



**Sustainable Environmental Management of Vineyard Tourism in
Thailand**

Mitchell John Amarando

**A Thesis Submitted in Fulfillment of the Requirements for the
Degree of Doctor of Philosophy in Environmental Management
Prince of Songkla University**

2019

Copyright of Prince of Songkla University

Thesis Title Sustainable Environmental Management of Vineyard
 Tourism in Thailand
Author Mr. Mitchell John Amarando
Major Program Environmental Management

Major Advisor**Examining Committee :**

.....
 (Dr. Ilian Assenov)

.....Chairperson
 (Prof. Dr. Badaruddin Mohamed)

Co-advisor

.....Committee
 (Assoc. Prof. Dr. Parichart
 Visuthismajarn)

.....
 (Assoc. Prof. Dr. Parichart
 Visuthismajarn)

.....Committee
 (Dr. Ilian Assenov)

.....Committee
 (Dr. Aphirom Promchanya)

.....Committee
 (Assoc. Prof. Dr. Umaporn
 Muneenam)

The Graduate School, Prince of Songkla University, has approved this thesis as fulfilment of the requirements for the Doctor of Philosophy Degree in Environmental Management.

.....
 (Prof. Dr. Damrongsak Faroongsarng)
 Dean of Graduate School

This is to certify that the work here submitted is the result of the candidate's own investigations. Due acknowledgement has been made of any assistance received.

.....Signature

(Dr. Ilian Assenov)

Major Advisor

.....Signature

(Mr. Mitchell John Amarando)

Candidate

I hereby certify that this work has not been accepted in substance for any degree, and is not being currently submitted in candidature for any degree.

.....Signature
(Mr. Mitchell John Amarando)
Candidate

ชื่อผู้พิมพ์	การจัดการไร่ร้อนและไวน์เพื่อการท่องเที่ยวอย่างยั่งยืนในประเทศไทย
ผู้แต่ง	นาย มิซเซล จอห์น อมารานโด
สาขาวิชา	การจัดการสิ่งแวดล้อม
ปีการศึกษา	2562

บทคัดย่อ

อุตสาหกรรมท่องเที่ยวไร่ร้อนและไวน์ของประเทศไทยค่อนข้างใหม่เมื่อเปรียบเทียบกับอุตสาหกรรมแนวนี้ของทั่วโลก หากแต่มีศักยภาพสูงที่จะพัฒนาสู่กลไกการขับเคลื่อนเศรษฐกิจระดับภูมิภาค อย่างไรก็ตาม มีความจำเป็นที่ต้องให้ความสำคัญกับหลักการยั่งยืนเพื่อให้มีความเจริญเติบโตถึงที่สุดและอยู่ได้ในระยะยาว อาจกล่าวได้ว่าแทบไม่มีงานวิจัยถึงอุตสาหกรรมท่องเที่ยวประเภทนี้ในระดับประเทศหรือแนวทางสู่การปฏิบัติแต่อย่างใด การศึกษาในครั้งนี้ จึงได้ออกแบบโดยมีวัตถุประสงค์เพื่อ 1) ศึกษาสถานการณ์การท่องเที่ยวในไร่ร้อนและไวน์ของภูมิภาคอาเซียนอย่างเป็นระบบ 2) ประเมินความรู้ด้านการจัดการสิ่งแวดล้อมในไร่ร้อนและไวน์เพื่อการท่องเที่ยวโดยเฉพาะความตระหนักรู้ของผู้จัดการและเจ้าของไร่ร้อน

ผลการศึกษาเชิงคุณภาพในวัตถุประสงค์แรกพบสถานการณ์การท่องเที่ยวไร่ร้อนและไวน์เกิดขึ้นมาช้านานและมีศักยภาพครอบคลุมทั่วทั้งภูมิภาครวมทั้งประเทศไทย ผลการทบทวนวรรณกรรมอย่างเป็นระบบครั้งนี้ เน้นการวิเคราะห์เชิงเปรียบเทียบของการพัฒนาไร่ร้อนเพื่อการท่องเที่ยวในประเทศไทยในปัจจุบัน และโอกาสในการพัฒนาท่องเที่ยวอย่างยั่งยืนในอนาคต ความขาดแคลนงานวิจัยอย่างเป็นระบบเกี่ยวกับอุตสาหกรรมการท่องเที่ยวไร่ร้อนและไวน์ในเอเชียและงานวิจัยท่องเที่ยวที่เกี่ยวข้องนั้น เน้นย้ำถึงความจำเป็นที่จะต้องจัดการช่องว่างในการวิจัยและพัฒนาเพื่อให้อุตสาหกรรมเติบโตทางเศรษฐกิจอย่างเต็มที่ ทั้งนี้เนื่องจากการท่องเที่ยวไร่ร้อนและไวน์ยังไม่ได้ได้รับความนิยมมากในทวีปเอเชียอย่างไรก็ตามการส่งออกกลับมีศักยภาพสูงที่น่าจะสามารถดึงดูดนักท่องเที่ยวจากประเทศตะวันตกเดินทางมาสู่ทวีปเอเชียเพิ่มขึ้นได้ ซึ่งน่าจะเติมช่องว่างด้วยการทำวิจัยต่อไป สถานการณ์ที่คล้ายคลึงกันนี้เกิดขึ้นในประเทศไทยซึ่งเป็นส่วนหนึ่งของทวีปเอเชีย ในขณะที่คนหนุ่มสาวบริโภคไวน์มากขึ้นเนื่องจากกระแสการดูแลสุขภาพผนวกกับรสชาติที่เป็นที่โปรดปรานด้วยเช่นกัน จึงคาดว่าอุตสาหกรรมการท่องเที่ยวไร่ร้อนและไวน์จะทำให้เกิดความเข้มแข็งทางเศรษฐกิจได้มากขึ้นหากได้รับการสนับสนุนมากขึ้นกว่าที่จะเป็นเพียงภาคส่วนเล็ก ๆ ของเศรษฐกิจไทย

วัตถุประสงค์ที่สองเพื่อรวบรวมข้อมูลความตระหนักรู้และใส่ใจสิ่งแวดล้อมของไร่ร้อนและไวน์ในประเทศไทยด้วยงานวิจัยเชิงสำรวจและเชิงคุณภาพด้วยเครื่องมือวิจัยอันประกอบด้วย การสัมภาษณ์เชิงลึกเจ้าของและผู้จัดการไร่ การพบปะชุมชน การประชุมกลุ่มย่อย รวมทั้งการวิเคราะห์ระบุปัจจัยสำคัญในแง่เศรษฐกิจสังคมวัฒนธรรมและสิ่งแวดล้อมเพื่อพัฒนาธุรกิจการท่องเที่ยวที่เกี่ยวข้องกับไร่ร้อนและไวน์ทั้งขนาดเล็กจนถึงใหญ่ ผลการศึกษพบว่าปฏิสัมพันธ์กับการรับรู้ด้านสิ่งแวดล้อมของเจ้าของอุตสาหกรรมไร่ร้อนและไวน์ของไทยอยู่ในระดับดีที่สามารถจะดึงดูดนักท่องเที่ยวคุณภาพสูงได้ และควรได้รับคำแนะนำให้ไร่ร้อนของประเทศไทยมุ่งไปในทิศทางเพื่อการพัฒนาการท่องเที่ยวแบบยั่งยืนโดยใส่ใจต่อคุณภาพสิ่งแวดล้อม ข้อค้นพบที่สำคัญสองประการ ประการแรกได้แก่การสร้างมาตรฐานขั้นพื้นฐานด้านใส่ใจสิ่งแวดล้อมสำหรับการวิจัยเพื่อพัฒนาการท่องเที่ยวไร่ร้อนและไวน์ในประเทศไทย และประการที่สอง ด้านมิติการพัฒนาทางเศรษฐกิจที่สำคัญของประเทศด้วยอุตสาหกรรมการท่องเที่ยวไร่ร้อนและไวน์มีความจำเป็นมากเนื่องด้วยศักยภาพในการเติบโตมีสูงหากแต่งานวิจัยเชิงประจักษ์ยังมีน้อย จึงควรได้รับการสนับสนุนในการวิจัยเพื่อพัฒนาต่อไป

คำสำคัญ: การจัดการสิ่งแวดล้อม การท่องเที่ยวไร่ร้อนและไวน์อย่างยั่งยืน ประเทศไทย

Thesis Title	Sustainable Environmental Management of Vineyard Tourism in Thailand
Author	Mr. Mitchell John Amarando
Major Program	Environmental Management
Academic Year	2019

ABSTRACT

The wine vineyard tourism industry of Thailand is new compared to those of globally renowned regions, but it has a strong potential to develop into a regional economic engine. Hence, it will need to consider sustainability as part of its growth efforts for long-term viability; however, there is almost no research on the local industry and its practices. The objectives of this study were (1) to provide a systematic review of existing research on sustainable wine tourism in Asia and (2) to assess the environmental practices of Thai vineyards involved in wine tourism and explore the environmental consciousness of their managers and owners.

The first objective was examined using relevant studies to provide a wide overview with which to examine the potential for sustainable wine tourism practices in Thailand by comparison with similar efforts in other parts of Asia. These studies created an evaluation framework for current and future Thai vineyard development and its prospects for sustainable tourism. The scarcity of systematic studies on the Asian wine vineyard tourism industry, and thus of its related tourism, simply highlights the need to address this potential economic growth niche. As wines and vineyard tourism are not yet very popular in Asia, they are nonetheless increasingly seen as a potential export opportunity that can also attract tourists from Western nations, and the trend will most likely close the research gap over time. A similar situation is seen in Thailand, a microcosm of the Asian landscape, in that wines are consumed more by younger people, though its apparent health benefits are also gaining favour. Until the wine vineyard industry gains a larger measure of economic strength to garner stronger support, wine vineyard tourism will remain a small sector in the Thai economy.

The second study collected data from Thailand's wine vineyards, and, through document research, field surveys, in-depth interviews, local forums, focus groups and analyses, identified key factors in economic, social, cultural and environmental terms to develop an outline for potential small-scale followed by large-scale wine-related tourism development. Interacting with the perceptions of the Thai vineyard industry and its cultural landscape allowed to assess the extent to which it is attractive to potential wine vineyard tourists. The study provides Thailand's vineyards with relevant recommendations for the development of sustainable wine vineyard tourism.

The research outcome was twofold: (1) establishing a basic benchmark for future research and (2) shedding much-needed light on an economic niche with high growth potential but little empirical research.

Keywords: environmental management, sustainable vineyard tourism, Thailand

ACKNOWLEDGEMENTS

First and foremost, I thank God for giving me the strength, ability, knowledge, wisdom, and the opportunity to undertake this endeavour with the perseverance to its satisfactory completion. Without these blessings, this achievement would not have been possible.

I am particularly grateful to my advisor, Dr. Ilian Assenov, Faculty of Hospitality and Tourism, for the guidance he has provided over the past several years, for challenging my ideas, helping me to shape and clarify those ideas, providing critical feedback and insight, for which this dissertation would not have been possible.

Similarly, I earnestly thank my co-advisor, Assoc. Prof. Dr. Parichart Visuthismajarn, Faculty of Environmental Management, for her enthusiasm, support, and guidance. Additionally, I appreciate and thank the members of this Thesis Defence Committee Prof. Dr. Badaruddin Mohamed, Universiti Sains Malaysia. Assoc. Prof. Dr. Umaporn Muneenam, Faculty of Environmental Management. Dr. Aphrom Promchanya, Faculty of Hospitality and Tourism. Honourable mention K. Sasipatch Punsawat, Faculty of Environmental Management, for her appreciated and polite assistance.

My dissertation journey had many ups and downs. The encouragement that came from my family, friends, colleagues, and co-workers has helped me to complete this challenging journey. This list of names (although not nearly conclusive) has provided me with understanding, sympathy, empathy, laughter, knowledge, joy, and inspiration throughout the undertaking. First, to my loving parents Michael and Josephine, with all of my heart, I thank you for giving me a lifetime of love. A distinguished note of appreciation to K. Tanchnok Nilwan, for listening to my rants and raves without complaint. I adore your kind, tender, and generous heart, you are a breath of fresh air.

A note of appreciation to the dean of the Faculty of Hospitality and Tourism, Asst. Prof. Dr. Pornpisanu Promsivapallop, thank you for pointing out valuable journal articles and having an encouraging viewpoint. Additionally, I will always be grateful to my esteemed colleagues (past and present) at the Faculty of Hospitality and Tourism: Asst. Prof. Dr. Areeta Tirasattayapiyak, Asst. Prof. Dr. Nareeya Weerakit, Asst. Prof. Pimpaporn Suwatthigul, Asst. Prof. Chainun Chaiyasain, Dr. Prateep Wetprasit, Dr. Chatchawan Wongwattanakit, Aj. Patcharapimon Apithambundit, Aj. Kamontorn Prompitak, Aj. Kris Sincharoenkul, Aj. Noppakhun Tuntisuphawong, Aj. Somjate Srirabai, lastly, however, certainly not least it is with the utmost gratitude to Aj. Colin Gallagher, whose additional friendship proved insightful and invaluable.

A very important note of thanks, because there is no victory without the unsung heroes at the Faculty of Hospitality and Tourism's administrative and support staff:

K. Saowalak Sanguankham, K. Saowaluck Chaiyawan, K. Thippawon Thipkonglad, K. Arachapone Somkiatikul, K. Sarawut Kongmoh, K. Nittaya Pratheepnathalang, K. Poonsuk Bureerat, K. Saowanee Lamai.

Finally, although I have drawn upon the collective knowledge of the authors and interviewees found herein, any errors are my own.

Mitchell John Amarando

TABLE OF CONTENTS

	Page
Abstract (Thai)	v
Abstract (English)	vi
Acknowledgements	vii
Table of Contents	viii
Lists of Published Papers	ix
Permission from the Publishers	x
Summary of Contents	1
Introduction	1
Objectives	9
Methodology	11
Results and Discussion	15
Research and Managerial Implications	16
Research Limitations and Suggestions for Further Research	18
Conclusion	19
References	24
Appendices	29
Paper 1: A Systematic Review of Sustainable Wine Tourism Research in Asia 2000–2018	30
Paper 2: Sustainable Wine Tourism and Vineyards’ Environmental Consciousness in Thailand	54
Vitae	67

LIST OF PUBLISHED PAPERS

Amarando, M., Assenov, I., & Visuthismajarn, P. (2019). A Systematic Review of Sustainable Wine Tourism Research in Asia 2000-2018. *African Journal of Hospitality, Tourism and Leisure*, 8(4), 1-24. ISSN: 2223-814X

Amarando, M., Assenov, I., & Visuthismajarn, P. (2019). Sustainable wine tourism and vineyards' environmental consciousness in Thailand. *African Journal of Hospitality, Tourism and Leisure*, 8(3), 1-13. ISSN: 2223-814X

PERMISSION FROM THE PUBLISHERS

ISSN | 2223 814X

African Journal of Hospitality, Tourism and Leisure

PUBLICATION DETAILS

AJHTL is an ACCREDITED journal founded in 2004, appearing on the Scopus index, and DOAJ and was on the Department of Higher Education and Training (DHET) list of approved South African journals from January 2014.

This is an open-access journal - free use, distribution, and reproduction in any medium is allowed, provided that the journal, and original author(s) are credited.

COPYRIGHT NOTICE

Authors who publish with AJHTL come to an understanding with the following aspects:

The author/s retains copyright and gives the journal the right of first publication with the work concurrently licensed under the Creative Commons Attribution License that allows others to share the work and acknowledge of the work's authorship and primary publication in AJHTL.

Authors are free to enter into separate, supplementary contractual arrangements for the non-exclusive circulation of the AJHTL published version of the work such as posting it to an institutional repository or publish it or part thereof in a book. However, there must be an acknowledgement of the initial publication in AJHTL.

After the submission process, authors are allowed to post their work online in institutional repositories or on their personal website/s.



This work by **African Journal of Hospitality, Tourism and Leisure** is licensed under a **Creative Commons Attribution-Noncommercial-No Derivatives 4.0 International License**.

SUMMARY OF CONTENTS

1. Introduction

1.1 Rationale

This study seeks to address the question: How can Thailand develop sustainable wine and vineyard tourism? In a more specific context, can Thai vineyards and wine producers develop successful production levels and then migrate their production methods to sustainability? Parallel to this process of development, can wine and vineyard tourism be developed in current and future Thai wine industry firms?

The research problem is that Thai vineyards are relatively few, were developed recently, and are using grapes developed for a different set of climate conditions (weather, soil, biodiversity, etc.). The low number of vineyards and their recency indicate that this is not yet a full-fledged industrial sector in the Thai economy. This partially explains why the national government has not acted in open support of vineyards as it has with what it considers to be major or highly promising industrial sectors.

The use of grapes cultivated for centuries to suit climactic conditions in Europe also presents a research challenge, as yield data may not reflect the true nature of production. On the one hand, yields may be limited because of adaptation and technique factors (learning to grow the grapes in Thailand), or they may be artificially high because of ‘force growth’ techniques relying on the high usage of fertilisers and insecticides to maintain an acceptable production yield. Heavy use of chemicals can affect a grape crop and the quality of wine in negative ways and could mask serious problems in long-term sustainability because of a forced situation that is ultimately damaging to the environment and the vineyard.

These are specific gaps in the research because the Thai wine industry has not been examined closely in any formal way. In a larger sense, wine and vineyards in Asia also lack the abundant levels of research of similar industries in Europe, North America, South America and Australia. Areas where wine production has been ongoing for at least a century and up to three millennia or more. Though research on those industries can help shed some light on the prospects in Thailand, the industrial and cultural

contexts concerning wine and its production are radically different and thus not quite applicable to the Thai scenario.

The second problem is that vineyard sustainability and wine tourism are not vital components of the industry. While there is little doubt that long-term production sustainability is better for the environment and the industry in terms of image and consistent profits, many vineyards are quite successful without using sustainable methods or when employing them only in a limited manner (organic fertilisers, natural pesticides, etc.) Therefore, sustainability is a choice, not a requirement, for the wine industry, and that choice can only be taken if and when the vineyards are highly productive and profitable. Until then, seeking sustainability may be an added burden to planning and operations that a new firm and industry can best do without.

A similar pattern can be defined for wine tourism. A vineyard needs buyers to survive and thrive, and visitors are not necessarily buyers though many can be. However, visitors also imply veering attention from the operations of production to those of services, a potential loss of productivity that only large and profitable vineyards can truly take advantage of. To an industry striving to find its footing in revenue and profits, such a distraction could be onerous.

For the nine commercial wineries and vineyards in Thailand, the potential growth of their product sales can be enhanced by tourism but will also need to become more sustainable to increase overall long-term success. Growing a business is a challenge, and growing a commercial/ industrial niche raises the challenge level exponentially; the lack of empirical research makes the process more difficult, which this study seeks to address. The development of this niche in Thailand requires two levels of additional infrastructure.

First, the wineries have to prove to be successful using the methods and technologies at hand, which is a work in progress. Second, they must be successful enough and have sufficient economic viability to add a tourism component or integrate environmentally sustainable practices based on economic incentives and profitability. These wineries and the industry can add the third component, either tourism or sustainability, as the case may be (Vengesai, 2010). To a small business, the first priority is survival via profitability, and in many cases, sustainability practices are higher in costs than mainstream operations, and tourism efforts can be a distraction

rather than a benefit unless there are additional support systems in place to reduce the cost burden on the winery (marketing, transportation, etc.). Furthermore, one cannot establish sustainable tourism without considering human factors, and ignoring the reactions of the local populace could tarnish an otherwise excellent effort at tourism development (Sharpley, 2014).

The theoretical implications of this research are that it sets a needed baseline that frames the current context of the Thai wine industry so that future research can compare and contrast changes. The research itself helps define the mindset and business perspectives of the vineyard owners at this time. It also defines the role played by and potentially expected of the government in the industry's development. Lastly, this research provides a context for determining if sustainability and wine tourism are valid short-term (under five years) goals for the industry, addressing its level of competitiveness with other Asian countries in the industry, along with other national wine industries around the world.

Practical implications of this research include identifying potential weaknesses in growth plans of the industry, defining further research and planning gaps that the industry needs to address and evaluating the potential level of support the industry could receive from the government for short-term growth and long-term sustainability.

1.2 Literature Review

1.2.1 Wine and Vineyard Tourism

In terms of maturity and technology, the wine industry in Thailand is far behind that of countries such as France, Italy, Germany and Argentina (Millet et al., 2013, p. 57). Although wine grapes (*Vitis vinifera*) were introduced into Thailand in the 17th century, it was only around 1995 that the local wine industry began developing commercially. With most of the nine vineyards starting at about the same time, the industry's economic development could be more homogenous than in other regions (Hall, Sharples, Cambourne & Macionis, 2000, p. 67).

Although there are more than 60 *Vitis* species, *Vitis vinifera* is the only species native to Europe (Butkhop et al., 2010, p. 94). The difference between Europe and Thailand's climates explains why there are challenges to growing the most

commonly used grape species in Thailand. Mist and rain periods as well as high temperatures all year round can damage the young growth of many grape species, including *Vitis vinifera*. However, new varieties of the crop have shown to be more suitable to the country and for commercially growth.

As for how the presence of a certain crop can become the basis for a tourism niche or even an industry, wine tourism can be defined as the ‘visitation to vineyards, wineries, wine festivals and wine shows for which grape wine tasting and/or experiencing the attributes of a grape wine region are the prime motivating factors for visitors’ (Hall et al., 2000). Vineyard tourism can be viewed as a variety of beverage tourism (Alonso & Liu, 2012, p. 992). A model of wine tourism is based on a distinctive interest in viticulture motivated by the targeted wine-producing region, the activity of wine tasting, or both (Macdonis & Cambourne, 1998). Vineyard tourism can also be defined in terms of events and intentions, meaning that a visitation to some vineyards or some wine festival/wine demonstrations in which grape wine tasting or experiencing the qualities of a wine region becomes the prime motivating factors for a visitor, along with the attraction of participating in and even learning about wine fermentation and production (Hall & Macdonis, 1998).

Research on tourists’ motivation towards visitation to vineyards and other wine tourism sites reveals a wide range of elements and activities which attract them to a certain destination. These activities include tasting wine, consuming wine, purchasing wine and learning about wine (Poitras & Donald, 2006, p. 425; Jayawardena, Patterson, Choi & Brain, 2008, p. 259). In turn, it is commonly accepted that wine-related factors, including socialising, relaxation, having a day out and being entertained, also draw visitors to a certain destination (Getz & Brown, 2006, p. 151). Ultimately, it is impossible to separate wine tourism from vineyard tourism because vineyards are grown to produce wine; therefore, interest in one automatically extends interest in the other (Macdonis and Cambourne, 1998). As wine and vineyard tourism are essentially the same niche (Beverland, 1999; Cooper et al., 2008; Getz, 1999; Howley & Van Westering, 2008), both terms are used interchangeably in this study.

Therefore, the lack of a strong wine and vineyard industry translates into a weaker tourism sector than pleasure, sports or cultural tourism in Thailand (Mitchell et al., 2012, p. 321). However, Thailand has growing tourism numbers, and some analysts

believe the local wine industry will have rapid growth (Banks et al., 2013, p. 6), so the potential for wine and vineyard tourism is positive. But reaching that stage in terms of sustainability, a leap Thailand can make to match other major wine-producing regions, will not be easy because there is no specific government focus in Thailand for developing the industry (Larsen, Calgaro & Thomalla, 2011, p. 483).

1.2.2 Sustainability Factors

According to Hall's (2003) framework, sustainable development relies on three factors:

- Environmental factors, which include emissions to air, land and water; climate change; biodiversity; natural resource use; and water scarcity over the whole product life cycle
- Economic factors, which include the costs of products and services over their entire life cycle, such as acquisition, maintenance, operations and end-of-life management costs (including waste disposal) in line with good financial management
- Social factors, which include safety and security, social justice and equity, human rights and employment conditions

Meanwhile three perspectives are required to plan and develop sustainable wine and vineyard tourism (Getz, 2000):

- Analysis of regional consumer travel and holiday behaviour
- The ongoing development of wine vineyards as distribution or sales instruments
- Preparation and support for areas in which a plan to develop tourism is linked to the charm of wine

As with any commercial- or industrial-level development, there should be a balance of feasibility with regard to social gains and protection of ecological resources so that economic gains are not self-defeating in the long term (UNEP, 2005; UNWTO, 2005). This requires a close understanding of what the industry has at the moment, the capacity of the region (or nation) to develop the industry, the impact technology can have, the potential conflicts and challenges of the industry's growth, and the benefits

of increasing cross-cultural exchanges, which are at the heart of wine and vineyard tourism (Mitchell, Charters & Albrecht, 2012; Thanh & Kirova, 2018; Williams, 2001).

As noted by Karim and Chi (2010), sustainable tourism must honour more than the physical environment and economic goals to embrace the protection of sociocultural aspects while also building an understanding of broader cultural points of view. It may help the development of the Thai wine and vineyard industry that much of it has been guided by French and Australian experts, thus establishing a basis for multicultural understanding (Forbes et al., 2011, p. 81).

Biodiversity Factors

The key environmental factors for Thailand or any other region in terms of developing a wine and vineyard industry is that the area's biodiversity must be sustained (Hall, 2003). A vineyard is a farm with a specific crop, one that faces unique challenges in Thailand because of the most common wine grapes being somewhat unsuited to the area's climate (Getz & Brown, 2006, p. 151). The pressure to maximise productivity against the vagaries of distinct soil and climate differences for a grape species native to another environment could see vineyards using higher levels of pesticides and other chemicals that can poison the soil, air and water (Carlsen, 2004). Also, the desire to increase production would involve using more land, which could destroy fragile ecosystems, thus reducing biodiversity. The history of over-farming land to barrenness is almost as long as the history of agriculture itself, and modern techniques may simply delay or disguise the inevitable damage (Hall, 2003).

A sustainable wine and vineyard industry in Thailand will require a further adaptation of techniques and grape varieties to suit the local climate (Torquati et al., 2015). But this process involves a trade-off of known risks, using proven (profitable) grape varieties with standard or only slightly modified agro-tech support versus trying new varieties and experimenting with their cultivation and subsequent market-based acceptance (Nedelcu, 2014). This process could take 7–10 years to be completed with no guarantee that it will be as profitable as using current grape varieties. For such a small developing industry in Thailand, the investment cost and risk could be too high.

Also, if tourism is implemented in the wine and vineyard industry, the effects of transportation and higher use of natural resources must also be weighed (Hall, 2003).

Evaluating these impacts leads to creating plans that anticipate potential scarcities or critical protection needs that can help preserve long-term sustainability (ILO, 2010).

Economic Factors

The primary goal of any business is survival in the form of sufficient revenue (cash flow) and profits. Unlike other businesses in the tourism industry where the primary ‘product’ is simply having the tourist arrive and spend money at the location, in agricultural operations engaging in ecotourism (agritourism with sustainability support), the primary product of a vineyard is wine. Though additional income from tourism could be welcome, it comes at the expense of the main operation and could become detrimental in terms of quantity (production levels) and quality (Metasit & Watchaneeporn, 2011).

Accordingly, sustainable wine and vineyard tourism must first understand and develop an effective comprehension of consumer attitudes to properly appreciate how these might affect Thai wine producers and specifically consider their tendency to approach wine areas (VineHealth, 2018). This is vital for vineyards that operate on a small scale because their capacity to invest in tourism is limited, and their need to face the challenges of potentially continuous arrivals of visitors is more difficult because of limited personnel. Asian consumers are drinking more wine, seeing it as a healthier alternative to other spirits (Cook, 2019; Millet et al., 2013, p. 57), while Western wine drinkers, especially younger ones, are increasingly curious about non-traditional vineyards (Great Wine Capitals, 2017; O’Vineyards, 2018). Consumers in Thailand who seek to be more ‘Westernized’ in their lifestyle purchases are turning to wine more often (Lereboullet et al., 2013, p. 27; Corsi, Marinelli & Sottini, p. 2013, 343). But the economic perspective cannot be allowed to dominate sustainability development. Trying to maximise the number of tourists could easily damage vineyards operationally and environmentally (Jayawardena, Patterson, Choi & Brain, 2008). Therefore, the balance must acknowledge that wine tourism must remain within the support confines of the vineyards and wineries as both individual business concerns and as an overall industry with a fragile resource system at its core (Hall, Sharples, Cambourne & Macionis, 2000).

Sociocultural Factors

The basic appeal of tourism is that individual experiences, from sights seen and activities to simple conversations, happen in a unique context (Peregrine, 2018). While wineries and vineyards may be essentially similar environments, the sociocultural elements are not. The French wine country is very different from that of the British, and both are dissimilar to that of Napa Valley (Viña Elena, 2019; Visit England, 2019). For Thailand to properly develop a sustainable wine and vineyard industry, it must operate according to its own cultural uniqueness while simultaneously understanding and accepting other cultural perspectives (Borges & de Menezes, 2019). One basic example would be identified as to why people visit wineries and vineyards. In general, there are two groups of such tourists: those who want to savour and buy wine, usually older tourists who consume wine regularly, and a younger group that is more interested in learning about wine and how it is made, mainly for the ‘class’ or even ‘snob’ appeal of the experience (Alebaiki & Iakovidou, 2011; Asero & Patti, 2011). With one group, the primary attraction is tasting and buying; for the other, the chance to see and experience something new. In simple economic terms, the first group may appear to be more profitable than the second, but the numbers show that the second is more likely to create long-term revenue through word-of-mouth referrals that embrace both visiting the location and buying a wider range of products (natural grape juice, organic wine vinegar, etc.) (Byrd et al., 2016; Van Wyck, 2018).

Hence, sustainability would mean creating not just wine tastings but also ‘edutainment’ (education plus entertainment) options, such as having visitors’ hand-press grapes as part of the production process for stronger marketing. Events such as festivals or culturally related celebrations can be integrated to attract a broader range of visitors, which can offset low production or tourist off-season periods (Karlsson, 2017). The key factor is to understand that the wine and vineyard industry plan cannot look at tourists and visitors as a homogenous group or expect it to behave like one (Wilkins & Hall, 2001). The investment needed to understand and prepare for a wider range of sociocultural exchanges takes time, which the current industry in Thailand cannot afford to invest yet. But it will need to do so soon to extract the greatest possible benefit from its production and operations.

2. Objectives

The main aim of this doctoral project was to identify the extent to which Thailand can develop a sustainable wine tourism industry. The research questions were grouped into three categories for determining objectives. The original thematic categories were as follows:

- To identify the role of the Thai vineyard industry in the development of social and economic infrastructure.
- To evaluate tourists' behaviours and perceptions of the Thai vineyard industry and its cultural landscape and to assess the extent to which Thailand's wine industry is attractive to tourists and vineyard visitors.
- To provide Thai vineyards with relevant recommendations for the development of sustainable wine/vineyard tourism.

Initial objectives included visitor perceptions and evaluations of the Thai wine and vineyard industry, but these were changed because the vineyards had too few visitors for the needed sample. These visitors were primarily non-English speakers who could thus not comfortably understand the questionnaire. Lastly, the limited background and research of Asian wine tourism creates a contextual gap that must be addressed by additional research.

Therefore, in the process of the study, the research questions and respectively objectives were modified to reflect better the research needs of sustainable wine tourism development in Thailand. The current objectives reflect the following research questions:

1. What are the current trends in wine tourism research in Asia (in lieu of the fact that Thailand is part of the new wave of wine tourism growth on the continent)?
2. What are the most researched topics on wine tourism in Asia?
3. To what degree are sustainability and environmental management addressed by current research on wine tourism in Asia?
4. What can Thailand learn in terms of vineyard sustainable environmental practices from the experience of other Asian countries?
5. To what extent are Thailand's commercial vineyards engaged in environmentally sustainable practices?

6. What is the degree of awareness and consciousness of Thai vineyard owners and managers of sustainable environmental practices in vineyard tourism?
7. What are the current future plans of Thailand's vineyards for the further development of sustainable practices?
8. What is the possible role of the Thai government in the future development of sustainable wine tourism?

In order to answer the research questions, the following two objectives were formulated:

Objective 1. (Research questions 1-4)

To provide a systematic review of existing research on sustainable wine tourism in Asia.

This objective reflected the need to fill the following research gaps:

- There is currently no systematic literature review of wine tourism research in Asia. The need exists for an overview of the relevant current research trends including sustainability, destination development, consumer behaviour and marketing strategies for Asian wine tourism.
- A discussion of diverse research approaches and perspectives on wine tourism in Asia with a synthesis of the findings will provide a starting point for future research.
- There is a need to identify both the strengths and weaknesses that countries need to conform to acquire a strategic competitive advantage in the wine industry and its tourism-related aspects.

Objective 2. (Research questions 5-8)

To assess the environmental practices of Thai vineyards involved in wine tourism and to explore the environmental consciousness of their managers and owners.

This objective reflected the need to fill the following research gaps:

- There exists no previous research on the adoption of a wine culture centred on sustainable business practices and environmental consciousness in Thailand.

- It is necessary to provide the foundation towards developing a roadmap for popularising Thailand as an emerging wine tourism destination.
- Research is needed to address the degree of implementation of environmentally sustainable practices by Thai vineyards and the hindrances to a sustainable and productive future.

The study's process ultimately became more limited because of a lower-than-expected response level (six out of nine wineries) and because most winery and vineyard owners decided that sustainable tourism practices were outside their scope in terms of resources or interest. While these results were not as encouraging as expected, they did help to identify important factors, such as the eventual progress of environmentally sustainable wine and vineyard tourism in Thailand within the coming decades by showing current obstacles. The perceptual gaps between sustainability and profitability and government support perspectives that will need to be addressed in the future.

3. Methodology

This study is the result of two related research efforts. In the first, a met-analysis of existing research on wine vineyard tourism was carried out to create an empirical framework for the second study. This second study consisted of qualitative research of the nine commercial Thai vineyards using semi-structured interviews and surveys. The adoption of a case study as the overarching research methodology helps acquire an in-depth understanding of the research problem within its rich context (Nandagopal, Rajan & Vivek, 2009, p. 72). For purposes of this project, the case study model addressed both the size and scope limitation of the pertinent research of the first study (as related to Asian wine and vineyard tourism), along with the development level of the Thai wine and vineyard industry, the focus of the second study.

3.1 First Study: Meta-Analysis of Asian Wine Tourism

The research in the systematic review focused on the basic contemplations of sustainable wine tourism in Asia. It was conducted through five separate stages: defining the research questions, searching for relevant data, extracting data, assessing

the data quality based on specified criteria and analysing the data to obtain meaningful results.

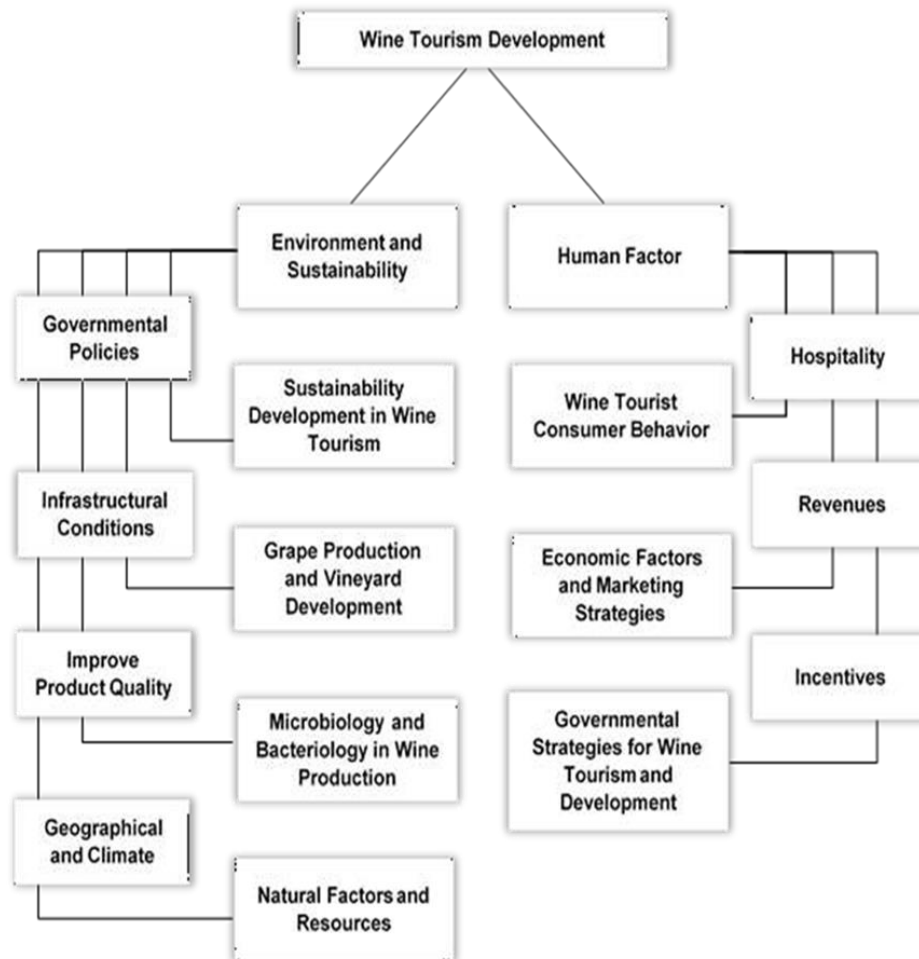
3.1.1 Research Design

The search for relevant data was conducted using Internet search tools to derive the most current academic data by tracking relevant conference papers, journal databases, library catalogues, specific professional websites, book sections and graduate theses from 2001 to 2018. Article topics deemed acceptable were those devoted to the environment and sustainability, including sustainability development in wine tourism, microbiology and bacteriology in wine production, grape production and vineyard development and natural factors and resources. Human factor categories can be found in the articles, including wine tourist behaviour, economic factors, marketing strategies and governmental strategies of wine tourism development. Not much focus on environmental concerns in Asian vineyards was found in the research (compared to other world regions) since wine tourism in Asian countries is not yet necessarily developed in terms of infrastructure. Therefore, because of the limited number of papers dedicated to sustainable wine tourism, the scope of papers examined was broadened to research that is not dedicated to sustainability but nevertheless with possible implications to it.

3.1.2 Data Gathering

The research looked at the specific criteria of authority and coverage, including the author's name, academic record, date of publication and research citations. The review considered research studies and projects in relevant fields when filtering the dedicated research to focus on those which directly discuss matters of wine tourism development in Asia. The 89 papers used consisted of journal publications (67), book sections (6), conference proceedings (15) and PhD dissertation (1). There were very few publications for the first years of the 2001–2018 review period, but research has increased significantly since 2011. Few studies have been conducted on the sustainable wine tourism development of various countries in Asia other than China and Thailand; in addition, wine production in these two countries is not recognised globally.

Figure 1: Thematic Framework of the Meta-Analysis



Source: Amarando, Assenov & Visuthismajarn (2019b).

3.2 Second Study: Sustainable Wine Tourism and Vineyards' Environmental Consciousness in Thailand

3.2.1 Research Design

The main aim was to identify the degree to which Thailand can build up a sustainable wine tourism industry and to identify the level of environmental consciousness of wine producers. The researcher contacted the nine major Thai commercial vineyards by e-mails and follow-up telephone calls requesting an interview. The interaction contained an explanation of the research topic, a basic

understanding of ‘sustainable vineyard tourism’, and a list was shared indicating the topics to be covered during the interviews. The qualitative data was collected from May 2016 to August 2016 through semi-structured interviews with open-ended questions. This research design enabled the interviewees to present their own opinions beyond the list of interview questions (Easterby-Smith, Thorpe, Jackson & Lowe, 2008, p. 92). Six of the vineyards agreed to an interview; four of them in the Khao Yai region of Central Thailand, one in Hua Hin and one in Pattaya.

3.2.2 Data Gathering Methodology

The attractiveness of the wine industry was examined and evaluated based on primary data gathered from Thai vineyard owners. In turn, the attractiveness of the industry was also measured using primary data collected from tourists who visited vineyards in Thailand. Both interviews and questionnaires were utilised as the principal sources of evidence. Semi-structured and open-ended interviews were conducted with Thai vineyard owners, while Thailand tourists and vineyard visitors participated in a questionnaire survey. Since there are only nine vineyards in Thailand, all the owners or operating managers were invited for an interview to gather a detailed insight into Thailand’s vineyard industry as well as the country’s cultural identity and landscape (Collis & Hussey, 2003, p. 84). It is important to identify the unique cultural characteristics and features that shape and form the Thai vineyard industry (e.g., elephant tours and trips to floating vineyards).

Face-to-face interviews were conducted by the same interviewer, with each interview lasting between two and three hours. The interview included a personalised tour of the vineyard. The respondents were made aware prior to the interviews of the standard definitions of sustainable vineyard tourism for the sake of consistency and to ensure that they had a decent comprehension of the topic. In the days following the interviews, some of the interviewees were approached again via a telephone or an e-mail to clarify some of their responses, and to express appreciation for the time they spent for the interview. Content analysis was used to identify major issues raised in the interviews, including the attitudes and intentions of the respondents regarding the introduction of environmentally sustainable methods in their vineyards.

4. Results and Discussion

4.1 Meta-Analysis Findings

Seven different domains were identified in the body of research based on two categories of factors: environment and sustainability, and human factors. The seven domains represent the relevant themes with regard to each non-human and human factor in wine tourism development.

*The environment and sustainability category contain four domains: sustainability development in wine tourism, microbiology and bacteriology in wine production, grape production and vineyard development, and natural factors and resources for wine tourism. These domains serve as the contextual foundation for the wine and vineyard industry, as without crops and production, the tourism aspect would not exist.

*The human factor category includes three domains: wine tourist behaviour, economic marketing strategies and government strategies for wine tourism development. These are the foundations of decision-making and policy development within any national context, and they emerge, or should emerge, from the best-case scenarios of sustainable development for the industry and in terms of tourism. Figure 1 displays the thematic framework used to develop the combined study.

4.2 Findings in Sustainable Wine Tourism and Vineyards' Environmental Consciousness in Thailand

Most of the vineyards participating in this survey had not adopted any sustainable practices and are ostensibly comfortable preserving the status quo. The vineyards appeared reluctant to embrace sustainable practices and were not convinced that the cost of implementing such measures would be paid off by higher revenues or increased popularity. The vineyards were also concerned about the need to keep up the established taste of their wines and were worried that a shift towards sustainability may alter the taste of their product, which might lead to a loss of existing customers. As a result, all five perceived the introduction of sustainable practices as an unnecessary expense, and only one vineyard considered sustainable practices as a way of obtaining competitive advantage and boosting their brand name.

This study identified several factors such as implementation costs, insufficient government support, low awareness, insecurity of tenure and taxes as the chief challenges to the Thai wine industry, which constrain the capacity for taking advantage of the benefits of sustainable wine practices. Government and policymakers can make green development more affordable and encourage among other things the use of renewable energy sources for the vineyards.

A need exists for continued government-provided education in local communities to learn to be more environmentally conscious as well as to take advantage of and potentially consume the various products derived from vineyards. However, even with this type of support, the addition of wine and vineyard tourism without a proper level of preparation could be detrimental and add a strain on current resources. Furthermore, inadequate sustainability management could result in overcrowding Thai rural areas being by well-meaning tourists with different sociocultural values.

5. Research and Managerial Implications

This study was the first systematic review focusing on sustainable Asian wine vineyard tourism, identifying the overall state of academic research in this specific region of the world, while also seeking empirical evidence about the current industry's perception of this effort among Thai vineyard owners. It thus offered diverse research approaches and perspectives on sustainable wine tourism in Asia while simultaneously providing a synthesis of the findings, showing a starting point for future studies and a basis for future research and development of the Thai wine and vineyard industry. The primary goal of this study was to use the results as a means of helpful positive environmental management of Thailand's growing wine vineyards.

➤ *Researchers:*

- For researchers, this study has conducted a systematic review of sustainable wine tourism literature on Asia from an academic research spanning 19 years (2000–2018) to provide an overview of the relevant research trends.
- For educators and students, this study has identified and compiled academic papers and projects from journals, conferences proceedings and book chapters,

which provide a foundation for understanding the current research on the sustainable development of Asian wine tourism.

- Ecotourism research in Thailand could be fostered, hoping to fill gaps to extend and explore wider possibilities with regard to sustainable tourism development.
- This paper reflected the existing research concerns of other comparable developed regions, such as biochemical and geographical studies for grape production.
- This study acquired and advanced the source content to provide a more insightful discussion of various other known and unknown concerns, such as the effects of wine tourism on a region, to develop wine tourism while avoiding the mistakes made in other parts of the world.

➤ *Practitioners:*

- Informing industry leaders and Asian researchers that the quality of new wines and wine consumer behaviour with specific local characteristics is an advantage in ensuring proper industry development. It also sets a high-quality standard for future research and helps avoid bias from foreign socio-cultural factors.
- This paper establishes a focus on wine production standards, product quality, environmental concerns, infrastructure demands, customer behaviour and branding strategies for the Thai wine and vineyard industry.
- This study helps attract a niche tourism destination for tourists for positive future economic growth.
- It also explains the similarities and differences between wine vineyard tourism and sustainable wine vineyard tourism and other overlapping forms of tourism.
- Helping to fill a gap by bringing existing external knowledge into local environmental concerns and explain the benefits to the stakeholders. This includes environmental management scholars as well as tourism and other authorities.

➤ *Government:*

- This study creates an essential framework for understanding and supporting the Thai wine and vineyard industry as it seeks to compete with greater presence in the region as both a product and a tourism-related service.
- It helps promote government and industry policies for environmentally sound tourist attractions in Thailand's environmental management programs.
- It assists tourism authorities with improved hospitality management of sustainable tourism development.
- It recommends a base point for future action planning in sustainable environmental management, using the research data to address specific obstacles in the wine and vineyard industry in a prioritised manner.

6. Research Limitations and Suggestions for Further Research

The findings of the Thailand survey were based only on interviews with managers and owners of Thai vineyards. This study did not examine the opinion of tourists and their interest in either vineyard tourism or in its sustainable aspects. This creates possible bias in this study from having vineyard owners self-assess their own sustainability measures rather than let other stakeholders evaluate these. Although nine vineyards were identified as commercially viable, other vineyards have recently emerged and are in competition with the ones mentioned in this research. Their addition indicates that wine and vineyard cultivation are seen as a growing economic opportunity, but this simply expands the current knowledge gap about the industry. The limited information and data on sustainable wine tourism in several Asian countries, such as Vietnam, Myanmar and Japan, derives from the low wine tourism awareness in these countries.

The source collection process encountered certain challenges because of a lack of access to certain materials, which resulted in the incomplete content of some papers. Also, the studies were confronted with several problems of authentication because of the development of electronic platforms and websites that prevent even academic access behind a paywall. In addition, moving pertinent content information behind protective levels of internet security faster than informational data can be obtained. This

means that the rapid turnover of website content in some ways creates transient literature, adding to the limitation that papers cannot be accessed online because of copyright and cost issues and limited content availability/accessibility.

Although case studies are considered to provide researchers with detailed information on the research phenomenon under study, the Thai vineyard industry is still developing (Easterby-Smith, Thorpe, Jackson & Lowe, 2008, p. 64; Amarando, Assenov & Visuthismajarn, 2019a). This fact implies that the body of existing literature on Thai vineyards are not sufficient. Respondent error is another limitation of the proposed data collection techniques. During questionnaire surveys, participants' creativity is limited since they are offered to select from a list of predetermined response options rather than giving their own answer. At the same time, the use of interviews helps the researcher overcome this limitation since additional questions can be asked by both parties during the data collection process (Sekaran & Bougie, 2009, p. 68).

This research does not address the demand side of wine tourism and does not examine the behaviour and environmental consciousness of current or potential wine tourists. This was due to logistics and language constraints. Future research could and should address these issues by focusing on the need to keep wine tourism in the country as a niche rather than as mass tourism and looking at whether the focus should be on domestic or international tourists, among others.

The knowledge gaps that remain include the scarce studies on wine/vineyard tourism in Thailand; essentially there are no dedicated papers on wine tourism in the country, and comparable studies from other fields related to sustainable economic development are also limited in number and scope. Over time, these gaps will close, but the general trend is to focus on the higher revenue-producing industries, meaning that the relatively lower profile of the Thai wine and vineyard development effort may not be a focus of interest for several more years.

7. Conclusions

The research papers – neither the systematic review nor the study about sustainable wine tourism in Thailand – do not ensure that Asian countries can acquire a well-developed wine tourism industry. Unlike other short-term objectives in other types of tourism, sustainable wine tourism requires long-term experiences that may take

years to acknowledge exactly the impacts of environmental concerns and community tourism on the vineyard industry. The development of a long-term reputation for Thai wine tourism requires realistic experiences and reflections from tourists, tour operators and other relevant stakeholders to confirm whether the academic knowledge acquires practical implications. For instance, if tourists refer to Thailand wine tourism, there must be a unique value proposition that makes the country different from others, such as France, Italy and Australia. Such consideration requires the country to establish a unique value of sustainable wine tourism development that makes wine tourism experiences in Thailand more special for tourists. While Thailand is a new entrant in wine tourism, the country is a well-known tourism destination, and its governmental policies to develop specific fields in the hospitality and tourism industry are beneficial. Thailand is already recognised as a popular destination for hospitality and entertainment around the world. The competitive advantage of the well-known, established tourism industry of the Asian country functions as an impressive brand that facilitates a healthy image for the sustainable development of wine tourism.

The study about sustainable wine tourism and vineyards' environmental consciousness in Thailand raises concerns about current constraints to the development of wine production and tourism because of insufficient and inappropriate governmental policies. While the tax and incentives are high, acquiring a long-term perspective in sustainable wine tourism development is difficult for vineyards because of high production and management costs. Besides, the prices of sustainable energy sources, such as solar and wind energies, require the vineyard developers to strongly invest in infrastructure instead of using more affordable energy sources such as fossil fuels. Although Thailand is a well-known tourist destination and the tourism industry significantly contributes to the national economy, wine tourism is a different aspect of the industry that cannot effectively implement the government's current tax and incentive policies.

The limitation of the research results relies on the fact that the study cannot provide sufficient information about governmental policies that would facilitate sustainable wine development in Thailand. Therefore, the government needs to address the specific challenges encountered by wine tourism in its introductory phase. Researching governmental policies for wine tourism would generate several potential

social and economic resources that benefit both scientists and economists in sustainable development. Another research gap involves the designs, approaches, and methodologies in the study, which limit the objectivity of the results because vineyard assessment is conducted by owners and developers instead of tourists. Therefore, further research should employ a more holistic methodology to ensure that the results reflect all stakeholders' perspectives. The systematic review of sustainable wine tourism research in Asia in the period 2000–2018 presents the different study concerns of researchers in various Asian countries, especially China and Thailand.

First, from all selected articles, the study indicates that besides China and Thailand, other Asian countries need to invest further in conducting more research about sustainable wine tourism development. Although wine tourism is only suitable to the geographical and climatic conditions of certain countries, relevant business, such as wine storage services and biochemical procedures in wine production, would be huge opportunities for many countries such as Singapore and Japan. Therefore, the lack of sufficient research from various Asian countries besides China and Thailand is a limitation of the research results.

Second, the study reflects that each Asian country usually focuses on certain aspects of research contents and subjects that reflect national strengths. For instance, while China focuses on researching microbiology and bacteriology in wine production, Thailand emphasises hospitality and cultural influences in sustainable wine tourism development to provide literature for relevant green marketing strategies. This means there is an imbalance in research trends that results in a research gap for different countries. Therefore, from certain research trends of different countries, researchers need to balance contents and subjects to provide a more holistic literature for all aspects of wine tourism development. While China should focus more on researching about governmental policies that facilitate wine tourism and protect the environment at the same time, Thailand needs to focus on economic issues surrounding vineyards and enhancing credibility to attract more investments in this business field.

Based on the systematic review and the environmental consciousness paper, investors, policymakers, stakeholders and developers should acknowledge the focus of researchers to develop sustainable wine tourism in both Thailand and other countries. The research provides useful insights into what Thailand could do to achieve its goals

in sustainable wine tourism development. For instance, the conclusion from the systematic review based on the comparative analysis of wine tourism studies in China and Thailand identifies the weaknesses of Thai researchers in microbiological and phytochemical studies. Indeed, focusing on studies about microbiological and phytochemical conditions in the sustainable development of wine tourism is a beneficial practice that allows developers to acquire high product diversification based on newly invented yeast species to diversify wine products and wine experiences for tourists.

The major reason for such a weakness in research originates from the geographical and climatic conditions of Thailand, a medium-sized tropical country in Southeast Asia that does not have different weather conditions that generate diverse biological elements favourable to wine production. The lack of microbiological and phytochemical studies of the new entrant may also be caused by the low investment in technological implementation that allows researchers to conduct advanced experiments to invent new biological components for the sustainable development of wine tourism. Hence, sustainable vineyard tourism development needs to fulfil the gaps in literature identified by the systematic review to ensure a holistic resource of data and information for relevant practical implications. As Thailand emerges in the global development of the wine tourism industry, the Asian country not only needs to adapt to the current trends under globalisation but also needs to differentiate itself from others.

Green wine tourism needs to develop a suitable system that can coordinate all resources, such as governmental policies, scientific equipment, marketing strategies, and local communities. Thailand also has unique cultural characteristics and geographical conditions that allow the country's wine tourism to set itself apart from others. Although Thailand does not have strengths in microbiological and phytochemical fields, the country may focus on another direction in wine tourism research to develop sustainable advantages based on green marketing, such as governmental policies to reduce pollution and hazardous materials in wine production. While green marketing is becoming a trend in business, the sustainable development of wine tourism would benefit from the combination of an environmentally friendly image and best practices that reflect the Southeast Asian culture. This competitive advantage allows for developing a unique marketing strategy for a new entrant in the wine tourism

industry and would construct a new image for Thailand in terms of ecotourism. Effective cooperation among tour developers, local governmental agencies and local communities and villagers would determine how the country develops wine production standards to serve wine tourists, infrastructural facilities that enhance wine tourism experiences and best practices in local communities that reflect the country's unique culture, history and social diversity.

REFERENCES

- Alebaki, M. & Iakovidou, O. (2011). Market segmentation in wine tourism: a comparison of approaches. *Tourismos: An International Multidisciplinary Journal of Tourism*, 6(1): 123-140.
- Alonso, A., & Liu, Y. (2012). Old wine region, new concept and sustainable development: winery entrepreneurs' perceived benefits from wine tourism on Spain's Canary Islands. *Journal of Sustainable Tourism*, 20(7), 991-1009.
- Amarando, M., Assenov, I., & Visuthismajarn, P. (2019a). Sustainable wine tourism and vineyards' environmental consciousness in Thailand. *African Journal of Hospitality, Tourism and Leisure*, 8(3), 1-13. ISSN: 2223-814X
- Amarando, M., Assenov, I., & Visuthismajarn, P. (2019b). A Systematic Review of Sustainable Wine Tourism Research in Asia 2000-2018. *African Journal of Hospitality, Tourism and Leisure*, 8(4), 1-24. ISSN: 2223-814X
- Asero, V. & Patti, S. (2011). Wine tourism experience and consumer behavior: the case of Sicily. *Tourism Analysis*, 16(4): 431-442
- Banks, G., Klinsrisuk, R., Dilokwanich, S., & Stupples, P. (2013). Wines without latitude: global and local forces and the geography of the Thai wine industry. *EchoGeo*, 23(1), 2-16.
- Beverland, M. (1999). Wine Tourism: A Missed Opportunity or a Misplaced Priority. *Pacific Tourism Review*, 3, 119-131.
- Borges, M. & de Menezes, D.C. (2019). Motivations for tourism adoption by vineyards worldwide: A literature review. BIO Web of Conferences 12, 41st World Congress of Vine and Wine. Retrieved from: <https://doi.org/10.1051/bioconf/20191203005>
- Butkhup, L., Chowtivannakul, S., Gaensakoo, R., Prathepha, P., & Samappito, S. (2010). Study of the phenolic composition of Shiraz red grape cultivar (*Vitis vinifera* L.) cultivated in north-eastern Thailand and its antioxidant and antimicrobial activity. *South African Society for Enology & Viticulture*, 31(2), 89-98.
- Byrd, E. T., Canziani, B., Hsieh, Y. C. J., Debbage, K., & Sonmez, S. (2016). Wine tourism: Motivating visitors through core and supplementary services. *Tourism*

- Management, 52, 19-29. Carlsen, J. (2004). A review of global wine tourism research. *Journal of Wine Research*, 15(1): 5-13.
- Collis, J., & Hussey, R. (2003). *Business research: a practical guide for undergraduate and postgraduate students*. Basingmore: Macmillan Business.
- Cook, S. (2019). 5 Nashik vineyards with tasting rooms: where to go wine tasting in India. Retrieved from: <https://www.tripsavvy.com/nashik-vineyards-with-tasting-rooms-1539794>
- Cooper, C., Fletcher, J., Gilbert, D., & Fyall, A. (2008). *Tourism Principles and Practice*. Essex: Pearson Education.
- Corsi, A., Marinelli, N., & Sottini, V. (2013). Italian wines and Asia: policy scenarios and competitive dynamics. *British Food Journal*, 115(3), 342-364.
- Easterby-Smith, M., Thorpe, R., Jackson, P., & Lowe, A. (2008). *Management research*. London: Sage.
- Forbes, S., Cullen, R., Cohen, D., Wratten, S., & Fountain, J. (2011). Food and wine production practices: an analysis of consumer views. *Journal of Wine Research*, 22(1), 79-86.
- Getz, D. (1999). Wine Tourism: Global Overview and Perspectives on its Development. In R.Dowling, and J. Carlsen (Eds.), *Wine Tourism- Perfect Partners*. Proceedings of the First Australian Wine Tourism Conference (pp. 13-33). Margaret River, Australia, May 1999. Canberra: Bureau of Tourism Research.
- Getz, D. (2000). *Explore Wine Tourism: Management, Development and Destinations*. New York: Cognizant.
- Getz, D., & Brown, G. (2006). Critical success factors for wine tourism regions: a demand analysis. *Tourism Management*, 27(1), 146-158.
- Great Wine Capitals. (2017). Wine tourism consumers: who are they and what motivates them? Retrieved from: <http://www.greatwinecapitals.com/resources/reports/carolinaafonso>
- Hall, C., Sharples, L., Cambourne, B., & Macionis, M. (2000). *Wine tourism around the world: development, management and markets*. Oxford: Butterworth-Heinemann.

- Hall, M. (2003). Biosecurity and wine tourism: is a vineyard a farm? *Journal of Wine Research*, 14(2-3): 121-126.
- Hall, M., & Macionis, N. (1998). Wine Tourism in Australia and New Zealand. *Tourism and Recreation in Rural Areas*, 197–224.
- Howley, M., & Van Westering, J. (2008). Developing wine tourism: a case study of the attitude of English wine producers to wine tourism. *Journal of Vacation Marketing*, 14(1), 87-95.
- ILO. (2010). Global Dialogue Forum on New Development and Challenges in the Hospitality and Tourism Sector and their impact on Employment, Human Resources Development and Industrial Relations. Sectoral Activities Department, Geneva. Retrieved March 24, 2015, from http://www.ilo.org/sector/activities/sectoral-meetings/WCMS_162201/lang--en/index.htm
- Jayawardena, C., Patterson, D., Choi, C., & Brain, R. (2008). Sustainable tourism development in Niagara: discussions, theories, projects and insights. *International Journal of Contemporary Hospitality Management*, 20(3), 258-277.
- Karim, S., & Chi, C. (2010). Culinary tourism as a destination attraction: an empirical examination of destinations' food image. *Journal of Hospitality Marketing & Management*, 19(1), 531-555.
- Karlsson, P. (2017). The four successful types of wine tourism. Forbes. Retrieved from: <https://www.forbes.com/sites/karlsson/2017/07/21/the-four-successful-types-of-wine-tourism/#f34573436fa2>
- Larsen, R., Calgaro, E., & Thomalla, R. (2011). Governing resilience building in Thailand's tourism-dependent coastal communities: conceptualizing stakeholder agency in social-ecological systems. *Global Environmental Change*, 21(1), 481-491.
- Lereboullet, A., Beltrando, G., & Bardsley, D. (2013). Socio-ecological adaptation to climate change: a comparative case study from the Mediterranean wine industry in France and Australia. *Agriculture, Ecosystems and Environment*, 164(1), 273-285.

- Macionis, N., & Cambourne, B. (1998). Wine Tourism -Just What is it All About? *Australian and New Zealand Wine Industry Journal*, 13 (1), 41-47/
- Metasit, M., & Watchaneeporn, S. (2011). Sustainability Management for Wine Production: A Case of Thailand. *Management*, 12, 13.
- Millet, D., Chungsirawat, G., & Grossman, N. (2013). *Thailand at random*. Bangkok: Editions Didier Millet.
- Mitchell, R., Charters, S., & Albrecht, J. (2012). Cultural systems and the wine tourism product. *Annals of Tourism Research*, 39(1), 311-335.
- Nandagopal, R., Rajan, A., & Vivek, N. (2009). *Research methods in business*. New Delhi: Excel Books India.
- Nedelcu, A. (2014). Potential of Wine Tourism In Romania. Case Study: Dealu Mare Vineyard. *Annals of the "Constantin Brâncuși" University of Târgu Jiu, Economy Series, Special Issue: Information society and sustainable development*.
- O'Vineyards. (2018). Who visits vineyards? Retrieved from: <https://ovineyards.com/who-visits-vineyards/>
- Peregrine, A. (2018). Why wine tourism is booming in 2018 – and the best destinations to visit. *The Telegraph*. Retrieved from: <https://www.telegraph.co.uk/travel/food-and-wine-holidays/best-destinations-for-wine/>
- Poitras, L., & Donald, G. (2006). Sustainable wine tourism: the host community perspective. *Journal of Sustainable Tourism*, 14(5), 423-448.
- Sekaran, U., & Bougie, R. (2009). *Research methods for business: a skill building approach*. New York: John Wiley and Sons.
- Sharpley, R. (2014). *Tourism and development: concepts and issues*. Bangalore: Channel View Publications.
- Thanh, T.V. & Kirova, V. (2018). Wine tourism experience: A netnography study. *Journal of Business Research*, 83(1): 30-37
- Torquati, B., Giacché, G. & Venanzi, S. (2015). Economic analysis of the traditional cultural vineyard landscapes in Italy. *Journal of Rural Studies*, 39: 122-132.
- UNEP. (2005). Forging links between protected areas and the tourism sector, How tourism can benefit conservation. Retrieved March 24, 2015, from

<http://www.unep.fr/shared/publications/pdf/DTIx0591xPA-ForgingLinks.pdf>
<http://www.unep.fr/shared/publications/pdf/DTIx0591xPA-ForgingLinks.pdf>
 [24 March 2015.

- UNWTO. (2005). Making Tourism More Sustainable. A Guide for Policy Makers. United Nations Environment Programme and World Tourism Organization. Retrieved March 24, 2015, from <http://www.unep.fr/scp/publications/details.asp?id=DTI/0592/PA>
- Vengesayi, S. (2010). Tourism destination attractiveness: the mediating effect of destination support services. *The Business Review*, 16(2), 179-185.
- Van Wyck, R. (2018). Wine consumers' knowledge of wine and their self-confidence when selecting wine in different sales contexts. Retrieved from: https://repository.up.ac.za/bitstream/handle/2263/68636/VanWyk_Wine_2018.pdf?sequence=1
- VineHealth. (2018). What to do when visiting a vineyard. Retrieved from: <https://vinehealth.com.au/tourism/tourists/what-to-do-when-visiting-a-vineyard/>
- Viña Elena. (2019). Wine tourism at Viña Elena. Retrieved from: <https://vinaelena.com/en/wine-tasting-vineyard-tourism/>
- Visit England. (2019). Vineyards & wine tasting. Retrieved from: <https://www.visitengland.com/things-to-do/vineyards-and-wine-tasting>
- Wilkins, M. & Hall, C. (2001). An industry stakeholder SWOT analysis of wine tourism in the Okanagan Valley, British Columbia. *International Journal of Wine Marketing*, 13(3): 77-81.
- Williams, P. (2001). Positioning wine tourism destinations: an image analysis. *International Journal of Wine Marketing*, 13(3): 42- 58.

APPENDICES

PAPER 1

Amarando, M., Assenov, I., & Visuthismajarn, P. (2019a). A Systematic Review of Sustainable Wine Tourism Research in Asia 2000-2018. *African Journal of Hospitality, Tourism and Leisure*, 8(4), 1-24. ISSN: 2223-814X

PAPER 2

Amarando, M., Assenov, I., & Visuthismajarn, P. (2019b). Sustainable wine tourism and vineyards' environmental consciousness in Thailand. *African Journal of Hospitality, Tourism and Leisure*, 8(3), 1-13. ISSN: 2223-814X



A Systematic Review of Sustainable Wine Tourism Research in Asia 2000-2018

Mitchell Amarando, M.Ed., M.A. *
Faculty of Environmental Management
Prince of Songkla University - Hat Yai Campus, Thailand
E-mail: ajarnmitch@gmail.com

Dr. Ilian Assenov
Faculty of Hospitality and Tourism
Prince of Songkla University, Phuket Campus, Thailand
E-mail: ilianassenov@gmail.com

Dr. Parichart Visuthismajarn
Faculty of Environmental Management
Prince of Songkla University, Hat Yai Campus, Thailand
E-mail: parichart298@gmail.com

Corresponding author*

Abstract

Wine tourism has recently expanded from its traditional destinations, such as Europe, Australia, South Africa and the Americas', into emerging and new markets in other areas, including the rest of Africa and Asia. The purpose of this paper is to identify the state of academic research in a specific region of the world. The authors present a systematic literature review of wine tourism research in Asia, which aims to provide an overview of the relevant current research trends, including destination development, sustainability, consumer behaviour and marketing strategies for Asian wine tourism. In addition, the paper discusses diverse research approaches and perspectives on wine tourism in Asia; while continually offering a synthesis of the findings and thus providing a starting point for future research. Given that wine tourism is still relatively new for Asian destinations, many of these studies focus on wine tourism development, the environment and sustainability and consumer behaviour. In each category of the comparative analysis, specific differences in the research topics of researchers in Asian countries represent the variety of local wine tourism development. The analysis identifies both strengths and weaknesses that countries need to confront in order to acquire a strategic competitive advantage in the wine industry and its tourism related aspects. A comparative analysis is provided based on the research into wine tourism in the two most popular destinations in Asia—China and Thailand, although other destinations have been reviewed as well. Finally, further recommendations with the prediction of further intentions to fully develop the local wine tourism systems are provided for different cases. This is the first systematic review focusing on Asian wine vineyard tourism.

Keywords: Sustainable Asian vineyard wine tourism, Asian wine tourism, oenology, viticulture.

Introduction

While the diverse development of tourism provides several new options for travellers, wine tourism compels certain attention from this researcher in order to detail the potential of this tourism niche. The definition and conceptualisation of 'wine tourism' have not resulted in a uniform approach. Wine tourism has been defined as 'visitation to vineyards, wineries, wine festivals and wine shows for which grape wine tasting and/or experiencing the attributes of a grape wine region are the prime motivating factors for visitors' (Hall & Mitchell, 2000). Several years later Carlsen (2004) advocated that wine, food, tourism and fine arts collectively form the essential foundations of the appreciated and respected wine tourism industry. Recently, the Asian wine community adopted a definition of wine tourism as the engagement of winery and vineyard visitations that motivate tourists to experience unique wines, winescapes and



other relevant activities in the local wine region, such as wine festivals and wine shows (Zhang & Qiu, 2011; Ye, Zhang & Yuan, 2017).

The development of wine tourism is not limited to regions or countries with an advantageous beverage tradition and culture, such as Europe and the United States, but also extends to emerging and new potential markets in other areas, including South Africa and Asia. Since Asia has been relatively neglected by early research on wine tourism, this paper conducts a systematic review of wine tourism literature on Asia from academic research spanning nineteen years (2000–2018) in order to provide an overview of the relevant research trends, in particular in light of concerns about sustainability in wine tourism development, as well as issues related to government support for the industry and consumer behaviour.

Specifically, 89 papers were identified as related to Asian countries. Still, it is necessary to acknowledge that the scope of this paper's research is limited for several objective reasons, such as copyrights and limited online access. Therefore, although the number of research papers pertaining to sustainable wine tourism in Asia may be greater, this study has identified and compiled 89 researched academic papers and projects from journals, conferences proceedings and book chapters provide the foundation for understanding the current research into the sustainable development of Asian wine tourism.

Methodology

This systematic literature review adopts a combination of qualitative and quantitative methods. It aims to identify the dedicated and non-dedicated research on Asian wine tourism, focusing on the topics of sustainable development, marketing, consumer behaviour and destination development. This methodology requires rigorous data analysis of the collected research in order to be present and determine what can be learned. The data analysis of the collected papers is useful for future research into wine tourism because the research knowledge can facilitate the scholarly understanding of the research field. Thus, the systematic literature review functions as primary research to provide comprehensive coverage of wine tourism in Asia. Specifically, the systematic review will help to cover the search range of relevant papers on the topic of wine tourism, such as wine production, tourism and hospitality management and sustainable development with wine tourism. Unlike a single study conducted separately, a systematic review synthesizes the research outcomes progressively. The scope of the systematic review is delimited based on the criteria for the inclusion or exclusion of selected papers. As concerns the structure of the systematic literature review, the research is conducted through five separate stages, including defining the research questions, searching for relevant data, extracting data, assessing the data quality based on specified criteria and analysing the data in order to obtain a result.

In the first stage, the methodology aims to answer the following research questions: 'What is the focus of wine tourism research in Asia from 2000–2018?' and 'What are the differences in research on wine tourism of different countries in Asia, such as China, Thailand and Vietnam?'. Subsequently, the search for relevant data was conducted using two approaches as follows: (1) using Internet search tools to approach the most current academic data and (2) tracking the relevant conference papers, journal databases, library catalogues, specific professional websites, books sections and graduate theses. Since the field of study is limited to Asian papers, over 200 relevant papers were searched and eliminated based on specific search terms and contents. Finally, the relevant data were extracted based on the most general yet relevant keywords: for instance, 'Asian wine tour' 'Asian wine tourism' and 'sustainable Asian wine tour' and the like, to ensure that the papers are related to the field at certain levels.

In addition, the research looks at the specific criteria of authority and coverage, including the author's name, academic record, date of publication and research citations, to name just a

few, in order to ensure the accessibility of further research in similar fields. In this systematic review study, the collected papers are assessed based on the age of the material (articles must be fewer than 18 years old, due to the nascence of this niche venue of tourism), the design of the studies (quantitative, qualitative or mixed-methods are accepted). As well, assessments are also made based on geographic conditions (the article must be researched in Asia or about Asian wine tourism) and relevance to the expounded topics (sustainable development, wine tourism development in particular regions of Asia, marketing for wine tourism and wine production and quality in Asia). Therefore, the fourth stage of data quality assessment proceeds based on the specified criteria of the study, including wine tourism development in particular regions of Asia, sustainable development, and marketing. For instance, as concerns the sustainable development of wine tourism in Asia, the searched topic depended on environmental and ecological concerns of winescapes, marketing strategies, legal constraints, wine consumer behaviour, wine quality and other relevant socio-economic factors to specify the dedicated and non-dedicated research. In the case of duplication of research due to identical authors, each study is considered a separated piece. Finally, the stage of data analysis proceeds based on the results of specific statistics about the collected papers to present the trends and characteristics of current research in the field of Asian wine tourism. In addition, further implications are identified from the synthesis of the collected data to suggest further recommendations for further research in this field. Although the systematic review does not include human objects as participants, further ethical concerns are necessary to ensure that the data and information are collected lawfully and that the information is reported accurately.

Inclusion and Exclusion Criteria of the Studies

The studies are confronted with several problems of authentication due to the strong development of electronic platforms and websites. For example, the rapid turnover of website content in some ways create transient literature. For another example, some papers cannot be accessed online due to copyright and limited contents. New contents from different sources and research, however, are presented and updated regularly to ensure that the results are always diverse. In this paper, conference papers, book sections and journals are concerned with references from several relevant conferences, national and international reports and published products. In fact, this paper needed to filter the non-academic sources (blogs, non-credited articles and PowerPoint slides) to ensure the credibility of the sources. The assessment criteria for the sources focus on authority, coverage and currency subsequently. In terms of authority, the authors are required to be academic professionals in order to improve the reliability of the sources.

The studies in the systematic review are selected based on the conditions of scholarly coverage and currency, especially in terms of tourism and hospitality management. The source collection process encounters certain challenges due to the lack of access to certain sources, which results in the incomplete source content of some papers. As concerns the authentication of the sources, there was inevitable omission of certain significant sources from the systematic review due to the technological limitations of the internet.

It is prudent to mention that the systematic review of wine tourism development in Asia does not confront the problems of string research by the same authors. Therefore, it is not necessary to exclude any papers because Asia does not have a long history of research on wine tourism compared with other wine regions of the world. In fact, the research in the systematic review does not focus on further development stages of wine tourism but rather on the basic considerations of wine tourism in Asia. For instance, the sources focus on wine production standards, product quality, environmental concerns, infrastructure demands, customer behaviour and branding strategies. Although the systematic review focuses on wine tourism development in several Asian countries, non-English studies are excluded. As well, the series of annual reports is also excluded because the review employs only the most recent

report. In terms of researchers' concerns, the paper also considers their total number of research studies and projects in the relevant fields when filtering the dedicated research to that which directly discusses the matters of wine tourism development in Asia. Thus, the paper tries to minimise non-dedicated research and maximise the studies dedicated to the specific concerns of wine tourism development.

Systematic Review

The 89 papers comprised journal publications (67), book sections (7), conference proceedings (15) and one Ph.D. dissertation. There were very few publications for the first years of the review period, but research has increased significantly since 2011 (Table 1).

Table 1. Asian Wine Tourism Research by Type of Publication, 2000–2018.

Year	Journal	Book section	Conference/D issertation paper	Total	Authors	Source
2000	2			2	Ogle (2000)	Journal: Asia Pacific Journal of Tourism Research
					Tonmanee & Kanchanakoo (2000)	Journal: Water Science and Technology
2001	2			2	Nilnond (2001)	Journal: Grape production in the Asia-Pacific.
					Joannon, Poss, Korpraditsku, Brunet & Boonsock (2001)	Journal: Water Science and Technology
2002				0		
2003	1			1	Lisdiyanti, Katsura, Potacharoen, Navarro, Yamada, Uchimura & Komagata (2003)	Journal: Microbiol Cult Coll
2004				0		
2005	1			1	Lee, Zhao & Ko (2005)	Journal: Journal of Hospitality & Tourism Research
2006	2	1	2	5	George (2006)	Journal: Tourism Review
					Henkel, Agrusa & Tanner (2006)	Journal: Asia Pacific Journal of Tourism Research
					Possingham (2006)	Conference: International Symposium on Grape Production and Processing 785
					Schaefer (2006)	Conference: International Symposium on Grape Production and Processing 785
					Webster (2006)	Book section: World Bank Office
2007	3	1		4	Khanal & Babar (2007)	Journal: CUTS Hanoi Research Center
					Do, Patris & Valentin (2007)	Book Section: Products and Assessors



					Woraratphoka, Intarapichet & Indrapichate (2007)	Journal: Food Chemistry
					Teh & Cabanban (2007)	Journal: Journal of environmental management
2008	5		1	6	Batra (2008)	Journal: Anatolia
					Li, Kang, Zhang, Li, Zhu & Zhang (2008)	Journal: Hydrological Processes: An International Journal
					Shen & Cottrell (2008)	Journal: International Journal of Tourism Policy
					Jouquet, Bottinelli, Podwojewski, Hallaire & Duc (2008)	Journal: Geoderma
					Tongrod, Jaroensutasine, Tuantranont & Kerdcharoen (2008)	Conference: World conference on agricultural information and IT, IAALD AFITA WCCA 2008
					Yanagida, Sriornual & Chen (2008)	Journal: Letters in applied microbiology
2009	1		1	2	Sun, Ma, Hao, Pretorius & Chen (2009)	Journal: Annals of microbiology
					Tongrod, Tuantranont & Kerdcharoen (2009)	Conference: Electrical Engineering/Electronic, Computer, Telecommunications Information Technology, 6th International Conference
2010	7		1	8	Lacher & Nepal (2010)	Journal: Tourism Geographies
					Lai, Juang & Chen (2010)	Journal: Soil Science & Plant Nutrition
					Li, Cheng, Li, Chen, Yan, Han & Reeves (2010)	Journal: International Journal of Food Microbiology
					Sarkar (2010)	Journal: Atna-Journal of Tourism Studies
					Slavich, Tam & Thinh (2010)	Conference: 19th World Congress of Soil Science: Soil Solutions for a Changing World
					Lieu (2010)	Journal: Ultrasonics Sonochemistry
					Poolsawat, Tharapreuksapong, Wongkaew, Reisch & Tantasawat (2010)	Journal: Journal of Phytopathology
					Butkhup, Chowtivannakul, Gaensakoo, Prathepha & Samappito (2010)	Journal: South African Journal of Enology and Viticulture



2011	5		2	7	Li, Liu, Xue & Liu (2011)	Journal: World Journal of Microbiology and Biotechnology
					Lirong (2011)	Journal: Energy Procedia
					Liu (2011)	Conference: Management and Service Science (MASS), 2011 International Conference
					Metasit Watchaneeporn & (2011)	Journal: Management
					Sofield & Li (2011)	Journal: Journal of Sustainable Tourism
					Tang, Shi & Liu (2011)	Journal: Energy Procedia
					Zhang & Qiu (2011)	Conference: Artificial Intelligence, Management Science and Electronic Commerce (AIMSEC), 2nd International Conference
2012	7	1	1	9	Commins, Asavasanti & Deloire (2012)	Journal: Asian Journal of Food and Agro-Industry
					Dabphet, Scott & Ruhanen (2012)	Journal: Journal of Sustainable Tourism
					Guo, Jiao, Li, Wu, Crowley, Wang & Wu (2012)	Journal: Journal of bacteriology
					Han (2012)	Book section: Trans Tech Publications
					Lee & Chang (2012)	Journal: Leisure Studies
					Noppé (2012)	Conference: Cape Wine Academy, Capetown, South Africa
					Sompong, Wongkaew, Tantasawat & Buensanteai (2012)	Journal: African Journal of Microbiology Research
					Sutawa (2012)	Journal: Procedia economics and finance
					Wirudchawon (2012)	Journal: Journal of Ritsumeikan Social Sciences and Humanities
2013	8		1	9	Banks, Klinrisuk, Dilokwanich & Stupples (2013)	Journal: EchoGéo
					Guo, Zhang, Zhang & Province (2013)	Journal: Markers
					Limtong & Kaewwichian (2013)	Journal: The Journal of General and Applied Microbiology
					Le, Thi Nguyen & Van Nguyen (2013)	Journal: Asia Pacific Journal of Marketing and Logistics



					Liu, Li, Qi, Guo, Liu, Wang & Cheng (2013)	Journal: Plant Disease
					Ohe (2013)	Journal: Journal of Global Management Research
					Sangsnit (2013)	Conference: UNWTO Conference on Sustainable Tourism Development
					Wei (2013)	Journal: Res J Appl Sci Eng Technol
					Zhang Qiu, Yuan, Haobin & Hung (2013)	Journal: International Journal of Contemporary Hospitality Management.
2014	4		1	5	Dobronauteanu (2014)	Journal: EU-Japan Centre for Industrial Cooperation
					Jaykumar & Fukey (2014)	Journal: Issues
					Demir (2014)	Journal: Türk Tarım ve Doğa Bilimleri Dergisi
					Lao-Hakosol & Walsh (2014)	Journal: South Asian Journal of Business and Management Cases
					Tsze (2014)	Conference: Conference collections SIC Sociosphere
2015	6	1	1	8	Hao, Li & Cao (2015)	Book section: EDP Sciences
					Li, Kang, Zhang, Du, Tong, Ding & Xiao (2015)	Journal: Agricultural Water Management
					Liu, Qin, Song, Ye, Yuan, Pei & Liu (2015)	Journal: World Journal of Microbiology and Biotechnology
					Muangasame & McKercher (2015)	Journal: Journal of Sustainable Tourism
					Santoro (2015)	Conference: Kandidatafhandlinger/ Graduate theses [2744].
					Thipsingh (2015)	Journal: Procedia-Social and Behavioural Sciences
					Wang, Sun & Chang (2015)	Journal: PloS one
					Yan, Jayawardena, Goonasekara Wang, Zhang, Liu & Bahkali (2015)	Journal: Fungal Diversity
2016	3	1	3	7	Dutton (2016)	Conference: 9th Academy of Wine Business Research Conference
					Gu, Qiu & King (2016)	Conference: 9th Academy of Wine Business Research Conference
					Hao, Li, Cao & Ma (2016)	Book section: EDP Sciences

					Sripholtaen, Charoenchai & Urairong (2016)	Journal: Asia-Pac J Sci Technol
					Lu, Habib, Barrett & Chen (2016)	Journal: Phytotaxa
					Lu, Wen & Chen (2016)	Journal: Systematic Botany
					Li & Bardaji de Azcarate (2016)	Conference: XI Iberian Conference on Rural Studies.
2017	7		2	9	Chong (2017)	Journal: Asia Pacific Journal of Tourism Research,
					Lee, Bruwer & Song (2017)	Journal: Current Issues in Tourism
					Li & Bardaji de Azcarate (2017)	Journal: OENO One (Journal international des sciences de la vigne et du vin)
					Lia & Bardajib (2017)	Conference: XI Congreso de la Asociación Española de Economía Agraria
					Wongnarat & Srihanam (2017)	Journal: <i>Orient Journal Chemical</i>
					Yang (2017)	Conference: Doctoral Dissertation, Seoul National University Graduate School.
					Yap & Chen (2017)	Journal: Tourism and Hospitality Management
					Ye, Zhang, & Yuan (2017)	Journal: Journal of Hospitality & Tourism Research
					Dang, Nguyen, Dao, Yang, Li, Yang & Lu (2017)	Journal: Systematic botany
2018	3	1		4	Gu, Qiu Zhang, King & Huang (2018)	Journal: Journal of Travel & Tourism Marketing
					Joy, Belk, Charters, Wang & Peña 2018	Book Section: Emerald Publishing Limited
					Ju, Liu, Tu, Zhao, Yue, Zhang & Meng (2018)	Journal: Food Chemistry
					Wang, Liu, Wang, Zhu & Lin (2018)	Journal: Journal of Mountain Science
Total	67	6	16	89		

The papers are from academic journals which published articles about wine tourism development in Asia since 2000 (Table 2). There are 35 articles on China because the economy of this country has developed rapidly in recent decades. Such strong economic development increases the demands of the Chinese market for wine tourism as a result of Western cultural influence. In order to construct a high-quality wine industry for tourism purposes, several research studies have been conducted concerning wine production, quality, marketing and the sustainable development of vineyards around the country. In China, most vineyards are developed in the northern regions of the country, such as Xinjiang and Ningxia, with special support and strategies from the government.

Besides, the systematic literature review also identifies 31 articles from Thailand and 9 articles from Vietnam, two of the most potential wine regions in Southeast Asia. These articles not

only provide information about basic infrastructural preparations of the Southeast Asian countries, but also signify the unique characteristics of grape productions and other relevant biochemical factors in the tropical areas. While Thailand has competitive advantages to develop strong wine tourism regions in Khao Yai, Vietnam reveals the specific potential to improve wine quality in Ninh Thuan province, thus indicating practical implications for further advantages in the sustainable development of wine tourism in this coastal region. Based on the research concerning the topic of wine tourism development in Thailand and Vietnam, the systematic literature review obtains a more similar comparison between the tropical viticulture's with regard to the sustainable development of wine productions. In this way, the research reflects the special concerns of researchers to construct a unique perspective of the wine tourism development in tropical regions.

The journals focus on tourism and hospitality, sustainable development, the marketing of wine industries and production in China, Thailand and Vietnam, to name just a few. There are also discussions of wine production and quality in several countries with references to the biochemical influences of the products in particular vineyard regions. Other than China and Thailand, few studies have been conducted on the wine tourism development of other countries in Asia because the wine production in these countries is not globally recognised. In other words, the limited information and data on wine tourism in several Asian countries, such as Vietnam, Myanmar and Japan, derives from the low awareness of wine tourism in these countries.

Table 2. Countries Cited in the Research.

Country	Number of papers	Papers
China	35	<p>Gu, Qiu & King (2016) Gu, Qiu Zhang, King & Huang (2018) Guo, Zhang, Zhang & Province (2013) Guo, Jiao, Li, Wu, Crowley, Wang & Wu (2012) Han (2012) Hao, Li & Cao (2015) Hao, Li, Cao & Ma (2016) Ju, Liu, Tu, Zhao, Yue, Zhang & Meng (2018) Li, Liu, Xue & Liu (2011) Li, Kang, Zhang, Du, Tong, Ding & Xiao (2015) Li, Kang, Zhang, Li, Zhu & Zhang. (2008) Li, Cheng, Li, Chen, Yan, Han & Reeves (2010) Li & Bardaji de Azcarate (2016) Li & Bardaji de Azcarate (2017) Lia & Bardajib (2017) Lirong (2011) Liu, Li, Qi, Guo, Liu, Wang & Cheng (2013) Liu, Qin, Song, Ye, Yuan, Pei & Liu (2015) Liu (2011) Noppé (2012) Santoro (2015) Shen & Cottrell (2008) Sofield & Li (2011) Sun, Ma, Hao, Pretorius & Chen (2009) Tang, Shi & Liu (2011) Tsze (2014) Wang, Liu, Wang, Zhu & Lin (2018) Wang, Sun & Chang (2015) Wei (2013) Yan, Jayawardena, Goonasekara, Wang, Zhang, Liu & Bahkali (2015) Yang (2017) Yap & Chen (2017) Ye, Zhang & Yuan (2017) Zhang Qiu, Yuan, Haobin & Hung (2013) Zhang & Qiu (2011)</p>
Thailand	31	Banks, Klinrisuk, Dilokwanich & Stupples (2013)

		<p>Batra (2008) Chong (2017) Commins, Asavasanti & Deloire (2012) Dabphet, Scott & Ruhanen (2012) Henkel, Henkel, Agrusa, Agrusa & Tanner (2006) Lacher & Nepal (2010) Metasit & Watchaneeporn (2011) Muangasame & McKercher (2015) Nilnond (2001) Ogle (2000) Sangsnit (2013) Sompong, Wongkaew, Tantasawat & Buensanteai (2012) Tongrod, Jaroensutasinee, Tuantranont & Kerdcharoen (2008) Tongrod, Tuantranont & Kerdcharoen (2009) Thipsingh (2015) Webster (2006) Wirudchawong (2012) Butkhup, Chowtivannakul, Gaensakoo, Prathepha & Samappito (2010) Demir (2014) Joannon, Poss, Korpraditskul, Brunet & Boonsock (2001) Lao-Hakosol & Walsh (2014) Lisdiyanti, Katsura, Potacharoen, Navarro, Yamada, Uchimura & Komagata (2003) Limtong & Kaewwichian (2013) Poolsawat, Tharapreuksapong, Wongkaew, Reisch & Tantasawat (2010) Possingham (2006) Schaefer (2006) Sripholtaen, Charoenchai & Urairong (2016) Tonmanee & Kanchanakool (2000) Wongnarat & Srihanam (2017) Woraratphoka, Intarapichet & Indrapichate (2007)</p>
India	4	<p>George (2006) Sarkar (2010) Jaykumar & Fukey (2014) Joy, Belk, Charters, Wang & Peña (2018)</p>
Japan	3	<p>Dobronauteanu (2014) Ohe (2013) Yanagida, Srionnual & Chen (2008)</p>
Vietnam	9	<p>Le, Thi Nguyen & Van Nguyen (2013) Khanal & Babar (2007) Dang, Nguyen, Dao, Yang, Li, Yang & Lu (2017) Do, Patris & Valentin (2007) Jouquet, Bottinelli, Podwojewski, Hallaire & Duc (2008) Lieu (2010) Lu, Habib, Barrett & Chen (2016) Lu, Wen & Chen (2016) Slavich, Tam & Thinh (2010)</p>
Korea	2	<p>Lee, Bruwer & Song (2017) Lee, Zhao & Ko (2005)</p>
Taiwan	2	<p>Lee & Chang (2012) Lai, Juang & Chen (2010)</p>
Bali	1	Sutawa (2012)
Myanmar	1	Dutton (2016)
Malaysia	1	Teh & Cabanban (2007)

The 67 journal articles were collected from numerous journals, such as the *Asia Pacific Journal of Tourism Research*, the *Journal of Travel & Tourism Marketing* and the *Journal of Bacteriology Issues*. The contents were dedicated to hospitality and tourism, wine, business and environmental management, among others (Table 3).

Most articles were taken from different journals, while only a few publications are represented by more than one article, including the *Asia Pacific Journal of Tourism Research*, the *Journal of Sustainable Tourism*, the *Journal of Tourism and Hospitality Research* (3 publications) and *EDP Sciences*, *Current Issues in Tourism*, *Leisure Studies* and *Energy Procedia* (2 publications each).



Table 3. Research Articles by Journal.

Journals	Articles
Asia Pacific Journal of Tourism Research; Journal of Sustainable Tourism; Journal of Tourism and Hospitality Research.	3
EDP Sciences; Current Issues in Tourism; Leisure Studies; Energy Procedia, Systematic Botany, Water Science and Technology.	2
EchoGéo; Asian Journal of Food and Agro-Industry, Geographical Review; Tourism Review; Journal of Travel & Tourism Marketing; Journal of Bacteriology Issues; Food chemistry; Tourism Geographies; Soil Science & Plant Nutrition; Asia Pacific Journal of Marketing and Logistics; World Journal of Microbiology and Biotechnology; Agricultural Water Management; Hydrological Processes: An International Journal; International journal of food microbiology; Journal international des sciences de la vigne et du vin; Plant Disease; World Journal of Microbiology and Biotechnology; Journal of Global Management Research; Atna - Journal of Tourism Studies; International Journal of Tourism Policy; African Journal of Microbiology Research; Annals of microbiology; Procedia economics and finance; Journal of environmental management; Water Science and technology; Procedia-Social and Behavioral Sciences; Journal of Mountain Science; PloS one, Res J Appl Sci Eng Technol; Journal of Ritsumeikan Social Sciences and Humanities; Fungal Diversity; Letters in applied microbiology; Tourism and hospitality management; International Journal of Contemporary Hospitality Management, South African Journal of Enology and Viticulture, Türk Tarım ve Doğa Bilimleri Dergisi, Geoderma, South Asian Journal of Business and Management Cases, Ultrasonics Sonochemistry, The Journal of General and Applied Microbiology, Phytotaxa, Journal of Phytopathology, Asia-Pac J Sci Technol, Orient. J. Chem, Food Chemistry, Microbiol Cult Coll.	1
Total number of journal articles	67

Table 4 shows a cross-tabulation between the research categories and the sectors of countries that conduct the research, including China, Thailand, and other countries in Asia. The articles devoted to environment and sustainability issues are about 64.4%, including Sustainability Development in Wine Tourism (27.5%), Microbiology and Bacteriology in Wine Production (20.6%), Grape Production and Vineyard Development (37.9%), and Natural Factors and Resources (13.7%). Similarly, the human factor categories can be found in 35.6% of the articles, including Wine Tourist Behaviour (31.2%), Economic Factors and Marketing Strategies (34.3%), and Governmental Strategies of Wine Tourism Development (34.5%). China is the country with the most research studies in microbiology and bacteriology, implying a strong determination to improve the wine quality. Meanwhile, Thailand has more papers in natural factors and resources because the country is developing the basis for further progress in wine tourism. However, in the consumer behaviour categories, Thailand has fewer studies than China. One reason for the many consumer surveys on Chinese consumers is the size of the potential Chinese wine market. In both groups of countries, the size of the category of sustainable development in wine tourism indicates the growing role of this topic. Besides China and Thailand, other Asian countries focus more on studies in consumer behaviour than environment and sustainability. Vietnam also conducts research on wine tourism development with regard to native biochemical characteristic to improve wine production. Thailand and Vietnam have similar climate tropical conditions to develop wine tourism in wineries and vineyards in Khao Yai and Ninh Thuan province. The two countries strongly focus on research in grape production and vineyard development, natural factors and resources to identify the necessary infrastructural and technological conditions of tropical wine tourism in Southeast Asia.

With regard to studies about sustainable development, China does not have many studies on natural factors and resources because the most famous wine regions in this country are already developed for wine production. On the other hand, Thailand does not have many studies in microbiology and bacteriology in wine production because the wine quality in this country is not the priority and wine is not a major export product. For other Asian countries, there is an equal number of studies in all three sub-categories, except the sustainability development in wine tourism. When considering human factors, while China is superior in studies about wine tourist behaviour and economic factors and marketing strategies, Thailand has more studies than China in government strategies of wine tourism development. Although

Thailand strongly focuses on introducing new wine regions, the country needs to pay further attention to marketing and economic aspects of wine tourism to ensure a holistic development.

Table 4. Research Categories and Countries.

Domain	China	Thailand	Other Countries
Environment and Sustainability			
Sustainability Development in Wine Tourism	Han (2012) Hao, Li & Cao (2015) Hao, Li, Cao & Ma (2016) Shen & Cottrell (2008) Sofield & Li (2011) Tang, Shi & Liu (2011)	Webster (2006) Ogle (2000) Sangsnit (2013) Metasit & Watchaneeporn (2011) Muangasame & McKercher (2015) Dabphet, Scott & Ruhanen (2012)	Khanal & Babar (2007) Teh & Cabanban (2007) Sutawa (2012)
Grape Production and Vineyard Development	Yan, Jayawardena, Goonasekara, Wang, Zhang, Liu & Bahkali (2015) Wang, Liu, Wang, Zhu & Lin (2018) Li, Kang, Zhang, Du, Tong, Ding & Xiao (2015) Li, Kang, Zhang, Li, Zhu & Zhang (2008) Li & Bardaji de Azcarate (2017) Guo, Zhang, Zhang & Province (2013)	Tongrod, Jaroensutasinee, Tuantranont & Kerdcharoen (2008) Tongrod, Tuantranont & Kerdcharoen (2009) Nilnond (2001) Butkhup, Chowtivannakul, Gaensakoo, Prathepha & Samappito (2010) Demir (2014) Lao-Hakosol & Walsh (2014) Possingham (2006) Schaefer (2006) Sripholthae, Charoenchai & Uairong (2016) Wongnarat & Srihanam (2017)	Ohe (2013) Dang, Nguyen, Dao, Yang, Li, Yang & Lu (2017) Do, Patris & Valentin (2007) Lieu (2010) Lu, Habib, Barrett & Chen (2016) Lu, Wen & Chen (2016)
Microbiology and Bacteriology in Wine Production	Sun, Ma, Hao, Pretorius & Chen (2009) Liu, Li, Qi, Guo, Liu, Wang & Cheng (2013) Liu, Qin, Song, Ye, Yuan, Pei & Liu (2015) Li, Liu, Xue & Liu (2011) Li, Cheng, Li, Chen, Yan, Han & Reeves (2010) Ju, Liu, Tu, Zhao, Yue, Zhang & Meng (2018) Guo, Jiao, Li, Wu, Crowley, Wang & Wu (2012)	Sompong, Wongkaew, Tantasawat & Buensanteai (2012) Limtong & Kaewwichian (2013) Poolsawat, Tharapreuksapong, Wongkaew, Reisch & Tantasawat (2010) Woraratphoka, Intarapichet & Indrapichate (2007) Lisdiyanti, Katsura, Potacharoen, Navarro, Yamada, Uchimura & Komagata (2003)	Yanagida, Sriannual & Chen (2008)
Natural Factors and Resources	Wang, Sun & Chang (2015)	Chong (2017) Banks, Klinrisuk, Dilokwanich & Stupples (2013) Joannon, Poss, Korpraditskul, Brunet & Boonsock (2001) Tonmanee & Kanchanakool (2000)	Lai, Juang & Chen (2010) Jouquet, Bottinelli, Podwojewski, Hallaire & Duc (2008) Slavich, Tam & Thinh (2010)
Human Factors			
Wine Tourist Behaviour	Yap & Chen (2017) Ye, Zhang & Yuan (2017) Zhang Qiu, Yuan, Haobin & Hung (2013) Gu, Qiu & King (2016) Gu, Qiu Zhang, King & Huang (2018) Zhang & Qiu (2011)	Henkel, Henkel, Agrusa, Agrusa & Tanner (2006)	George (2006) Joy, Belk, Charters, Wang & Peña (2018) Lee, Bruwer & Song (2017)
Economic Factors and Marketing Strategies	Wei (2013) Santoro (2015) Noppé (2012) Liu (2011)	Lacher & Nepal (2010)	Jaykumar & Fukey (2014) Le, Thi Nguyen & Van Nguyen (2013)

	Li & Bardaji de Azcarate (2016) Lia & Bardajib (2017)		Lee, Zhao & Ko (2005) Lee & Chang (2012)
Governmental Strategies of Wine Tourism Development	Yang (2017) Tsze (2014) Lirong (2011)	Commins, Asavasanti & Deloire (2012) Batra (2008) Wirudchawong (2012) Thipsingh (2015)	Sarkar (2010) Dutton (2016)

The Body of Research

Research Domains

As indicated in Table 4, seven different domains were identified in the body of research, and these can be based on two categories, namely environment and sustainability, and human factors. The environment and sustainable category contain four domains which identify the natural factors and conditions as well as the policies of the government for sustainable development of wine tourism in the specific country and region (see Fig. 1). This category focuses on the studies that research the development of products and infrastructural conditions in order to develop the products and services for wine tourism. The domains include sustainability development in wine tourism, microbiology and bacteriology in wine production, grape production and vineyard development, and natural factors and resources for wine tourism.

The second category focuses on the human factors that influence the development of wine tourism in Asia. The category aims at studies in economic environment and marketing strategies for the local wine tourism as well as the introduction of the wine region. It includes the following three domains: wine tourist behaviour, economic factors and marketing strategies, and governmental strategies of wine tourism development.

From a qualitative perspective, the figure presents the interaction and overlapping of the categories. Accordingly, the sustainability development in wine tourism focuses on the policies of the government to develop sustainable wine tourism. The domain of grape production and vineyard development emphasizes the role of infrastructural development in wine tourism. Subsequently, the domain of microbiology and bacteriology in wine production signifies the quality of wine production by clarifying the influential factors, including local viruses, yeasts, and bacteria. The domain of natural factors and resources studies the geographical conditions and climate of the wine regions. On the other hand, the domains of wine tourist behaviour study of hospitality and tourism management through the special demands and characteristics of tourists. The economic factors and marketing strategies domain focuses on the profitability and other revenue sources of wine tourism development. Finally, the domain of government strategies of wine tourism development introduces the basic nature of new wine regions for tourism purposes. The seven domains, then, represent the relevant themes in each non-human and human factor that constitute the wine tourism development.

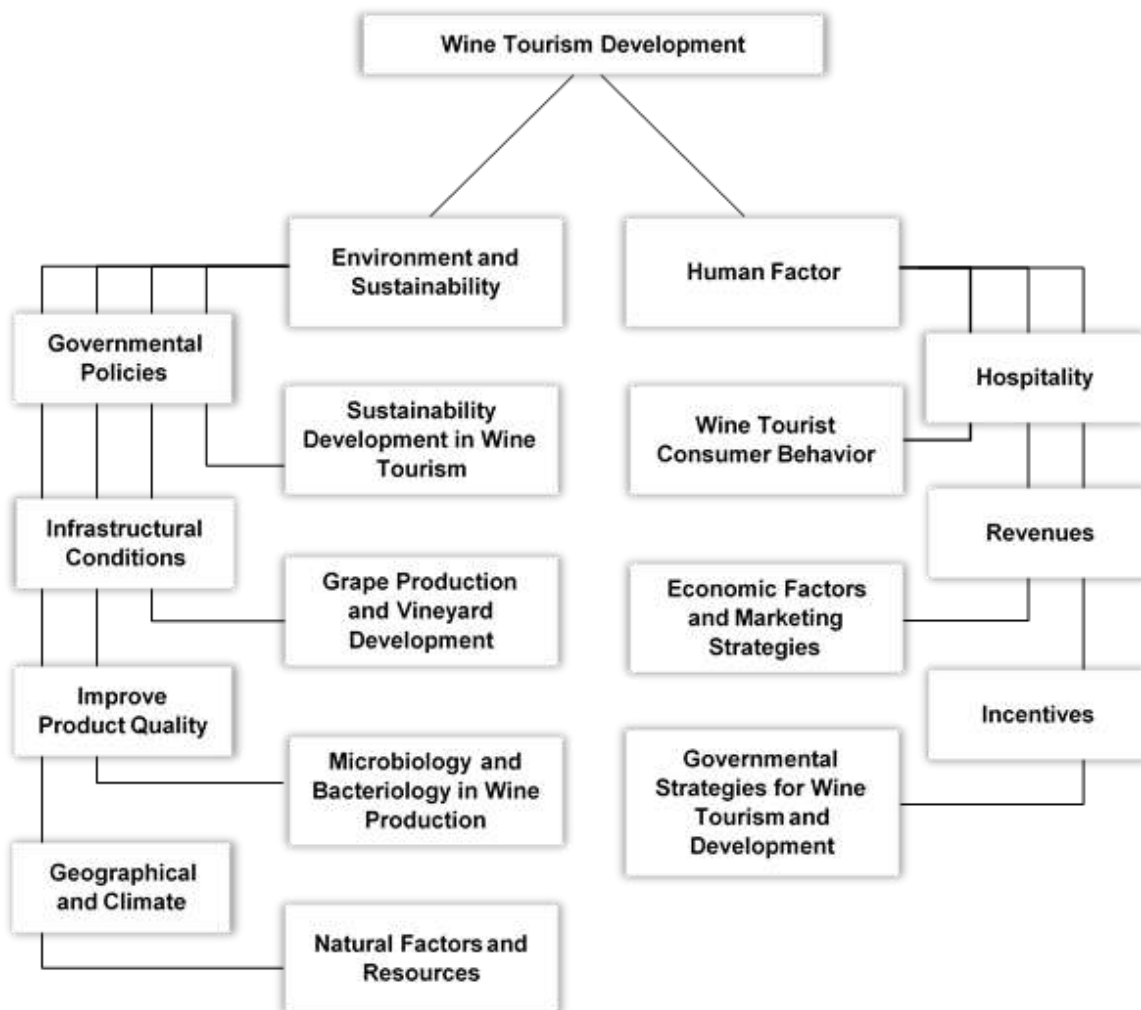


Figure 1. The Relationship of the Research Domains Source: Author's own

Developing Wine Tourism

Although wine tourism has been developed by several wine regions in the world, it is relatively new in Asia, a fact specifically reflected in Chong (2007)'s article "Thailand & wine tourism: a dream or a reality?" to introduce the idea that the government and the local communities might consider developing wine production in national vineyards for tourism purposes. In fact, this article lays out the Thai governmental policies used to develop wine tourism in the Khao Yai vineyard, the most accessible and visited vineyard in Thailand.

During the earlier part of the reviewed period, wine tourism sustainability was not addressed directly in most research about Thailand. However, while not focusing on wine tourism or vineyard tourism the two following examples of early research bear mentioning in the context of sustainability. Dearden (1991) brought into question the idea of sustainable development and tourism in the northern provinces of Thailand although his research was centred on examining the economic benefits of trekking and assessing its community and cultural effects. The research uncovered vast amounts of environmental degradation with examples of deforestation, soil compaction, erosion and litter. However, he warned that these factors of environmentally unfriendly trekking were generally not considered to be a concern at the time for sustaining the hill tribe communities. Then Kontogeorgopoulos (1999) pointed out that the "Amazing Thailand" tourist campaign, while set to bolster tourism was actually forgoing any sustainable practices. Despite opposition at that time the degradation of Thailand's natural resources continued together with tourism development in a constant unsustainable manner.

Only in the second decade of this review of literature did wine tourism research start to address the issues of sustainability. For instance, Metasit and Watchaneeporn (2011) focus mainly on the sustainable development of wine production to ensure that relevant environmental and ecological footprints are minimised. The 2012 research of Commins, Asavasanti and Deloire considered the wine production process in Thailand by introducing tropical wine. These were among the first steps of vineyard branding to establish the foundation for wine tourism development in this particular Asian country. Similarly, the research by Banks, Klinrisuk, Dilokwanich and Stupples (2013) focused on the geographical conditions of several regions in Thailand to assess the necessary qualities for wine tourism development. As a result, research on wine tourism development in Thailand remains at the preparatory level to ensure that all requirements for further stages of development are satisfied.

The systematic review also reflects upon the development of wine tourism in several regions of China from a more holistic perspective in comparison to the research conducted on Thailand. As early as 2011, Lirong's paper "The Prospect and Forecast of China's wine tourism in 2011" analyses the positive and negative aspects of wine tourism in China. In this way, it can be concluded that China not only completed the first stage of wine tourism development but also focused on what would happen next in the development process. Studies by Chinese researchers on the development of wine tourism also focused directly on several aspects of wine tourism, such as wine quality (Yan et al., 2015), geographical conditions for wine tourism (Wang, Sun & Chang, 2015) and biochemical influences from viruses in a specific region (Liu et al., 2013). The studies conducted by Chinese researchers seem to employ more scientific approaches to address the relevant concerns in the most reliable way. This specification in research does not ensure the quality of the literature conducted but rather the scientific approach to the direction of the research. In fact, China has a large market with more economic potential in comparison to Thailand. Besides, the vineyard regions in China also receive stronger governmental investment with respect to Xinjiang and Ningxia. Therefore, it is understandable that Chinese researchers conducted several studies on the development of wine tourism in particular regions.

Environment and Sustainability

As concerns of environment and sustainability in the development of wine tourism in Asia, most studies focus on geographical and soil conditions (Guo, Jiao, Li, Wu, Crowdley, Wand, & Wu, 2012), biochemical (Ju et al., 2018), fermentation (Li, Liu, Xue, & Liu, 2011), and other grape production systems (Guo, Zhang, Zhang, & Province, 2013). Other concerns concentrate on the economic climate for wine tourism development in China (Han 2012), government policy (Hao, Li, Cao, & Ma 2016), ecosystem water (Li et al., 2015) and vineyard evapotranspiration (Li, Kang, Zhang, Li, Zhu, & Zhang, 2008). It can be observed that Chinese wine tourism studies acquire certain levels of specification in different aspects of wine tourism development. The specific considerations of Chinese research not only enhance the sustainability of the development process but also establish a scientific basis for further concerns in terms of environmental and ecological research. In fact, Chinese researchers focus strongly on specific wine tourism regions in the country to conduct their studies, including Ningxia (Hao, Li, & Cao, 2015; Hao, Li, Cao, & Ma, 2016; Yang, 2017), and Xinjiang (Liu et al., 2015). Hence, the objectives and goals of these studies are to limit the environmental and ecological footprint of the wine industry when wine tourism is fully developed and exploited in China.

Besides the research of Chinese wine tourism development, there are other studies about other countries and regions in Asia, including Myanmar (Dutton, 2016), India (George, 2006), the Mekong region (Khanal & Babar, 2007), Taiwan (Lai, Juang, & Chen, 2010) and Japan (Ohe, 2013). These studies focus mostly on the special identities of wine production and the wine industry in the country to introduce the characteristics of wine tourism. The focus of these

studies is mainly on the plans to develop sustainable wine tourism based on ecological and environmental analysis. Although there are fewer studies about sustainable wine tourism development in Thailand than in China, Thai researchers are aware of a variety of different aspects when they conduct research, such as microbiology (Sompong, Wongkaew, Tantasawat, & Buensanteai, 2012), networking in sustainable tourism (Thipsingh, 2015), geographical conditions (Banks, Klinrisuk, Dilokwanich, & Stupples, 2013) and sustainable tourism policies (Muangasame & McKercher, 2015; Sangsnit, 2013; Ogle, 2000).

In fact, Thailand strongly emphasises the research on the development of a strict yet up-to-date legislative system that would facilitate sustainable wine tourism in the near future. The emphasis on the legislative system would then benefit from the experiences of other developed wine tourism systems in order to avoid unexpected flaws. In addition, there are also concerns about grape production that reflect the strategy of Thailand in order to catch up with the international standard and quality (Nilnond, 2001). Thailand also emphasizes the special biochemical factors in the region to develop unique competitive advantages of tropical wine tourism. There are articles that signify the grape cultivation (Butkhup, Chowtivannakul, Gaensakoo, Prathepha, & Samappito, 2010), tropical grape growing (Demir, 2014), yeast species from grape phylloplane (Limtong, & Kaewwichian, 2013), acid bacteria (Lisdiyanti et al., 2003), grape anthracnose (Poolsawat, Tharapreuksapong, Wongkaew, Reisch, & Tantasawat, 2010), table grape production (Possingham, 2006), tropical wine making (Schaefer, 2006). Other studies focus on wine grape varieties (Sripholtaen, Charoenchai, & Uairong, 2016), and phytochemical and antioxidant activities (Wongnarat & Srihanam, 2017; Woraratphoka, Intarapichet, & Indrapichate, 2007). The researchers also focus on the natural factors and resources of wine tourism development with regard to water and soil pollution (Joannon, Poss, Korpraditskul, Brunet, & Boonsock, 2001), and village farm resort (Lao-Hakosol & Walsh, 2014).

Besides China and Thailand, Vietnam also conducts several studies to specify the potential advantages of wine tourism development. Vietnamese researchers focus on the wine production and vineyard development with regard to the special vitiate specie in Ninh Thuan province (Dang et al., 2017; Lu et al., 2016; Lu, Wen, & Chen, 2016), representation of wine (Do, Patris, & Valentin, 2007), grape treatment (Lieu, 2010). Besides, there are also studies on natural factors and resources, such as different land-use systems (Jouquet, Bottinelli, Podwojewski, Hallaire & Duc, 2008), and water management (Slavich, Tam, & Thinh, 2010). Thus, both Vietnam and Thailand strongly emphasise the environment and sustainability in wine tourism development with regard to natural factors and resources, and grape production and vineyard development. Both Southeast Asian countries also specify the competitive advantage of tropical wine tourism with special local yeast in Thailand and vitiate specie in Vietnam.

As wine tourism is a growing trend in global tourism, the sustainable development of this industry not only enhances the business opportunities for the wine business value chain but also provides several sources of revenue for local communities. The sustainable development of wine tourism requires a balance between economic benefits for the community and ecological footprints. In fact, sustainability may be acquired through the strong participation of the wine producers and tour companies in socially responsible activities. These activities may include a commitment to organic grape production, qualified wine products and charity programs, as well as other programs against deforestation, soil erosion and pollution due to the overuse of fertilisers and chemical substances.

It is also necessary to combine tourism and education to control the long-term effects of sustainable development. Since Asia is a relatively new wine market, Asian tourists may be introduced to vineyards on a wine tour with further instructions on how to appreciate and assess wine products in the most appropriate manner. The educational purpose of Asian wine tourism is, then, to construct a unique Asian wine culture that minimises its ecological footprint.

Moreover, the sustainable development of Asian wine tourism needs to achieve economic benefits, which requires Asian countries to establish appropriate legislative actions and business procedures to facilitate a variety of business partnerships and coordination's. Then, governments play a decisive role in establishing an environment for mutually beneficial interactions among the residents of local wine communities, business partners and tourists to visit the vineyards and experience the wine products. The professional moderation in the wine tourism business during the early stages of development will ensure positive initial branding effects; for instance, creating an association of Asian wine tourism with existing attitudes about healthy Asian lifestyles and beverage cultures would reduce the potential harm of alcoholism. Hence, sustainable development requires cooperation among community engagement, research trends, consumer behaviour, governmental business and legislative support, a strategy for wine tourism, grape production skills and new standards of ecological and environmental protection.

Human Factors

In the case of China, several studies focus on consumer behaviour to specify the requirements of Chinese tourists (Gu, Qiu, & King, 2016) and approaches to marketing strategies (Gu, Qiu Zhang, King, & Huang, 2018; Li & de Azcarate, 2016; Lia, & Bardajib, 2017; Liu, 2011; Santoro, 2015). Thus, Chinese researchers focus more on the economic aspects of wine tourism development by exploring the role of marketing research. China would like to pose strong competition in the industry in order to ensure that Chinese wine tourism would not be defeated by other well-developed wine regions. Consumer behaviour studies have also been conducted in other countries, such as Japan (Dobronauteanu, 2014), India (Jaykumar, & Fukey, 2014; Joy, Belk, Charters, Wang & Peña, 2018; Sarkar, 2010), Vietnam (Le, Thi Nguyen, & Van Nguyen, 2013), Korea (Lee, Zhao & Ko, 2005; Lee, Bruwer, & Song, 2017) and Taiwan (Lee & Chang, 2012). While these are the countries with the potential for further development of wine tourism, the studies focus on the characteristics of local tourists and communities to introduce the nature of the consumer bases.

The studies on consumer behaviour for wine tourism development in Thailand focus on the policies of the community (Wirudchawong, 2012), the perceptions of national and international tourists (Henkel, Henkel, Agrusa, Agrusa, & Tanner, 2006) and strategies to obtain tourism revenue (Lacher & Nepal, 2010). Accordingly, these studies help create a strong connection between tourists and the local communities for further understanding about the consumer behaviour in wine tourism. The studies also function as the tools that describe cultural differences in order to facilitate the development of Thai wine tourism. In terms of marketing, these studies also emphasise the economic roles of wine tourism and the strategies for acquiring sufficient economic benefits for the local communities. Since the developing wine tourism in Thailand is not as competitive as wine tourism in China, marketing studies will help to discover new competitive advantages that derive from the unique geographical and ecological conditions of the tropical Asian region.

Conclusion

While wine tourism studies mostly cover the significant aspects of sustainable development, research from Asian countries focuses on the development of the wine industry and other concerns of marketing strategies. Thus, research trends reflect the current reality of wine tourism development in Asia. For instance, there is not much focus on environmental concerns in Asian research because the wine tourism in Asian countries is not yet sufficiently developed in terms of infrastructural conditions to pose an ecological threat. On the other hand, the concentration of Asian researchers on the quality of new wines and wine consumer behaviour with specific local characteristics is also an advantage in ensuring a high quality of research and avoiding bias from foreign socio-cultural factors. It is also implied that the systematic review of wine tourism in Asia reflects the existing research concerns of other comparable

developed regions, such as biochemical and geographical studies for grape production. In other words, the concerns about product quality, wine production stages, environmental standards, marketing strategies and the development of wine tourism in specific regions are based on what has been applied and researched in other wine regions of the world. The systematic review acquires and advances the source content to provide a more insightful discussion of further unknown concerns, such as the economic effects of wine tourism, in order to develop wine tourism while avoiding the mistakes of other regions.

In fact, the economic benefits of wine tourism are among the major goals that Asian countries specifically seek to develop and invest further in this field of business. Asian countries need to balance the ecological footprint and economic benefits of wine tourism in order to acquire sustainability in its development. Such a balance can be achieved through the logical legislative framework and support from the local government, the proper geographical zoning for vineyards and infrastructural development for wine tourism, such as streets, hotel, parking areas and restaurants. It is important however, to guide customer behaviour in wine tourism in order to limit its ecological footprint. For instance, pools, tennis courses, casinos and other common types of entertainment used in other forms of tourism would not be constructed so as to emphasise the centrality of wine in wine tourism. Although consumers may not be satisfied with the lack of certain tourism facilities, they would understand that wine tourism is different from other types of tourism. Such a strategy can take as its starting point the fact that wine tourism is in the early stages of development in Asia. Hence, wine tourism in Asia may develop sustainably because Asian countries do not follow the international model of exploiting all-natural resources.

References

**All the references below are included in the review of literature with the exception of: Carlsen (2004), Hall and Mitchell (2000), Dearden (1991) and Kontogeorgopoulos (1999).*

Banks, G., Klinrisuk, R., Dilokwanich, S. & Stupples, P. (2013). Wines without Latitude: Global and local forces and the geography of the Thai wine industry. *EchoGéo*, (23).

Batra, A. (2008). An exploratory study on specific preferences and characteristics of wine tourists. *Anatolia*, 19(2), 271-286.

Butkhup, L., Chowtivannakul, S., Gaensakoo, R., Prathepha, P. & Samappito, S. (2010). Study of the phenolic composition of Shiraz red grape cultivar (*Vitis vinifera* L.) cultivated in north-eastern Thailand and its antioxidant and antimicrobial activity. *South African Journal of Enology and Viticulture*, 31(2), 89-98.

Carlsen, P. J. (2004). A review of global wine tourism research. *Journal of wine research*, 15(1), 5-13.

Chong, K.L. (2017). Thailand & wine tourism: a dream or a reality?. *Asia Pacific Journal of Tourism Research*, 22(6), 604-614.

Commins, T., Asavasanti, S. & Deloire, A. (2012). What is tropical wine and what defines it? Thailand as a case study. *Asian Journal of Food and Agro-Industry*, 5(02), 79-95.

Dabphet, S., Scott, N. & Ruhanen, L. (2012). Applying diffusion theory to destination stakeholder understanding of sustainable tourism development: a case from Thailand. *Journal of Sustainable Tourism*, 20(8), 1107-1124.



- Dang, V. C., Nguyen, V. H., Dao, B., Yang, W., Li, F., Yang, X. ... & Lu, L. (2017). A new species and new records of *Cyphostemma* (Vitaceae) from China and Vietnam based on morphological and molecular evidence. *Systematic Botany*, 42(3), 449-457.
- Dearden, P. (1991). Tourism and sustainable development in northern Thailand. *Geographical Review*, 400-413.
- Demir, K. O. K. (2014). A review on grape growing in tropical regions. *Türk Tarım ve Doğa Bilimleri Dergisi*, 1(Özel Sayı-1), 1236-1241.
- Do, V. B., Patris, B. & Valentin, D. (2007). Using group focus to study the representation of wine in Vietnam. In *SPISE* (30-42).
- Dobronauteanu, M. C. (2014). The Wine Market in Japan: An Assessment of Challenges and Opportunities for Central and Eastern European Producers. EU-Japan Centre for Industrial Cooperation, 1-20.
- Dutton, J. (2016). Winemaking in Myanmar: Identity and authenticity. In 9th Academy of Wine Business Research Conference (554).
- George, B. P. (2006). Wine tourist motivation and the perceived importance of servicescape: A study conducted in Goa, India. *Tourism Review*, 61(3), 15-19.
- Gu, Q. S. C., Qiu, H. Q. & King, B. E. M. (2016). Identifying facilitators, constraints of wine tourism for outbound Chinese tourists. In 9th Academy of Wine Business Research Conference, 549-553.
- Gu, Q., Qiu Zhang, H., King, B. & Huang, S. (2018). Wine tourism involvement: a segmentation of Chinese tourists. *Journal of Travel & Tourism Marketing*, 35(5), 633-648.
- Guo, D. L., Zhang, Q., Zhang, G. H. & Province, H. (2013). Characterization of grape cultivars from China using microsatellite markers. *markers*, 49, 164-170.
- Guo, Y., Jiao, Z., Li, L., Wu, D., Crowley, D. E., Wang, Y. & Wu, W. (2012). Draft genome sequence of *Rahnella aquatilis* strain HX2, a plant growth-promoting rhizobacterium isolated from vineyard soil in Beijing, China. *Journal of Bacteriology*, 194(23), 6646-6647.
- Hall, C. M. & Mitchell, R. (2000). Wine tourism in the Mediterranean: A tool for restructuring and development. *Thunderbird International Business Review*, 42(4), 445-465.
- Han, L. J. (2012). On the Economic Climate of Sustainable Tourism Development in China. In *Advanced Materials Research* (524,3746-3749). Trans Tech Publications.
- Hao, L., Li, X. & Cao, K. (2015). Toward sustainability: Development of the Ningxia wine industry. In *BIO Web of Conferences* (5,01021). EDP Sciences.
- Hao, L., Li, X., Cao, K. & Ma, H. (2016). Ningxia update: Government policy and measures for promoting a sustainable wine industry. In *BIO Web of Conferences* (7, 03021). EDP Sciences.
- Henkel, R., Henkel, P., Agrusa, W., Agrusa, J. & Tanner, J. (2006). Thailand as a tourist destination: Perceptions of international visitors and Thai residents. *Asia Pacific Journal of Tourism Research*, 11(3), 269-287.



- Jaykumar, V. & Fukey, L. N. (2014). *Issues and Opportunities of Niche Tourism Markets- Understanding South India Wine Tourism*. International Institute for Science, Technology and Education, 4(16), 51-59.
- Joannon, G., Poss, R., Korpraditskul, R., Brunet, D. & Boonsock, P. (2001). Water and soil pollution in vineyards of central Thailand. *Water Science and Technology*, 44(7), 113-113.
- Jouquet, P., Bottinelli, N., Podwojewski, P., Hallaire, V. & Duc, T. T. (2008). Chemical and physical properties of earthworm casts as compared to bulk soil under a range of different land-use systems in Vietnam. *Geoderma*, 146(1-2), 231-238.
- Joy, A., Belk, R. W., Charters, S., Wang, J. J. F. & Peña, C. (2018). Performance theory and consumer engagement: Wine-tourism experiences in South Africa and India. In *Consumer Culture Theory* (163-187). *Emerald Publishing Limited*.
- Ju, Y. L., Liu, M., Tu, T. Y., Zhao, X. F., Yue, X. F., Zhang, J. X. ... & Meng, J. F. (2018). Effect of regulated deficit irrigation on fatty acids and their derived volatiles in 'Cabernet Sauvignon' grapes and wines of Ningxia, China. *Food chemistry*, 245, 667-675.
- Khanal, B. R. & Babar, J. T. (2007). Community based ecotourism for sustainable tourism development in the Mekong region. CUTS Hanoi Research Centre, 1-8.
- Kontogeorgopoulos, N. (1999). Sustainable tourism or sustainable development? Financial crisis, ecotourism, and the 'Amazing Thailand' campaign. *Current Issues in Tourism*, 2(4), 316-332.
- Lacher, R. G. & Nepal, S. K. (2010). From leakages to linkages: Local-level strategies for capturing tourism revenue in Northern Thailand. *Tourism Geographies*, 12(1), 77-99.
- Lai, H. Y., Juang, K. W. & Chen, B. C. (2010). Copper concentrations in grapevines and vineyard soils in central Taiwan. *Soil Science & Plant Nutrition*, 56(4), 601-606.
- Lao-Hakosol, W. & Walsh, J. (2014). The village farm resort and winery. *South Asian Journal of Business and Management Cases*, 3(2), 179-186.
- Le, N. H., Thi Nguyen, H. M. & Van Nguyen, T. (2013). National identity and the perceived values of foreign products with local brands: The case of local wine in Vietnam. *Asia Pacific Journal of Marketing and Logistics*, 25(5), 765-783.
- Lee, K., Zhao, J. & Ko, J. Y. (2005). Exploring the Korean wine market. *Journal of Hospitality & Tourism Research*, 29(1), 20-41.
- Lee, S., Bruwer, J. & Song, H. (2017). Experiential and involvement effects on the Korean wine tourist's decision-making process. *Current Issues in Tourism*, 20(12), 1215-1231.
- Lee, T. H. & Chang, Y. S. (2012). The influence of experiential marketing and activity involvement on the loyalty intentions of wine tourists in Taiwan. *Leisure Studies*, 31(1), 103-121.
- Li, E., Liu, A., Xue, B. & Liu, Y. (2011). Yeast species associated with spontaneous wine fermentation of Cabernet Sauvignon from Ningxia, China. *World Journal of Microbiology and Biotechnology*, 27(10), 2475-2482.



- Li, S. S., Cheng, C., Li, Z., Chen, J. Y., Yan, B., Han, B. Z. & Reeves, M. (2010). Yeast species associated with wine grapes in China. *International journal of food microbiology*, 138(1-2), 85-90.
- Li, S., Kang, S., Zhang, L., Du, T., Tong, L., Ding, R. ... & Xiao, H. (2015). Ecosystem water use efficiency for a sparse vineyard in arid northwest China. *Agricultural Water Management*, 148, 24-33.
- Li, S., Kang, S., Zhang, L., Li, F., Zhu, Z. & Zhang, B. (2008). A comparison of three methods for determining vineyard evapotranspiration in the arid desert regions of northwest China. *Hydrological Processes: An International Journal*, 22(23), 4554-4564.
- Li, Y. & Bardaji de Azcarate, I. (2016). New wine world from China: An analysis of competitiveness of the wine industry in Ningxia. *XI Iberian Conference on Rural Studies*.
- Li, Y. & Bardaji de Azcarate, I. (2017). Adapting the wine industry in China to climate change: challenges and opportunities. *OENO One (Journal internationale des sciences de la vigne et du vin)*, 51(2), 71-89.
- Lia, Y. & Bardajíb, I. (2017, September). A region-level study on the competitiveness of the wine production industry in China. In *XI Congreso de la Asociación Española de Economía Agraria* (p. 419). Universidad Miguel Hernández.
- Lieu, L. N. (2010). Application of ultrasound in grape mash treatment in juice processing. *Ultrasonics Sonochemistry*, 17(1), 273-279.
- Limtong, S. & Kaewwichian, R. (2013). *Candida phyllophila* sp. nov. and *Candida vitiphila* sp. nov., two novel yeast species from grape phylloplane in Thailand. *The Journal of General and Applied Microbiology*, 59(3), 191-197.
- Lirong, H. (2011). The Prospect and Forecast of China's wine tourism in 2011. *Energy Procedia*, 5, 1616-1620.
- Lisdiyanti, P., Katsura, K., Potacharoen, W., Navarro, R. R., Yamada, Y., Uchimura, T. & Komagata, K. (2003). Diversity of acetic acid bacteria in Indonesia, Thailand, and the Philippines. *Microbiol Cult Coll*, 19(2), 91-99.
- Liu, M. H., Li, M. J., Qi, H. H., Guo, R., Liu, X. M., Wang, Q. & Cheng, Y. Q. (2013). Occurrence of grapevine leafroll-associated viruses in China. *Plant Disease*, 97(10), 1339-1345.
- Liu, N., Qin, Y., Song, Y., Ye, D., Yuan, W., Pei, Y. ... & Liu, Y. (2015). Selection of indigenous *Saccharomyces cerevisiae* strains in Shanshan County (Xinjiang, China) for winemaking and their aroma-producing characteristics. *World Journal of Microbiology and Biotechnology*, 31(11), 1781-1792.
- Liu, T. (2011). Study on the Development of Grape Wine Tourism Based on Industrial Clusters: Yantai City as an Example. In *Management and Service Science (MASS), 2011 International Conference* (1-4). IEEE.
- Lu, L., Habib, S., Barrett, R. L. & Chen, Z. (2016). A new record of the genus *Yua* (Vitaceae) from Vietnam. *Phytotaxa*, 255(3), 274-280.
- Lu, L., Wen, J. & Chen, Z. (2016). *Cayratia cheniana* (Vitaceae): an endangered new species endemic to the limestone mountains of Ninh Thuan province, Vietnam. *Systematic Botany*, 41(1), 49-55.



- Metasit, M. & Watchaneeporn, S. (2011). Sustainability Management for Wine Production: A Case of Thailand. *International Scholarly and Scientific Research & Innovation*, 5(5), 549-551.
- Muangasame, K. & McKercher, B. (2015). The challenge of implementing sustainable tourism policy: a 360-degree assessment of Thailand's "7 Greens sustainable tourism policy". *Journal of Sustainable Tourism*, 23(4), 497-516.
- Nilnond, S. (2001). Grape production in Thailand. In (Eds) M.K. Papademetriou and Dent, F. J., *Grape production in the Asia-Pacific*, 70-79. Food and Agriculture Organisation of the United Nations, Bangkok, Thailand.
- Noppé, R. P. (2012). Rise of the dragon: The Chinese wine market (Doctoral dissertation, Dissertation submitted to the Cape Wine Academy, Capetown, South Africa).
- Ogle, A. (2000). The fourth biennial conference on tourism and hotel industry in southeast Asia & Indo-China: Development, marketing, and sustainability, Chiang Mai, Thailand, June 24–26, 2000. *Asia Pacific Journal of Tourism Research*, 5(2), 82-83.
- Ohe, Y. (2013). The wine tourism in Yamanashi, Japan: valorization of local product and the territory. *Journal of Global Management Research*, 27.
- Poolsawat, O., Tharapreuksapong, A., Wongkaew, S., Reisch, B. & Tantasawat, P. (2010). Genetic diversity and pathogenicity analysis of *Sphaceloma ampelinum* causing grape anthracnose in Thailand. *Journal of Phytopathology*, 158(11-12), 837-840.
- Possingham, J. V. (2006, February). Developments in the production of table grapes, wine and raisins in tropical regions of the world. *International Symposium on Grape Production and Processing* 785.
- Sangsnit, N. (2013). Sustainable tourism development in Thailand. In UNWTO Conference on Sustainable Tourism Development (12,04,2013).
- Santoro, P. (2015). Succeeding in the Chinese market of wine. Kandidatafhandlinger/ Graduate theses [2744].
- Sarkar, S. (2010). Agri-Tourism in India: A Way of Rural Development. *Atna-Journal of Tourism Studies*, 5(1), 52-59.
- Schaefer, W. W. (2006, February). Hot climate/tropical wine making. *International Symposium on Grape Production and Processing* 785.
- Shen, F. & Cottrell, S. P. (2008). A sustainable tourism framework for monitoring residents' satisfaction with agritourism in Chongdugou Village, China. *International Journal of Tourism Policy*, 1(4), 368-375.
- Slavich, A. P., Tam, B. H. M., & Thinh, B. N. T. (2010). Managing water and nutrients in sandy soils for tree crop production in Central Coastal Vietnam. In *19th World Congress of Soil Science: Soil Solutions for a Changing World, Brisbane, Australia*, 1st-6th August.
- Sofield, T. & Li, S. (2011). Tourism governance and sustainable national development in China: A macro-level synthesis. *Journal of Sustainable Tourism*, 19(4-5), 501-534.



Sompong, M., Wongkaew, S., Tantasawat, P. & Buensanteai, N. (2012). Morphological, pathogenicity and virulence characterization of *Sphaceloma ampelinum* the causal agent of grape anthracnose in Thailand. *African Journal of Microbiology Research*, 6(10), 2313-2320.

Sripholtaen, A., Charoenchai, C. & Urairong, H. (2016). Application of microsatellite markers for identification of wine grape varieties in Thailand. *Asia-Pac J Sci Technol*, 21(1), 97-110.

Sun, H., Ma, H., Hao, M., Pretorius, I. S. & Chen, S. (2009). Identification of yeast population dynamics of spontaneous fermentation in Beijing wine region, China. *Annals of microbiology*, 59(1), 69-76.

Sutawa, G. K. (2012). Issues on Bali tourism development and community empowerment to support sustainable tourism development. *Procedia economics and finance*, 4, 413-422.

Tang, Z., Shi, C. B. & Liu, Z. (2011). Sustainable development of tourism industry in China under the low-carbon economy. *Energy Procedia*, 5, 1303-1307.

Teh, L. & Cabanban, A. S. (2007). Planning for sustainable tourism in southern Pulau Banggi: an assessment of biophysical conditions and their implications for future tourism development. *Journal of environmental management*, 85(4), 999-1008.

Thipsingh, S. (2015). Creating a Network of Youth in Sustainable Tourism Development in the Greater Mekong Sub-region Case study: Nakhon Phanom, Thailand and Khammouan, Laos PDR. *Procedia-Social and Behavioral Sciences*, 195, 1573-1582.

Tongrod, N., Jaroensutasinee, K., Tuantranont, A. & Kerdcharoen, T. (2008, August). Information Technology for Smart Vineyard. In World conference on agricultural information and IT, IAALD AFITA WCCA 2008, Tokyo University of Agriculture, Tokyo, Japan, 24-27 August, 2008 (313-320). Tokyo University of Agriculture.

Tongrod, N., Tuantranont, A. & Kerdcharoen, T. (2009, May). Adoption of precision agriculture in vineyard. In Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology, 2009. ECTI-CON 2009. 6th International Conference (2,735-738). IEEE.

Tonmanee, N. & Kanchanakool, N. (2000). Agricultural diffuse pollution in Thailand. *Water Science and Technology*, 39(3), 61-66.

Tsze, S. (2014). Comparison of Chinese and Western wine culture. *Conference collections SIC Sociosphere*, 22, 67-69.

Wang, L., Liu, J. M., Wang, L. E., Zhu, H. & Lin, J. (2018). Tourism resource assessment and spatial analysis of wine tourism development: a case study of the eastern foothills of China's Helan Mountains. *Journal of Mountain Science*, 15(3), 645-656.

Wang, R., Sun, Q. & Chang, Q. (2015). Soil types effect on grape and wine composition in Helan Mountain area of Ningxia. *PloS one*, 10(2), e0116690.

Webster, D. (2006). Supporting Sustainable Development in Thailand: a geographic clusters approach. World Bank Office, Bangkok.

Wei, M. (2013). Analysis of the wine experience tourism based on experience economy: a case for Changyu wine tourism in China. *Res J Appl Sci Eng Technol*, 5(20), 4925-4930.

Wirudchawong, N. (2012). Policy on Community Tourism Development in Thailand. *Journal of Ritsumeikan Social Sciences and Humanities*, 4(2), 13-26.



Wongnarat, C. & Srihanam, P. (2017). Phytochemical and antioxidant activity in seeds and pulp of grape cultivated in Thailand. *Orient Journal Chemical*, 33(1), 113-121.

Woraratphoka, J., Intarapichet, K. O. & Indrapichate, K. (2007). Phenolic compounds and antioxidative properties of selected wines from the northeast of Thailand. *Food Chemistry*, 104 (4), 1485-1490.

Yan, J. Y., Jayawardena, M. M. R. S., Goonasekara, I. D., Wang, Y., Zhang, W., Liu, M. ... & Bahkali, A. (2015). Diverse species of *Colletotrichum* associated with grapevine anthracnose in China. *Fungal Diversity*, 71(1), 233-246.

Yanagida, F., Sriornual, S. & Chen, S. (2008). Isolation and characteristics of lactic acid bacteria from Koshu vineyards in Japan. *Letters in applied microbiology*, 47(2), 134-139.

Yang, Y. (2017). Knowledge Transfer and Regional Evolution: A case study of the wine industry in the Eastern Foot of the Helan Mountain Region, Ningxia, China (Doctoral dissertation). Seoul National University Graduate School.

Yap, M. H. & Chen, N. (2017). Understanding young Chinese wine consumers through innovation diffusion theory. *Tourism and Hospitality Management*, 23(1), 51-68.

Ye, B. H., Zhang, H. Q. & Yuan, J. (2017). Intentions to participate in wine tourism in an emerging market: Theorization and implications. *Journal of Hospitality & Tourism Research*, 41(8), 1007-1031.

Zhang Qiu, H., Yuan, J., Haobin Ye, B. & Hung, K. (2013). Wine tourism phenomena in China: an emerging market. *International Journal of Contemporary Hospitality Management*, 25(7), 1115-1134.

Zhang, X. & Qiu, C. (2011). Research on the development of Wine Tourism Product based on the analysis of the wine tourist behavioural intentions-The case of Dynasty Winery. In *Artificial Intelligence, Management Science and Electronic Commerce (AIMSEC)*, 2011 2nd International Conference (1439-1442). IEEE.



Sustainable wine tourism and vineyards' environmental consciousness in Thailand

Mitchell Amarando*

Faculty of Environmental Management
Prince of Songkla University-Hat Yai Campus, Thailand
E-mail: ajarnmitch@gmail.com

Ilian Assenov, Ph.D.

Faculty of Hospitality and Tourism
Prince of Songkla University-Phuket Campus, Thailand
E-mail: ilianassenov@gmail.com

Parichart Visuthismajarn, Ph.D.

Faculty of Environmental Management
Prince of Songkla University-Hat Yai Campus, Thailand
E-mail: parichart298@gmail.com

Corresponding author*

Abstract

This study aimed to assess sustainable grape wine tourism industry practices and explore the environmental consciousness of the stakeholders in Thailand. As a newcomer to the wine industry and the wine tourism industry, Thailand is presently constrained to only a few working vineyards that generate grape wine for wine tourism and exportation, predominantly from Central Thailand. Hence, there has been very little research conducted in the area and there is insufficient knowledge of the environmental management of wine vineyard tourism in Thailand. A qualitative study was employed, using semi-structured face-to-face interviews with six of the nine Thai vineyard owners or managers, as well field observations by the researchers. This study identified several factors such as cost, lack of government support, lack of awareness by the vineyard owners and managers on the benefits of sustainable wine practices, as some of the variables that make it difficult for grape vineyards to practice sustainable wine tourism. These vital key issues can be addressed by the government and industrial stakeholders through innovative ideas and cooperation. In addition, government assistance can support the implementation of sustainable business practice and provide backing with the willingness for adoption of sustainable business practices in the wine tourism industry by offering various attractive subsidies including tax incentives to encourage the adoption of sustainable practices in the wine tourism industry in Thailand. This paper contributes to the limited research in Thailand and its findings provide useful information that can be used by the policy makers in addressing the economic and environmental concerns of stakeholders in the wine tourism industry of Thailand.

Keywords: Environmental management, environmental consciousness, sustainable vineyard tourism, wine tourism, oenology, viticulture, Thailand.

Introduction

Over the past decade, the attractiveness of the Kingdom of Thailand to foreign tourists has grown exponentially (Chomsri, Grossmann, Commins & Srisamatthakarn, 2012). This rise in popularity may be explained by a number of diverse reasons, the most important of which are Thailand's natural environment, its rich history, and unique national culture (Overton, Murray & Banks, 2012). It is commonly accepted that its appeal as a tourist hub is a key factor that



has contributed to the development of its emerging wine industry; indeed, there is something of a reciprocal relationship between these two areas of the economy (Commins, Asavasanti & Deloire, 2012). Nevertheless, the wine and vineyard tourism industry are still in a nascent stage and underdeveloped, compared to other Asian countries such as China and Japan (Jackson, 2008). However, nearly a dozen wineries have opened since the first one in 1995. Thailand's wine vineyards are still being discovered by oenophiles, aficionados and notwithstanding the connoisseurs of the world (Chong, 2017). As Thailand's vineyard industry is still in its embryonic stages (Commins et al. 2012), there is a dearth of peer-reviewed, empirical literature on the role of Thailand's vineyard industry with particular regard to its social and economic infrastructural development (Chomsri et al., 2012). Unlike the more popular destinations of Italy or France, tourists have not yet begun to associate the Kingdom of Thailand with wine tourism on a large scale (Commins et al., 2012) and the Tourism Authority of Thailand has only recently started promoting wine tourism. In addition, the lack of governmental support and the country's soil and climatic features can be viewed as barriers to the development of vineyards (Banks, Klinsrisuk, Dilokwanich & Stupples, 2013). These constraints have hindered the growth of the Thai sustainable wine tourism industry and currently the vineyards that generate wine for wine tourism and exportation are limited to just nine vineyards. Local growers produced approximately 450,000 tons of grapes in 2012 (Chungsiriwat et al., 2013). Unfortunately, no reliable recent data exist on the grapes and wine produced in Thailand. Although there are several large vineyards in the Kingdom of Thailand, smaller organizations form the overwhelming majority of all local wineries (Overton et al., 2012). In recent years, research has been conducted on the sustainable wine vineyard practices around the world (e.g., Zucca, Smith & Mitry, 2009; Cambourne, Macionis, Hall & Sharples, 2000; Alonso & Liu, 2012). Providing an argument in favour of sustainable vineyard practices, with finger pointing as to where the responsibility of development belongs, Gázquez-Abad, Huertas-García, Vázquez-Gómez and Casas Romeo (2015:106) say that "more education about sustainability, both for producers and tourists, should be paired with economic incentives to encourage greater sustainability".

The aim of this study is to investigate the impact of adapting a wine business culture that is centred on sustainability and environmental consciousness in Thailand. The paper focuses on Thailand as a new and still emerging wine producing and wine-charged tourism country. The findings of this study will hopefully provide a first step towards a roadmap for promoting sustainable business practice and environmental consciousness in the wine tourism industry in Thailand. Understanding the possibilities and hindrances of Thailand's vineyards and wine tourism enables one to develop suggestions in paving a way for a sustainable and productive future.

Literature Review

Vineyard tourism can be viewed as a prominent type of beverage tourism as discussed in the existing scholarly and empirical literature (Alonso & Liu, 2012). The most recent research into tourists' motivation to visit vineyards and other wine tourism sites discovered a wide range of elements and activities, which attract tourists to a certain destination. These activities include tasting wine, consuming wine, purchasing wine and learning about wine (Poitras & Donald, 2006; Jayawardena, Patterson, Choi & Brain, 2008). In turn, it is commonly accepted that wine-related factors, which include socializing, relaxation, having a day out in the relaxing country side and being entertained by vineyard activities, also draw visitors to a certain destination (Getz & Brown, 2006).

Wine, food, tourism and the arts collectively comprise the core elements of the wine tourism product and provide the lifestyle package that wine tourists aspire to, and seek to experience (Carlsen, 2004). Despite the fact that the majority of motivation studies related to culinary and

beverage tourism are aimed at food and wine, little attention has been given to the context of sustainable wine production and environmental consciousness in Thailand (Chomsri et al., 2012).

History of the vineyard industry in Thailand

Vitis vinifera were first introduced to the Kingdom of Thailand in the 17th century as a gift to King Narai (King of Ayutthaya Kingdom), from the people of France and its monarch (Chomsri et al., 2012). However, it was only in the latter half of the 20th century that the Thai wine industry started to develop with the first operations in this sector of economy dating back to 1995 (Chungsiriwat et al., 2013). Grapes were grown along the highlands of Phurua, which were then distributed to commercial markets in Japan and Europe. As the wine industry progresses, there are two major distinct wine industry regions in Thailand, Chao Phraya and Khao Yai. The sustainability of their products involves the satisfying services for the specific needs and interests of the clients. Their promotions not only focus on the wineries production but also on promoting culture through side trips to Buddhist temples, Khao Yai National Park, elephant rides, jungle safaris; while enjoying local cuisine for breakfast, lunch and dinner enhancing opportunities for locals to be trained as guides in which they can earn a living, thus promoting livelihoods and reducing unemployment.

The majority of commercial vineyards in Thailand were established around the same time – the 1990s (Hall, Sharples, Cambourne & Macionis, 2009). Thailand's nine commercial vineyards are located across the country; several areas, include: Loei, Phichit, Chiang Rai, Kha Yai, Hua Hin and Pattaya (see Figure 1). The scale of vineyard businesses in this industry ranges from private entrepreneurs' small-scale operations to large organizations' wine exports (Anderson & Wittwer, 2013). The natural environments for wine production differ across the sites due to the differences in elevation above sea level. Rainfall also varies between sites and influences mist and moisture levels (Chomsri et al., 2012). Most of Thailand's vineyard locations were chosen due to their elevation and humidity, meaning that considerable research had been put into their selection. Other locations were less well-planned and researched, which could threaten their ability to achieve high sustainability in a long-term perspective because of *Vitis vinifera* limited suitability to Thai climate (Banks et al., 2013).

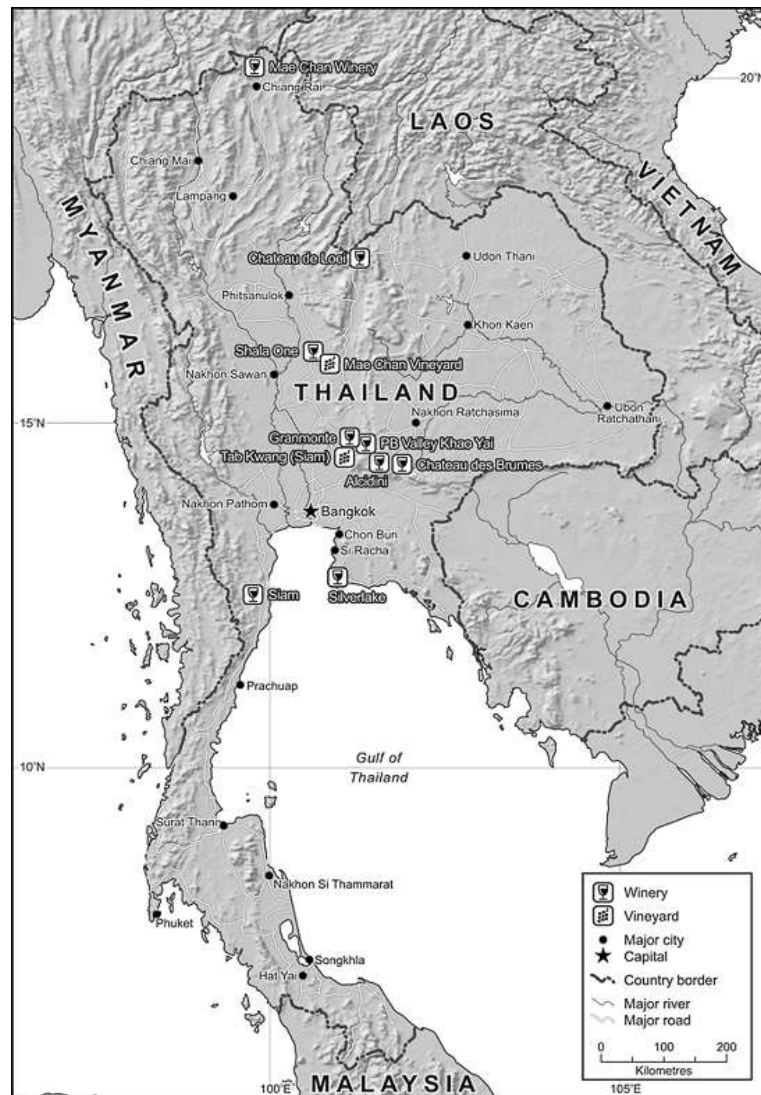


Image 1. Hua Hin Hills Vineyard

"A visit to the Hua Hin Hills Vineyard affords you the luxury of basking in the costal sunshine where you will learn more about viticulture and oenology while admiring the plush 200 rai Vineyard."

Source: http://www.winetourthailand.com/thai_wine_winery_tours/hua_hin_hills_wine_tours/hua_hin_hills_winery_tour_bk24.html

Figure 1. The Locations of Thailand's Wine Vineyards



Source <http://www.thaiwineassociation.com/>

Thai winemaking expertise in the Kingdom of Thailand is developing since more and more winemakers are being trained by French, Italian, German and Australian winemakers (Aizenman & Brooks, 2008). In accordance with Overton et al. (2012), Thai wine producers, who have received training under foreign winemakers are able to effectively manage the vineyards and wine production themselves. In addition, Thai wine producers are now actively contributing to regional and global expertise in wine production (Overton et al., 2012). However, despite the globalization of the wine industry and its growth in Thailand, there are still issues and challenges that hamper its development (Chomsri et al., 2012). As such, these issues do not allow local communities to further develop their economic and social infrastructure.

In accordance with Lee (2009), the recent growth in wine consumption in Thailand and other Asian countries can be viewed as a symbol of globalization. The researcher also emphasized that the alcoholic beverage industry is among the fastest globalizing industries in the world (Lee, 2009). There are two possible explanations for this rapid growth. First, Asian consumers have recently started to perceive that wine is a healthy alcoholic beverage, believing it does little harm to people's health, some research states it reduces heart disease when consumed



in moderate amounts, such as one glass per day (Chungsiriwat et al., 2013). Second, it is commonly accepted that Asian nations tend to imitate Western lifestyles (Friberg et al., 2011). Western countries such as the United States, France and Germany are well known for their high wine consumption. Thus, by consuming wine products, Thai consumers perceive themselves to be more 'Westernized' (Lereboullet, Beltrando & Bardsley, 2013; Corsi, Marinelli & Sottini, 2013). There is solid evidence that a wine culture is developing and growing in Thailand.

Environmentally sustainable vineyard tourism

Sustainability relates to all aspects of life. In a communal setting it is understood and accepted that there are certain functions that the environment provides to sustain life. Sustainability assumes that human needs must be met indefinitely without jeopardising organisms within the environment (van der Bank and van der Bank, 2019). One must also safeguard and control the community while maintaining the environment that sustains it.

Vineyards are usually characterized by high levels of environmental sustainability, since the process of wine production is not associated with high levels of harmful emissions (Banks et al., 2013; Park, Reisinger & Kang, 2008). Nevertheless, the sustainability characteristics of the vineyard industry are not limited to environmental issues. As argued by Chungsiriwat et al. (2013), the concept of organizational sustainability covers three key areas, namely environmental, economic and social sustainability. Just like other industries, the vineyard industry has to comply not only with governmental policies and regulations, but also with social objectives (Chomsri et al., 2012). From this perspective, the development of local communities and the vineyard industry are closely related to each other. They pursue the stakeholder approach by ensuring that the interests of all stakeholders in the industry are met through the use of collaborative networks. These collaborative networks are important in wine tourism as they ensure that it is sustainable by being conscious of the related environmental concerns.

The concept of sustainable development together with the marketing philosophies are at present used in different aspects, granting that it necessitates specific types of tourism and related niche functions like wine tourism. Studies are now more inclined into exploring impacts of the wine industry and its sustainability. Wine tourism is characterized in terms of activities with a purpose. As a case in point, visiting vineyards and wine growers, wine feast and shows that include wine tasting and social events are subjected to the features of a specific grape wine regions (Hall & Macionis, 1998; Poitras & Donald, 2006).

Sustainable vineyard tourism was defined by Getz (2000) as a combination of three well-thought-out perspectives: Consumers (travel and holiday behaviour); Wine vineyard (a distribution or sales instrument); The location in an area in which a plan of developing tourism is linked to the charm of wine, and in producing sustainable wine. Starting with the soil's productiveness, the effluences of water, and the possible use of pesticides, which could hamper the possibility of the loss of soil, and most importantly, the actual palatability of the produced wine. As such, environmentally sustainable tourism is becoming more popular with tourists all around the world (Bruwer & Alant, 2009).

The conservation aspect in a wine region refers to the product development task that deals with the teamwork initiatives and concrete planning of different entities. Specifically, those with unique resources, which include land and water, capital investments, manpower and the infrastructure that is needed to support grape production and wine the making industry. A certain type of wine development that covers activities or events for promoting wineries, themed centres, museums, villages and tour packages for a specific wine destination. These particular impacts caused by the wine tourism industry include inter alia, issues such as



congestion of traffic on roads, improvement of facilities and services offered in line with agricultural areas using up to date methods and cost-efficient patterns (Williams & Dossa, 2003).

The issue of cost is examined by Pomarici, Vecchio and Mariani (2015). They found that for wineries in California the overall economic benefits, resulting from the sustainable practices introduced by the certification scheme, outweighed the additional costs. In particular, older wineries were keener to assign a positive economic viability to sustainable practices. Furthermore, sustainable vineyard practices are highly rated by respondents in that study in terms of both perceived environmental and economic benefits. Wine tourism is found to have a role in advancing environmental sustainability, although there may not be a direct connection between tourism and the decision to engage in proactive environmental management (Leddy (2013). Wineries see positive effects from communicating their environmental sustainability to visitors in terms of building brand equity and creating what should become memorable visitor experiences. As a spillover effect, these positive effects may encourage other wineries to adopt environmentally friendly management strategies. Using wine tourism to educate visitors on the importance of environmental sustainability can also then serve to help build demand for sustainably produced wines (Leddy,2013).

Methodology

The main aim of this study was to identify the extent to which the Kingdom of Thailand can develop a sustainable wine tourism industry and environmentally conscious producers and consumers. Initially, all the nine major Thai commercial vineyards were contacted by sending them a letter and email with a request for an interview. The contact letter/email contained a brief explanation of the topic of the research, a standard definition of 'sustainable vineyard tourism' and the topics of the interview. Of the nine vineyards, six agreed to an interview. Four of them are located in Central Thailand (Khao Yai area), one in Southeast Thailand and one in the Southwest. Qualitative data were gathered by the use of semi-structured interviews with open-ended questions. Ethical considerations were observed throughout the study, and respondents remained anonymous throughout and were free to withdraw from the study at any time they saw fit to do so.

Semi-structured interviews were chosen because they allowed the respondents to present their perceptions beyond the questions captured in the interview. The questions were based on ideas by Carlsen (2004), Getz and Brown (2006), Leddy (2013) and Pomarici, Vecchio and Mariani (2015). The participants were interviewed via face-to-face interviews by the same interviewer, with each interview lasting between two and three hours. In the beginning of each interview, the interviewer made sure that respondents were aware of the standard features of sustainable vineyard tourism, to ensure that they had a good understanding of the topic at hand. In the days after the interviews, some of the respondents were contacted via Facebook or email for some clarifying questions to be answered. The gathered data were then analysed using content analysis, in order to identify major issues, attitudes and intentions regarding the introduction of sustainable environmental methods in the vineyards.

Results

The findings from the interviews on the importance of adopting sustainable vineyards indicate that most of the vineyards are averse to changes. Of the six vineyards that took part in this research study, four have not adopted sustainable vineyard practices overall and they are apparently comfortable maintaining their status quo. The overall main reason for not adopting sustainable wine practices is the cost, which they indicated is too high to maintain. Among the costs that are considered high are those of vineyard sustainable management and the initial



alternative energy layout. As an illustration, two vineyards said that sustainable practices are more labour-intensive than chemical and or mechanical agriculture. A respondent stated that it is not easy to maintain soil fertility by simply rotating the crops on limited available land, it should be chemically “enhanced” in order to provide a maximum number of crops. In addition, essentially, they do not perceive the economic benefits of sustainable practices as being more than the associated costs. They do not perceive sustainability as a way of generating new revenues. Instead they regard it as an additional expenditure that will reduce the level of their revenues. Respondents from two vineyards stated that income that is generated from sustainable farming is limiting because the land has to be used sparingly. In addition to this, one of the respondents stated that they do not regard sustainability as a method of strengthening their brand image or attaining an advantage over their competitors. The implication of these findings is that the vineyards are reluctant to adopt sustainable practices and are less convinced that they will derive economic benefits that could provide higher revenues and enhanced fame.

Five of the six vineyards are also concerned about the need to maintain the unique taste of their wines, and as such, are not willing to change, given that this would require them to alter such tastes, which may lead to a loss of their current customers. The respondents from two vineyards said that they have a unique taste in their wine, and that their customers like it and it is their desire to maintain what they perceive as a consistent and superior quality wine. Notably, one vineyard imports grape from Australia for wine production and sales in Thailand.

A respondent from a vineyard that practices a sustainable vineyard system asserts that their desire is to be as sustainable as possible to ensure that there is continuity and a sustainable future for Thailand in general. They are aware of the benefits that are associated with sustainable practices, especially with regards to the environment. They have adopted sustainable methods of managing disease, controlling pests, managing water and weeds. The vineyard considers recycling as one of the most effective ways of providing a future beneficial and reliable environment. In addition, the benefits of recycling are higher than the economic costs of the recycling process and as such, it is one of the first sustainable practices to be adopted by the vineyard. Therefore, the vineyards that started out using sustainable and environmentally friendly practices are likely to continue on that path, as the owners seem content with things the way they are. The findings make it clear that the vineyards make their decisions based on the perceived benefits and costs affecting their vineyard businesses. The vineyards that perceive sustainable practices as a source of attaining competitive advantage and strengthening their brand image have adopted them, while those that perceive it as an unnecessary additional expense, have chosen to uphold their unsustainable practices position.

Discussion

Sustainability is an important aspect for the policy makers, as they want more firms to adopt sustainable business practices. However, there is need to balance the social and environmental benefits with the overall profitability of the business enterprises in order to persuade more firms to adopt sustainable practices. From the findings of this research study, it is clear that the high implementation expenses are the main factors why vineyard businesses are reluctant to adopt sustainable business practices. The use of alternative energy to sustain the operation of the vineyards remains limited among the sampled vineyards. A possible motivation for this is the low cost of fossil fuels, which is more economical for the vineyards than the use of green energy technology such as solar panels, which only become cheaper in the long run. The government and the policy makers could make green energy more affordable, and additionally, encourage the vineyards to start using self-produced energy sources for their farms.



Lack of governmental support for the vineyard industry was identified by Cross, Plantinga and Stavins (2011) as an important factor that inhibits its growth. The situation in Thailand can be contrasted with that of another new wine producer, the Republic of India. Contrary to Thailand, as an example the Indian government is very supportive of the wine industry, which is still at the introduction stage of its life cycle (Getz & Brown, 2006). For instance, the Indian government helps to establish viticulture research centres all around the country in order to facilitate the development of the emergent wine industry (Dodd & Beverland, 2001).

Security of tenure and taxes are also among the most considerable challenges to the Thai wine industry. As the findings show, the less environmentally-aware vineyards refer to “cost” as the most hindering obstacle, followed by the quality of products produced. There is a need for the government to provide more support to the wine industry in order to persuade the vineyard owners to adopt sustainable practices. In the findings, none of the vineyards really resists the idea of sustainable practices, but they cite the different obstacles that make it difficult for them to change these practices. As it stands, the majority of the stakeholders in the wine industry perceive the costs of sustainable wine practices as being higher than the associated economic benefits. This is what has led to the low rates of sustainable wine practices among the vineyards in general.

As vineyard tourism increasingly gains momentum as a source of revenue, van der Bank and van der Bank (2017) state that it is important that countries have a comprehensive, clear and effective public policy that can suitably inform its activities relative to the sustainable development of tourism. In order to assist in facilitating this outcome the government can help the wine industry by addressing concerns through policy change, tax incentives and subsidies to ensure that the vineyard owners see the importance of adopting such sustainable practices.

In agreement with Commins et al. (2012), vineyards would benefit by an offering of tax incentives or a rebate stimulus for the practicing of sustainable vineyard farming. Providing these tax measures were implemented, the vineyard would be able to offer wine products at an affordable price to Thai consumers in order to continue to cultivate and create a wine consumption culture, which would in turn also stimulate the tourist curiosity and consumption. However, this objective cannot be achieved under the current Thai government tax regime. The current tax has increased the cost of production, thereby, leading to higher prices. Paradoxically, these difficulties have contributed to the growth of the wine tourism industry, since they have encouraged local wine producers to develop wine tourism ventures as an additional source of income. In addition, today around 10% of the population consumes wine products on a regular basis, which also proves that the Thai vineyard industry is growing, albeit from a low level (Assanangkornchai, Sam-Angsri, Rerngpongpan & Lertnakorn, 2010). Nevertheless, the Thai vineyard industry is still at its emergent stage, making it ‘invisible’ to the potential domestic and international wine lovers who tend to travel abroad to vineyards in inter alia, South Africa, France, Italy, New Zealand, Australia and the United States.

Furthermore, some of the Thai wineries recognize the importance of maintaining the quality of their wines and the health of their vines. However, these wineries have different concerns that vary depending on their location, size and their production processes. Some vineyards are located in areas with poor infrastructural support and this makes it difficult for vineyards to produce and distribute their products effectively and efficiently. Therefore, any new tax policy measures could incorporate the sustainability farming practices while educating and incorporating the locals in initiatives in order to be more effective. This could be the decisive stimulus to motivate more vineyards to join sustainability structures. These principles could be clearly expressed to the vineyards because currently, most of the vineyards are not even aware of the principles of sustainable practices. It is this lack of awareness on the economic and technical aspects of the sustainability process that is making it hard for the vineyards to



adopt sustainable practices. A better comprehension of the specific sustainable practices and their economic costs and benefits will persuade more vineyards to adopt sustainable practices.

In 2016, Thailand was visited by 32.58 million tourists representing a 9% rise. It was forecasted to rise in 2017, which it did, to 35.38 million tourists, the equivalent to half of the country's population with a revenue exceeding the prediction of \$49.8 billion. The government anticipates a steady and continued growth (Thakral & Sriring, 2018; Tempchairojana, 2017). There has been no relative statistical informational gathering of wine tourists visiting Thailand. The exceptional high number of tourists in the country has led to the exploitation of Thailand's natural resources and as a result, this has put an enormous pressure on the environment (Davis & Morais, 2004). Sakellari (2014) arrives at the conclusion that activities such as camping and trekking, which are usually undertaken in rural areas, contribute to environmental pollution. Banks et al. (2013) are also convinced that tourist hotels could spoil much of the local scenery. Poor management identified by Ajagunna and Crick (2014) as having negative impacts on rural areas is also a concern.

The lack of effective environmental management could result in Thai villages being overrun by foreign tourists with different values. As a result of these actions, local culture could be disrupted. This statement of findings correlates closely with those produced by Ogaboh Agba, Ikoh, Bassey and Ushie (2010) according to whom, local community members' culture is extremely vulnerable to foreign tourists' cultures. Although Commins et al. (2012) discovered the major obstacles facing the future development of the vineyard industry in Thailand, the researchers failed to identify specific issues and advantages for the development of the local communities. It would be interesting to examine the extent, to which the growth of vineyard tourism contributes to higher employment rates, increased income and more developed infrastructure (Climent-López, Sánchez-Hernández, Canto-Fresno, Alonso-Santos, Ramírez-García, Rodero-González, & Ruiz-Budría, 2014).

There is a need for continued government education on the local levels in the communities and villages on the need of being far more environmentally conscious and consuming a variety of products produced from the vine. Displaying vineyard products that have fewer negative impacts on the environment is critical. As people become more environmentally conscious, they are likely to prefer vineyard products made from vineyards that engage in sustainable practices. Wittwer, Berger & Anderson (2003) have shown that wine tourists can serve as a good motivation for local managers to improve their practices and make their vineyards more sustainable and customer-oriented.

The findings of this study have shown that the level of environmental awareness among the consumers in Thailand still remains low, as the producers face very little environmental queries from the consumers compared to the developed economies. Increased interest in wine that is produced using methods that are environment friendly will influence the vineyard producers' approaches towards embracing the use of sustainable wine practices. This can be done by using certification and labelling systems that show the consumers the wines that have been produced using sustainable practices such as water and energy conservation, avoiding the use of synthetic pesticides or additives, and use of renewable resources. According to Voltes-Dorta, Jimenez and Suarez-Aleman (2014), sustainable tourism industries must also meet social and economic objectives. Bearing in mind this statement, it is relevant to assume that community development and tourism development are interrelated concepts.

Conclusion

Sustainable tourism is the forward way of thinking and farm managing for any economy, including that of Thailand. Sustainable development must embrace the needs of all people



both locals and tourists, thus building upon a genuine understanding of the concerns and values. Depriving the environment of a healthy lifecycle, will diminish a prosperous future. This study identified factors such as cost, lack of government support, lack of awareness on the benefits of sustainable wine practice, as some of the variables that make it difficult for vineyards to practice sustainable wine tourism. The findings were based on interviews with managers and owners of several major Thai vineyards. Future studies can adopt a quantitative approach and they could collect data from tourists visiting the vineyards. This will help avoid the bias of this study having the vineyard owners assessing their own sustainability measures.

The issues identified in this research can be addressed by the government and industrial stakeholders through innovative ideas and cooperation. The government needs to provide strong support and a willingness for the adoption of sustainable business practice in the wine tourism industry by offering attractive subsidies and tax incentives to encourage adoption of sustainable practices in the wine tourism industry in Thailand. The findings of this study provide useful data that can be used by the policy makers in addressing the concerns of stakeholders in the wine tourism industry.

References

- Aizenman, J. & Brooks, E. (2008). Globalization and taste convergence: the cases of wine and beer. *Review of International Economics*, 16(2), 217-233.
- Ajagunna, I. & Crick, A. P. (2014). Managing interactions in the tourism industry—A strategic tool for success: Perspectives on Jamaica tourism industry. *Worldwide Hospitality and Tourism Themes*, 6(2), 179-190.
- Alonso, A. D. & Liu, Y. (2012). Old wine region, new concept and sustainable development: winery entrepreneurs' perceived benefits from wine tourism on Spain's Canary Islands. *Journal of Sustainable Tourism*, 20(7), 991-1009.
- Anderson, K. & Wittwer, G. (2013). Modeling global wine markets to 2018: Exchange rates, taste changes, and China's import growth. *Journal of Wine Economics*, 8(2), 131-158.
- Assanangkornchai, S., Sam-Angsri, N., Rerngpongpan, S. & Lertnakorn, A. (2010). Patterns of alcohol consumption in the Thai population: results of the National Household Survey of 2007. *Alcohol & Alcoholism*, 45(3), 278-285.
- Banks, G., Klinrisuk, R., Dilokwanich, S. & Stupples, P. (2013). Wines without Latitude: Global and local forces and the geography of the Thai wine industry. *EchoGéo*, (23).
- Bruwer, J. & Alant, K. (2009). The hedonic nature of wine tourism consumption: an experiential view. *International Journal of Wine Business Research*, 21(3), 235-257.
- Cambourne, B., Macionis, N., Hall, C. M. & Sharples, L. (2000). The future of wine tourism. *Wine tourism around the world: Development, management and markets*, 297-320.
- Carlsen, P. J. (2004). A review of global wine tourism research. *Journal of wine research*, 15(1), 5-13.
- Chomsri, N., Grossmann, M., Commins, T. & Srisamatthakarn, P. (2012). Research and development plan for fruit wine production in Thailand using Makiang as a case study. *Asian Journal of Food and Agro-Industry*, 5(01), 39-44.



Chong, K. L. (2017). Thailand wine tourism: a dream or a reality? *Asia Pacific Journal of Tourism Research*, 22(6), 604-614.

Chungsiriwat, G., Grossman, N. & Pichitmar, P. (2013). *Thailand at Random*. Didier Millet.

Climent-López, E., Sánchez-Hernández, J. L., Canto-Fresno, C. D., Alonso-Santos, J. L., Ramírez-García, S., Rodero-González, V. & Ruiz-Budría, E. (2014). Measuring quality conventions in the food industry: Applications to the wine sector in Spain. *Geoforum*, 56, 148-160.

Commins, T., Asavasanti, S. & Deloire, A. (2012). What is tropical wine and what defines it? Thailand as a case study. *Asian Journal of Food and Agro-Industry*, 5(2), 79-95.

Corsi, A. M., Marinelli, N. & Alampi Sottini, V. (2013). Italian wines and Asia: policy scenarios and competitive dynamics. *British Food Journal*, 115(3), 342-364.

Cross, R., Plantinga, A. J. & Stavins, R. N. (2011). The value of terroir: Hedonic estimation of vineyard sale prices. *Journal of Wine Economics*, 6(1), 1-14.

Davis, J. S. & Morais, D. B. (2004). Factions and enclaves: Small towns and socially unsustainable tourism development. *Journal of Travel Research*, 43(1), 3-10.

Dodd, T. & Beverland, M. (2001). Winery tourism life-cycle development: a proposed model. *Tourism recreation research*, 26(2), 11-21.

Friberg, R., Paterson, R. W. & Richardson, A. D. (2011). Why is there a home bias? A case study of Wine. *Journal of Wine Economics*, 6(1), 37-66.

Gázquez-Abad, J. C., Huertas-García, R., Vázquez-Gómez, M. D. & Casas Romeo, A. (2015). Drivers of sustainability strategies in Spain's Wine Tourism Industry. *Cornell Hospitality Quarterly*, 56(1), 106-117.

Getz, D. (2000). *Explore wine tourism: management, development & destinations*. Cognizant Communication Corporation.

Getz, D. & Brown, G. (2006). Critical success factors for wine tourism regions: a demand analysis. *Tourism management*, 27(1), 146-158.

Hall, C. M. & Macionis, N. (1998). Wine tourism in Australia and New Zealand. In: R.W. Butler, C.M. Hall and J.M. Jenkins (eds) *Tourism and Recreation in Rural Areas*, Sydney: John Wiley and Sons, 267-298.

Hall, C. M., Sharples, L., Cambourne, B. & Macionis, N. (2009). *Wine tourism around the world*. Routledge.

Jackson, R. S. (2008). *Wine science: principles and applications*. Academic press.

Jayawardena, C., Patterson, D. J., Choi, C. & Brain, R. (2008). Sustainable tourism development in Niagara: Discussions, theories, projects and insights. *International Journal of Contemporary Hospitality Management*, 20(3), 258-277.

Leddy, M. A. (2013). Investigating the relationship between wine tourism and proactive Environmental Management at wineries.



- Lee, K. (2009). Is a glass of Merlot the symbol of globalization? An examination of the impacts of globalization on wine consumption in Asia. *International Journal of Wine Business Research*, 21(3), 258-266.
- Lereboullet, A. L., Beltrando, G. & Bardsley, D. K. (2013). Socio-ecological adaptation to climate change: A comparative case study from the Mediterranean wine industry in France and Australia. *Agriculture, ecosystems & environment*, 164, 273-285.
- Ogaboh Agba, A. M., Ikoh, M. U., Bassey, A. O. & Ushie, E. M. (2010). Tourism industry impact on Efik's culture, Nigeria. *International Journal of Culture, Tourism and Hospitality Research*, 4(4), 355-365.
- Overton, J., Murray, W. E. & Banks, G. (2012). The race to the bottom of the glass? Wine, geography, and globalization. *Globalizations*, 9(2), 273-287.
- Park, K. S., Reisinger, Y. & Kang, H. J. (2008). Visitors' motivation for attending the South Beach wine and food festival, Miami Beach, Florida. *Journal of Travel & Tourism Marketing*, 25(2), 161-181.
- Poitras, L. & Donald, G. (2006). Sustainable wine tourism: The host community perspective. *Journal of Sustainable Tourism*, 14(5), 425-448.
- Pomarici, E., Vecchio, R. & Mariani, A. (2015). Wineries' perception of sustainability costs and benefits: An exploratory study in California. *Sustainability*, 7(12), 16164-16174.
- Sakellari, M. (2014). Film tourism and ecotourism: Mutually Exclusive or Compatible? *International Journal of Culture, Tourism and Hospitality Research*, 8(2), 194-202.
- Thakral, S. & Sriring, O. (2018). 'Thailand plans for even more tourists as numbers top 35 million'. *Reuters*, 16 January, World news Business.
- Temphairojana, P., (2017). 'Thailand Expects Tourism Revenue of Nearly \$50 Billion in 2017'. *Reuters*, 9 January Lifestyle 1.
- van der Bank, M. & van der Bank, C. M. (2017). South Africa: The need for a legal and sustainable Tourism Policy. *African Journal of Hospitality, Tourism and Leisure*, 6(2).
- van der Bank, M. & van der Bank, C. M. (2019). Rethinking our relationship to the natural environment through legally compliant sustainable tourism. *African Journal of Hospitality, Tourism and Leisure*, 8(2).
- Voltes-Dorta, A., Jiménez, J. L. & Suárez-Alemán, A. (2014). An initial investigation into the impact of tourism on local budgets: A comparative analysis of Spanish municipalities. *Tourism Management*, 45, 124-133.
- Williams, P. W. & Dossa, K. B. (2003). Non-resident wine tourist markets: Implications for British Columbia's emerging wine tourism industry. *Journal of Travel & Tourism Marketing*, 14(3-4), 1-34.
- Wittwer, G., Berger, N. & Anderson, K. (2003). A model of the world's wine markets. *Economic Modelling*, 20(3), 487-506.



Zucca, G., Smith, D. E. & Mitry, D. J. (2009). Sustainable Viticulture And Winery Practices In California: What Is It, And Do Customers Care? *International Journal of Wine Research*, 1, 189-194.

VITAE

Name Mr. Mitchell John Amarando

Student ID 5710930001

Educational Attainment Degree	Name of Institution	Year of Graduation
Master of Arts in School Counselling	Eastern University, USA	2002
Master of Education in Multicultural Education	Eastern College, USA	2001
Bachelor of Religious Education	Valley Forge Christian College, USA	1998

Scholarship Awards during Enrolment

2015 Graduate School Research Scholarship, Prince of Songkla University

Work Position and Address

Lecturer, Faculty of Hospitality and Tourism,

Prince of Songkla University – Phuket Campus.

80 Moo 1, Vichitsongkram Rd., Kathu, Phuket 83120, Thailand

List of Publications

Amarando, M., Assenov, I., & Visuthismajarn, P. (2019). A Systematic Review of Sustainable Wine Tourism Research in Asia 2000-2018. *African Journal of Hospitality, Tourism and Leisure*, 8(4), 1-24. ISSN: 2223-814X

Amarando, M., Assenov, I., & Visuthismajarn, P. (2019). Sustainable wine tourism and vineyards' environmental consciousness in Thailand. *African Journal of Hospitality, Tourism and Leisure*, 8(3), 1-13. ISSN: 2223-814X