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A STRUCTURAL MODEL OF COMMUNITY-BASED AGRITOURISM DEVELOPMENT AT THE WORLD HERITAGE SITE OF JATILUWIH RICE FIELD TERRACE IN TABANAN, BALI

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Abstract: The Jatiluwih rice field terrace has been well managed for centuries by traditional farmers' organizations called *subak*. Jatiluwih has been inscribed in the UNESCO World Heritage List since July 2012, and it is becoming more popular as a tourist destination. Visitors only come to see the rice field terrace and/or to have lunch with a view of the panorama. This type of tourism does not bring much benefit to the farmers. Hence, there is a need to link agriculture and tourism (agritourism). The research objective was to develop a structural model for community-based agritourism development by using Interpretive Structural Modeling (ISM). The study involved nine experts including tourism practitioners, agriculture scholars, government officials, and community leaders in a focus group discussion as well as in the filling in the questionnaire. The results show that the goal of agritourism development in Jatiluwih is farmers/community welfare. To conserve the heritage site of Jatiluwih rice field terrace, commitments of *subak* as the traditional farmer's organization is needed. Government' support and involvement of stakeholders and tourism industry are also important. Lack of accessibility, internet access and limited tourist activities are the main constraints. To overcome these constraints, government involvement is crucial to improve accessibility and infrastructure. Partnerships between farmers' organization and tourism industry in terms of financial investment are needed to be able to develop more interesting tourists' activities. To strengthen competitiveness of agritourism and handicrafts industries in Jatiluwih, empowerment of local community is crucial through better education and training to be able to increase the number of tourists who visit Jatiluwih which could hopefully result in increasing and equalizing income distribution for farmers.

Introduction

Tourism has been largely known to be the fastest growing economic sector in some countries and has been convinced as a powerful source of economic development and poverty alleviation. Economic development of Bali is also highly rely on development of tourism industry and has resulted in an economic shift away from the agricultural sector to the service sector. Even though the contribution of the agricultural sector has decreased, however, it still has a crucial role in Bali's economy. This role includes its functions as a provider of raw materials for agro-industry, an element in natural resources conservation practices, and a tourist attraction for visitors interested in traditional agricultural practices (Wiranatha, 2001).

The uniqueness of culture and natural beauty has made Bali as one of the famous tourist destinations in the world. It can be seen from the increasing number

Key words: linking agriculture and tourism, farmers' *subak* organization, environmental conservation, Jatiluwih, interpretive structural modeling (ISM)

of visitors coming to Bali, which reached about 1,412,839 foreign tourist direct arrivals in 2000, and gradual increasing up to 4,001,835 in year 2015 (Bali Government Tourism Office, 2015). The number of foreign tourist direct arrivals to Bali is estimated to increase gradually in the near future.

Various types of interested attractions have been offered to tourists, which strengthen competitiveness of tourism products of Bali, such as art and cultural attractions, marine tourism attractions, nature-based tourism attraction, etc. Agritourism is considered to be an emerging tourism product of Bali. As an inter-relationship between agriculture and tourism, agritourism activities mainly focus on attractions such as visiting farm for recreation, enjoy beautiful scenery and relaxation, participate in farm activities, buy products, enjoy meals and drinks, and may also stay overnight which can create wonderful experience and unforgettable memories. Agritourism is normally supported by various tourism services including accommodation, foods and beverages, recreation and sport facilities, health care as well as healing therapies (Sznajder *et al.*, 2009).

According to Fleischer & Pizam (1997) and Fleischer & Tsurm (2000), interesting agritourism should be created by unique activities to satisfy tourists' need, such as: (i) the cognitive need of tourists related to the farming production, and rural life and culture through participation in the process of farming production, rural life of local communities and their culture; (ii) emotional needs of tourists through direct contacts with animals, plant and processing products; and (iii) the need to experience the beautiful countryside associated with the atmosphere of the natural sounds, silence and simplicity.

Telfer (2000) states that agritourism has free resources, which are not used in the process of agricultural production, and when used the resources, agritourism needs to give farmers an additional income. Furthermore, Hjalager (1996) reveals that development of agritourism will offer opportunities for local farmers to increase their earnings and improve their quality of life without damaging the quality of environment as people are able to get jobs and earnings from agritourism to create value added which can stimulate local economic, educate visitors and the local community regarding sustainable ecosystems. Even though tourism has contributed to the income earning, it cannot be self-supporting since it depends on the availability of ecosystems particularly for nature-based tourism, including agritourism which highly depends on the uniqueness of the tourism destination (Torres, 2003 and Torres, 2003).

Jatiluwih rice field terrace, for example, is a unique agritourism destination which has been well managed for centuries by traditional farmers' organisation called "*subak*". Jatiluwih has been inscribed in the UNESCO World Heritage List since July 2012, and it is becoming more popular as a tourism destination. Even though the number of tourists visiting Jatiluwih rice field terrace has increased significantly since Jatiluwih was inscribed in the UNESCO World Heritage List, however, there is not much benefits to the farmers from tourism. It is because current tourists mostly only come to see the rice field terrace and/or to have lunch with a view of rice field terrace's panorama. This type of tourism does not bring much benefit to the farmers. Hence, there is a need to link agriculture and tourism

through a better way. To maintain the sustainable development of tourism in Jatiluwih, participation of all stakeholders is needed through an integrated partnership of local farmers and community, tourism industry, and government through programs that can evoke the image of tourism in Jatiluwih.

The research objective was to develop a structural model for community-based agritourism development by using Interpretive Structural Modeling (ISM) at the World Heritage Site of Jatiluwih rice field terrace in Tabanan, Bali, Indonesia.

Methodology

Interpretive Structural Modeling (ISM)

Interpretive Structural Modeling (ISM) was used to develop a structural model for community-based agritourism development at the World Heritage Site of Jatiluwih rice field terrace which was gained from the experts' opinion. ISM is a tool for analyzing complex situations and solving complex problem by using an interactive learning process involving inter-relationships between variables through the use of experts' ideas, opinions and experience, utilizing brain-storming management techniques to develop the contextual relationship among the variables. Thus, experts should be well conversant with the problem under consideration. The analysis was based on the decision-support tool that facilitates thorough understanding of complex situation by linking and organizing ideas in a visual map (Attri and Sharma, 2013; Donna, 2007).

Respondents (Experts)

According to Attri and Sharma (2013) and Donna (2007), there is no requirement regarding the number of respondents (experts) involved in this model as long as: (i) the researcher is convinced that the number of experts chosen is capable of analysing the contextual relationship among the variables; and (ii) the experts are capable in communicating a holistic sense of the elements related to the research topic. Regarding this study, experts were selected purposively who understand the contextual relationship between agriculture and tourism. The study involved nine experts, namely 3 tourism practitioners, 2 agriculture scholars, 2 government officials, and 2 community leaders in a focus group discussion, as well as in the filling in the questionnaire. To limit bias, some efforts were undertaken, i.e. (i) experts were chosen carefully for their good understanding of the topic of the research; (ii) comprehensive and structured questionnaires were designed carefully; (iii) respondents were assisted by giving clear explanation for every question to control consistency of the given answers; and (iv) in-depth interview was undertaken to get knowledge and experience of the experts.

Constructing Elements

Six elements were used in this research, namely:

1. G : Program Goals
2. N : Program Needs
3. C : Program Constraints

4. A : Affected Sectors
5. I : Intended Changes
6. V : Involvement of Institutions

Each element developed in this study has several sub-elements, as outlined below:

1. Sub-elements of Program Goals:
   - G1 : To increase the number of tourists visiting Jatiluwih
   - G2 : To revitalize trekking paths and view point at Jatiluwih
   - G3 : To conserve rice fields and surrounding environment
   - G4 : To empower farmers/community in tourism activities
   - G5 : To promote Jatiluwih worldwide as a World Heritage Site
   - G6 : To develop agriculture and handicraft products that support tourism
   - G7 : To improve farmers/community welfare at Jatiluwih
2. Sub-elements of Program Needs:
   - N1 : Qualified human resources in tourism
   - N2 : Coordination between stakeholders
   - N3 : Support funding for local investment
   - N4 : Improvement of transportation infrastructures (roads & parking area)
   - N5 : Participation of farmers in tourism development
   - N6 : Government's role as regulator and facilitator
3. Sub-elements of Program Constraints:
   - C1 : Lack of capability and skill of local human resources
   - C2 : Limited tourist activities
   - C3 : Weak of local management
   - C4 : Lack of accessibility (transportation & internet)
   - C5 : Lack of local capital investment
   - C6 : Lack of variety of local agriculture and handicraft products
   - C7 : Lack of local government commitment and support
4. Sub-elements of Affected Sectors:
   - A1 : Farmers and local community
   - A2 : Farmers' organizations (*subak*)
   - A3 : Agribusiness sector
   - A4 : Community organization (*desa adat*)
   - A5 : Tourism industry
   - A6 : Local government
   - A7 : Provincial and Central governments
5. Sub-elements of Intended Changes:
   - I1 : Restriction in land use changes
   - I2 : Increasing and equalizing income distribution from tourism for farmers' organization (*subak*)

I3 : Increase quantity and quality of local agriculture and handicraft products
I4 : Development of capability and skill of local human resource
I5 : Partnerships between farmers' subak organizations and tourism industry
I6 : Government commitment on sustainable agriculture and tourism in Jatiluwih

6. Sub-elements of Involved of Institutions:
   V1 : Government Tourism Office
   V2 : Ministry of Tourism
   V3 : Government Office of Agriculture, Plantation and Forestry
   V4 : Government Office of Trade and Industry
   V5 : Association of Tourism Industry in Bali
   V6 : Research Centres and NGOs

Sub-elements within each element have contextual relationships each other in accordance with the community-based agritourism development at the heritage site of Jatiluwih rice field terrace in Tabanan Bali. The contextual relationships between the sub-elements are outlined in Table 1.

Table 1
Elements and Contextual Relationship between Sub-elements

Elements	*Contextual Relationship*
1. Program Goals (Gij)	Gi contribute in achieving Gj
2. Program Needs (Nij)	Ni supports Nj
3. Program Constraints (Cij)	Ci causes Cj
4. Affected sectors (Aij)	Ai its role influences Aj
5. Intended changes (Iij)	Ii results in Ij
6. Involvement of institution (Vij)	Vi its role supports Vj

ij = 1,2,3 ... (i,j d" 10)

In conducting ISM research, experts must give their opinion regarding the level of contextual relationship between sub-elements by filling in a matrix of the contextual relationship with the appropriate letter: V, A, X or O. These four letters are used to denote the direction of a relationship between two factors (i and j), as follows (Donna, 2007):

V : sub-element i will influence sub-element j
A : sub-element i will be influenced by sub-element j
X : a two-way relationship between sub-element i and j
O : no relationship between the sub-elements

Data Analysis

The Structural Self-Interaction Matrix (SSIM) is developed based on the contextual relationships Computer program "Ever Vision" Software, dDSS Ver. 1.0.01 which was conducted to analyse the data.

Results and Discussion

Tourist Attractions at Jatiluwih

A wide range of attractions can be found in Jatiluwih such as rice field terraces panorama, farming activities based on traditional farming practices (*subak*), religious ceremonies related to the farming activities (on certain days). Tourists' activities at the rice fields, such as sightseeing (taking photos), trekking, cycling, having coffee break and lunch have been the major activities by tourists. Jatiluwih has varieties of agricultural products. Red rice is the superior product of Jatiluwih which can be used as the main foods. Red rice can also be processed to become red rice tea either in a raw product or in a bottle tea as a consumer product. Black rice has also been produced in Jatiluwih. Coffee and cocoa also grow enormously which have been processed traditionally by the local farmers of Jatiluwih.

The natural beauty of Jatiluwih also supported by the existence of some rivers in the surrounding area, including Yeh Ho River, Yeh Kayu River, Yeh Pusut River, Yeh Baat River, etc. Yeh Baat River has been visited by tourists for several activities, such as: sightseeing (taking photos), rafting, and self-purification (*melukat*) using the river water. There are also several waterfalls in the rivers' way, such as Suranadi, Ceburan, Munduk Klesih, Kedamean, Besi Kalung, and Slingsing Klesih. Among the above waterfalls, Suranadi Waterfall is the most popular for tourists. Tourists' activities in the waterfalls are including taking bath, swimming, self-purification (*melukat*) and meditation.

Jatiluwih has also had natural hot springs, namely Belulang, Piling, Kedampal, Espa, Beji, and Pesagi. Among these natural hot springs, Belulang and Espa Hot Springs have been popular to tourists, meanwhile, Beji Hot Spring is very famous related the spiritual activities and natural healing. The hot springs become the place for tourists taking a bath, swimming, spa, and enjoying the rice field terrace panorama.

In the area of Jatiluwih can also be found several species of plantations, such as coffee, cacao, vanilla, coconut, snake skin fruit (*salak*) and other fruits such as papaw, mango, durian, etc., as well as several wild animals such as squirrels, wild chickens, reptiles, and many kinds of birds that strengthen Jatiluwih as an agritourism destination. Visitors can enjoy visiting farms to do sight seeing, recreation, enjoy exotic natural sound, doing relaxation, as well as doing activities such as trekking, bird watching, hiking, camping, and other types of adventure tourism.

Jatiluwih as one of the nature-based tourism destination in Bali is really famous with the rice field terrace which basically has been managed by the local organization in maintaining irrigation system called *subak*. According to Regional Law of Government of Bali Province Number 9, Year 2012, *subak* is defined as a traditional organisation in managing irrigation system and agribusiness which has characteristic of social, religious and economy activities which is historically existed in Balinese community. Economic aspect of *subak* includes rice field and irrigation facilities, meanwhile social aspect is the farmers' organisation. The religious aspect of *subak* is *subak* temple called *Bedugul*. Sutawan (1987) states that the functions of subak are: (i) distribution of water irrigation, (ii) maintaining irrigation system, (iii) solving the internal conflict, and (iv) traditional ceremony related to farming system.

Furthermore, Sutawan (1987) argue that subak has several duties, such as maintain food security, environmental conservation, cultural preservation, protection to the traditional value, support agritourism and provide financial support to members.

Subak has the philosophy which is based on a local wisdom called "Tri Hita Karana" that is the harmonious and balance relationships between (i) human and the God, (ii) human and other humans, and (iii) human and the environment. The relationship between human and the God is reflected by subak members in rituals of traditional ceremony related to farming system. Offerings are undertaken in many activities, such as at least at the early stage of cultivation and at the harvest time. Availability of a small temple in each of rice field of subak member is a symbol of blessing from the God for the *subak* activities. Availability of subak temple can also be seen in a large area of rice fields belong to a subak (Sutawan, 1987). There are many temples related to Subak of Jatiluwih, such as Pura Luhur Pucak Petali, Pura Luhur Batukaru, Pura Tamba Waras, Pura Muncak Sari, Pura Taman Suci Manis Bayu, Pura Luhur Batu Belig, and Pura Batur Kaja which are all believed by the Jatiluwih community to be the source of blessing from the God for daily life of farmers in managing and preserving irrigation system in Jatiluwih. Furthermore, Sutawan (1987) says that the relationship between human and other humans is shown in the function of subak in social activity among the subak members. For example, togetherness and respect to the opinion of each subak member is one of best practices undertaken by this traditional organisation. Moreover, the relationship between human to the environment is translated in to the function of subak in conserving and protecting the environment as well as in maintaining irrigation system including in maintaining the irrigation channels.

Traditional value of subak, in terms of social and cultural system has been inherited from Balinese ancestors, which has not been found in any other ethnics in the world. The existence of *subak* at Jatiluwih has been listed as The World Heritage Sites by UNESCO since July 2012. This means that *subak* needs to be preserved and empowered in order to improve its function to bring value-added to farming system, including tourism activities at subak area (agritourism).

Results of the Analysis of Interpretive Structural Modeling (ISM)

The results show that there were six elements in the structural model for community-based agritourism development with key sub-elements considered to be independent and to have strong driver power, namely:

(1) Program Goals with key sub-elements, namely:
   (i) to increase the number of tourists, and
   (ii) to conserve rice fields and surrounding environment.
(2) Program Needs with key sub-elements, namely:
   (i) government's role, and
   (ii) coordination between stakeholders.
(3) Program Constraints with key sub-element, namely:
   (i) lack of accessibility, and
   (ii) limited tourist activities.

(4) Affected Sectors with key sub-elements, namely:
   (i) farmers' subak organizations,
   (ii) tourism industry, and
   (iii) local government.
(5) Intended Changes with key sub-elements, namely:
   (i) partnerships between farmers' subak organizations and the tourism industry, and
   (ii) to restrict changes in land use.
(6) Involvement of Institutions with key sub-elements, namely:
   (i) government tourism office,
   (ii) government agriculture office, and
   (iii) the tourism industry association.

More detail can be explained as follows:

1. Program Goals

Elements of the Program Goals of the structural model for community-based agritourism development consist of 7 sub-elements, namely:

G1 : To increase the number of tourists visiting Jatiluwih
G3 : To conserve rice fields and surrounding environment
G2 : To revitalize trekking paths and view point at Jatiluwih
G4 : To empower farmers/community in tourism activities
G5 : To promote Jatiluwih worldwide as a World Heritage Site
G6 : To develop agriculture and handicraft products that support tourism
G7 : To improve farmers/community welfare at Jatiluwih

The results show that the highest Driver Power (7) was G1 and the lowest Dependence (1) was also G1 which means that the sub-element G1 (to increase the number of tourists visiting Jatiluwih) is the key sub-element of the Program Goals which has the highest Driver Power to push other sub-elements and has the lowest Dependence to other sub-elements. In addition, the second highest Driver Power (6) was G3 and the second Lowest Dependence (2) was also G3 which means that sub-element G3 (to conserve rice fields and surrounding environment) is the second key sub-element of the Program Goals which has strong Driver Power to push other sub-elements and has low Dependence to other sub-elements.

However, the lowest Driver Power (1) was G7 and the highest Dependence (7) was also G7 which means that sub-element G7 (to improve farmers/community welfare at Jatiluwih) has the lowest Driver Power and has the highest Dependence to other sub-elements, therefore all sub-elements would support G7. Meanwhile, other sub-elements (G2, G4, G5 and G6) become linkage sub-elements which link each other and with key sub-elements in order to support G7. The structural diagram of sub-elements of Program Goals can be seen in Figure 1.

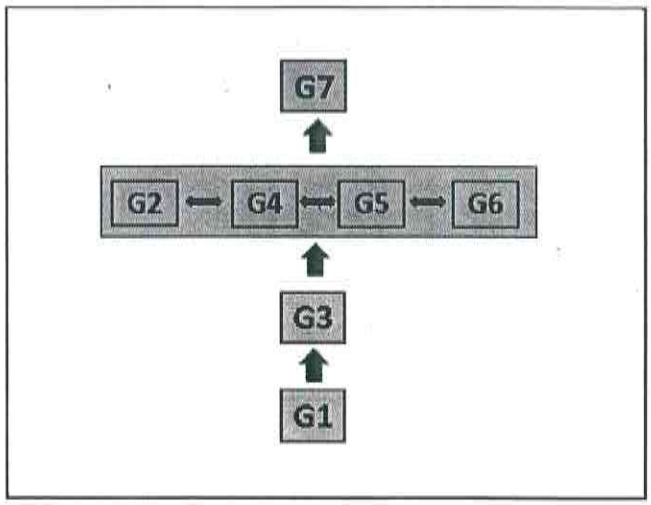

Figure 1: Structural diagram of each sub-elements of Program Goals

2. Program Needs

Elements of Program Needs of the structural model for community-based agritourism development consist of 5 sub-elements, namely:

N2 : Coordination between stakeholders

N6 : Government's role as regulator and facilitator

N3 : Support funding for local investment

N4 : Improvement of transportation infrastructures (roads & parking area)

N1 : Qualified human resources in tourism

N5 : Participation of farmers in tourism development

The results show that the highest Driver Powers (6) were N2 and N6. The lowest Dependence (1) were also N2 and N6 which mean that sub-elements N2 (Coordination between stakeholders) and N6 (Government's role as regulator and facilitator) are the key sub-elements with the highest driver power to push other sub-elements and the lowest dependence to other sub-element. However, the lowest Driver Power (1) was N5 and the highest Dependence (6) was also N5 which mean that N5 has the lowest driver power and has the highest dependence to other sub-elements, therefore all sub-elements would support N5. Meanwhile, other sub-elements (N1, N3 and N4) become linkage sub-elements which link each other and with key sub-elements in order to support N5. The structural diagram of sub-elements of Program Needs can be seen in Figure 2.

3. Program Constraints

Elements of Program Constraints of the structural model for community-based agritourism development consist of 6 sub-elements, namely:

C2 : Limited tourist activities

C4 : Lack of accessibility (transportation & internet)

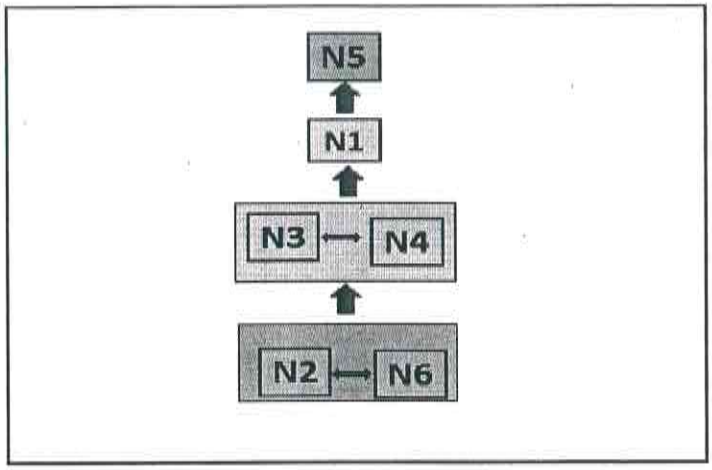

Figure 2: Structural diagram of each sub-elements of Program Needs

C7 : Lack of local government commitment and support

C3 : Weak of local management

C5 : Lack of local capital investment

C1 : Lack of capability and skill of local human resources

C6 : Lack of variety of local agriculture and handicraft products

The results show that the highest Driver Power (6) was C2 and the lowest Dependence (1) was also C2 which means that sub-element C2 (limited tourist activities) is the key sub-element with highest driver power to push other sub-elements and lowest dependence to other sub-elements. In addition, the second highest Driver Power (6) is C4 and the second lowest Dependence (2) was also C4 which means that sub-element C4 (lack of accessibility: transportation & internet) is the second key sub-element which has strong driver power to push other sub-elements and has low dependence to other sub-elements.

However, the Lowest Driver Powers (1) were C1 and C6. The Highest Dependence (6) were also C1 and C6 which mean that sub-elements C1 (lack of capability and skill of local human resources) and C6 (lack of variety of local agriculture and handicraft products) have the lowest driver power and have the highest dependence to other sub-elements, therefore all sub-elements support C1 and C6. Lastly, other sub-elements (C3, C5 and C7) become linkage sub-elements which link each other and with key sub-elements in order to support C1 and C6. The structural diagram of sub-elements of Program Constraints can be seen in Figure 3.

4. Affected Sectors

Elements of Affected Sectors of the structural model for community-based agritourism development consist of 7 sub-elements, namely:

A6 : Local government

A2 : Farmers' organizations (Subak)

A5 : Tourism industry

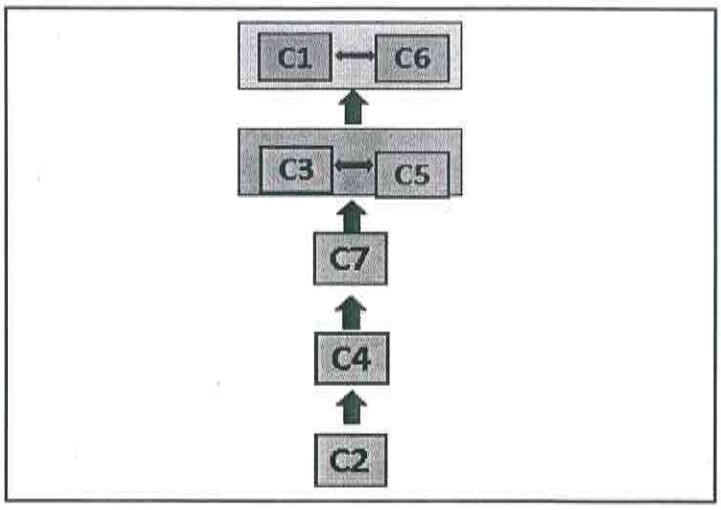

Figure 3: Structural diagram of each sub-elements of Program Constraints

A3 : Agribusiness sector
A4 : Community organization (Desa Adat)
A7 : Provincial and Central governments
A1 : Farmers and local community

The results show that the highest Driver Power (7) was A6. The lowest Dependence (1) was also A6 which means that sub-element A6 (local government) is the key sub-element with the highest driver power to push other sub-elements and the lowest dependence to other sub-elements. In addition, the second highest Driver Powers (6) were A2 and A5. The second lowest Dependence (2) were also A2 and A5 which mean that sub-elements A2 (farmers' organizations 'subak') and A5 (tourism industry) were the second key sub-elements with strong driver power to push other sub-elements and with lower dependence to other sub-elements.

However, the lowest Driver Power (1) was A1. The Highest Dependence (7) was also A1 which mean that sub-element A1 (farmers and local community) has the lowest driver power and has the highest dependence to other sub-elements, therefore all sub-elements would support A1. Lastly, other sub-elements (A3, A4 and A7) become linkage sub-elements which link each other and with key sub-elements in order to support A1. The structural diagram of sub-elements of Affected Sectors can be seen in Figure 4.

5. Intended Changes

Elements of Intended Changes of the structural model for community-based agritourism development consist of 6 sub-elements, namely:

I5 : Partnerships between farmers' subak organizations and tourism industry
I1 : Restriction in land use changes
I3 : Increase quantity and quality of local agriculture and handicraft products

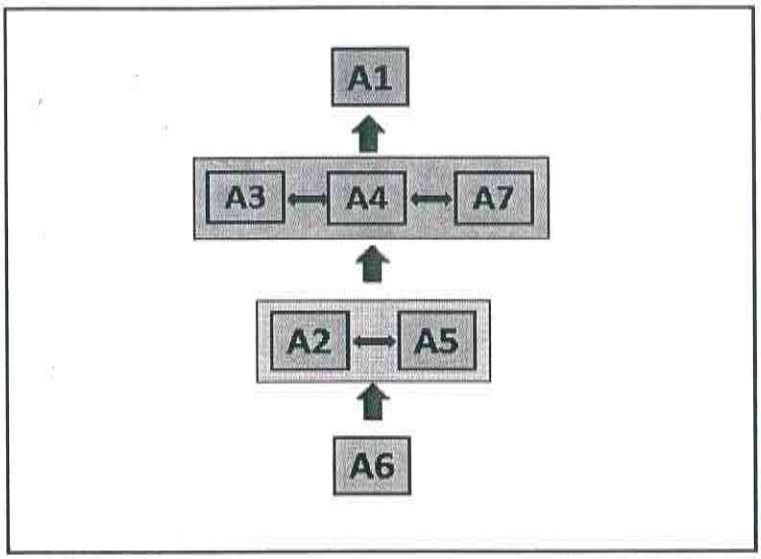

Figure 4: Structural diagram of each sub-elements of Affected Sectors

I4 : Development of capability and skill of local human resource

I6 : Government commitment on sustainable agriculture and tourism in Jatiluwih

I2 : Increasing and equalizing income distribution from tourism for farmers' organization (Subak).

The results show that the highest Driver Power (6) was I5. The lowest Dependence (1) was also I5 which means that sub-element I5 (partnerships between farmers' subak organizations and tourism industry) was the key sub-element with the highest driver power to push other sub-elements and the lowest dependence to other sub-elements. In addition, the second highest Driver Power (6) was I1. The second lowest Dependence (2) was also I1 which mean that sub-elements I1 (restriction in land use changes) was the second key sub-elements with strong driver power to push other sub-elements and with lower dependence to other sub-elements.

However, the lowest Driver Power (1) was I2. The Highest Dependence (6) was also I2 which mean that sub-element I2 (increasing and equalizing income distribution from tourism for farmers' organization 'subak') has the lowest driver power and has the highest dependence to other sub-elements, therefore all sub-elements would support I2. Lastly, other sub-elements (I3, I4 and I6) become linkage sub-elements which link each other and with key sub-elements in order to support I2. The structural diagram of sub-elements of Intended Changes can be seen in Figure 5.

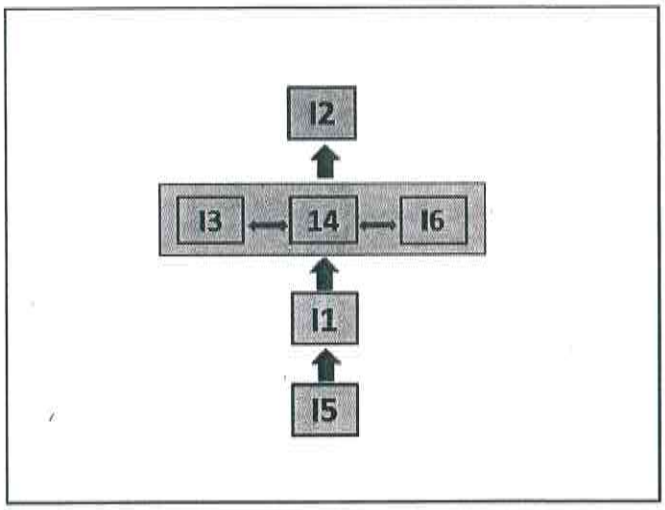

Figure 5: Structural diagram of each sub-elements of Intended Changes

6. Involvement of Institutions

Elements of Involvement of Institutions of the structural model for community-based agritourism development consist of 6 sub-elements, namely:

V1 : Government Tourism Office
V3 : Government Office of Agriculture, Plantation and Forestry
V5 : Association of Tourism Industry in Bali
V4 : Government Office of Trade and Industry
V2 : Ministry of Tourism
V6 : Research Centres and NGOs

The results show that the highest Driver Power (6) were V1 and V3. The lowest Dependence (1) were also V1 and V3 which mean that sub-element V1 (Government Tourism Office) and V3 (Government Office of Agriculture, Plantation and Forestry) were the key sub-element with the highest driver power to push other sub-elements and the lowest dependence to other sub-elements. In addition, the second highest Driver Power (6) was V5. The second lowest Dependence (2) was also V5 which mean that sub-elements V5 (Association of Tourism Industry in Bali) was the second key sub-elements with strong driver power to push other sub-elements and with lower dependence to other sub-elements.

However, the lowest Driver Powers (1) were V2, V4 and V6. The highest Dependence (6) were also V2, V4 and V6 which mean that sub-elements V2 (Ministry of Tourism), V4 (Government Office of Trade and Industry) and V6 (Research Centres and NGOs) have the lowest driver power and have the highest dependence to other sub-elements, therefore all sub-elements would support V2, V4 and V6. The structural diagram of each sub-elements of Involvement of Institutions can be seen in Figure 6.

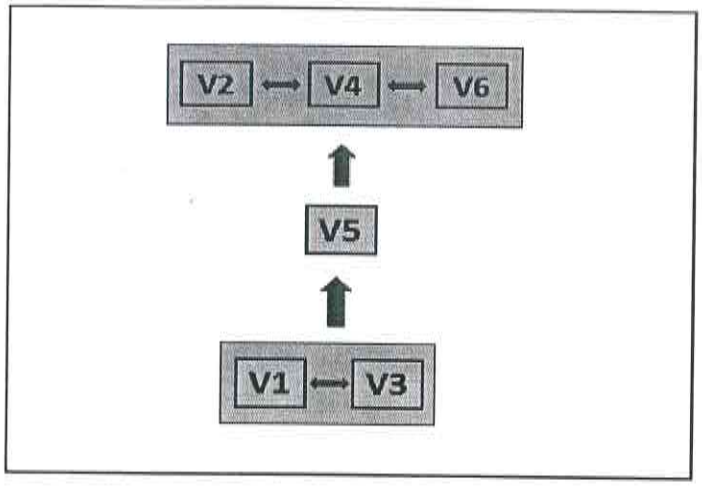

Figure 6: Structural diagram of each sub-elements of Involvement of Institutions

Structural Model of Community-based Agritourism Development in Bali

Based on the results of Interpretive Structural Modeling (ISM), several sub-elements were considered as sub-key elements for each element. These sub-key elements are elaborated further and written as consideration in developing structural model of community-based agritourism in Jatiluwih Bali, as follow:

G1 : To increase the number of tourists visiting Jatiluwih
G3 : To conserve rice fields and surrounding environment

N2 : Coordination between stakeholders
N6 : Government's role as regulator and facilitator

C2 : Limited tourist activities
C4 : Lack of accessibility (transportation & internet)

A6 : Local government
A2 : Farmers' organizations (*Subak*)
A5 : Tourism industry

I5 : Partnerships between farmers' *subak* organizations and tourism industry
I1 : Restriction in land use changes

V1 : Government Tourism Office
V3 : Government Office of Agriculture, Plantation and Forestry
V5 : Association of Tourism Industry in Bali

The Structural Model of Community-based Agritourism Development in Bali can be seen in Figure 7.

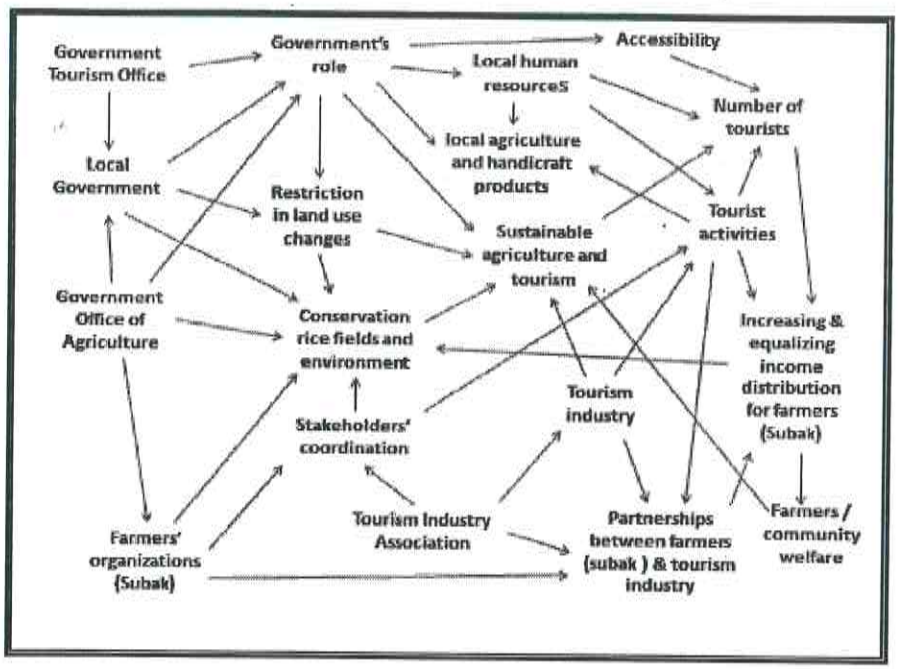

Figure 7: Structural Model of Community-Based Agritourism Development in Bali

Figure 7 shows Structural Model of Community-based Agritourism Development in Bali, a case of Jatiluwih rice field terrace. The goal of agritourism development is to gain farmers/community welfare, meaning that the impact of tourism development must give added-value to the farmers and the local community of Jatiluwih. To achieve this goal, the role of government as regulator and facilitator is important. Local government i.e., government tourism office and government office of agriculture need to have good coordination and must be wise in terms of restriction in land use changes, conservation of the uniqueness of rice field terrace of Jatiluwih and keep the environmentally friendly in order to achieve sustainable agriculture and tourism, meaning that development of tourism is expected to give more benefit to the local community without damaging value of the heritage site of Jatiluwih rice field terrace. Competitiveness of agritourism in Jatiluwih needs to be preserved in order to keep Jatiluwih as an interesting tourist's attraction. To conserve the heritage site of Jatiluwih rice field terrace, commitments of *subak* as the traditional farmer's organization, government, stakeholders' coordination and tourism industry are really important, as Mill and Morrison (2009) state that as a system, tourism need to be managed through involvement of government, tourism industry, stakeholders and empowerment of the local community to reach the goal of sustainable tourism.

Based on the program constraints, the ISM results showed that Jatiluwih tourist attraction has some constraints, i.e., lack of accessibility includes transportation and availability of internet access as well as limited tourist activities. To overcome

these problems, some efforts need to be developed, such as improvement of quality of accessibility and infrastructure to get the destination, improvement of internet access as well as develop more interesting tourists' attractions. Considering the results of this study that tourists want to stay longer at Jatiluwih, however, there is limited qualified accommodation available in Jatiluwih. So that, partnerships between farmers' *subak* organization and tourism industry association under coordination of stakeholders are needed especially in terms of financial investment. However, in fact, Jatiluwih tourist destination has also been hampered by availability of qualified human resources, so that improvement of the quality of local human resources are also crucial through better education which need to be supported by government, stakeholders and the tourism industry.

Development of agricultural products and handicrafts industries in Jatiluwih has also been promising. Jatiluwih has varieties of agricultural products, such as red rice which has been the superior product of Jatiluwih as the main food consumption as well as have been the red rice tea either raw products or red rice tea in a bottle as a consumer product. However, better packaging and product development need to be developed to bring the products more interesting and valuable which can be received by tourists who visit Jatiluwih. In the long terms, the products could also be exported which is in fact, the red rice and red rice tea of Jatiluwih have been found in the local markets and supermarkets in Bali. Better promotion through better product knowledge and product development is also needed. To be able to strengthen the competitiveness of Jatiluwih, community leaders and community organization have crucial role in encouraging development of sustainable agritourism and handicraft industries through empowerment of the local community. If the local governments give their fully support and stimulate the involvement of stakeholders and tourism industry, this will result in better quality of products and services in Jatiluwih. In the tourism industry, products, services and hospitality are the main strengths which could result in satisfaction to the tourists who visit Jatiluwih and create memorable experience. Tourists' satisfaction is the main purpose of tourism industry which could build tourists' attachment feeling as the main reason for tourist to do revisit. Revisit is the main components of tourists' loyalty. Further tourist behaviour related to tourists' loyalty are doing promotion and recommendation regarding the exotic of Jatiluwih to their friends and relatives through worth of mouth and their own media which could be hopefully result in increasing number of tourists who visit Jatiluwih. This finally results in increasing and equalizing income distribution for farmers and the community, hence, farmers/community welfare hopefully will be gained.

Conclusion

Farmers/community welfare is the goal of agritourism development in Jatiluwih. To conserve and preserve the heritage site of Jatiluwih rice field terrace, commitment of *subak* as the traditional farmer's organization is needed. Government' support and involvement of stakeholders and tourism industry are urgently needed. However, development of Jatiluwih towards sustainable agritourism hampered by some constraints, i.e., lack of accessibility, internet access and limited tourists' activities.

To overcome these problems, government involvement is crucial in terms of accessibility and infrastructure, and internet access. Partnerships between farmers' organization and tourism industry in terms of financial investment are very important to be able to develop tourists' activities. To strengthen competitiveness of agritourism and handicrafts industries in Jatiluwih, empowerment of local community is needed through better education and training to be able to increase the number of tourists who visit Jatiluwih which could hopefully result in increasing and equalizing income distribution for farmers.

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