

Development of Participatory Educational Tourism Map in Subak Pulagan

Ida Ayu Tantri¹, Sang Putu Kaler Surata², Nyoman Utari Vipriyanti³

Department of Regional Development Planning and Environmental Management
Post - graduate Program, Mahasaraswati University Denpasar, Bali, Indonesia

Abstract: In 2012, UNESCO has designated several subak areas in Bali as world cultural heritage (WBD), because they have various extraordinary values, namely various norms, concepts, and life practices that can be applied to all human beings regardless of religious differences, beliefs, country and generation. According to UNESCO (2012) there are three extraordinary universal values of the Subak area that have been designated as WBD, namely the implementation of the Tri Hita Karana philosophy (three causes of life balance), an egalitarian democratic system and the role of the Subak temple network in managing lowland rice agroecology with a focus on aspects of spirituality. The main focus of educational tourism is to increase awareness by participating in maintaining the integrity of the environment (local culture) through a willingness to contribute to increasing the income of local communities. The development of educational tourism is one of the efforts to diversify and improve the quality of tourism products in maintaining the sustainability of the tourism business. The study used a participatory follow - up study design, which consisted of planning, implementing, observing and reflecting. The results of land use mapping in Pulagan Subak starting from the north (which includes the Gunung Kawi Temple Site Area) which shows that most of the subak area is used as rice fields, interspersed with garden areas/fields/moorlands in the north and along the east and south sides of Subak Pulagan. After identifying the tourism potential, krama subak then delineates the location of the supporting facilities needed in realizing the Development of Educational Tourism Areas in Subak Pulagan on the land use map or on the image map in the research area. Groups I, II, and III propose several developments of tourist attractions and infrastructure needed in the development of tourist attractions at the research sites. The results of the FGD showed that participants determined the area, travel route, tourism potential and the required supporting facilities.

Keywords: subak pulagan, educational tourism

1. Introduction

In 2012, UNESCO has designated several subak areas in Bali as world cultural heritage (WBD), because they have various extraordinary values, namely various norms, concepts, and life practices that can be applied to all human beings regardless of religious differences, beliefs, country and generation. According to UNESCO (2012) there are three extraordinary universal values of the Subak area that have been designated as WBD, namely the implementation of the Tri Hita Karana philosophy (three causes of life balance), an egalitarian democratic system and the role of the Subak temple network in managing lowland rice agroecology with a focus on aspects of spirituality. The concept of Tri Hita Karana contains the value of balance and harmony consisting of Parahyangan elements, Pawongan elements, and Palemahan elements (Windia, 2006).

The Parahyangan element is indicated by the presence of temples in each subak area, and each farmer's ownership area. The temple in the Subak area known as the Subak Temple is a place where farmers seek harmony between themselves and God Almighty. While pawongan is the harmonization between members of the subak, while the palemahan element is the landscaping of the fields which is the area of subak and the embodiment of harmonization between humans and their natural environment. Subak harmonization in the palemahan aspect is carried out through making rice fields according to the contours of the land so as not to damage the environment (Windia, 2006).

According to Windia (2006) that harmony between Parahyangan, Palemahan and Pawongan is the main pillar in order to be able to maintain the existence and sustainability

of Subak institutions in the context of conserving water resources. Such practice is very relevant to be promoted, used as an example or inspiration in sustainable development, both at local, national and global levels. One strategy to promote it is to develop the area as an educational tourism destination, namely tourism that is able to provide learning experiences for tourists in certain areas, in an entertaining, fun and unforgettable way.

The main focus of educational tourism is to increase awareness by participating in maintaining the integrity of the environment (local culture) through a willingness to contribute to increasing the income of local communities. The development of educational tourism is one of the efforts to diversify and improve the quality of tourism products in maintaining the sustainability of the tourism business. Educational tourism that emphasizes Balinese cultural aspects is a tourism business breakthrough in an effort to introduce local knowledge and wisdom.

However, so far there has been no adequate effort in developing the WBD area as an educational tourism destination. Therefore, this study intends to design in a participatory manner Subak Pulagan Tampaksiring Gianyar Bali as an educational tourism area. The subak is one of several subaks included in the WBD, and is located between popular tourist destinations, such as Gunung Kawi Temple and Tirta Empul Temple.

2. Research Methods

The study used a participatory follow - up study design, which consisted of planning, implementing, observing and reflecting. Participatory mapping is carried out by mapping

together with subak krama (members) in describing the potential or conditions in the area, problems and issues around their environment. Because the people who live and work in that place have in - depth knowledge of their area. So, only they can make a complete and accurate map of history, land use, way of life, and hope for the future. Participatory mapping is very useful for the community to increase the awareness of all community members about their rights to land and natural resources.

2.1 Place and Time of Research

The research located in Pulagan Subak is part of the Pakerisan WBD Watershed Area which has been designated by UNESCO, so it is necessary to control the use of the surrounding space so that the subak remains sustainable. In addition, the location selection is also based on the location of this subak which is located in one of the famous tourist attraction areas in Gianyar Regency, namely the Tirta Empul Temple Area (Lookssiring Village), Gunung Kawi Site (Lookssiring Village), Penataran Sasih Temple in Pejeng Village.

2.2 Population and Sample

2.2.1 Population

The population of this study were 15 farmers who were determined purposively.

2.2.2 Sample

The sample of this research includes the Subak Pulagan pekseh, Subak Pulagan tempek/munduk klian. Determination of informants based on the following criteria: (1) figures who know the potential of the area; (2) appreciated and accepted by the community; (3) have an understanding of tourism, especially the development of tourism in the region. Respondents were determined through Pekaseh considering that Pekaseh knew very well the character of their subak manners.

2.3 Data Analysis

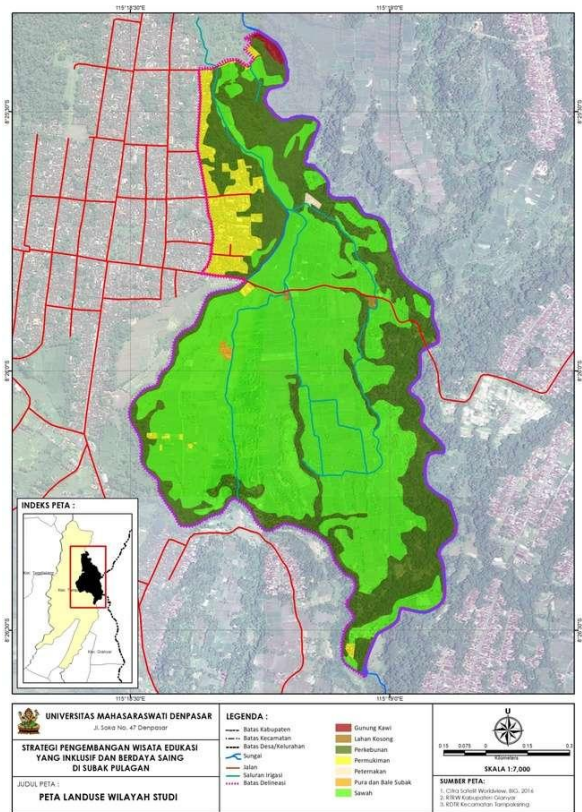
The data regarding the condition of Subak Pulagan that has been obtained is then analyzed using qualitative descriptive analysis techniques to get an overview of the tourism potential in Subak Pulagan both nature tourism, cultural tourism and culinary tourism, the potential carrying capacity of its infrastructure, its socio - cultural potential.

3. Findings and Discussions

3.1 Identifikasi Potensi Subak Pulagan

3.1.1 Penggunaan Lahan

The results of land use mapping in Subak Pulagan starting from the north (which includes the Gunung Kawi Temple Site Area) are shown in Picture 3.1, which shows that most of the subak area is used as rice fields, interspersed with garden areas/fields/moorlands in the north and along the east and south sides of Subak Pulagan.



Picture 3.1: Map of Land Use in Research Area

In the research area, the dominant land use is as rice fields, farm roads, gardens/fields/moor between rice fields and downstream of the research area, as well as resting places scattered on the edge of rice fields, on the edge of farming roads and land. - moor land / gardens / fields. The allotment of settlements, especially for krama subak, is located around the research area outside the rice field area table 3.1.

Table 3.1: Land Use in the Research Area

No.	Types of Land Use	Area (Ha)
1.	Mount Kawi. Site Area	0, 49
2.	Garden	0, 20
3.	Settlement	7, 56
4.	Farm	0, 17
5.	Temple and Bale Subak	0, 22
6.	Ricefield	79, 82
7.	Empty land	0, 20
8.	Farm way	0, 072
9.	Irrigation Channel	0, 40
Total		88.77

3.1.2 Facility

Several subak facilities, especially physical subak facilities and other facilities, which consist of irrigation network facilities, non - irrigation facilities, and other facilities will be described below.

1) Irrigation Network Facilities

Subak irrigation network facilities consist of various kinds, including the main channel or primary carrier channel there are 2 types, namely if it is closed it is called aungan or tunnel, while if the channel is open it is called telabah - gede/telabah aya as shown in Picture 3.2. Tunnels (aungan) are made when irrigation water flow is not possible with open channels. While the telabah - gede/telabah aya is the

primary channel to drain irrigation water in a certain rice field area in the subak concerned.



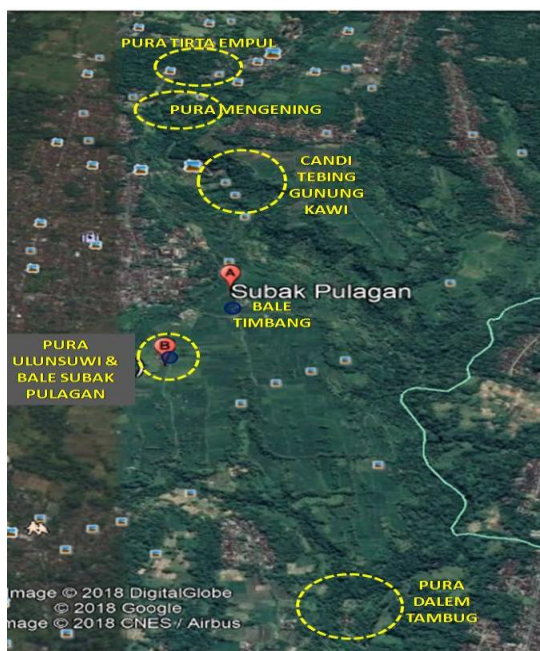
Picture 3.2: Picture A. picture of an irrigation channel in Subak Pulagan in the form of a shadow or tunnel. Picture B. building for water or the so - called tembuk aya (primary canal) that divides irrigation water to the big telabah of Subak Pulagan

2) Physical Facilities Other Than Irrigation Network

Physical facilities other than irrigation networks, Subak Pulagan has several facilities including:

a) Subak Related Temples

Each subak has a temple as a facility to carry out harmonization between subak manners and God. For the Pulagan Subak area, there is Ulun Suwi Subak Temple, which is located together with Bale Subak. Picture 3.3 illustrates the location of the distribution of temples related to Subak Pulagan. In addition to Ulun Suwi Subak Temple, Subak Pulagan's manners in carrying out ceremonies related to rice fields also carry out rituals related to Tirta Empul Temple, namely asking not to be attacked by planthoppers. In addition, they also carry out rituals related to Mengening Temple so as not to be attacked by rats. The location of Tirta Empul Temple and Mengening Temple is in the north of the Subak Pulagan area.



Picture 3.3 Distribution of Temples Related to Subak Pulagan

b) Sanggah catu

Dispute the supply in the rice fields owned by farmers (Krama Subak Pulagan). Sanggah catu is a building made by farmers adjacent to the irrigation network that enters their rice fields. The following is a picture of the rebuttal of the supply shown in Picture 3.4.



Picture 3.4: Disclaimer Catu which is in the farmer's rice field

c) Bale Subak

Bale subak is a place or container where subak krama gather and carry out activities such as daily administrative activities, subak meetings, making offerings/bantens for collective ritual activities, and agricultural extension activities. Bale Subak Pulagan is located in the same area as Ulun Suwi Subak Pulagan Temple as shown in Picture 3.5. The Bale Subak area is also quite wide, so that in the development of educational tourism it can be used as a means of supporting tourists, such as a culinary place, a place to play traditional games and others.



Picture 3.5: Bale Subak Pulagan

d) Bale Timbang

Each subak has one or two Bale Weighs measuring approximately 1.5 x 2 m and with only 2 poles. The purpose of this Bale Timbang is as a place to hold informal meetings and a place to rest by some farmers, whose rice fields happen to be adjacent to the Bale Timbang.



Picture 3.6: Bale Timbang Subak Pulagan

e) Subak road or farm road

Farm business road or subak road is a road that connects subaks with roads that connect villages or cities. This road is very important in the process of transportation and communication, including in the transportation of agricultural products and other agricultural activities. In Subak Pulagan, there is a farming road near Bale Subak which is shown in Picture 3.7. This road connects the neighborhood road with Bale Subak and rice fields to the south of Subak, while to the other tempek located in the east that is not directly connected to Bale Subak, you have to turn through the neighborhood road or through the rice fields. The surface of this subak road is partly paving, partly using concrete pavement.



Picture 3.7: Picture A. Photo of a farm road around Bale Subak, where the northern part of the pavement is paving. Picture B. photo of the middle to south part of the farm road with concrete pavement

3.1.3 Accessibility

Accessibility to reach the research area is through the Tampaksiring - Kintamani road, then at the Tampaksiring Market intersection to the road to the east (direction to Bangli Regency), after going through the neighborhood road in residential areas, arriving at the Subak Pulagan rice field area which is one of the WBD areas in the area. Bali province. The condition of the entrance to the area is not good, with many potholes on the road, so it is hoped that repairs will be made soon considering that the Subak Pulagan area is one of the WBD areas of the Pakerisan watershed.

3.1.4 Utilities

Utilities related to the dominant research area are rice fields, including: drainage, waste management, waste (in this case toilet waste, livestock waste), electricity, communication (telephone, internet, etc.).

Electricity services in the research area have been served, including Bale Subak and Pura Subak, then street lighting is also available, although only on the neighborhood road which is the connecting road between Tampaksiring Village and Susut Village, Bangli Regency.

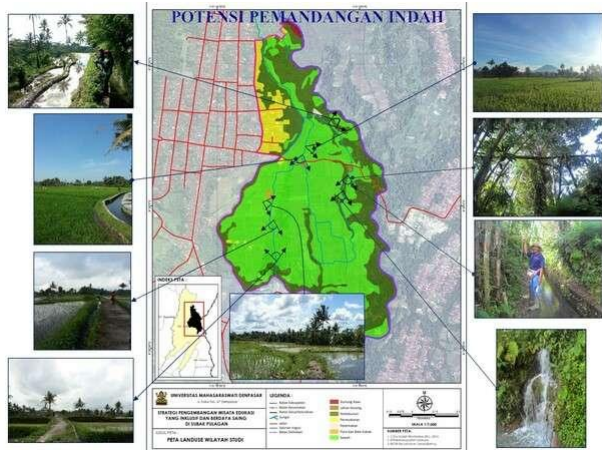
Drainage services are not perfect, some of the main roads do not have a drainage network, while in rice fields the drainage network is integrated with the irrigation network. Meanwhile, waste management services in the research area use septic tanks. MCK facilities in the research area are located in people's houses and Bale Subak, only the bathroom waste water still flows and blends with the irrigation network. This of course can pollute the quality of irrigation water used to irrigate rice fields, so it is feared that it can pollute or disrupt the quality of the rice produced. In the future, it is hoped that the management of bathroom wastewater or gray water from houses and facility buildings located close to irrigation networks and facility buildings should have a grease trap before disposing or draining the liquid waste out of their house plots. Besides liquid waste, there is also solid waste commonly known as garbage and other wastes such as livestock waste.

3.2 Socio - cultural

The socio - cultural aspects that will be described here are socio - cultural related to subak only. Subak is a traditional institution that is socio - agrarian and religious in nature, consisting of farmers who work on rice fields in a rice field area with one source of irrigation water (Anom, 2005). Subak as a cultural landscape is closely related to cultural and religious factors. Related to religion, subak with its Tri Hita Karana concept (parahyangan element) carries out several religious ceremonies related to subak activities ranging from preparing rice fields, planting rice, to harvesting rice. This religious ceremony is carried out at a temple related to Subak. Some of these ceremonies are carried out individually/privately, and some are carried out in groups in one subak community.

3.3 Beautiful Scenery Potential

The natural condition of the research area has beautiful scenic points, sloping areas or hills to the east, with temple buildings located on the Gunung Kawi Temple Site. In addition, in clear weather, the silhouette of Mount Agung in the east is clearly visible, combined with trees and rice field landscapes, which have the potential for beautiful scenery. In addition, the dominance of land use as a rice field area along with its irrigation network provides an attractive potential for scenery. From the stage of tillage, rice planting to harvest. At the time of optimum growth of rice plants and ready to be harvested, it creates a very beautiful view and has optimal aesthetic value. Meanwhile, the post - harvest period has the lowest aesthetic landscape.

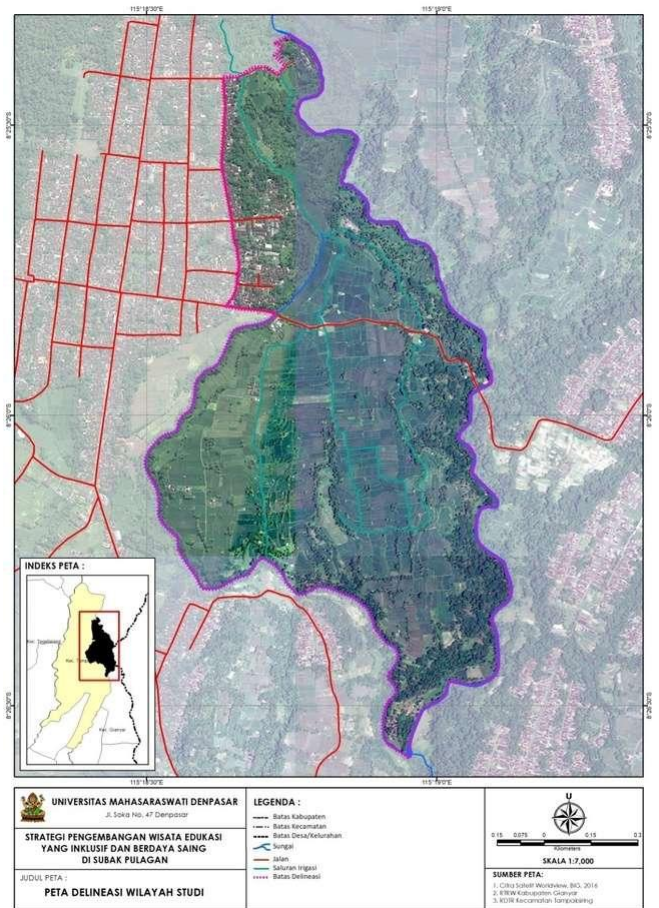


Picture 3.8: Beautiful Scenery Potential

3.4 Participatory Model Formulation

Orientation map of the research area to find out the location of the research area to the surrounding area, at least to the orientation on the scale of the nearest service center. In this case, the nearest service center is the Tampaksiring Market, Tampaksiring Village Office, Tampaksiring District Office, and its surroundings.

The image map of the research area is used as a material for focus group discussions. Then the image map according to the delineation of the Research Area is digitized according to its designation and also the results of observations in the field, after that it is colored in each designation according to the coloring in the mapping process.



Picture 3.9 Research Area Delineation Map

What is delineated is the location of the supporting facilities needed by the area to support tourism activities. Before starting the delineation of the map, krama subak is also invited to identify tourism potentials that can be developed in the research area. The results of the FGD, participants identify tourism potential that can be developed in the research area, which can be seen in Table 3.2 below.

Table 3.2: Identification of the Potential of Nature Tourism and Education in Subak Pulagan

Component	Attraction Potential	Opportunities That Can Be Developed	Development Obstacles
Physical/Nature	cliff	Outbound, tracking, tour guide	There is no convenient tracking path
	Rice Field Landscape	<ul style="list-style-type: none"> selfie, tracking, cycling Miniature farming tools (can be placed in Bale Subak) 	There is no convenient tracking path
	irrigation channel	<ul style="list-style-type: none"> Fishing equipment rental Small - scale water tourism by utilizing irrigation networks mini rafting 	No shower/MCK facilities yet
Vegetation/Biotic/Flora Fauna	Coconut, banana, sugar cane, breadfruit, jackfruit, durian	Various local culinary	There is no means of providing culinary
	Various kinds of birds, butterflies, cows, ducks	Bird watching and bird watching	There are no bird watching facilities, such as viewing posts
Socio - cultural	<ul style="list-style-type: none"> Cultural arts Traditional music gong Subak rituals Melukat (Cleansing) Ritual in Beji 	<ul style="list-style-type: none"> Package cultural performances Established a dance studio/bondres/sekehe gong Activate the Subak ritual ceremony event 	There is no gong equipment to support dance and other cultural arts.

After identifying the tourism potential, krama subak then delineates the location of the supporting facilities needed in realizing the Development of Educational Tourism Areas in

Subak Pulagan on the land use map or on the image map in the research area.

Group I proposes several developments of tourist attractions and infrastructure needed in the development of tourist attractions in the research location, including:

- a) Cultural attractions: Bale Timbang: a building located in the northern part of Subak Pulagan, is one of the buildings related to local wisdom (culture) of Subak.
- b) Attractions and Locations of Rice Planting Examples.
- c) This attraction is proposed to be located in a rice field area north of Bale Subak Pulagan.
- d) Bale Bengong (a short resting place)
- e) Bale Bengong is a place to rest for a while while doing walking activities while enjoying the view of the rice fields located in the south of the area.
- f) Bamboo Bridge in the southern part of the area
- g) This bamboo bridge can be used as a tourist attraction and a very beautiful photo area. This location is in the south of Subak.
- h) Rest facilities
- i) This facility can be in the form of a food stall or a short rest area, which can also be equipped with a souvenir shop, food and beverage shop, toilet, resting area, and an area for taking pictures.
- j) Paddy Plow Attraction
- k) The rice field plow attraction is allocated to the eastern part of the area.
- l) Culinary
- m) Culinary in the east is at the end of the eastern subak road which is directly adjacent to the environmental road that connects Tampaksiring Village with Susut Village, Bangli Regency.

Group II proposes several developments of tourist attractions and infrastructure needed in the development of tourist attractions in the research location, including:

- a) Arrangement of the Gate to the path to Bale Subak.
- b) Art and cultural attractions in the Pura and Bale Subak area:
 - Traditional game
 - Plowing
 - Traditional Balinese dances
- c) Natural tourist attractions, including:
 - Natural rice field tourism can be done in the Bale Subak area, you can also enjoy it by going through the Subak road on the edge of the rice fields located in the rice field area.
 - Birth watching at the viewing post located in the south of the area.
- d) Provision of Culinary Facilities in the Eastern Region
- e) Culinary in the east is at the end of the eastern subak road which is directly adjacent to the environmental road that connects Tampaksiring Village with Susut Village, Bangli Regency.

Group III proposes several developments of tourist attractions and infrastructure needed in the development of tourist attractions in the research location, including:

- a) Art and cultural attractions in the Pura and Bale Subak area:
 - Traditional game
 - Plowing
 - Planting rice
 - Traditional Balinese dances

b) Natural tourist attractions, including:

- Natural rice field tourism can be done in the Bale Subak area, you can also enjoy it by going through the Subak road on the edge of the rice fields located in the rice field area.
 - Birth watching at the viewing post which is located in the southern part of the Bale Subak area, also in the south of the Pulagan Subak area and in the east of the area as proposed by Group I.
- c) Provision of Culinary Facilities in the Eastern Region
 - d) Culinary in the east is at the end of the eastern subak road which is directly adjacent to the environmental road that connects Tampaksiring Village with Susut Village, Bangli Regency.

The results of the FGD showed that participants determined the area, travel route, tourism potential and the required supporting facilities.

4. Conclusions and Suggestions

4.1 Conclusions

Based on the above research results can be concluded that is: Subak Pulagan can be developed as an educational tour with its potential and problems. However, the problem can be overcome through the cooperation of subak krama, district government, and related stakeholders. More specifically, the conclusions that can be summarized from this study are as follows:

- 4.1.1 The research area has quite varied natural and cultural potential that can be developed as a tourist attraction including: scenic attractions (cliff view, rice fields, rivers), outbound, tracking, cycling, traditional games, fishing, plowing rice fields, planting rice, bird watching, attractions culture.
- 4.1.2 The availability of vacant land outside the wetland agricultural zone also strongly supports the development of educational tourism in this research area.
- 4.1.3 The appreciation of subak karma for the development of the subak area as an educational tourism attraction is quite high.
- 4.1.4 The ability of the local community in this case Krama Subak is still low to become a guide or manager of a tourist area, especially in English and other foreign language skills.

4.2 Suggestions

The advice given is:

- 4.1.5 There is a need for further studies such as more detailed planning including regional design to further detail the development of this educational tourism area in Subak Pulagan, including:
 - a) Preparation of the Building and Environmental Management Plan for the Natural Tourism Attraction of Subak Pulagan Agriculture;
 - b) Preparation of Technical Planning and Management of the Subak Pulagan Agricultural Natural DTW Area;
 - c) Implementation of infrastructure construction needed in the realization and management of the natural DTW area of Subak Pulagan Agriculture

d) Arrangement of Institutional Management of Natural DTW Area of Agriculture Subak Pulagan.

4.1.6 It is necessary to have the cooperation of all stakeholders, including Krama Subak, the community, the Government (from the village to the central level), the private sector, academics, and other stakeholders in order to realize this tourist area.

4.1.7 It is necessary to improve the quality of Subak Krama and local communities, especially millennials in the area in supporting the realization and management of this tourist area later. This can be assisted by the Regional Government of Gianyar Regency regarding the improvement of Human Resources for Subak Pulagan Farmers in terms of DTW management, and or the initial stage of collaborating with competent institutions in terms of tourism management.

4.1.8 It is necessary to establish a Pokdarwis or a Management Agency when this area is realized.

4.1.9 This formation is carried out after local human resources are ready and skilled.

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