THE CONTRIBUTION OF AGRICULTURAL SUB-SECTOR TO INDONESIAN ECONOMY

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ABSTRAK

Studi bertujuan untuk menganalisis peranan pertaninan terhadap perekonomian mengingat pemerintah Indonesia menetapkan kebijakan revitalisasi pertanian dan perekonomian pedesaan untuk pengentasan kemiskinan. Metode yang digunakan adalah analisa Input-Output. Hasil penelitian membuktikan bahwa :1) Sub-sektor tanaman pangan memberikan kontribusi terbesar pada output dan nilai tambah; 2) Berdasarkan analisis keterkaitan, sub-sektor tanaman pangan mempunyai indeks keterkaitan ke depan tertinggi sedangkan sub-sektor peternakan memiliki indeks keterkaitan ke belakang tertinggi; dan 3) Berdasarkan analisis multiplier, sub-sektor peternakan memiliki nilai multiplier output dan pendapatan terbesar sedangkan sub-sektor kehutanan memiliki nilai multiplier tenaga kerja terbesar. Revitalisasi pertanian sebaiknya tidak dikosentrasikan pada sub-sektor pertanian saja, mengingat sub-sektor peternakan mempunyai efek multiplier yang lebih besar terhadap output, pendapatan,dan juga tenaga kerja.

Kata kunci: input-output, analisis keterkaitan, multiplier

ABSTRACT

The main objective of this paper is to analyze agricultural sub-sectors contribution to the Indonesian economy by using Input-Output analysis. The important finding of the study: 1) The food crops sub-sector has the highest contribution in output and value added; 2) In terms of link with the other sector, food crops sub-sector has the highest forward linkage. Meanwhile, the livestock and products sub-sector has the highest backward linkage; and 3) In terms of multiplier, livestock and product sector has the highest output and income multiplier, meanwhile for the employment multiplier second after the forestry sector. This result suggests that revitalization of agricultural sector in the future must not only concentrate in developing food crops sector. Development of the livestock and product sector needs further attention since it has higher potential to affect other sector of the economy compare to the other agricultural sub sector.

Keywords: input-output, linkage analysis, multiplier

INTRODUCTION

Background

Agriculture plays an important role in economy's of the developing countries. According to Gillis et.al (1992), there are several roles of agriculture in the economic development. First, agriculture provides food consumed by the people. Farmers must produce enough food to feed themselves as well as the urban population. Countries do not want to depend their food on other countries. Secondly, agriculture is an important source of labor for other industries. In the developing countries, most people live in rural area therefore increase employment means increase of labor demand which mostly come from the rural area. Third, agricultural sector can be a source of capital for modern economic growth especially in the early stage of development. Fourth, agriculture can be a source of foreign currency. Many developing countries depend on agricultural commodity export to obtain foreign currency needed for the country's economic development. Lastly, rural population is an important market for the output in the modern urban sectors.

The contribution of agricultural sector to Gross Domestic Product (GDP) in Indonesia has decreased significantly over the years, from 23.2 percent in 1985 to only 13.8 percent in 2007. The decreasing trend began in 1986, but during the crisis in 1997-1998 the contribution increased and it began to decrease again when the effect of the crisis began to vanish. In 2006-2007, the contribution experienced a slight increase mainly due to the increase of several agricultural prices which Indonesia export (Figure 1).

Although the contribution to GDP has decreased over the years but the people working in agricultural sector is still in huge number. In 2007, 42.6 million or 43.7 percent of the total labor force still depend on the agricultural sector. In addition, in terms of labor percentage it decrease from 54.7 percent but in term of

number, it increase from 34.1 million people in 1985 (Figure 1).

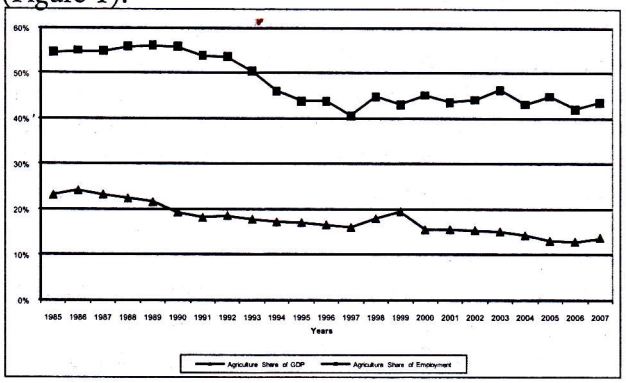

Figure 1. Agriculture share of GDP and employment

Source: Asian Development Bank (2008)

Aims of the Study

The main objective of this paper is to analyze the effect of the agricultural sub-sector on the Indonesian economy. In this study, the agricultural sub-sector consists of five sub-sectors, namely food crops, estate crops, livestock and its product, forestry and fishery. The effect on the economy consist the effect on output, income, employment, linkage between other industries and multiplier effect of the agricultural sub-sector.

AGRICULTURAL SECTOR IN INDONESIA

According to the World Development Report 2008, Indonesia is considered to be a transforming country since agriculture is no longer a major source of economic growth but poverty remains serious problem in the rural area (World Bank, 2008). Over the years Indonesia has transformed from agricultural based country, which its main source economic growth came from agriculture sector, to a transforming country.

In 2005, the current government launched the revitalization of agriculture. The program is a part of so called triple track strategy which has a pro-growth, pro-employment and pro-poor spirit. The operationalization of the triple track strategy consist of (1) increasing the economic growth by more than 6.5 percent annually through investment and export, (2) real sector empowerment in order to absorb employment and create new jobs and (3) agriculture and rural sector revitalization in order to contribute to the eradication of poverty.

One of the roles of agricultural sector is source of foreign currency through agricultural product export. There are five important agricultural products export from Indonesia, namely palm oil, natural rubber, palm kernel oil, ply wood and crustaceans or shrimp (Figure 2). These five agricultural commodities in 2007 valued almost 16.5 billion US$ or 14.5 percent of the total Indonesia's export or 17.4 percent if oil and gas is excluded. Except for plywood, the other four products have positive trend over the years. Until 2001, plywood was the number one agricultural product export of Indonesia but beginning from 2002 the spot was taken by palm oil. This is caused by the declining of raw materials for the plywood industry causing many factories to shut down their operation.

Compared to 1989, palm oil and palm kernel oil export has increased by 32 times and 21 times in 2007. In terms of value, during the 1989-2007 period palm kernel oil export grew in average of 27.2 percent annually, palm oil by 26.6 percent, natural rubber by 12.4 percent, crustaceans by 4 percent and plywood decrease by 0.5 percent. For palm oil, natural rubber and palm kernel oil during the period of 2002-2007 these product grew by 42 percent, 36.7 percent and 42 percent respectively. The huge growth was mainly cause by the increase of the international price of these products.

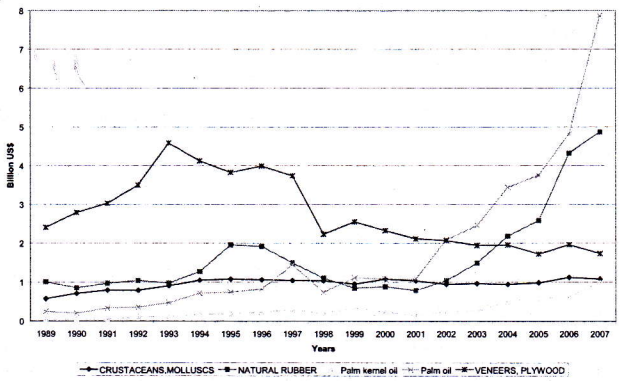

Figure 2. Indonesia's main agricultural product export, 1989-2007

Source: UN Comtrade, 2009

According to its export destination, 47 percent of palm oil export went to India, China and Netherlands; 57 percent of natural rubber export went to USA, Japan and China; 57 percent of plywood export went to Japan, USA and China; 61 percent of palm kernel oil export went to Netherlands, China and Malaysia and; 78 percent of crustaceans export went to USA, Japan and Belgium.

DATA AND METHODOLOGY

Data used for the research is the Input-output table of 2000 and 2005. The raw data consists of 175 sectors and for the purpose of this research the sectors are aggregated into 24 sectors (Appendix 1) with the focus on five sectors, namely food crops, estate crops, livestock and products, forestry and fishery.

The methodology employed in this paper is the input output analysis. The input output analysis was developed by Leontief in the late 1920's and early 1930 (Blair and Miller, 1985; Miller, 1997). In order to analyze using input output analysis, input output table or account is utilized. The input output table or account indicates the interconnection of the economy by recording, for a given period (usually one year), the economic transaction that happen in the economy (Miller, 1997). In the input output table or account the rows describe the distribution of producer's output in the economy;

meanwhile the columns describe the composition of inputs required by a particular industry to produce its output.

The input output table or account basically indicates the equilibrium between demand and supply in the following equation (Blair and Miller, 1985; Miller, 1997):

$X_i = A_i + F_i$ .....(1)

where:
X_i = production of sector i
A_i = intermediate demand of sector i
F_i = final demand of sector i

In matrix notation, equation (1) can be written as follows:

$AX + F = X$ .....(2)

where
A = intermediate input coefficient matrix
X = output vector of all sectors
F = final demand vector

Equation (2) can be transformed into the following equation:

$X = [1-A]^{-1} F$ .....(3)

where
[1-A]-1 = Leontief inverse matrix

The 2000 and 2005 input output table published by Statistics Indonesia is utilized to analyze the contribution of palm oil sector and palm oil processing to total output, value added and employment. Meanwhile, 2005 input output table is utilized to analyze the linkage and multiplier analysis. A 33 sector input output table is constructed for the analysis.

Linkage Analysis

In the input output analysis, production in a particular sector has two kinds of economic effects on the other sectors of the economy:

Backward Linkage

If sector j increases its output, it will increase the demand from sector j (as a purchaser) on the sector which products are used as inputs to production in sector j. A measure of the backward linkage is given by the sum of the elements in the j-th column of the technical coefficient matrix, A, it is also called the direct backward linkage (Miller, 1997) In order to include the indirect effect, the total backward linkage is calculated. The total backward linkage utilized the column sums of (I-A)-1 not just A (Miller, 1997).

In order to make comparison between sectors, a normalization procedure is carried out by dividing each backward linkage by the average backward linkage (Miller, 1997).

Forward Linkage

If sector j increases its output also means additional amounts of product j that are available to be used as inputs in other sectors for the sector's production. The direct forward linkage of sector i is defined as the sum of the elements in the i th row of the direct-output coefficient matrix, D. In order to include the indirect effect, the total forward linkage is calculated. In order to make comparison between sectors, a normalization procedure is carried out by dividing each forward linkage by the average forward linkage (Miller, 1997).

Multiplier Analysis

One of the major use of input output analysis is assessing the effect to the economy from the changes in exogenous elements The term impact analysis is used when the exogenous changes occur because of the actions of only one impacting agent and the change occurs during the short run period. The analysis is derived from the Leontief inverse which is also known as the multipliers. There are three most frequently used multipliers (Miller and Blair, 1985):

Output multiplier

An output multiplier for sector j is the total value of production in all sectors of the economy needed to satisfy the final demand for sector j's output.

Income multiplier

Income multiplier analyzes the impact of changes in final demand spending into changes in income received by households.

Employment multiplier

Employment multiplier calculate the impact if changes in final demand into changes in employment in each sector of the economy.

EMPIRICAL RESULT

The value of agriculture GDP from 2000 to 2005 has increased by 74 percent, but in terms of share decrease from 10 percent to only 8.5 percent (Table 1). This shows that the other sector in the economy has increase

Table 1. The Role of Agricultural Sub-Sector and other Sectors in Output Creation

Sector	2000			2005		
	Output (Bil Rp)	Share (%)		Output (Bil Rp)	Share (%)	
		Sector	Total		Sector	Total
Food Crops	127,145	46.31	4.71	227,825	47.20	4.01
Estate Crops	41,923	15.27	1.55	86,710	17.96	1.52
Livestock	46,546	16.95	1.72	68,308	14.15	1.20
Forestry	20,039	7.30	0.74	27,100	5.61	0.48
Fishery	38,881	14.16	1.44	72,761	15.07	1.28
Agriculture	274,534		10.16	482,704		8.49
Food Industry	329,325		12.19	548,333		9.64
Mining	196,815		7.29	387,251		6.81
Manufacturing	749,850		27.76	1,579,811		27.77
Construction & Infrastructure	258,315		9.56	667,335		11.73
Services	892,259		33.03	2,022,840		35.56
Total	2,701,010		100.00	5,688,274		100.00

Source: Statistics Indonesia 2002 and 2007

more than the agriculture sector.

The food crop sector has the highest contribution to the agricultural GDP. In terms of growth, the estate sector grew more than 100 percent during 2000 and 2005 which is caused by the booming of several estate crops such as palm oil, coffee, cacao, rubber etc. Meanwhile the forestry sector has the lowest growth with only 35 percent mainly caused by the decrease of forest area in the country (Table 1).

During the period of 2000-2005, all sectors experience an increase in value added. On the other hand, only the secondary and tertiary sectors enjoyed an increase in value added share. Meanwhile all the primary sectors, agriculture and mining, and food industry suffer a decline in share (Table 2). In line with the agriculture sector, the value added share of all agricultural sub-sector decrease during 2000-2005 which indicates that the contribution of the agricultural sub-sector on the entire economy shrink during this period.

Table 2. The Role of Agricultural Sub-Sector in Value Added Creation

Sector	2000			2005		
	Value Added (Bil Rp)	Share (%)		Value Added (Bil Rp)	Share (%)	
		Sector	Total		Sector	Total
Food Crops	110,707	52.24	8.10	183,111	49.61	6.36
Estate Crops	31,106	14.68	2.28	60,276	16.33	2.10
Livestock	24,396	11.51	1.79	43,678	11.83	1.52
Forestry	15,983	7.54	1.17	22,545	6.11	0.78
Fishery	29,713	14.02	2.17	59,485	16.12	2.07
Agriculture	211,904		15.51	369,095		12.83
Food Industry	112,063		8.20	192,601		6.69
Mining	167,692		12.27	317,170		11.02
Manufacturing	273,535		20.02	603,080		20.96
Construction & Infrastructure	84,967		6.22	233,773		8.13
Services	516,339		37.79	1,161,173		40.36
Total	1,366,500		100.00	2,876,892		100.00

Source: Statistics Indonesia 2002 and 2007

Looking at the agriculture sub-sector, all sub-sector experienced an increase in value with the highest increase in fishery sector with the increase more than 100 percent. Meanwhile the lowest increase in the forestry sector with the increase only 41 percent.

Linkage Analysis

The agricultural sub-sector generally has low direct and total backward linkage compare to the other sectors of the economy (Appendix 2). Meanwhile, comparing among the agricultural sub-sector the livestock and products sector has the highest direct and total backward linkage. This shows that the increase in output in this sector has the biggest direct and indirect effect on the other sectors especially which provides input to the sector. The lowest sub-sector is the forestry sector, which indicates that the increase in output in this sector has the lowest benefit to the other sector which provides input to the forestry sector. This is understandable since the forestry sector is an extractive sector.

For the forward linkage, the food crops sector has the highest direct and total forward linkage among the agricultural sub-sector (Appendix 3). This indicates that the product from the food crops sector is more utilized in other sectors of the economy compare to the other agricultural sub-sector. Meanwhile, the forestry sector also has the lowest direct and total forward linkage which means that the output from this sector is mainly consumed directly by households or exported. Plywood is the main output of the forestry sector and the main export commodities of Indonesia over the years.

Multiplier Analysis

The multiplier analysis consist of three types; output, income and employment. In the output multiplier, livestock and products has the highest output multiplier with 1.7204 which means that an increase in Rp 1 million of final demand in the livestock and products sector will increase the output of all sectors by Rp 1.7204 million (Appendix 4) Meanwhile, the forestry sector has the lowest output multiplier compare to other agricultural sub-sector with 0.3199.

Looking at the effect on each sector, an increase in the sector final demand mostly was mainly cause by its own sector. The highest is the food crops sector with 79.17 percent increase was caused by its own sector. This shows that the increase in final demand of food crops mainly affect its own sector. Meanwhile the livestock and products sector has relatively more effect on the other sectors.

Besides its own sector, the output multiplier of the agricultural sub-sector also affects other sectors. The other manufacturing sector was affected by all the agricultural sub-sector which indicates that all of the agricultural product has link on the other manufacturing sectors which mainly consist of non-food manufacturing sector.

On the income multiplier, the livestock and products sector has the highest income multiplier with 0.3289 which means that an increase of Rp 1 million in final demand of the livestock and products sector will increase income in all sectors by Rp 0.3289 million, meanwhile the food crops has lowest with 0.1881 income multiplier (Appendix 4).

An increase in final demand in the fishery sector will increase income in its sector the highest compare to other agricultural sub-sector. An increase in Rp 1 million in final demand in fishery sector will increase the fishery sector income by Rp 0.1657 million or 80.07 percent of the whole income increased.

The sectors affected by the increase in final demand of the agricultural sub-sector besides its own sector is the wholesale and retail trade. The highest is in the livestock and products sector, an increase in Rp 1 million in the livestock and products sector will increase the wholesale and retail trade sector income by Rp 0.0161 million. This shows that the expansion of agricultural sector will also benefit the wholesale and retail trade sector income since the sector is involved in marketing the

agricultural products.

The livestock and product sector has the highest employment multiplier with 0.3289 which means that an increase in final demand in the livestock and product sector by Rp 1 billion will increase employment in all sectors by 329 people which 238 people is in the livestock and product sector. Meanwhile the food sector has the lowest effect on employment (Appendix 4).

CONCLUSIONS

The contribution of agricultural sector on the Indonesian economy has decline over the years. Looking at the agricultural sub-sector, the food crops sector has the highest contribution to output and value added. Food crops also has the highest forward linkage since it is the main crops which will be utilized in the other sector especially the food or manufacturing industry.

Meanwhile, the livestock and product sector has the highest backward linkage, output and income multiplier. The development of the livestock and product sector will benefit other sector of the economy compare to other agriculture sub-sector.

POLICY IMPLICATIONS

The government over the years has focused mainly on the food crops sector because it produces the staple food for Indonesian people. Result study shows food crops sector has the highest contribution to output and value added. Meanwhile, the livestock and product sector has the highest backward linkage, output and income multiplier. Therefore in the future the government revitalization agriculture program must not only concentrate in developing food crops sector. Development of the livestock and product sector need further attention since it has high potential to affect other sector of the economy compare to the other agriculture sub sector.

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Appendix 1. List of Sectors

No	Sectors
1	Food Crops
2	Estate Crops
3	Other Crops
4	Livestock and Products
5	Forestry
6	Fishery
7	Agriculture Services
8	Coal and Metal Ore Mining
9	Crude Oil and Natural Gas
10	Other Mining and Quarrying
11	Food, Beverage and Tobacco Manufacturing
12	Petroleum Refinery
13	Other Manufacturing
14	Electricity, Gas and Clean Water
15	Construction
16	Wholesale and Retail Trade
17	Hotel and Restaurant
18	Transportation
19	Communication
20	Financial Sector
21	Building Rent
22	Business Services
23	Public Administration
24	Private and Other Services

Appendix 2.Direct and Total Backward Linkage

Sectors	Direct Backward Linkage		Total Backward Linkage	
	Value	Index	Value	Index
Food Crops	0.1751	0.5522	1.2593	0.8402
Estate Crops	0.2890	0.9113	1.4607	0.9745
Other Crops	0.3355	1.0577	1.5870	1.0588
Livestock and Products	0.3307	1.0428	1.6014	1.0684
Forestry	0.1516	0.4779	1.2388	0.8265
Fishery	0.1687	0.5319	1.2656	0.8444
Agriculture Services	0.2017	0.6360	1.3077	0.8724
Coal and Metal Ore Mining	0.2286	0.7207	1.3519	0.9020
Crude Oil and Natural Gas	0.0833	0.2626	1.0947	0.7303
Other Mining and Quarrying	0.1917	0.6045	1.3073	0.8722
Food, Beverage and Tobacco Manufacturing	0.6067	1.9128	1.9343	1.2905
Petroleum Refinery	0.2123	0.6694	1.2399	0.8272
Other Manufacturing	0.4535	1.4298	1.7196	1.1473
Electricity, Gas and Clean Water	0.6155	1.9408	1.9035	1.2699
Construction	0.5231	1.6493	1.8205	1.2146
Wholesale and Retail Trade	0.3072	0.9687	1.4744	0.9837
Hotel and Restaurant	0.5329	1.6804	1.8973	1.2659
Transportation	0.4704	1.4831	1.7145	1.1439
Communication	0.1799	0.5674	1.2729	0.8493
Financial Sector	0.3051	0.9619	1.4624	0.9756
Building Rent	0.1548	0.4882	1.2648	0.8438
Business Services	0.3360	1.0596	1.5349	1.0241
Public Administration	0.3744	1.1804	1.6318	1.0887
Private and Other Services	0.3839	1.2106	1.6277	1.0860

Appendix 3. Direct and Total Forward Linkage

Sectors	Direct Forward Linkage		Total Forward Linkage	
	Value	Index	Value	Index
Food Crops	0.3379	1.0655	1.6137	1.0766
Estate Crops	0.1654	0.5216	1.3170	0.8787
Other Crops	0.0119	0.0374	1.0126	0.6756
Livestock and Products	0.1552	0.4894	1.2243	0.8168
Forestry	0.0477	0.1504	1.0777	0.7190
Fishery	0.0902	0.2846	1.1382	0.7594
Agriculture Services	0.0633	0.1997	1.0862	0.7247
Coal and Metal Ore Mining	0.1714	0.5404	1.2797	0.8538
Crude Oil and Natural Gas	0.3647	1.1498	1.6749	1.1175
Other Mining and Quarrying	0.0636	0.2004	1.0943	0.7301
Food, Beverage and Tobacco Manufacturing	0.8898	2.8057	2.2217	1.4823
Petroleum Refinery	0.5812	1.8327	1.8741	1.2503
Other Manufacturing	1.3654	4.3053	3.2987	2.2008
Electricity, Gas and Clean Water	0.2713	0.8554	1.4271	0.9521
Construction	0.3368	1.0619	1.4339	0.9567
Wholesale and Retail Trade	0.6533	2.0600	2.0131	1.3431
Hotel and Restaurant	0.1297	0.4088	1.1872	0.7921
Transportation	0.4280	1.3496	1.6635	1.1098
Communication	0.1733	0.5463	1.2631	0.8427
Financial Sector	0.5200	1.6395	1.8527	1.2360
Building Rent	0.1278	0.4029	1.2176	0.8124
Business Services	0.1866	0.5883	1.2973	0.8655
Public Administration	0.0337	0.1062	1.0480	0.6992
Private and Other Services	0.4434	1.3981	1.6562	1.1049

Appendix 4. Output, Income, and Employment Multiplier of Agricultural Sub-Sector

Sectors	Output	Income	Employment
Food Crops			
Food Crops	1.0615	0.1434	0.0708
Agriculture Services	0.0823	0.0089	0.0038
Livestock and Products	0.0312	0.0077	0.0018
Wholesale and Retail Trade	0.0292	0.0054	0.0008
Other Manufacturing	0.0195	0.0037	0.0005
Other Sectors	0.1170	0.0190	0.0017
Total	1.3407	0.1881	0.0793
Estate Crops			
Estate Crops	1.0791	0.2416	0.1192
Wholesale and Retail Trade	0.1662	0.0180	0.0012
Agriculture Services	0.0618	0.0118	0.0011
Other Manufacturing	0.0461	0.0085	0.0009
Food Crops	0.0370	0.0077	0.0007
Other Sectors	0.1932	0.0288	0.0033
Total	1.5834	0.3164	0.1266
Livestock and Products			
Livestock and Products	1.0148	0.2381	0.1175
Food Crops	0.3099	0.0268	0.0049
Estate Crops	0.0867	0.0161	0.0030
Wholesale and Retail Trade	0.0739	0.0100	0.0023
Food, Beverage and Tobacco Manufacturing	0.0496	0.0060	0.0014
Other Sectors	0.1855	0.0320	0.0034
Total	1.7204	0.3289	0.1325
Forestry			
Forestry	1.0144	0.1784	0.1271
Agriculture Services	0.0772	0.0083	0.0023
Wholesale and Retail Trade	0.0298	0.0064	0.0008
Food Crops	0.0296	0.0055	0.0005
Other Manufacturing	0.0254	0.0048	0.0004
Other Sectors	0.1435	0.0230	0.0023
Total	1.3199	0.2265	0.1335
Fishery			
Fishery	1.0375	0.1657	0.0817
Wholesale and Retail Trade	0.0696	0.0087	0.0013
Food Crops	0.0470	0.0060	0.0012
Estate Crops	0.0365	0.0040	0.0007
Livestock and Products	0.0272	0.0039	0.0005
Other Sectors	0.1120	0.0185	0.0019
Total	1.3298	0.2069	0.0873

IMPLEMENTATION OF LOCAL KNOWLEDGE "TRI HITA KARANA" ON ECOTOURISM MANAGEMENT IN BALI

AGUNG SURYAWAN WIRANATHA[1)] AND ANAK AGUNG GDE RAKA DALEM[2)]
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ABSTRAK

Pariwisata merupakan motor penggerak perekonomian Provinsi Bali. Sejak pariwisata berkembang dengan pesat pada akhir tahun 1970-an, perekonomian Bali juga mengalami peningkatan yang tajam. Perkembangan pariwisata yang pesat ini memunculkan berbagai wacana dan debat terkait dengan bagaimana bentuk ideal dari pengembangan dan pengelolaan pariwisata Bali kedepan. Namun demikian, masyarakat Bali yang kaya akan berbagai unsur budaya dengan karakter yang unik memiliki kearifan lokal yang dikenal dengan sebutan "Tri Hita Karana" yang memberikan tuntunan agar menjaga keharmonisan dan keseimbangan berbagai aspek kehidupan dalam masyarakat Bali. Tri Hita Karana menjadi sebuah filosofi kehidupan masyarakat Bali yang mungkin juga dapat diimplementasikan dalam pengembangan dan pengelolaan kepariwisataan di Bali.

Artikel ini bertujuan untuk menggali potensi penerapan kearifan lokal, Tri Hita Karana, dalam pengembangan dan pengelolaan pariwisata menuju pariwisata Bali yang berkelanjutan. Pembahasan pada artikel ini difokuskan kepada penerapan filosofi Tri Hita Karana dalam pengelolaan ekowisata, khususnya pada beberapa hutan masyarakat di Bali yang dikelola sebagai daya tarik ekowisata.

Kata kunci: kearifan lokal, tri hita karana, ekowisata, Bali

ABSTRACT

Tourism has become a driving force in the economic development of Bali Province. As tourism developed rapidly in the late 1970s, the Bali's economy has risen sharply. The ideal forms of tourism development for Bali have been debated publicly since the last few years. However, as a society known for its distinctive culture, Bali has a local knowledge, called "Tri Hita Karana" which embraces the need of balance in every aspects of Balinese life. Tri Hita Karana becomes the fundamental philosophy that may be implemented into tourism development and management in Bali.

This paper explores the incorporation of the local knowledge of Balinese, Tri Hita Karana, into tourism development and management that may be useful in contributing to the realisation of sustainable tourism in Bali. Focus is given to the implementation of Tri Hita Karana in the management of ecotourism, particularly in the community forests which have been managed as ecotourism attractions in Bali.

Keywords: local knowledge, tri hita karana, ecotourism, Bali

INTRODUCTION

In this paper we examine the recent issues of sustainable tourism development in Bali, and propose a framework for ecotourism development and management that incorporates Balinese traditional knowledge, called Tri Hita Karana. Firstly, the paper outlines the nature of Bali's tourism development and the concepts of sustainable tourism development. And then, this paper outlines a tourism development and management that incorporates concept of *Tri Hita Karana*. Finally, this paper describes how the local knowledge, *Tri Hita Karana*, is implemented into ecotourism development and management in Bali. Examples are given to the development and management of three ecotourism objects, namely Hutan Wisata Alam Sangeh, Hutan Wisata Alas Kedaton, and Hutan Wisata Wenara Wana Ubud.

Issues of Tourism Development in Bali

Tourism in Bali has been developed in terms of increasing number of visitors and tourism facilities. The numbers of direct arrivals of foreign visitors in Bali increased from 24,340 in 1970 to 1,412,839 international tourists in 2000 (BPS Bali various issues), and then decreased afterward to reach 993,029 international tourists in 2003 due to the impact of terrorism attacks in Kuta and Legian on 12th October 2002. However, it took only one year to bring back tourists to Bali to reach 1,458,309 international tourists in 2004. Due to other terrorism attacks in Kuta and Jimbaran on 1st October 2005, the number of international tourists to Bali decreased to 1,260,317 tourists, but the number of international tourists increased to reach 1,664,854 tourists in 2007 (DIPARDA Bali, 2008). The number of international tourists visited Bali still increased in year 2008 to reach 1,968,892 tourists, the highest number

in Bali's tourism history. Most foreign tourists (55.7%) visiting Bali were interested in people and culture, and about 29.4% were interested in natural amenity of Bali (DIPARDA Bali, 1998).

Tourism has become the leading sector in Bali's economy. As Bali's economy has been developed mostly through tourism and other economic sectors related to tourism, therefore tourism competes with agriculture on the use of natural resources, particularly water and land resources (these two resources are considered to be the two most significant development constraints in Bali) (Wiranatha, 2001). Moreover, many believe that the 'booming' in tourism development has raised several concerns, including:

- An increasing impact of development (tourism) on Balinese socio-culture, particularly in terms of changing lifestyles towards more consumerism and individualism (i.e. less time for socio-cultural activities) due to the influence of foreign tourists and/or their involvement in economic activities (tourism);
- Conflict of interests over the use of public spaces (especially beaches) between cultural-religious activities of Balinese society and tourist activities in some areas;
- Limitations of natural resources (particularly land and water) and the competitions over the use of the resources between economic and residential activities.
- Issues of beach erosion, reef destruction, wastewater pollution, and solid waste disposal; and
- Disparity distribution of economic benefits from tourism.

Regarding the above facts, uncontrolled tourism development and other development related to tourism may inhibit tourism itself. It is because uncontrolled development may lead to deterioration of natural amenity and socio-culture cohesiveness. Therefore, concepts of sustainable development should also be applied in tourism development and management in Bali.

Concept of Sustainable Tourism

The concept of sustainable tourism was formulated in order to follow up the concept of sustainable development. The issues of sustainable development have been widely acknowledged since its appearance in 'Our Common Future' (WCED, 1987). Sustainable development has been expressed as an adaptive process of change in which the exploitation of resources, the direction of investments, and the orientation of technological development and institutional changes are made to meet the needs of present and future generations for a better life. Moffat (1993) summarizes components of sustainability as maintaining ecological integrity and diversity, meeting basic human needs, keeping options open for future generations, reducing injustice, and increasing self-determination.

In term of tourism development, the concept of sustainable development so called sustainable tourism could include three main aspects, namely: sustainability, education, and local participation. The aspect of sustainability should cover four areas, namely environmentally friendly, socially responsible, culturally acceptable, and economically viable.

- Environmentally friendly means to avoid or minimize the environmental impact of tourist activities. Calculation of physical carrying capacity is important to assess environmental impacts and its sustainability.
- Socially responsible refers to the ability of a community to absorb inputs, such as extra people, for short or long periods of time, and to continue functioning either without the creation of social disharmony as a result of these inputs or by adapting its functions and relationships, so that the disharmony created can be alleviated or mitigated. There is a suggestion to calculate social carrying capacity, although it seems to be harder than calculating physical carrying capacity.
- Culturally acceptable refers to the ability of people or a people to retain or adapt elements of their culture which distinguish them from other people. Cultural impacts are more easily seen over the long term and are therefore more difficult to measure, although the cultural subversion of many local communities has been well documented.
- Economically viable refers to a level of economic gain from the activity sufficient either to cover the cost any special measures taken to cater for the tourist and to mitigate the effects of tourist's presence or to offer an income appropriate to the inconvenience caused to the local community visited - without violating any of the other conditions - or both.

Moreover, sustainable tourism includes education for both tourists and hosts. Education for tourists means to provide enlightenment to the tourists in the cultural ways and norms of those they are visiting. On the other hand, education for hosts means to give training to the 'hosts' so they are better able to cater for the whises of the tourists who visit them. Finally, sustainable tourism could be more comprehensive with local participation. Therefore the hosts can obtain direct benefits from tourists who visit their area.

The general concept of sustainability may be used as a guide to Bali's tourism development. However, more attention should be given to natural resources, traditional resource uses and conservation practices, and the socio-culture aspect. In this respect, the Bali Sustainable Development Project (BSDP) has come to the conclusion that sustainable development for Bali should reflect the balancing of economy, environment and culture, and development as a process that enhances the quality of life (Martopo and Mitchell, 1995).

INCORPORATING TRI HITA KARANA INTO TOURISM DEVELOPMENT

Balinese people expect that development could lead to an increasing both standard of living (economic well-being) and quality of life (combination of environmental and socio-cultural well-being). It is hoped that Balinese people could maintain and develop their socio-cultural traditions with economic development without harming the environment. It is also suggested that the Balinese people do have a concept of how Bali should be developed, including what should and what should not be developed around the island. One of traditional values system amongst many local knowledge that have been considered as an ideal concept for sustainable development in Bali is known as *Tri Hita Karana* (Three sources for a harmony in life) (see Martopo and Mitchell, 1995). This value system emphasises the harmonious relationship between human and God (*parhyangan*), between people and society (*pawongan*), and between human and environment (*palemahan*). The above formulation of *Tri Hita Karana* announced by I Gusti Ketut Kaler during a seminar on customary village at the Faculty of Law and Social Studies Udayana University in 1969. The fundamental concept of *Tri Hita Karana* actually has been found in Bhagavad-Gita (III.10) saying that "*yajna* (holy sacrifice) is the basis of relation among the Almighty God (*Praja Pati*), human (*praja*) and nature (*kamadhuk*)" (see THK Awards, 2005).

The implementation of *Tri Hita Karana* (THK) for tourism in Bali is suggested to be given more attentions on *pawongan* aspect since community plays a central role in Bali tourism as most tourists visiting Bali are interested in people and culture. The main issues on *pawongan* aspect are the empowerment of local community particularly through their involvement on planning, development and operation of tourist objects and facilities. For example, the local community should be given priority in managing tourist objects and taking up the employment opportunities in the tourist objects or facilities (such as hotels and restaurants). Moreover, the management is encouraged to facilitate a harmonious relationship between and within employees and management through the establishment of internal employee associations with various activities in which they can communicate openly and regularly.

Parhyangan aspect can be outlined in some principals, including: the appropriate location, placement and the activities at the holy/sacred place (particularly Balinese temple known as *pura*) within the tourist object or facilities; the appropriate use and placement of statues and symbols of Balinese Hindu; and the contribution of the management for religious activities and Balinese culture within the tourist object or facilities and the surrounding area.

Aspect of *palemahan* focuses on protection of environmental quality, conservation of biodiversity, and management of sewage and waste. *Palemahan* aspect is also related to the attractiveness of Bali tourism destination as many tourists are interested in natural amenity of Bali. Moreover, the future trend of tourism will be 'back to nature' tourist activities, and more tourists concern with environment (environmentally friendly tourists). Implementation of *palemahan* aspect could also hand-in-hand with international criteria and standard on Environmental Management System, and International Certification on Tourism Industry (such as Green Globe).

In Bali, it has been attempted to promote the implementation of *Tri Hita Karana* (THK) concept into tourism industry, particularly for tourist accommodations and tourist objects, since year 2000 through a tourism accreditation system called "*Tri Hita Karana* Tourism Awards & Accreditation" (see THK Awards, 2005).

Tri Hita Karana and Ecotourism Management

Ecotourism and nature tourism are recognised as being particularly conducive to enriching and enhancing the standing of tourism, provided they respect the natural heritage and local populations and are in keeping with the carrying capacity of the sites (Global Code of Ethics for Tourism; www.world-tourism.org). The Ecotourism Society defined ecotourism as "a responsible travel to natural areas which conserves the environment and improves the welfare of local people" (Western, 1993). Ecotourism covers ecological, economical aspects and issue of 'evaluating community opinion'. Ecological aspect deals with issue that ecotourism contributes positively on conservation of nature. Economical aspect relates to issue that ecotourism as a tool for a sustainable source of economy. Evaluating community opinion means ecotourism empowering the community, economically by giving more 'roles' to them in ecotourism activities, and improve their participation in conservation (Sudarto, 1999).

In general, there are eight principles of ecotourism, namely: (i) natural area focus; (ii) ecotourism interpretation and education; (iii) ecological sustainability practices; (iv) contributing to conservation; (v) benefiting local communities; (vi) respect and be sensitive to the culture; (vii) consumer satisfaction; and (viii) responsible marketing (Ecotourism Association of Australia, 2002). Furthermore, Ecotourism in Indonesia outlines five principles, namely: (i) supports nature conservation programs, (ii) involves local communities, (iii) provides economic benefit to the community most immediately affected by tourism activity, (iv) preserve the socio-cultural and religious values of the local community, and (v) comply with regulations related to tourism and environmental conservation (Anonymous, *undated* ; Anonymous, 1997; Dalem, 2002).

Tourism stakeholders in Bali were also formulating the principles of ecotourism for Bali during a workshop on ecotourism in Sanur, Bali (Indonesia) on 3rd – 5th September, 2002 (Dalem, 2004). Tri Hita Karana (THK) concept is closely related to the principles of

ecotourism. The principles of ecotourism were enlightening the three aspects of THK as follows:

(a) ***Pawongan*** (harmonious relationship between human and social environment):
- (i) development of ecotourism based on community consultation and approval;
- (ii) to involve and empower the local community, such as recruit them as employees;
- (iii) benefiting local community by providing continuous economic contribution to the local community;
- (iv) to provide appropriate and accurate interpretation by the local guides;
- (v) to preserve the socio-culture of the local community;
- (vi) contributing to preservation of socio-culture of the local community;
- (vii) to meet consumer expectations / consumer satisfaction; and
- (viii) honest and accurate marketing and promotion (responsible marketing).

(b) ***Palemahan*** (harmonious relationship between human and the natural environment):
- (i) natural area focus: concern, commit, and responsible to environmental conservation;
- (ii) ecological sustainability practices;
- (iii) contribute to conservation of natural environment;
- (iv) to provide an interpretation which make visitors possible to enjoy nature and foster their interest on environmental conservation; and
- (v) comply to the law or regulations related to environment, land zoning, etc.

(c) ***Parhyangan*** (harmonious relationship between human and culture-spiritual environment):
- (i) sensitive and respect to the local culture, tradition and religion (culture-spiritual); and
- (ii) concern, commit, and responsible to preservation of the local religious values (culture-spiritual).

A Case Study: Implementation of THK at Ecotourism Attractions in Bali

In order the learn about the implementation of THK in ecotourism management in Bali, this paper outlines a case study on three community forests which have been managed by the local community organisation called *Desa Adat* (customary village) based upon the THK concept. The three ecotourism attractions are namely *Hutan Wisata Alam Sangeh, Hutan Wisata Alas Kedaton,* and *Hutan Wisata Wenara Wana Ubud.* These three community forests have been well-known as ecotourism attractions, in which the attractions relied upon the forests and the animals occupying the forests.

1. *Hutan Wisata Alam Sangeh*

Hutan Wisata Alam Sangeh is a 10.8 hectare of *Dypterocarpus* forest, which is going to be expanded with an additional 3.169 ha of mixed forest. The government classifies this forest formally as "*Taman Wisata Alam*" or Nature Tourism Park. Sangeh forest is located about 20 km to the north of capital city of Denpasar, which can be reached in 30 minutes by public transport.

Fauna which have been identified in Sangeh consist of 22 species of birds, 5 species of mammals, 3 species of reptiles, 2 species of amphibians and 5 species of arthropods (BKSDA, Ministry of Forestry). Monkeys are the major attractions in this forest. Species of monkey found in this forest is the macaque (*Macaca fascicularis*). The population of the macaque is about 190 individuals (based on the direct count, Nov 16, 2003). Based on information from BKSDA, plants occupy the forest were classified into 28 species of trees and 22 species of shrubs. Meanwhile in the new additional forest was planted by *Manilkara* sp., *Psidium* sp., mahagoni, etc. which are expected to provide food for the monkeys.

Sangeh forest is managed by a local management which is formed by the Customary Village of Sangeh (*Desa Adat* Sangeh). There are 21 persons of staffs who were recruited from 6 *Banjar Adats* (Neighborhood Communities) existed within *Desa Adat* Sangeh. The Sangeh Nature Tourism Forest is a popular tourists attraction in Bali, which has been visited by 150,000 - 200,000 visitors annually. For example: in year 2001, it was visited by 64,343 domestic tourists and 161,256 foreign tourists, and then the number was slightly decreasing in year 2002, i.e. 48,353 domestic tourists and 98,125 foreign tourists (DIPARDA Bali, 2003). The number of foreign tourists visiting Sangeh had been in a decreasing trend until year 2005, i.e. 67,340 foreign tourists (2003), 45,724 foreign tourists (2004), and 47,318 foreign tourists (2005). However, the number of foreign tourists visiting Sangeh then jumped up to the highest number ever, that was 166,478 foreign tourists in year 2006 (DIPARDA Bali, 2008).

THK concept has been implemented in tourism development and management at Sangeh forest. It can be seen that Sangeh Nature Tourism Forest is managed by local traditional authority (*Desa Adat*) of Sangeh, and the staffs have been totally recruited from local people. Moreover, visitor satisfaction has been maintained. It can be seen from the number of tourists visiting this forest annually. The economic benefits of these tourism activities surely are taken by *Desa Adat* Sangeh and the local people. It means that the *Pawongan* aspect of THK has been implemented.

In term of *Palemahan* aspect, the successful of the *Desa Adat* Sangeh in managing the forest can bee seen from the way of the staffs to handle the monkeys and look after the forest. Some years ago, there was a problem with the offensive behaviour of the monkeys in the Sangeh forest. This might happened because the monkeys have been often given incentives (food) to allow tourists taken photos with them. However, when few visitors coming and monkeys got less food, they became aggressive. They stole visitor's belonging, and

would only be returned when food is provided. This problem has been able to overcome by the management, by providing appropriate food and planting some trees that can provide food for the monkeys. Now the Sangeh Nature Tourism Forest is fighting back to get its better image, so it is expected that more tourists to visit Sangeh forest. The Sangeh tourist object has also been facilitated with parking area, clean toilets, souvenir shops, and food stalls.

The *Parhyangan* aspect of the Sangeh forest also carefully looks after by the local management. Even though Sangeh forest has been publicly opened as a tourist object, it is still considered to be holly or sacred by the local community, so it is conserved. Some temples were also located in this forest. One of them is *Pura* Bukit Sari which was built in the17th Century by the Mengwi Kingdom ruled by I Gusti Agung Ketut Karangasem. The management takes responsibility for maintenance of the temples, and also to provide offerings required for the temples both daily and during the temples' ceremonies.

2. *Hutan Wisata Alas Kedaton*

Hutan Wisata Alas Kedaton is located in Tabanan regency, south western of Bali. It can be reached by one hour drive from the capital city of Denpasar. The site is approximately 12 hectares, and the forest is about half of the area (Ado, 2000). The major ecotourism attraction in this place are hundreds of monkeys live in a forest ecosystem, and temples (*pura*) as well as a colony of bats as supporting attractions (Dalem and Astarini, 2000; Dalem, 2002).

Hutan Wisata Alas Kedaton becomes more popular as a tourist attraction in Bali than Sangeh forest. Visitations of tourists to Alas Kedaton forest were about 275,000 annually. For example, in year 2001 it was visited by 127,584 domestic tourists and 150,133 foreign tourists (DIPARDA Bali, 2003). The number of foreign tourists visiting Alas Kedaton increased in year 2004 to reach 228,253 foreign tourists. However, this figure then decreased gardually in the next two years, i.e. 169,486 foreign tourists in year 2005, and 120,335 foreign tourists in year 2006 (DIPARDA Bali, 2008).

The implementation of THK concept in ecotourism object of Alas Kedaton can bee seen in three aspects of THK. *Pawongan* aspect is showed in the way of managing Alas Kedaton Forest by the customary village (*Desa Adat*) of Kukuh. *Desa Adat* Kukuh established a committee to manage the Alas Kedaton Tourism Forest, including the management of forest area, personnel, income, and tax. Staffs are appointed from 12 *Banjar Adats* (Neighborhood Communities) existed within *Desa Adat* (Customary Village) of Kukuh. They are in charge for cleaning of the area, looking after parking, and collecting entrance fees (Ado, 2000). Many souvenir shops' keepers (almost all of them are women) also act as local tourist guides who has been determined by the committee previously. There are about 200 local tourist guides, and a half number of them have been given a guiding training in 2004 which was organized by the Bali Government Tourism Office, so they have a special license as a local guide for tourists only in Alas Kedaton. As the shop keeper actively participates as a tourist guide, therefore there is a chance to persuade visitors to see handicrafts and souvenirs in her shop before leaving the site. If visitors buy something, then this will bring income for the local community.

In term of *Palemahan* aspect, the management committee and staffs, and the shop's owners together have responsibilities to look after the forest, keep the area clean, and develop public facilities, as well as to provide food for monkeys. As economic benefits of ecotourism activities in Alas Kedaton brings a better income for the local community and *Desa Adat*, therefore the community's sense of belonging to the forest is getting better. It leads to a better awareness and commitment to forest conservation.

Incomes generated from Alas Kedaton also become funding sources for temple rehabilitation, and temple festivals in the *Desa Adat* Kukuh. Recently, more than one billion rupiahs of its revenue was allocated to rehabilitation of *Pura Kahyangan Tiga* (village temples) at *Desa Adat* Kukuh (Dalem and Astarini, 2000). This is an example of the implementation of *Parhyangan* aspect in the THK concept.

The successful management of Alas Kedaton Forest by *Desa Adat* has made this tourist object as a model for tourism training. For example, in 1998 it was choosen as a field study of ecotourism management during a national training of Indonesian Association of Ecotourism (Masyarakat Ekowisata Indonesia), and during a Bali regional training on ecotourism in 2002.

3. *Hutan Wisata Wenara Wana Ubud*

Hutan Wisata Wenara Wana (Monkey Forest) is located at Padangtegal Village, Ubud. It is about 25 km from Denpasar and it can be reached in one hour drive from Denpasar. The forest area of Wenara Wana is about 8.7 hectares (Harmini, 2005) occupied by more than 200 monkeys (macaques). There are three temples in this forest area, namely *Pura* Dalem Agung, *Pura* Beji and *Pura* Prajapati, which were built at the 14th century. Local community believes that the monkeys belong to the God in Pura Dalem Agung, so they are protected. As the site is considered to be sacred by local community, every visitor visiting the temples should respect the local custom. The visitors should wear *selendang* when entering the temple. The above descriptions can be the examples of the implementation of *Parhyangan* aspect of THK at Wenara Wana.

As *Hutan Wisata Wenara Wana* is located within a developed tourist resort of Ubud therefore this forest area has become popular as an ecotourism attraction. The Monkey Forest is a locally managed by *Desa Adat* Padangtegal. They have 18 staffs who were recruited from the local community. Their responsibilities are

mostly to look after this ecotourism object, and some staffs as forest rangers (*pecalang*). Visitation of tourist (domestic and foreign tourists) to Monkey Forest during year 2001 was 143,081 visitors (DIPARDA Bali, 2003), and in year 2004 increased to become 279,035 visitors (Harmini, 2005). Income generated from the Wenara Wana collected by the *Desa Adat* Padangtegal, and allocated 20% for operation costs, 70% deposited at Village Banking Institution (*Lembaga Perkreditan Desa*) of *Desa Adat* Padangtegal, and 10% given to the government of Gianyar Regency. Operation costs include the cost for daily monkeys' food, staffs' salaries, visitors' insurance, etc (Harmini, 2005). The above explanations are examples of the implementation of *Pawongan* aspect of THK at Wenara Wana.

Wenara Wana is not only considered as a sacred place by local community, and as an ecotourism object, but the forest was also involved in research and conservation programmes. In 1990 and 1991, a monkey behaviour research project was carried out at this monkey forest by the University of Alabama, USA and Udayana University, Bali. In 1998, a five year project was begun between Central Washington University USA and Udayana University. These research projects were looking into the daily life and ecology of the monkeys, the interactions between human and monkeys, as well as the conservation and management of this sacred place. Another research project from Udayana University (Department of Biology) was also carried out in 2003 on population structure of macaques and interaction between tourists and the macaques (Suputra, *et al.*, 2003). The aspect of *Palemahan* of THK has been also implemented as outlined above.

Problem encountered in the management of Wenara Wana was the population size of macaques in Wenara Wana increased significantly. It was about 125 macaques in 1998, and it was estimated 160 macaques in 2000, and 204 macaques in 2002 (Suputra, *et al.*, 2003). As a result, the population size increased about 35-40 individuals within 2 years, or about 15-20 individuals (or about 5-10%) annually. The increasing number of population of macaques in Wenara Wana might because of the adequate food available either naturally within the macaques habitat or supplied by the forest management. To accomodate the higher number of population, it requires a bigger habitat. However, it will be very difficult to provide a bigger habitat in Ubud, as the price of land in Ubud is very expensive.

CONCLUSION

To achieve sustainable tourism, a balance between economy, natural resources, social, and culture is important. Considering the small size of the Bali island with its' limited natural resources available, and the uniqueness of its culture and tradition, it is suggested that any development should limit socio-culture degradation and resources depletion, but should increase the economic benefits to the communities.

The paper has considered that there has been a growing awareness among the Balinese and Bali government to adopt Balinese Hindu philosophy - such as *Tri Hita Karana* - as a basic consideration for sustainable tourism, including in managing ecotourism objects in Bali. Bali has several examples of local traditional management of community forests occupied by monkeys which have been managed as ecotourism attractions, such as in Sangeh, Alas Kedaton, and Wenara Wana Ubud. These ecotourism attractions have been managed by *Desa Adats* (Customary Villages) based upon Tri Hita Karana concept in which hand-in-hand with ecotourism management. To manage forest as ecotourism attractions, it needs carefully consider socio-economy, environmental, and culture-spiritual aspect of the area.

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