use of these clothes is used as an image of self-identity. What is written in the

design of the t-shirt seems to reflect itself, so made its identity. After that period a t-shirt design with the first name Balinese ethnic appeared that appeared to be more exclusive and could be widely marketed. The emergence of t-shirt designs with popular Balinese ethnic first names are marketed today not because there has been an identity crisis in Balinese ethnic, but rather as a representation of Balinese local identity. Because actually Bali is very rich in culture and traditions that have been known to the world and become part of the Balinese identity. Call it for example dances, ceremonies, customs, and others. But the emergence of this t-shirt design emphasizes the image of other local Balinese identities in the form of everyday wear objects.

IV. CONCLUSION

The popularity of T-shirt designs in the form of Balinese ethnic first names marketed on the online media is a representation of the image of local identity and shows pride in the culture and traditions of first name Balinese ethnic in general. Especially for users of Balinese ethnic, they will certainly feel confident when using a t-shirt that has a first name and will definitely choose a t-shirt that matches their first name, because as a matter of pride, the first name has been pinned on its name. This t-shirt product is also a media to improve the image of local identity, especially those related to Balinese ethnic to the

wider community and even internationally. The image of the local identity of Balinese culture and tradition is materialized through the text of the first name Balinese ethnic as the main text as well as some supporting texts that read Balinese script and Latin texts in Balinese. For a wider reach or targeting the international community, some t-shirt designs use/complement English-language texts.

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Body and Creation: Cosmic Relation in the Visual Art

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Abstract.

The body in the view of Hindu is the cosmic world. The terminology about cosmic or nature in the body also defined as micro-cosmic meanwhile the Universe itself known as macro-cosmic. Both of these cosmic are connected and influencing. The body has long been a concern and study of humans both in terms of theology and physical. The result is very diverse from philosophy to medicine and also to arts. In arts, the body is often referred as figures, models as well as anatomical studies. The context of this paper explores the problem of the body and the concept of creation based on the Kakawin or Geguritan texts, for example in the Adi Parwa text which in the first stanza states about the emptiness of the universe and the Gods then creates a world and fills it with life, as well as the Tantu Pagelaran and Geguritan Candrabarawa. The body concept much reviewed in the text Tuter Aji Saraswati and Dharmasunya. The theory used is the hermeneutic theory and the research method uses qualitative analytic methods. The results of this study reveal that the relations of the Bali cosmic nature related to arts, especially in the context of discourse of the body and creation, from the empty or the beginning of creation as described in Adi Parwa and the concepts of creation and the body in Dharmasunya and Candrabarawa to the filling of the world by the Tantu Pagelaran, to the characters in the body that arranged in the text Tuter Aji Saraswati.

Keywords : body, creation, cosmic, Bali, Visual Arts

I . Background

The art world is very attached to the world of creativity, in which, of course, the realm of creation becomes the main thing, but have we ever thought about how something is created through the body of the artist? Or at least, we once asked in a contemplative room (artist's studio) where did the creation in the Balinese context come from? This question is not a problem statement that will be discussed in this paper, but rather a trigger for the birth of interesting new question to be discussed.

Creation is a verb that literally refers to making something or giving birth to something.

Creation is very close to the world of artist even though in reality, everyone is creator of a thing, but in this context that is an artist who in his life has a million ideas to be realized.

Artist through their creativity think of everything that might be used to convey their ideas about something, for example the idea of how to process the art medium so that the idea of destruction can be addressed well to the public through art. Regarding the body and creation, it turns out that Bali inherited manuscripts in the form of palm leaf writing about it. Some that are used as references are Tuter Aji Saraswati, Geguritan Candrabarawa,

Dharmasunya, Adi Parwa and Tantu Pagelaran.

The cosmological world of Balinese Hinduism places the body into a kind of subject matter that is analogous to the order of the small world, while the big world is the universe. Therefore the relation of the human body to the universe cannot be separated. An example is how then the Mandala with the Gods of Nawa Sangha is connected with the organs of the body, until it is simplified into its virtual form, which is script. So that all thoughts about that exist in this world are created, of course, through the organs of the human body. Interestingly, the relation between the body and creation emblazoned through literary texts inherited formula to study. This also indicates that the theories regarding the method of thinking about creation that intersect with theology are very rich and are scattered in several manuscripts that have been presented before, but not many artists these days who want to read even study them.

Through this explanation, a problem can be formulated, namely whether the text or texts can be used as a concept building about the relationship between the body and creation? How is the relationship between the body and creation built in the context of art? The purpose of this research is to reawaken awareness together as Eastern societies to re-read scientific knowledge about the body and the

concept of creation that is indeed in line with the reasoning of Eastern thinking, furthermore of course this study aims to try to find the roots or the beginning of the creation of something in the human ind is written in several manuscript which are inherited from generations of Balinese people.

Body in the sense of Balinese cosmology called *sarira*, in the context of Tutar Aji Saraswati that the body is a literary arrangement that must be understood, as explained by Nihan Tatwa Wisesa, *Kawruhakena aksarane kabeh mungguh ring bhuwananta, kawruhakenaneng lukun sang Hyang Dasaksara, dadiakena pancabrahma* (Tim Penulis, 2004:8). In line with Guna Yasa (2018:2), it is explained that the purpose of studying *sarira*(body) is interconnected with the proper placement of characters in which a person obtains devotion for health and purity, including matters of intelligence.

Creativity has a strong relationship with creation that Damayanti (2006:12) explain as the main tool for developing intonation. Further explained by Damayanti (2006:13) that in the latest development, the concept of creativity has a very broad/general relevance, especially associated with the development of studies of creativity in the discipline of psychology. Through Damayanti's statement, creativity in his understanding is highly developed

until the study of creativity enters the area of human psychological reading.

II. Method and Theory

The method in this study uses qualitative analytical methods. Sugiyono (2012:9) explains that qualitative methods are research based on the philosophy of positivism, used to examine natural conditions of objects, (as opposed to experiments) where researchers are as key instruments, data collection techniques are carried out by triangulation (combined), data analysis is inductive or qualitative, and qualitative research results emphasize meaning rather than generalization.

Text analysis of the body in the text or text that is used as a reference for reading about creativity is analyzed using hermeneutics theory, as Kaelan (2009:266) quotes Schleiermacher that understanding is a reconstruction that departs from the expression that has been expressed and leads back to the psychological atmosphere in which the expression was disclosed. In this problem there are two main things that are interconnected and interacting, namely the moment of grammar and the moment of psychology. Whereas the principle upon which the reconstruction of the grammar and psychology fields is termed the hermeneutic circle. Therefore, this paper is written through a qualitative method based on the philosophy of positivism, the result is an emphasis on meaning

which in analytic processes uses hermeneutics or language philosophy through interpretation of ordinary language, all of which is the hermeneutic logic of language philosophers such as Ryle, Austin and Strawson that language is seen as using hermeneutics or philosophy of language through ordinary language interpretation. The way we understand reality and the way reality appears to us (Kaelan, 2009: 264)

III. Results and Discussion

“Hana pwa ya mangke wuwusen, ikang kala tanhana aditya, candra naksatra baywakacandika pralaya riwekas ning sangharakalpa, prapta mwan sargakala pratiniyata mijil saprakaranya nguni...” (Widyatmanta, 1958:1). The Adi Parwa text above invites us to imagine the created emptiness and creation, which is literally functioning to be filled by everything. Understanding emptiness is the same as interpreting the space in the body that is filled with organs or interpreting space in the medium of painting. From the timeline filling process (creation) slowly with constant *atma* begin to be created over the accumulation of bodily elements as the spirit of imagination in the mind gives a shadow (cliche) about the complete arrangement of visual elements in the visual arts that we will present in the canvas/paper medium/ and others. This is what in Deluze’s writings is stated as a cliche, works of art become representations of the mind.

Geguritan Candrabarawa explains the understanding of two things namely *Karma Sanyasa* and *Sanyasa Yoga* which are the main points, *Shivaism* (in Geguritan Candrabarawa) represented by *Karma Sanyasa* in the sense of living in the world doing physical karma by making *Kabuyutan studio*, *Prahyangan*, *Arca* (statue), and others, while Buddhism is represented by *Yoga Sanyasa* by carrying out *Bajradara* worshipping the *Atma* within, and all withing the body

In the text it says “...syapa weruh, ring warna ning dewa, manahnya dawak magawe dewa, agawe paran, magawe sanggah Dengen, yeka gawenan banten, sangapa kumaweruhanya tumarimeng banten, ndan kurang lewih ing wedana...” translated to “it was his own mind that created Gods, made goals, made Sanggar Dengen. That’s what he made *banten*. Who knows who receives the offer, himself who feels happy or hard...” (Drafting Team, 2004:2-38). It is clearly mentioned in the *Geguritan Candrabarawa* passage about the mind which is the origin of creation itself. Regarding the flow of creation in other text found in the *Darmasunya* which explains the physical body and *atma* there is a Buddha that bridges the two, Buddhism is referred to as “thinking of all these natural decorations” (verse 56), the body wrapping *atma*, Buddhism thinking about all these natural decorations. *Atma* is in words

giving birth to thoughts. Mind-speech is one and causes reality. Bayu-thoughts cover the *atma* so they forger their true identity. *Atma* is the cause of consciousness, the power of *atma* becomes *manah* (desire) developes into *budi/budhi* (thinking about all the natural decorations) then gives birth to self.

“*Reh swajatinya sunya gawenan prelingga arca, cinitra rupa ning dewa, dening taru candana, gawenan banten, tengetan ring wang akeh...*” (Drafting Team, 2004:12). Perceptually, the beginning of the concept of creation that starts from the emptiness I mean with an empty body before becoming a body, the sun is the source of energy that will trigger the occurence of tension, the moon are the smoothest layers of reason, stars are interwoven planar organs, wind is energy for the body, and sky is an imaginary mind/imagination. The series works one by one in a single function and is integrated with each other so that it contains the emptiness “*pralaya riwekas ning sangharakalpa*”. This is in line with Deleuze’s thinking about creating a work of art “*it is a mistake to think that the painter works on a white surface*” (Deleuze, 2003:86). It is a mistake to think that the painter works in the white field (blank canvas) as well as a mistake in understanding the statement of creation starting from the emptiness (literally). The emptiness that has actually been filled, the reason for space and time is built in the process of creating a work. “*Everything is*

already on the canvas and in his painter self, before the act of painting begins” (Deleuze, 2003:98). In line with the *Tantu Pagelaran* text describing “...ndah tanwihang hyang Brahma Wisny magawe manusa; Imah kinempelkempenira ginawenira manusa lituhayu paripurna kadi rupaning dewata...” the translation is “...then Lord Brahma and Lord Wisnu did not refuse. They created humans. The ground in his fist was made into a handsome man, perfect like the face of a God...” (Writer Team, 2003:47,107). *Tutur Aji Saraswati*, which contains the knowledge of the virtuality of characters which has a crucial role in the human body, these characters are connected with the macro nature. After the body (container/place/media) is created, the alphabet is an organ (element/arrangement) in the body that can be uniquely played with the term sumptuous, as stated “*Wa mulih ring A kara, Si mulih ring I kara, Ma mulih ring Ba kara, Na mulih ring Sa kara dadi Pancabrahma, sabdania : SA BA TA A I. Malih ringkes Sa mulih ring Ba kara dadi A kara dadi U kara, Ya mulih ring I kara dadi Ma kara, sabdania A U MA, iki tri aksara nga...*” (Writers Team, 2004:3). Turning characters in this context is summarizing from 10 main characters to five, then becoming 1 main character. The concept of being or turning this script is energy.

IV. Conclusion

It is clearly explained that the text of *Tutur Aji Saraswati*,

Geguritan Candrabhera, Dharma Sunya, Tantu Pagelaran, Adi Parwa, can be used as a reference for understanding the body and creation. This can be analyzed and elaborated through sentence findings that are in line with the topic of problems namely the body and creation. In the context of art, the relation between the body and creation is very closely related, especially after the texts mentioned above are paired with Deleuze’s aesthetic thinking about artist in creating works.

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Sustaining Biocultural Diversity Through Writing: The Case of Lakoat.Kujawas

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Abstract

A growing field of research in recent years is the loss of biocultural diversity, or the ‘diversity of life in all its manifestations: biological, cultural and linguistic, which are interrelated (and possibly coevolved) within a complex socio-ecological adaptive system’ (p.269) [1]. Whilst this is primarily due to the loss of ecosystems, which leads to the movement of communities into urbanised areas, this could also be attributed to growing globalisation and homogenisation of culture. In turn, this also leads to a loss of language and knowledge related to a place, as communities move to urban areas for work, or take on more widely accepted national or international languages over regional, through choice or political pressure. As indigenous communities increasingly feel such national and international changes, many have developed their own community led initiatives to protect beliefs, languages and knowledge from their communities. This paper examines Lakoat.Kujawas, a social enterprise in Taifto, Nusa Tenggara Timur which has developed various projects to revive and restore Mollo traditions, language and beliefs. In particular, the development of To The Lighthouse, a creative writing project where students have written and published two books, now sold around Indonesia and gathering interest internationally. It explores how by developing these story and poetry collections centering on the life, worldview and environment in Taifto, the Mollo community can both revitalise their local identity and record it in a tangible form. At the same time creating something accessible to the outside, national and international reader, protecting indigenous identity and local environment by raising awareness of their situation through national literary networks.

Keywords: biocultural diversity, traditional ecological knowledge, narrative, Lakoat.Kujawas

*“di halaman rumahku ada banyak batu
batu besar dan batu kerikil kecil
dihiasi sinar mentari pagi yang cerah
alangkah indah dengan aneka warna
aku bertanya mengapa di semua tempat
selalu ada batu, mengapa batu selalu
dicari-cari oleh semua orang?”*

*(in my backyard there are many stones
big stones and little pebbles lit by the
bright morning sun how beautiful with
all the colours I wonder why all places
always have stones, why are stones
always sought by all people?) (p 26) [2]*

I. Introduction

As awareness of the need to sustain biocultural diversity has developed over the past thirty years, interest in

indigenous communities and Traditional Ecological Knowledge (TEK) has blossomed. While this has brought a number of benefits to rural communities, such as better land rights and state protection, new issues have risen surrounding intellectual property of indigenous communities and how knowledge from such communities is used. We can see here multiple strains on indigenous communities, from initial factors such as loss of biocultural diversity due to the destruction of ecosystems and indigenous land, the loss of biocultural diversity through globalisation, modernisation, and homogenisation of language and

culture, but also pressure to preserve such knowledge, as well as exploitation of indigenous knowledge. The definition for indigenous in this essay is taken from der Muur, meaning ‘self-identified, culturally distinct and politically non-dominant communities with longstanding ties to a bounded territory’ (p.161) [3].

As a way to combat these strains and increase resilience, many indigenous peoples have taken it upon themselves to document knowledge, languages and practices with the intention of disseminating it on their terms, whilst also building on their personal identity. One such community is Lakoat.Kujawas in the village of Taiftob, Indonesia. Formed by a group of young Mollo people, Lakoat.Kujawas has developed a local library, creative writing class, and workshops to help regenerate weaving and traditional activities, passing on the techniques to the younger generation, as well as a platform for selling local produce [4]. For the basis of this essay, the focus will be on the output of the creative writing class from the community, named *To The Lighthouse*. It will explore how by creating this class, and developing story and poetry anthologies, *Kap Na'm To Fema* and *Tumbuhku Batu Rumahku Bulan*, Lakoat.Kujawas has developed tangible forms of traditional ecological knowledge based on stories passed down through generations, and new reflections from the younger

generation. In doing this, the community has helped strengthen local identity, but also created an awareness on both a national, and steadily international scale. This essay will argue that by creating this tangible, written form of indigenous knowledge, the community can help safeguard itself against future environmental threats posed by the government, the climate crisis, or emigration and trafficking through strengthening local identity, documenting traditional knowledge, and advocating for their community through sharing their stories to the wider public. Throughout this paper, I have translated the stories and poems from the original Bahasa Indonesia.

II. Outlining Biocultural Diversity and Traditional Ecological Knowledge

“Aku senang di keluarga kami, tradisi ini masih terpelihara baik. Berharap kami tidak melupakannya. Sebagai keluarga petani, kebiasaan baik ini harus kami lestarikan.”

(“I’m happy in our family, the traditions are still well maintained. We hope we won’t forget. As a farming family, we have to make sure these practices are everlasting.”)
(p.65) [5]

Biocultural diversity, Maffi explains, ‘in practice [is] the on-the-ground application of the idea that maintaining and restoring the diversity of life means sustaining both biodiversity and cultures, because the two are interrelated and

mutually supportive' (p.3) [6]. Cocks furthers this definition by explaining the importance for conservationists 'to explicitly recognize the role played by human diversity in biodiversity conservation because biodiversity represents a source of raw material on which the processes of evolution depend' (p.187) [7]. This role played by human diversity comes in part through the utilisation of TEK, or traditional ecological knowledge. Berkes describes this as 'a cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment' 7, italics Berkes') [8].

In each location, these communities have highly specific knowledge regarding the species and ecosystem in which they are borne, and if this environment is lost, the community is moved or migrates from their homeland, or the language is lost, so too is this knowledge and the ability for such species to continue without the interaction with the human community. This lies in direct contrast to the traditional philosophy of conservationism which assumed, and in many cases still assumes, that ecosystems thrive best without human interaction. Examples of this are found in many national parks around the world where the expulsion of populations have led to the reduction of pollination or

controlled fires to rejuvenate the land.

Yet in the drive to maintain such knowledge and learn from communities, there lies potential for the removal of agency of indigenous people. Pharmaceutical corporations since the 1980s for example, have 'aggressively sought flora with useful properties that can be privatized through intellectual property law' (p.29) [9], using knowledge gained from indigenous communities and then privatising their findings and exploiting the community and the 'resources'. Kennedy and Lacziak also describe the commodification and selling of both tangible and intangible heritage from traditional communities by outside agents, including the appropriation of artefacts, myths, designs or songs (p.307) [10].

The field of academia has also been guilty of intentionally or unintentionally misrepresenting communities, with some scientists taking the knowledge gained through generations of lived experience and not acknowledging them within their research, removing the voice, rights, and benefits which the community should have received [11]. This is further problematised by the potential gap in understanding between scientists searching for empirical, quantifiable knowledge, compared to local alternative forms. Lastly, the publishing of information could again, find its way back to corporations and industries who use

the information to exploit resources for their financial benefit.

In order to meet these problems, indigenous communities are increasingly understanding the laws which affect them, and attempting to bring their voice to the public domain, creating awareness of their community and armouring themselves against potentially damaging outside forces. Storytelling and visual narrative has proven effective in sharing world view and history. The written form, to retain elements of oral tradition, often contains motifs and techniques which incorporate the practice of speaking and oral story-telling such as freeform speech or local sentence structure. As commented by Dickinson, '[t]hese inherently hybrid texts at once give voice to Indigenous memory systems long silenced by the history of imperialism, and transform the usually solitary reading experience into a more cooperative and responsive act of listening' (p. 320) [12].

This has been a growing movement, particularly in North America and Australia where native American and aboriginal literature have developed into specific genres. Thus this literary practice is both inwardly focused and outwards; at once the growth of indigenous literature helps communities dictate their own history, revitalise narratives and cosmology, but at the same time, is a platform to share knowledge and experience, and potentially helps

develop greater public awareness of the issues faced in terms of land, biodiversity, or cultural loss. At the same time, opening channels of sustainable income through the selling of products.

III. Locating Lakoat.Kujawas

"Ketika kebun selesai dibersihkan dan tanah digemburkan, saatnya menyiapkan bibit yang biasanya kami simpan di loteng ume kbubu, rumah tradisional kami. Menunggu hujan adalah saat-saat yang mendebarkan. Bisa saja perkiraan kami meleset, hujan datang terlalu cepat atau terlalu lama. Apapun itu kami harus siap dan siaga menunggu"

(When the garden has been cleared and the land tilled, it's time to prepare the seeds we keep in the roof of the ume kbubu, our traditional house. Waiting for the rain is something exciting. The rain could be too fast or too late. Whatever happens we have to be ready and waiting.)

(p.32) [13]

The Indonesian archipelago is one of the most bioculturally diverse countries in the world, with around 726 languages documented across the islands' (p.93) [14] multiple ethnic groups and vast forested areas. The diversity across species, cultures and languages across Indonesia is aided by the tropical climate of the island and relative inaccessibility through islands, forest and mountain ranges which have, in the past, kept communities relatively isolated and self-sufficient. Factors such as: three centuries of colonisation which initiated land use for monocultures; years of rapid development of industrial agriculture and

deforestation; urbanisation, transmigration, the steady growth of Indonesian as a first language; as well as missionary activity from world religions such as Protestantism, Islam and Catholicism, have led to all forms of this diversity shrinking at an alarming rate.

In the peripheral regions to the east of Indonesia, such as the island of Timor, the largest threats to the cultural, linguistic and biological diversity have come from wide-scale deforestation of hard woods, marble mining, economic migration and human trafficking. This, coupled with a sense of being at the periphery, both geographically and religiously, with Suharto's New Order government in 1965 enforcing conversion from indigenous beliefs to the recognised religions of Indonesia [15], enforced development schemes such as the 'healthy house' project (p.1153) [16] and national curriculums in Bahasa Indonesia has led to a decline in participation in local traditions and practices.

IV. Local Resistance

The area of Mollo in NTT has a rich history in environmental activism utilising local language and cosmology. With twelve rivers running through the region and lying on top of a bed of marble [15] the land is at once alive, but at risk of exploitation. Mollo was brought to the national and international attention by Aleta Baun, an anti-

mining activist from the region who halted mining companies between the 1990s to 2010 through organising 150 local women to weave in the mining pit, forcing company PT Teja Sekawan to abort. Her drive to protect the region came from the local philosophy 'Pohon bagai rambut dan kulit, air bagai darah, batu bagai tulang, tanah bagai tubuh (Tree as hair and skin, water as blood, stone as bone, land as the body)' (p.355) [17]. It is this belief of the inextricable connection of land and body that has sustained the Mollo's continuous protection of their environment until now. Through invoking Mollo cosmology, Baun, along with the community, prevented the mining but also strengthened local identity and brought awareness of the situation in Mollo to wider society, preventing mining companies from reentering.

Currently however, the region of East Nusa Tenggara faces the challenge of a wave of youth migration from the islands to the cities of Indonesia, Malaysia and the Middle East to look for work as farm hands or domestic workers to send remittances home. This migration has meant that villages have a far reduced number of young people, distanced from the local community, landscape and agricultural methods, leading to local communities developing means to protect local identity.

V. Coming to Writing

Sharing the spirit of Baun, Lakoat.Kujawas, formed in 2017, focuses on revitalising local cosmology, connections to the land, craft techniques and language. While the community is officially Catholic, original belief systems are practiced alongside the religion, and the local church supports the community's development. A key project created by one of the founders, Dicky Senda, has been the formation of creative writing class To The Lighthouse for students of school SMPK. St Yoseph Freinademetz Kapan. Within this class, students discuss literature from around Indonesia and the world, as well as everyday experience to form the basis of their own creative writing. In the introduction to Dongeng Dari Kap N'am To Fena (Fairytale from Kap N'am To Fena), Senda writes:

Saya membebaskan mereka untuk mengeksplorasi memori kolektif mereka, ingatan-ingatan pada berbagai dongeng di masa kecil dan pengalaman melihat berbagai hal yang terjadi di lingkungan sosial. Menarik sekali, tema dan tokoh seperti budaya, pertanian, sihir, liuksaen (ular piton), naga, maupun nama-nama lokal bercampur baur dengan legenda sebuah tempat... Dengan menulis dongeng lokal, kelima belas remaja ini saya ajak untuk mengenal kembali identitas diri dan lingkungan mereka. Kelak mereka masih bisa bangga menyebut diri mereka "Anak Mollo Sejati" sebab mereka kenal budaya, bahasa dan sajarah kampung halamannya dengan sangat baik.

(I give them the freedom to explore their collective memory, remembering the stories from their childhood and the experience of seeing what is around them in their social environment. The themes and motifs are so important, for example culture, magic, liuksaen (pythons), dragons as well as local names mixed together with legends born from this place... With the writing of local myths, I invite these fifteen teenagers to explore and return to their own identity and environment. Later, they will be proud to say out loud "we are true children of Mollo" because they will truly know the culture, language and the history of their village.)
 (p.vii) [18].

Stories within Dongeng Dari Kap N'am To Fena, revolve around families struggling to with the harvest, but receive a miraculous gift from strangers, magical liuksaen (pythons) who lie on mounds of gold unattainable for villagers, and the first people of Kap N'am To Fema who ventured out a deep cave. Stories explore day-to-day experience and the development of the extraordinary within. Common themes are waiting for the rain at the beginning of the musim tanam (planting season), hospitality, and respecting relations – both human and otherwise - through narratives from the perspective of trees, beetles and deer.

In "Di Ajaobtomas, Pohon-Pohon Kesuari Pernah Mati Kecuali Pohon Lakoat" by Sandra Natasia Liu, the perspective is an old lakoat tree, who tells of the death of the forest's pine trees along with a child, Tomas, as they were struck by lightning during

a storm. New trees were planted in their place, replacing the pine that stood before, and these trees were ‘tinggi menjulang dan sehat’ (‘towering and healthy’) (p.9) [19] compared to the old lakoat tree who is ‘the oldest and most respected: ‘dijaga seperti lelaki tua kesayangan anak dan cucu (protected like an old man who is loved by children and grandchildren)’. In return for cleaning the grass around his feet, and not chopping his branches,

[d]iam-diam aku membalas jasa mereka dengan menjatuhkan rantingku yang telah kering untuk mereka jadikan kayu bakar. Ketika mereka datang untuk beristirahat di bawah tumbuhku, aku akan melambai-lambaikan semua dahanku, menciptakan angin sepoi yang menghanyutkan.

([s]ilently I return their service with my dry fallen twigs for them to use as firewood. When they come to rest under my boughs, I wave all my branches to create a drifting breeze) (p.9-10).

In this imagery we see a sense of reciprocity between tree and community, of respect for the environment and species within it. The death of Tomas along with the death of the pine trees in the lightning strike also aligns the human population with non-human, the other trees who witnessed what happened and shared the memories are already gone, only the lakoat tree remains to remember what happened.

In “Namaku Kujawas” by Elen Angelin Talan, another lakoat tree speaks of their experience in the village. Yet this time, the

relationship between tree and humanity is not so sympathetic. Instead, humans come to cut the branches and stop the tree from growing tall. ‘[A]ku sedih sebab tubuhku selalu dipotong oleh orang-orang yang datang membersihkan gereja. Mereka tidak punya hati nurani. Padahal aku ingin tumbuh besar. Aku tidak punya mengganggu siapapun’ (‘I’m sad when my branches are cut by the people who come to clean the church. They don’t have a conscience. All I want is to grow tall. I’m not bothering anyone’) (p.55) [20]. With each season the tree grows, only to be cut down again for slingshots. Unlike the reciprocity in Liu’s story, through Talan’s narrative we have a chance to reflect on the consumptive actions of humanity towards other species, as the environment itself has personhood and protests.

Like Baun’s words before, ‘[t]ree as hair and skin, water as blood, stone as bone, land as the body’, the very concept of land and human are indistinguishable. Senda explains how rocks, or fatu in Dawanese are central to life. Each clan has a specific familial rock used to define identity and meaning. The traditional ‘ume kbubu’ (p.32) [13] round house of the Mollo, is positioned in proximity to each of the important elements of life: stone, water and forest. Throughout the colonial era, followed by national industrial projects, these relationships were forcibly ruptured. The rocks so central to identity and worldview for

the Mollo were made inaccessible and reduced to a commodity, the forests in which the community ritualistically took honey, fruit and firewood was enclosed to become Industrial Forest (HTI), developed to be exploited for the strong wood native to the island [15]. In *To The Lighthouse's* second anthology, *Tumbuhku Batu Rumahku Bulan*, the poems offer another form of expressing what it is to be from Mollo and the ecosystem of the village of Taiftob through developing a different narrative form. Poems feature hills that watch over the village, protecting those 'who burn and those who do not' (p.43)[21]. The environment around the village watches over and holds the memories of the land; the stones, rain, trees, rivers all feature as characters, participants in the village of Taiftob.

A body of literature questions the process of turning the oral into the written, describing it as a codification of what is intangible, living words [22] The mention of the weaved cloths [23] from Talan and 'selimut tenun' ('woven blankets') [21] highlights another form of storytelling that the village of Taiftob and the wider Mollo community hold close. If the written word is a codification of what is rich, local and living orality, excluding those who are not literate, *Lakoat.Kujawas* continues to develop other, more personal forms of storytelling within the community such as oral tradition, trails combining place with narrative,

and perhaps most importantly, weaved fabric alongside the books. Senda explained: "Mollo women write the history of their village in their clothes...The people of Mollo talk, they don't write, and the story of their kampung, their village, are in their clothes" [15]. Thus alongside the creative writing class, *Lakoat.Kujawas* invigorates the local weaving tradition, with older women of the village teaching young people the skills and the stories woven within. A project also runs in which elders of the village sit with the children to tell stories from their life, to be written by the children of *To The Lighthouse*. The youth of the community becomes the hand which writes for the old.

For Senda, the creative writing class cannot exist without other community projects of cooking, walking, weaving and singing, or surrounding Mollo area, which he describes as a 'ecosystem' in which *Lakoat.Kujawas* functions. The stories have developed interest in the capital city of Jakarta, as well as in Makassar and Yogyakarta, and a number of poems having been translated to English by Khairani Barokka. The books as a tangible form, are easier to migrate, in turn bringing the world, words, cosmology and environment of Timor to outside the region.

VI. Conclusion

The region of Mollo sits upon marble, in a rapidly developing nation where economic progress

often comes at the cost of the environment and communities who live within and off it. As Indonesia continues to industrialise, and communities and their ecosystems shift at the current rate, it is expected that in the next twenty-five years, 70% of Indonesia's population will have moved to urban areas [24]. Developing forms of tangible storytelling to contain traditional ecological knowledge allows communities to at once remember the cosmology that roots them, the particular trees, stones and stories that can explain science in a different narrative to science, but also for others to learn about the creators of such literature, allowing a chance to reflect on their own background, and relationship with their community. Reading narratives such as *Tubuhku Batu*, *Rumahku Bulan* may help, for example, seeing marble as a rock imbued with meaning and personhood for a specific community, rather than an expensive stone to be extracted for tabletops.

As the villagers of Taftob weather against migration, potential land exploitation, increased tourism and global heating, these works also allow their voice to enter in the international and global circuits, advocating, on their terms, who they are and what they stand for. UNESCO have stated that '[e]verywhere languages fall into disuse, traditions are forgotten and vulnerable cultures are marginalized or even disappear' (p.60) [25]. Projects like *To The Lighthouse* and

the wider *Lakoat.Kujawas* enterprise help develop social adhesive, community strength and an understanding of where communities come from, which others can participate in and support through reading, purchasing, learning and connecting. The project in Mollo has proven a successful means of developing awareness within and of its agricultural community and offers an example for other indigenous religious communities to develop their own community projects.

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