

2nd ICST 2017

**THE EMERGENCE OF
SCIENCE FOR HUMAN
PROSPERITY AND HEALTH**

**Joint International Conference on Science and
Technology in The Tropic**

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UNIVERSITY OF MATARAM**



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The 2nd International Conference on Science and Technology 2017 “Joint International Conference on Science and Technology in The Tropic”

Mataram, August, 23th-24th 2017

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PREFACE

Bismillaahirrahmaanirrahiim
Assalaamu'alaikumwarahmatullaahwabarakaatuh.
Peace be upon us.

Praise always we pray to God Almighty for giving us the abundance of grace, guidance and inayah, so that we all can meet here in the “2nd International Conference on Science and Technology (ICST) 2017”. The theme of this conference is “The Emergence of Science for Human Prosperity and Health” where this conference is joint international conference between Mataram and Malaya University.

First of all, I would like to welcome you all to West Nusa Tenggara Province specially Lombok Island, “the Island of Thousand Mosques”, which is famous to its many natural resource and beautiful tourism destinations where you can enjoy them while attending the conference. This conference will be held for two days, from 23rd to 24th August 2017, and took place in campus of the University of Mataram.

So far, we received one hundred fifty papers from various universities and research institutions in Indonesia and from overseas. The paper have been selected and grouped based on the similarity of the research field, which then are presented and discussed. Presentation of the papers will be held in seven parallel classes and poster presentation. The Selected papers will be published in Malaysian Journal of Science (Special Issue) which index by Scopus, and the rest will be published in the Conference Proceedings. Additionally, selected paper in aquaculture have the opportunity to be published in Jurnal Akuakultur Indonesia.

At this moment, the organizing committee would like to express our gratitude to all of you for your participation on this conference, especially to the all keynote speakers, presenters who have submitted for both oral and posters presentations and also to all participants. Our special gratitude also goes to the Rector of the University of Mataram and Vice Chancellor of Malaya University, who have been highly supporting this conference. Critics and suggestions on the implementation of this conference will be appreciated and as much as possible we will improve the next ICST. Last but not least, the organizing committee would like to thank to all of you who have supported this conference.

Have an enjoyable conference.
Wassalamu'alaikum warohmatullahi wabarakatuh.

Chairman of 2nd ICST 2017

Dr.rer.nat. Lalu Rudyat Telly Savalas, M.Si.

OPENING SPEECH - RECTOR THE UNIVERSITY OF MATARAM
The 2nd International Conference on Science and Technology 2017
Joint International Conference on Science and Technology in The Tropic Beetwen
Mataram and Malaya Universiti

Respected Guests,
Keynote speakers,
Conference participants,
and all other participants.

On Behalf of all staffs of the University of Mataram, I welcome you all to Lombok, a beautiful island in West Nusa Tenggara Province, where the University of Mataram is located. Lombok is known for its natural and cultural diversity where you can enjoy traditional cuisines, beaches, waterfalls, mountain, traditional villages and handicraft of many ethnics including Sasak, Samawa, Mbojo, Balinese, Chinese, Arabic, and many others.

As the Rector of the University of Mataram, it is a great honour for me to address the opening of "The 2nd International Conference on Science and Technology" here at the University of Mataram, which will be held from 23rd to 24th August 2017, with a theme "The Emergence of Science for Human Prosperity and Health". The main aim of this seminar is to gather scientist from all over the world to share their ideas, knowledge and experiences and to build network for possible future collaboration.

As we are aware that sharing knowledge and experiences from speakers are extremely valuable in a conference, therefore I would like to express my high appreciation, first, to the keynote speakers from overseas and from Indonesia for their willingness to come to Lombok to share their acknowledged works. Your effort and contribution to this conference are absolutely valuable. Second, my high appreciation also goes to the national speakers and all other participants, including the speakers from University of Mataram and local universities in West Nusa Tenggara Province, your participation in this conference not only will give incredible share of ideas, skills and knowledge that you have, but also will improve the academic environment that we are developing in this university. I hope this conference will be a good forum, not only for communicating and sharing ideas, knowledge and experiences, but also for building networking for future collaboration.

I would also like to take this opportunity to express my appreciation to the sponsors which have given some contribution to this conference. Last but not least, I would like to thank the organizing committee as well as all other supporters and participants, without their effort, commitment and hard work, this conference will not run well.

Finally, I wish you most successful conference, enjoy Lombok Island and hope to see you again in other forum here at the University of Mataram.

Rector of the University of Mataram

Prof. Ir. Sunarpi, Ph.D

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Agribusiness System in The Agro Tourism Area of Gumantar, North Lombok

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Abstract

This paper describes agribusiness system in the agro-tourism area of Gumantar, North Lombok, Indonesia. Data were collected through structured interviews with farmer respondents, in-depth interviews with key informants, and secondary data collection from relevant sources. The study reveals that agribusiness subsystems, i.e., the subsystems of input, farm, processing, marketing, and supporting service, have not all worked satisfactorily in reaching more results as a system than the sum of all subsystems. Therefore, every subsystem of the agribusiness system requires improvement in one issue or more, and more importantly within the system, a sub system needs to be linked with other subsystems for gaining improved positive impact.

Keywords: *agribusiness linkage, agribusiness system, agribusiness subsystem, agro tourism, economic development*

1. Introduction

Indonesia has been developing its economy (Booth, 2003; Haeruman, 1997; MPR RI, 1993), and the phase of that development is now accelerating, that is, doing development in high speed, in order for the country to catch up with population development and meeting many needs of the country, as well as the need of some regions, which are currently 'behind', to level other regions in that development (Kompas, 2003; President of RI, 2011). This speedy development includes that in the sector of agriculture (Dillon, 1999; Krisnamurthi, 2008; President of RI, 2011). Agriculture in broad sense covers the sub sectors food agriculture, plantation crops, forestry, livestock, and fishery (President of RI, 2011; Soekartawi, 1995). One way in developing agriculture to be more productive or successful is believed to apply the development from upstream to downstream, from beginning to the end, in integrated way. This approach of agricultural development is called agribusiness (AHRDB, 2001; Beierlein et al., 1986; Cramer et al., 2001; McGregor, 1997). Agribusiness as a system comprises of several sub systems, including the sub systems of input, farm, processing, marketing and supporting service. These sub systems need to work together, support each other, be integrated in order to give positive impact amounted to be more than the sum of the sub systems. All sub systems play their parts while supporting other sub systems, hence all sub systems become stronger than if they work alone or do not support each other.

North Lombok has had by nature tourism objects well known by tourists of local, national, or international origins. Some of the tourism objects are the three Gilis (small islands of Trawangan, Meno, and Air), Puncak Pusuk, Sire Beach, Senaru, and Sendang Gile Waterfalls (Dinas Pariwisata Provinsi NTB, 2016). Those tourism objects are assets for North Lombok to develop further. Many facilities are built to make the objects more accessible than before. North Lombok has also other types of tourism, i.e. culinary and culture, either presented alone or in combination with other objects, so that we can see culinary in beaches or culture presentation along with culinary consumption. In culinary tourism, North Lombok has several types of foods that interest tourists to consume and are of

important for economic development as they have high production, market, and monetary value (Zainuri et al., 2016b).

Currently, another type of tourism is being developed in North Lombok (Zainuri et al., 2016a; Zainuri et al., 2017a; Zainuri et al., 2017b). This tourism is developed to capitalize the beauty of the nature, particularly the landscape, as well as attempting to get benefit from the beauty of the plants (crops) while not ignoring the economic value of the crops. Therefore, the tourism object is designed by combining of integrating high value and beauty crops with the landscape that suits crops growing. This paper describes agribusiness system in the agro-tourism area of Gumantar, North Lombok, Indonesia, from which the conditions may be improved in future.

2. Materials and Methods

This investigation was carried out in Gumantar Village, Kayangan District, North Lombok Regency. The village was selected for its potential to be developed as a tourism area, which is in this case is an agro-tourism area, by capitalizing the beauty of agricultural plants and land scape. Since this activity was also designed for gaining high income from plants or crops then the crops selection need to have this criterion (Zainuri et al., 2016a). Data for this research were collected through structured interviews with farmer respondents, in-depth interviews with key informants, and secondary data collection from relevant sources (Babbie, 2004; Jackson, 1988; Sjah, 2011). Farmer respondents were those who have land in around the agro tourism area, and were identified as many as 17 farmers. In-depth interviews were conducted to key informants considered as having sufficient knowledge on the topic investigated (Patton, 1990; Patton, 2002). Key informants here included head of farmer groups and business entrepreneurs in the location or surroundings. Secondary data were collected to complement the other two sources of data (Kumar, 1993; Nachmias and Nachmias, 1976; Sjah, 2011). Data collected were suited to the research objectives and were around the agribusiness and its sub systems. Descriptive analysis was applied for providing information and gaining understandings (Grinnell, 1993; House, 2005; Patton, 2002), especially on the working performance of the agribusiness systems and its sub systems.

3. Results and Discussions

This paper describes agribusiness system in the agro-tourism area of Gumantar, North Lombok, Indonesia. The system of agribusiness consists of the following sub systems: input, farm, processing, marketing, and supporting services (Beierlein et al., 1986; Downey and Erickson, 1987; McGregor, 1997). The implementation of these sub systems of agribusiness is described in sections below.

3.1 The Sub System of Input

In the tourism area of Gumantar, North Lombok, almost all agricultural inputs source from outside the area. Seeds of crops, such as listed in the next section, are bought from outside. The major source of seeds in the area is a company called 'Syngenta'. Along with seeds, the company provides fertilizers of several contents and brand names. Agricultural machines (such as tractors) and tools (such as cutters) are also available from outside. While seeds and fertilizers can be dropped into the area by the providing company, most of agricultural machinery and tools are bought directly in the city (like Mataram). Most agricultural producers apply chemical (inorganic) fertilizers rather than organic fertilizers, despite many people (such as extension officers or university staffs) have recommended the use of organic fertilizers. In addition to intensive promotion by chemical fertilizer companies, farmers are more convinced by the physical appearance of plants that have been applied with chemical fertilizers.

3.2 The Sub System of Farm (Production)

Crops grown in the tourism area of Gumantar, North Lombok majorly consists of traditional crops. The survey shows there are seasonal and perennial or annual crops. The seasonal crops include corn, peanut, chilli, dryland rice, tomato, melon, mungbean, long bean, and cucumber. All 17 farmer respondents grow corn. So, corn is the main crop for the area. Along with corn, 9 farmers also grow other crops just mentioned. These other crops are grown in multiple cropping system, with some are grown with clear borders with the corn and some with unclear borders. Ones with clear borders are called unspecific farms, while ones with unclear borders are called mixed farms (Hernanto, 1994; Suratiyah, 2006).

The perennial crops include coconut, mango, custard apple, sapodilla, banana, papaya, and wood trees. The perennial crops are usually grown on the dykes or inside the paddock. They are planted in separated distant. The distant plantings do not only provide spaces between the trees and their canopies but also provide spaces for the seasonal crops. Seasonal crops on the dryland such this area, are grown by following the existence of water, which is available during the rainy season. The water from the rain avails in the area since about November or December annually. Seasonal crops generate income for farmers in a short term (about 4 months), while perennial crops provide annual income, once the crops have started its productions. Most of perennial crops produce for certain months, yet some of perennial crop can also provide income for longer period or during the year round.

3.3 The Sub System of Processing (Agroindustry)

Processing of agricultural products in the area is very limited. Virtually all products are sold in the form of fresh or raw materials. Some of the products are even sold before harvest, and then the harvests are done by the buyers. The buyers brought the fresh products out of the area to city of Mataram or elsewhere. The selling of fresh or raw agricultural products like this is not recommended since there are chances to earn better income through processing of the raw materials to one or several types of processed foods. Currently, several products or portions of products are processed, yet the processed products are only for family consumption, not to be marketed. Therefore, there has been no income from processed products so far.

The importance of doing processing of agricultural products has been informed or recommended to the local farming community in the area of tourism development of Gumantar, by local provincial and regencial governments or by university staffs, such as those from the University of Mataram. For example, there were training on creating added value of agricultural products (Sjah et al., 2012b), training on agribusiness development, which also includes creating added value of products (Sjah and Hidayati, 2015; Sjah and Hidayati, 2016; Sjah et al., 2015).

3.4 The Sub System of Marketing

Most agricultural products from the tourism area of Gumantar are marketed on the production locations (on farm gates). Buyers come to the village and make deals with agricultural producers in buying the products. Some crop products are even sold before being harvested, and in this case the harvests are done by the buyers. There are only one or two producers who sell their products to the city of Mataram or nearby cities. However, this sort of producers also plays a role of traders, usually called as local assemblers (Campbell and Fisher, 1991; Dunne, 1999; Kohls and Uhl, 1990; Sjah, 2010), or collectors (Sjah, 2013). The marketing of agricultural products are individually, not in a group or association. This marketing system, in which farmers sell raw materials (fresh products) and do sell in individual, caused price of agricultural products becomes low and in turn cause income from them low too. Farmers have a low bargaining position compared to buyers. Accordingly,

there are needs to seek ways to improve the bargaining position of farmers. There are recommendations available for improving farmer condition such as by establishing farmer associations as suggested by several literatures (see for example Barker, 1989; Kohls and Uhl, 1990; Mubyarto, 1995). Nevertheless, this recommendation has not been able to be realized due to several constraints from the farmers or others. Apparently, there are more works needs to be done for handling this issue.

3.5 The Sub System of Supporting Service

There are some supporting services available for the development of agribusiness in the tourism area of Gumantar, North Lombok. The supporting services include extension service, roads, agricultural input provision, market facilities, and visits by local government leaders. Extension services on agriculture have been long provided to the area as also to whole area in Indonesia. This work is done by government in particular, yet some voluntary extension services also available from universities or companies related to agribusiness. Roads appear sufficient to cover almost areas in North Lombok, and this condition supports the transportation of agricultural products or its processed products. The availability of roads also enables transportation of agricultural inputs into the area or elsewhere. Market places have been built in some places, especially in central towns, such as in Tanjung. Markets can absorb almost all products, fresh or processed, because customers not only from within the area but also from outside. Finally, visits by local regencial government have been occurred several times, and these visits bring a sort of encouragement for the local people to work better or to be more productive than before.

Supports that are needed but have not been provided appear in some instances. Farmers search market for their products by themselves, and therefore their capacities are limited. It would be better if market information for producer products available to farmers, especially where to sell for each agricultural product. Similarly, some farmers still access working capital from private lenders (company or others), which interest charge.

Another aspect that is lacking in the agribusiness in the area is on the planning of production, i.e. in selection of which crops to be grown in certain times. Currently, farmers have been deciding according to their experience and 'feeling' of what promising production to be. In the agribusiness system, it is believed that successful business should start with market and then be ended with market (see for instance Sjah et al., 2012a; Suwardji et al., 2009).

4. Conclusions and Recommendations

This study conclude that agribusiness subsystems, i.e., the subsystems of input, farm, processing, marketing, and supporting service, have not all worked satisfactorily in reaching more results as a system than the sum of all subsystems. Therefore, every subsystem of the agribusiness system requires improvement in one issue or more, and more importantly within the system, a sub system needs to be linked with other subsystems for gaining improved positive impact.

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