

Supply Chain Management of Agro-Safety Tourism along the Ing River Route, Thailand

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Abstract— The management of agro-safety tourism is mostly focused on policies; however, there is a lack of coordination and integration of stakeholders in all sectors involved in the supply chain. This research aims to 1) study the supply chain management of agro-safety tourism in the route of the Ing River 2) evaluate the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River and 3) propose guidelines for the supply chain management of agro-safety tourism in the route of the Ing River. It is a mixed research approach which conducted 387 questionnaires and 27 interviews with participants who are involved in the supply chain management of agro-safety tourism in the route of the Ing River. This paper found that the management of the supply chain of agro-safety tourism in the route of the Ing River have an impact on the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River. It consists of four important processes, namely 1) delivery process consists of 10 sub-guidelines, 2) pre-delivery support process consists of 6 sub-guidelines, 3) post-delivery support process consists of 1 sub-guideline, and 4) the purchasing decision process consists of 2 sub-guidelines.

Key Words: Supply Chain Management, Agro Safety Tourism, Ing River Route

1. Introduction

The core strategy of Thailand 20-years national strategy is product and service quality enhancement. In order to enhance and add value to product and service, there is essential to implement and combine various disciplines, such as sciences, technology, research and development, innovation and human resource development. This concept is incorporated with the 12 national economic and social development plan: equality dimension [17] and the 20-years national research and innovation policy: research and innovation for social and environment development, high valued service, and inequality reduction dimensions [15]. The study of Thailand inbound tourism situations and trends indicates that

tourism industry has a highly effectiveness to national economy among other industries as well as tourism industry is able to be continually developed. This is might be due to the Thailand tourism policy, such as the tourism quality development, the income distribution to local community, tourism environment friendly, Thailand tourism image enhancement, and the utilization of information technology for tourism promotion based on Thailand 4.0 policy [12].

Agro-safety tourism is a type of tourism that will help to enhance the quality of tourism and to develop the economy and society through the distribution of income from tourism to local areas. Furthermore, the development of tourism that is environmentally friendly, especially that involving farmers, the owners of tourist attractions, and the people nearby who are traveling to regions located in areas with agricultural communities, agricultural farms, agroforestry, herbal gardens, livestock, petting and aquaculture farming and innovative tourism resources that are located in the countryside. Arrangement of activities will create new forms of tourism [29; 5; 19; 22].

Implementation of the policies to improve the efficiency of agro-safety tourism requires improving the demand side together with improvement of the supply side by creating an intention to create good relations between tourists and tourism resources for the importance of preserving the quality of the environment and the empowering of nature to be able to produce or to be restored in order to provide tourism services with ongoing sustainability. This includes having procedures for people involved in the tourism industry so that they have an unified understanding of the issues of development of tourism. Therefore, the effective supply chain management concepts must be adopted and applied [6].

The supply chain management is the integration of procurement management of the flow and control of

materials from the producer to the user by having the lowest total cost in the supply chain and receiving the raw materials, goods, or services on time as needed. This results in the management of activities and correlations between organizations that are related from upstream to downstream, which is long and continuous similar to a chain, in order to provide the efficiency of the entire process from production until reaching the hands of the consumers. This can be done by giving importance to communication and data analysis to be used together for the creation of added value in operations and for the creation of advantages in sustainable competition [13; 3; 2; 28; 20;7].

The Supply Chain Operations Reference Model (SCOR Model) can be applied in the supply chain of tourism in order to describe the characteristics of the management operations of the supply chain and explain the activities of businesses in the overall supply chain that consist of five important processes, which are 1) planning, 2) the purchasing decision, 3) pre-delivery support, 4) delivery, and 5) post-delivery support [23; 14; 10].

Previous literature on supply chain management mainly focused on manufactory industry sector rather than tourism industry [30]. Thailand tourism problem is not about tourism resource and destination but it is related to tourism supply chain management [9;]. The tourism supply chain management is the implementations of principles of management into tourism industry. This can be done through the participations of tourism stakeholders in order to create tourism activities and products and deliver those products and service to tourists [32; 10; 31]. The Ing River basin is a branch of the Mekong River

2. Literature Review

The supply chain management involves the integration of the procurement management of the flow and control of the materials starting from the producers until reaching the users by having the lowest total cost possible in the supply chain and receiving the raw materials, goods, or services on time as needed. This is the management of the activities and the relationships between the organizations that are related from upstream to downstream, which is long and continuous similar to a chain in order to facilitate the efficiency of the

and is a major river that has its headwaters starting from Doi Luang or Pi Pan Nam Mountain from the forest upstream. There are 12 streams flowing through the plains where there are communities and agricultural areas. The Ing River covers 4 districts in Phayao province and 2 districts in Chiang Rai province and it is approximately 260 kilometers long. Based on the survey of the agro-safety tourist attractions along the route of the Ing River conducted on 16-18 March 2018, it was found that the management of agro-safety tourism is mostly focused on policies; however, there is still a lack of linkage. Through the coordination and mutual integration of the stakeholders in all sectors, which include the public sector, the private sector, the government sector and the tourists in the supply chain, the development of the supply chain management of agro-safety tourism in the route of the Ing River can be achieved.

Therefore, in order to be in line with the policies of the government and the National Tourism Development Plan concerned with development of the quality of tourism as well as the development of the economy and society through the distribution of income from tourism to local areas and the creation of guidelines for the development of agro-tourism, this study on the supply chain management of agro-safety tourism in the route of the Ing River (stage 1) was conducted. The research examined the supply chain management of agro-safety tourism in the route of the Ing River with an ongoing evaluation of the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River and proposes guidelines for the supply chain management of agro-safety tourism in this area.

entire process from the production until arriving into the hands of the consumers. This can be facilitated by giving importance to communication of information and data analysis that can be used together for the creation of added value in the operations and for the creation of advantages in sustainable competition [13; 3; 2; 28; 20; 8].

The management of the tourism supply chain is the application of these management principles to the tourism industry by involving the network of organizations that are associated with tourism in participating in the creation of tourism activities and products and the delivery of those services to the tourists. This is related to the various activities of

tourism concerned with both goods and services, such as airlines, accommodations, sales, management, and marketing of products, which all play an important role related to the institutes of both the government and the private sectors along with the communities that are involved with the management of tourism as well [32; 10].

The Supply Chain Operations Reference Model (SCOR Model) is a model that has been developed since the year 1996 as a result of the cooperation among the Supply Chain Council (SCC), which is an independent non-profit organization with more than 800 companies from various industries worldwide. Through the working principles of the SCOR Model, the procedures and work processes provide an explanation of the characteristics of the operations, management, components, and various other factors of the administration of the supply chain. These elements consist of five important processes, which are as follows: 1) planning, 2) procurement of raw materials, 3) production, 4) delivery, and 5) return. In addition, at the same time, there has been the adoption of the SCOR Model and its application to the supply chain of tourism. In order to describe the characteristics of the management operations of the supply chain and present the activities of the businesses in the entire supply chain, the results of the study found that the value chain of tourism consists of five important processes, which are 1) the purchase decision of the customers to buy the tourism services, 2) the activities that provide support before delivery services, 3) the activities involved in the delivery of services, 4) the activities that provide post-delivery support of services, and 5) the activities involved in the planning. These are the main activities that occur throughout the steps of activities of the supply chain operations. Based on the literature review, the researcher has summarized the Supply Chain Operations Reference (SCOR) Model for an analysis of the current state of the supply chain management of agro-safety tourism along the route of the Ing River, which is shown to consist of five important processes, which are 1) the planning, 2) the purchasing decision, 3) the pre-delivery support, 4) the delivery, and 5) the post-delivery support [23; 14; 10].

The evaluation of the efficiency of the supply chain management of tourism involves an examination of the effectiveness that is necessary for

the success of the supply chain of tourism. The majority of the previous research has been focused on the evaluation of the efficiency of the supply chains in the industrial sector, while there are very few studies concerned with the evaluation of the efficiency of the supply chains in the service sector, especially for tourism. Moreover, the set of criteria have been arranged for the evaluation of the efficiency that occurs in three various fields of work, which are 1) the finance criteria that are used for evaluation, namely, the total costs, the cost of distributing goods, the cost of production, the cost of the inventory of goods, the return on investment, the total income, and the earnings; 2) the operations criteria that are used for evaluation of factors such as the time needed in response to the customers, the lead time in the production, the quality of the goods, and the availability of the goods; and 3) the overall supply chain criteria that are used to evaluate, in particular, the customer satisfaction and the flexibility of the supply chain [31; 32].

From the literature review concerned with the supply chain management of agro-safety tourism in the route of the Ing River (stage 1), based on the concepts and theories that are related to the supply chain management concepts, the supply chain management of tourism concepts, the supply chain management of agro-tourism, the Supply Chain Operations Reference Model (SCOR Model) and the concepts of the evaluation of the efficiency of the supply chain management of tourism and the associated research studies. Also, these previous literature and supply chain management concepts clearly explain that the supply chain management of agro-safety tourism in the route of the Ing River are correlations with the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River. Therefore, this paper employs these literature and concept to set the hypotheses as follows.

Hypothesis 1, The supply chain management of agro-safety tourism in the route of the Ing River regarding planning, there are correlations with the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River.

Hypothesis 2, The supply chain management of agro-safety tourism in the route of the Ing River regarding the purchasing decision, there are correlations with the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River.

Hypothesis 3, The supply chain management of agro-safety tourism in the route of the Ing River regarding pre-delivery support, there are correlations with the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River.

Hypothesis 4, The supply chain management of agro-safety tourism in the route of the Ing River regarding delivery, there were correlations with the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River.

Hypothesis 5, The supply chain management of agro-safety tourism in the route of the Ing River regarding post-delivery support, there were correlations with the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River.

It can be determined that the variables and the conceptual framework in this research are as shown in Figure 1.

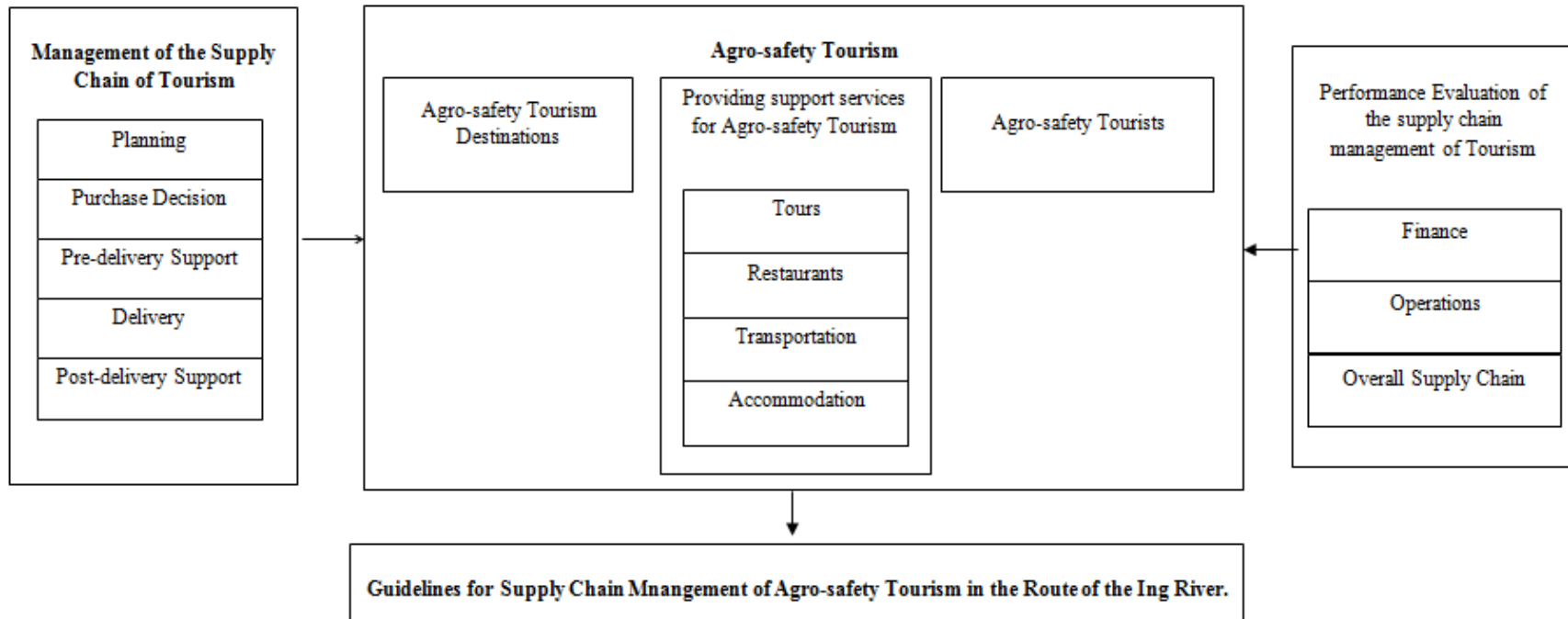


Figure 1: Conceptual framework of the research

Source: Adapted from the work of the Supply Chain Council, [23]; Yilmaz & Bititci (2006); Piboonrunroj & Disney [18]; Zhang et al. [32]; Tapper [26] Christopher [3]; Chopra & Meindl, [2] and Srichaiwan & Donkha [21]

3. Research Methodology

This paper employed mixed research approach. First, the quantitative research was employed to seek empirical knowledge by establishing the theories and the clear conceptual framework that are based on scientific methods and statistical analysis. This was the tool that was created in order to fulfill objectives 1 and 2 as the results of the study from the quantitative research were still not yet known. For the guidelines for the supply chain management of agro-safety tourism along the route of the Ing River, there were some doubts regarding several issues that the quantitative research approach cannot address; therefore, these research results were applied to the synthesis of the questions that were used as the tool in the semi-structured interviews for data collection in the qualitative research that could lead to the fulfillment of objective 3.

3.1. A quantitative method

The sample population included a group of personnel who are involved in the supply chain management of agro-safety tourism along the route of the Ing River. It consisted of representatives of communities, tour services operators, restaurant operators, transportation operators, accommodation operators, and related institutes and government agencies. The size of the sample was calculated from the sample size formula of W.G. Cochran by determining a confidence level of 95% and a tolerance interval of 5% with a total of 387 people by using the method of quota sampling.

A questionnaire was created by the researcher from the synthesis of the concepts, theories, and associated research studies. It was approved by the inspection and quality analysis of the tool, including the content validity and reliability. The questionnaire are divided into 2 parts as follows;

Part 1 of the questionnaire was concerned with the supply chain management of agro-safety tourism in the route of the Ing River, which consists of five important processes, according to the work process of the SCOR Model that includes 1) the planning, 2) the purchasing decision, 3) the pre-delivery support, 4) the delivery and 5) the post-deliver support.

Part 2 of the questionnaire was concerned with the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River. It consisted of a total of three indicators, namely 1)

the finance, 2) the operations, and 3) the overall supply chain.

Data obtained from the questionnaire was analyzed by using the SPSS statistical software package. The Descriptive Statistics Analysis was used in the data analysis as follows: 1) information regarding the supply chain management of agro-safety tourism in the route of the Ing River, 2) information for the evaluation of the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River, and the hypothesis testing and correlation finding of the information on the supply chain management of agro-safety tourism in the route of the Ing River that has an impact on the efficiency of the supply chain management of agro-safety tourism in this area. The researcher used Multiple Regression Analysis by the Stepwise Method, which is an analysis of all independent variables with the variables that are selected being the variables that have correlation coefficients with the variables that are the highest and have importance for the prediction equation based on the five main variables

3.2. A qualitative method

There are 27 people who were purposively selected from representatives of the communities, tour services operators, restaurant operators, transportation operators, accommodation operators, related institutes and government agencies along the route of the Ing River.

The research instrument for the qualitative method is a face-to-face semi-structured interview. The interviewings were conducted after the collection and compiling of the information and the analysis from the quantitative research. these research results were applied to the synthesis of the questions for use as the tool in the interviews. Then, the questions for the semi-structured interviews that were completed were submitted to the consultants of the project for testing, recommendations, and revision before conducting the interviews with the sample group. The collected data were analysis using the content analysis approach. [1]

4. Research Results

4.1. The results of the quantitative data analysis.

The data analysis of the supply chain management of agro-safety tourism in the route of the Ing River are shown in the form of the mean and standard deviation as seen in Table 1.

Table 1. Mean and SD of the information on the supply chain management of agro-safety tourism in the route of the Ing River

Management of the supply chain of agro-safety tourism in the route of the Ing River	\bar{x}	SD	Rank	Operational level
1. Planning	2.74	0.91	3	medium level
2. Purchasing decision	2.74	1.01	3	medium level
3. Pre-delivery support	2.84	0.99	2	medium level
4. Delivery	2.85	0.97	1	medium level
5. Post-delivery support	2.42	0.93	4	low level

Table 1 shows that operational level of planning, purchasing decision, pre-delivery support and delivery are at the medium level, while post-delivery support level is at the low level .

The analysis of the efficiency of the supply chain management of agro-safety tourism in the route of

the Ing River reveals that the performance level of all three factors including finance, operations, and overall supply chain are at the medium level as shown in Table 2.

Table 2. Mean and SD of the information on the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River

Efficiency of the supply chain management of agro-safety tourism in the route of the Ing River	\bar{x}	SD	Rank	Performance level
1. Finance	2.78	0.86	1	medium level
2. Operations	2.99	0.85	2	medium level
3. Overall Supply Chain	2.96	0.79	3	medium level

Table 2 shows that Performance level of Finance, Operations and Overall Supply Chain are at the medium level.

The results of the hypothesis testing and correlation findings of the information regarding the supply chain management of agro-safety tourism in the

route of the Ing River that have an impact on the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River are shown as the details of all five hypotheses, as seen in Table 3.

Table 3 Multiple regression analysis of correlations between the supply chain management of agro-safety tourism and the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River

Predictor variables	B	Beta	T	P-Value
Constant	4.871		6.001	< 0.001
Delivery	0.946	0.379	7.670	< 0.001
Pre-delivery support	0.572	0.287	6.173	< 0.001
Post-delivery support	0.508	0.223	6.506	< 0.001
Purchasing decision	0.551	0.110	3.526	< 0.001

*with statistical significance at the level of 0.05

$R^2 = 0.771$ Sig.F < 0.001

Based on Table 3, it is possible to write the prediction as follows:

$Y = 4.871 + 0.946$ (delivery) + 0.572 (pre-delivery support) + 0.508 (post-delivery support) + 0.551 (the purchasing decision).

It was found that there were only four independent variables that have correlations with the variables

that are statistically significant, which are as follows.

1) Regarding Delivery, it was found that the P-Value equals 0.001, which is less than the significance level of 0.05. Thus, H0 is rejected and H1 is accepted. According to Hypothesis 4, for the supply chain management of agro-safety tourism in the route of the Ing River regarding delivery, there were correlations with the efficiency of the supply

chain management of agro-safety tourism in the route of the Ing River that were statistically significant, and with the regression coefficients of delivery, which are equal to 0.946, it is possible to explain that for the level of the supply chain management of agro-safety tourism in the route of the Ing River regarding delivery, an increase of 1 unit has an effect on the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River, which will increase 0.946.

2) Regarding Pre-delivery support, it was found that the P-Value equals 0.001, which is less than the significance level of at 0.05. Thus, H₀ is rejected and H₁ is accepted. According to Hypothesis 3, for the supply chain management of agro-safety tourism in the route of the Ing River regarding pre-delivery support, there are correlations with the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River that were statistically significant, and with the regression coefficients of delivery which are equal to 0.572, it is possible to explain that for the level of the supply chain management of agro-safety tourism in the route of the Ing River regarding pre-delivery support, an increase of 1 unit has an effect on the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River, which will increase 0.572.

3) Regarding Post-delivery support, it was found that the P-Value equals 0.001, which is less than less than the significanc supply chain management e level of 0.05. Thus, H₀ is rejected and H₁ is accepted. According to Hypothesis 5, for the supply chain management of agro-safety tourism in the route of the Ing River regarding post-delivery support, there were correlations with the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River that were statistically significant, and with regression coefficients of delivery, which are equal to 0.508, it is possible to explain for that the level of the supply chain management of agro-safety tourism in the route of the Ing River reagrding post-delivery support, an increase of 1 unit has an effect on the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River, which will increase 0.508.

4) For the Purchasing Decision, it was found that the P-Value equals 0.001, which is less than the significance level of 0.05. Thus, H₀ is rejected and H₁ is accepted. According to Hypothesis 2, for the supply chain management of agro-safety tourism in

the route of the Ing River regarding the purchasing decision, there are correlations with the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River that were statistically significant, and with regression coefficients of delivery, which are equal to 0.551, it is possible to explain that for the level of the supply chain management of agro-safety tourism in the route of the Ing River regarding the purchasing decision, an increase of 1 unit has an effect on the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River, which will increase 0.551.

In addition, one set of variables that was not selected for the prediction equation was the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River, in which the variables are as follows: regarding planning, it was found that the P-Value is higher than the significance level at 0.05. Thus, H₀ is accepted and H₁ is rejected. According to Hypothesis 1, for the supply chain management of agro-safety tourism in the route of the Ing River regarding planning, there are correlations with the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River that were significant at a confidence level of 95%.

4.2. The results of the qualitative data analysis

The researcher applied the results of the analysis for the synthesis of the questions for use as the tool in the interviews with a group of personnel who are involved in the supply chain management of agro-safety tourism in the route of the Ing River. 27 participants provided information concerned with the four guidelines for the supply chain management of agro-safety tourism in the route of the Ing River as follows.

1) Delivery process. It found that they are in line and consistent with the results of the quantitative analysis, which indicated that the supply chain management of agro-safety tourism in the route of the Ing River regarding delivery has an effect on the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River. This set of guidelines consists of 10 sub-guidelines as follows.

1.1) providing knowledge concerned with agro-safety tourism and organic farming. The procedures must start from a study of their readiness as well as the appropriateness of the weather and environmental conditions in the area.

1.2) creating the new forms of the agro-safety tourism in the route of the Ing River, which is becoming the style of the 'Long Stay' by increasing the various activities in order to attract tourists to be able to stay longer.

1.3) development of skills involved in the conducting of marketing for agro-safety tourism along the route of the Ing River. However, there should be a focus on the conducting of online marketing that can make the goods and services more familiar to the tourists by various methods in advertising on websites or making the goods and services that are sold available online in order to enhance the awareness of other people so that they gain an interest in eventually using these services or buying these goods, which will increase income and returns for the communities.

1.4) providing knowledge regarding the management of agro-safety tourism in the route of the Ing River. The focus should be on accounting skills and the reduction of the costs, especially various noted items that are concerned with receipts, payments and things that have monetary value in consistently accurate accounting records that are in accordance with standard financial principles and are able to show the results of the operations and the financial status of the business

1.5) institutes of the public and the private sectors and/or universities in the area must have policies regarding work plans for the projects and activities that can improve agro-safety tourism in the route of the Ing River for the groups of persons who are involved in the supply chain management of agro-safety tourism in the route of the Ing River.

1.6) Data analysis of tourists in agro-safety tourism in the route of the Ing River that is concerned with market segmentation should be conducted in order to determine the target groups and to clearly establish the position of the products and services.

1.7) Increase the number of service providers of restaurants in the areas around agro-safety tourist attractions in the route of the Ing River so that there are sufficient places to eat and that they are able to respond to the needs of tourists fully. Also, increasing the choices for providing services in agro-safety tourism from the service providers of restaurants will result in a wide variety, which can include international restaurants, restaurants serving fresh coffee, local restaurants that focus on fresh, natural and safe ingredients, or ordering food online in the style of ordering in advance before traveling for tourism.

1.8) Increase the number of service providers of accommodation in the areas around agro-safety tourist attractions in the route of the Ing River so that there are sufficient places to stay.

1.9) Increase the number of and the forms of the transportation service providers within the communities or the areas around tourist attractions so that they are sufficient for the quantity of the tourists, These can include vans, public buses, cycle rickshaws for hire and cars for hire.

1.10) Coordinate and liaison with tour companies in order to take tourists on tours within communities and allow more merchants and traders in communities to make their goods available for sale at the tourist attractions.

2) Pre-delivery support process. It found that they are consistent with the results of the quantitative analysis, which indicated that the supply chain management of agro-safety tourism in the route of the Ing River pre-delivery support has an effect on the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River. The set of these guidelines consist of six sub-guidelines as below.

2.1) Increase communication channels and provide information about tourist destinations, tour services, restaurants, transportation and accommodation for agro-safety tourists in the route of the Ing River, including both Thai and international tourists. This can be done through the use of online social media, such as blogs, twitter, online social networks and the sharing of information and photographs through online media.

2.2) Provide training workshops concerned with using online social media.

2.3) Conduct public relations in order to disseminate information on tourist destinations, information about tour services, information about restaurants, information about transportation and information about accommodation for agro-safety tourists in the route of the Ing River. This can be done by using personal media, word-of-mouth, radio broadcasts, as well as the representational and promotional media.

2.4) Development of the local and the younger generations so they are able to be the scholars, experts, and local guides of communities to transfer their inherited wisdom.

2.5) Arrange learning centers for agro-safety knowledge for tourists to be able to learn independently. These will also have experimental agricultural plots in order to provide various types

of independent learning or be organized as a base for various activities.

2.6) Coordinate and create alliances with institutes of the public and private sectors in the area, such as offices of tourism and sports in order to help to improve and support agro-safety tourism in the route of the Ing River.

3) Regarding post-delivery support process. It found that there is consistency with the results of the quantitative analysis that indicated that the supply chain management of agro-safety tourism in the route of the Ing River regarding post-delivery support has an effect on the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River as follow.

3.1) Conduct evaluation of the satisfaction of tourists regarding planning, the purchasing decisions, the pre-delivery support, and the delivery in order to develop, adjust and improve the supply chain management of agro-safety tourism in the route of the Ing River. This can be done by creating questionnaires for surveys or by conducting interviews.

5. Discussion and Conclusions

There are several aspects concerned with the supply chain management of agro-safety tourism in the route of the Ing River that have an impact on the efficiency of the supply chain management of agro-safety tourism in this area that can be for discussed.

Delivery was the first variable that was applied to the prediction equation. When considering the information, it was found that the P-Value equals 0.001, which is less than the significance level of 0.05. Thus, H_0 is rejected and H_1 is accepted. According to Hypothesis 4, the supply chain management of agro-safety tourism in the route of the Ing River regarding delivery has correlations with the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River with positive significance at a confidence level of 95%. In addition, due to the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River being evaluated from the indicators of the efficiency of the supply chain management that organizations receive, such as finance operations and the overall supply chain, there is concern with the variables regarding delivery, which are providing tourism services from tour services providers, providing tourism services from accommodation service providers,

4) Regarding purchasing decision process. It was found that there is consistency with the results of the quantitative analysis that indicated that the supply chain management of agro-safety tourism in the route of the Ing River regarding the purchasing decision has an effect on the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River. There are two sub-guidelines as follows.

4.1) Improve opportunities for agro-safety tourists in the route of the Ing River that unintentionally come to travel independently or for tourism without a plan to drive through the area to buy tourism programs through travel agents, tour companies that are associated businesses, or from people in the area.

4.2) Plan and design programs for agro-safety tourism in the route of the Ing River through the participation of the various groups of people who are involved in the supply chain management of agro-safety tourism in the route of the Ing River.

providing tourism services from transportation service providers and providing tourism services from restaurant service providers, etc.

The results of this research are in line with the Supply Chain Operations Reference Model (SCOR Model). There has been the adoption of the SCOR Model and its application to the supply chain of tourism in order to describe the characteristics of the management operations of the supply chain and explain the activities of the businesses in the entire supply chain by the third important process: delivery of services (Delivery). Delivery is the procedure which tourists receive tourism services from the personnel that have a role in delivery of these services which are the service providers of transportation, hotels and accommodation, and activities while traveling [23; 14; 10].

Furthermore the aforementioned concept has been applied and is widely used in the previous studies. For example Maniratrongroj et al. [11] conducted a study on the administration of the supply chain of OTOP goods (One sub-district, One product) in the category of hand-woven silk of a group of silk weavers in an area Nakhon Ratchasima province. Techathawiwat [27] conducted research on the supply chain management for technical work in a medical school library by using a reference model of operations of the supply chain, or a scoreboard. In addition, Taocharee [25] concerned with the

measurement of the efficiency of the logistics system and the supply chain by the internal operations of organizations. And the guidelines for the supply chain management of agro-safety tourism in the route of the Ing River regarding delivery consists of 10 sub-guidelines, which are as follows: 1) provide knowledge concerned with agro-safety tourism and organic farming, 2) create the form of the agro-safety tourism in the route of the Ing River that is the new form, which is the 'Long Stay', 3) develop the skills involved with the conducting of marketing for agro-safety tourism in the route of the Ing River by focusing on moving to conducting marketing online, 4) provide knowledge regarding the management of agro-safety tourism in the route of the Ing River by focusing on the accounting and cost reduction, 5) institutes of the public sector, the private sector, or universities in the area must have policies involving work plans of the projects and activities in order to improve agro-safety tourism in the route of the Ing River, 6) analyze the data for market segmentation, which determines the target group and sets the position of the products and services clearly, 7) increase the number of service providers for restaurants in the areas around tourist attractions, 8) increase the number of service providers for accommodation in the areas around tourist attractions, 9) increase the number of and the forms of the service providers for transportation in the communities or in the areas around tourist attractions, and 10) coordinate and liaison with tour companies in order to bring tourists to visit within the communities.

Pre-delivery support was the second variable that was applied to the prediction equation. When considering the information, it was found that the P-Value equals 0.001, which is less than the significance level of 0.05. Thus, H₀ is rejected and H₁ is accepted. According to Hypothesis 3, for the supply chain management of agro-safety tourism in the route of the Ing River regarding pre-delivery support, there are correlations with the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River with positive significance at a confidence level of 95%.

In addition, due to the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River being evaluated from the indicators of the efficiency of the supply chain management that organizations receive, such as finance, operations, and the overall supply chain, which are related to the pre-delivery support

variable. It provides information about tourist destinations, tour services, restaurants, transportation, accommodation, etc., the results of this research are in line with the Supply Chain Operations Reference Model (SCOR Model), a model that has been developed since the year 1996 from the cooperation among the Supply Chain Council (SCC), which is an independent non-profit organization with more than 800 companies from various industries worldwide [23; 14; 10].

Furthermore, the aforementioned concept has been applied and is widely used in the previous research. For example, Maniratrongroj et al. [11] conducted a study on the administration of the supply chain of OTOP (One Sub-district, One Product) in the category of hand-woven silk made by a group of silk weavers in an area of Nakhon Ratchasima province. Maniratrongroj et al. [11] was concerned with the measurement of the efficiency of the logistics system. And the supply chain and the guidelines for the supply chain management of agro-safety tourism in the route of the Ing River regarding pre-delivery support consist of 6 sub-guidelines, which are as follows: 1) increase the communication channels and provide information about tourist destinations through the online social media, 2) provide training workshops concerned with using online social media, 3) conduct public relations and provide information by using personal media, word-of-mouth, radio broadcasts, and the installation of various informative signs, 4) develop the people in communities and the new generation of people to be able to be the scholars, experts, and local guides of the communities, 5) arrange for agricultural safety learning centers for tourists, and 6) coordinate and create alliances with institutes of the public sector and the private sector in the area.

Post-delivery support was the third variable that was applied to the prediction equation. When considering the information, it was found that the P-Value equals 0.001, which is less than the significance level of 0.05. Thus, H₀ is rejected and H₁ is accepted. According to Hypothesis 5, for the supply chain management of agro-safety tourism in the route of the Ing River regarding post-delivery support, there are correlations with the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River with positive significance at a confidence level of 95%.

In addition, due to the efficiency of the supply chain management of agro-safety tourism in the

route of the Ing River being evaluated from the indicators of the efficiency of the supply chain management that organizations receive, such as finance, operations and the overall supply chain, which are related to the Post-delivery support variables, which are the evaluation of the satisfaction of tourists regarding planning, the evaluation of the satisfaction of tourists regarding the purchasing decision, the evaluation of the satisfaction of tourists regarding pre-delivery support and the evaluation of the satisfaction of tourists delivery, etc., the results of this research are in line with the Supply Chain Operations Reference Model (SCOR Model) that has been developed since the year 1996 from the cooperation among the Supply Chain Council (SCC), which is an independent non-profit organization with more than 800 companies from various industries worldwide [23; 11].

Furthermore, based on the previous research concerned with the concept mentioned above, it has been applied and is widely used, such as Maniratrongroj et al. [11], who conducted a study on the supply chain management of OTOP (One Sub-district, One Product) in the category of hand-woven silk made by a group of silk weavers located in an area of Nakhon Ratchasima province. Also, Techathawiwat [27] conducted research on the supply chain management for the technical work in a medical school library by using a reference model of operations with the supply chain, or scoreboard. Nuntaphodech et al. (2006) conducted a study on the work principles of the Supply Chain Operations Reference Model of organizations. This is similar to Taocharee [25] concerned with measurement of the efficiency of the logistics system. And the guidelines for the supply chain management of agro-safety tourism in the route of the Ing River regarding post-delivery support consists of one sub-guideline, which is as follows: 1) conduct the evaluation of the satisfaction of tourists regarding planning, the purchasing decision, the pre-delivery support, and the delivery by creating questionnaires and/or conducting interviews.

6. Suggestions

6.1. Suggestions from this research

The supply chain management of agro-safety tourism in the route of the Ing River that has an impact on the efficiency of the supply chain management of agro-safety tourism in the route of

The purchase decision was the fourth variable that was applied to the prediction equation. When considering the information, it was found that the P-Value equals 0.001, which is less than the significance level of 0.05. Thus, H₀ is rejected and H₁ is accepted. According to Hypothesis 2, for the supply chain management of agro-safety tourism in the route of the Ing River, the purchasing decision has a correlation with the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River with positive significance at a confidence level of 95%.

In addition, due to the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River being evaluated from the indicators of the efficiency of the supply chain management that organizations receive, such as the finance, the operations and the overall supply chain that are related to the the purchasing decision variables, which are the purchasing decision of tourism programs through travel agents or tour companies and the planning of tourism independently, etc., the results of this research are in line with the Supply Chain Operations Reference Model (SCOR Model), a model that has been developed since the year 1996 from the cooperation among the Supply Chain Council (SCC), which is an independent non-profit organization with more than 800 companies from various industries worldwide [23; 11]. Moreover, with regard to the previous research, Taocharee [25] conducted a study on the measurement of the efficiency of the logistics system and the supply. And the guidelines for the supply chain management of agro-safety tourism in the route of the Ing River regarding the purchasing decision consists of two sub-guidelines, which are as follows: 1) make improvements for the agro-safety tourists in the route of the Ing River who come to travel independently so that they come to buy tourism programs through travel agents or tour companies that are associated businesses, or from the people in the area, and 2) plan and design programs for agro-safety tourism in the route of the Ing River that are participatory for the tourists.

the Ing River consists of four main aspects of operations based on the work processes of the SCOR Model, which are as follows.

1) Delivery should give importance to the providing of tourism services from the service providers with restaurants, accommodation,

transportation, and tour services respectively. Also, importance should be given to 1.1) providing knowledge concerned with agro-safety tourism and organic farming, 1.2) creating the form of the agro-safety tourism in the route of the Ing River such as 'Long Stay', 1.3) development of skills by conducting marketing and focus on moving toward the conducting of online marketing, 1.4) providing knowledge regarding the management of agro-safety tourism by focusing on the accounting and the reduction of costs, 1.5) institutes of the public sector and the private sector, as well as universities in the area must have development policies and activities, 1.6) determines the target groups and establishes the position of the products services for clarity, 1.7) increase of the number of service providers for restaurants, accommodation, and transportation within the communities and the areas around the tourist attractions, and 1.10) coordinate and liaison with tour companies in order to bring tourists to visit within the communities.

2) The pre-delivery support should give importance to the providing of information about accommodation, restaurants, transportation, and tour services in ordering. Also, importance should be given to 2.1) increase of the communication channels and providing information about tourist destinations through the online social media, 2.2) conduct training workshops concerned with using online social media, 2.3) conduct public relations and provide information by using personal media, word-of-mouth, radio broadcasts, representational and promotional media and the installation of various signs that provide tourists with information, 2.4) the development of the people in communities and the young generation of people to be able to be the scholars of communities as well as experts and local guides, 2.5) arrange for learning centers that teach agro-safety to the tourists, and 2.6) coordinate and create alliances with institutes in the public and private sector in the area.

3) The post-delivery support should give importance to the evaluation of the satisfaction of tourists regarding planning and the evaluation of the satisfaction of tourists regarding the purchasing decision, pre-delivery support, and delivery respectively. Also, importance should be given to 3.1) conducting evaluation of the satisfaction of tourists regarding planning, the purchasing decision, the pre-delivery support, and the delivery by the creation of questionnaires and/or by conducting interviews.

4) The purchasing decision should give importance to the independent planning of tourism and purchasing decision regarding tourism programs through travel agents or tour companies. In addition, importance should be given to 4.1) improvements for agro-safety independent tourists in the route of the Ing River so that they purchase tourism programs through travel agents or tour companies, and 4.2) the planning and design of participatory programs for agro-safety tourism in the route of the Ing River.

6.2 Suggestions for future research

1) There should be in-depth studies by selecting only business operators included in only one category, such as operators of tour services, operators of restaurants, operators of transportation services, or operators of accommodation for the reduction of the diversity of the sample group and to make the results of the study more interesting. These results can be applied to the ongoing development of the operators in the categories mentioned.

2) There should be studies that include other variables of the supply chain management of agro-safety tourism in the route of the Ing River that have an impact on the efficiency of the supply chain management of agro-safety tourism in this area based on various theories and concept that were not applied in this research study.

3) There should be research on the problems and obstacles of each of the variables of the supply chain management of agro-safety tourism in the route of the Ing River that have an impact on the efficiency of the supply chain management of agro-safety tourism in the route of the Ing River. The findings of the results of these studies can be applied for use in the solving of the problems that may arise in the future.

4) There should be studies on the supply chain management of tourism that has an impact on the efficiency of the supply chain management of tourism in other tourism routes and with the other related forms of tourism.

7. Acknowledgements

The author would like to thank the Upper Northern Research Administration Network and the Office of the Higher Education Commission for its financial support of this research project (Contract no. UNRN/2562-01).

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