

## **Sustainable Ecotourism: The Case of East Malaysia**

**K. Jayaraman\*, Soh Keng Lin, Li Lian Yap and Wooi Leng Ong**  
Universiti Sains Malaysia, Penang, MALAYSIA

The paper highlights sustainable ecotourism in East Malaysia and focuses on the tourism environment of Sabah and Sarawak, the two states in East Malaysia. It describes the pattern of the monthly international tourist arrivals for 2002 to 2009, and it identifies the peak and lean periods of visitors for East Malaysia by using seasonal decomposition procedures. The paper concludes with the strategic impacts and policy recommendations of tourism development towards sustainable ecotourism for the industry players as well as policy makers.

**Keywords:**

Ecotourism, socio-demographic variables, international tourist arrivals, seasonal decomposition.

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\*Email: [dr\\_kjraman@usm.my](mailto:dr_kjraman@usm.my)

## Introduction

Sustainable tourism is vital to ensure that the tourist attraction sites are managed and executed in a proper manner<sup>1</sup>. Tourism comprises many forms of recreation. It includes agritourism, ecotourism, culinary tourism, heritage tourism, medical tourism, religious tourism, cultural tourism to space tourism and war tourism. Eco-friendly tourism or ecotourism, however, is defined as tourism products and services provided which are not harmful to the environment and perceived to minimize the harmful effects on the natural environment and its inhabitants. Climate change is a growing concern that may hinder tourism development projects in tandem with user friendly tourist concepts.

Several subsectors of an economy are overlapped and complemented among the tourism products served. For example, the tourism industry involves hotel services for proper accommodation, logistics for easy accessibility, and information services as an one-stop information center for tourist to be well-informed on where to see, what to do and what to eat in the state. All these subsectors must take into account sustainability and environmental-friendliness when constructing eco-friendly tourism sites. Building more green and open air hotels, avoiding night time and winter season flights and staying for longer periods may be important steps for an eco-friendly visit.

Of late, the tourism industry has emerged considerably to be one of the prominent sectors to contribute towards national growth as well as that of the regional economy, especially for developing countries like Malaysia. According to United Nation World Tourism Organization (UNWTO), the overall export income generated by these arrivals (international tourism receipts and passengers transport) exceeded US\$ 1 trillion in 2007, or almost US\$ 3 billion a day. International tourism receipts rose to US\$ 856 billion (625 billion Euros) in 2007. Receipts from international passengers transport are estimated at US\$ 165 billion, bringing the total international tourism receipts which also included international passengers transport (i.e. visitor exports) to over US\$ 1 trillion, corresponding to almost US\$ 3 billion a day. In terms of region, the relative growth in real terms, with the adjustment of fluctuated exchange rate and inflation, was strong in Asia and the Pacific (+11%), in Africa (+8%) and in the Americas (+6%).

## Projected growth in worldwide tourism

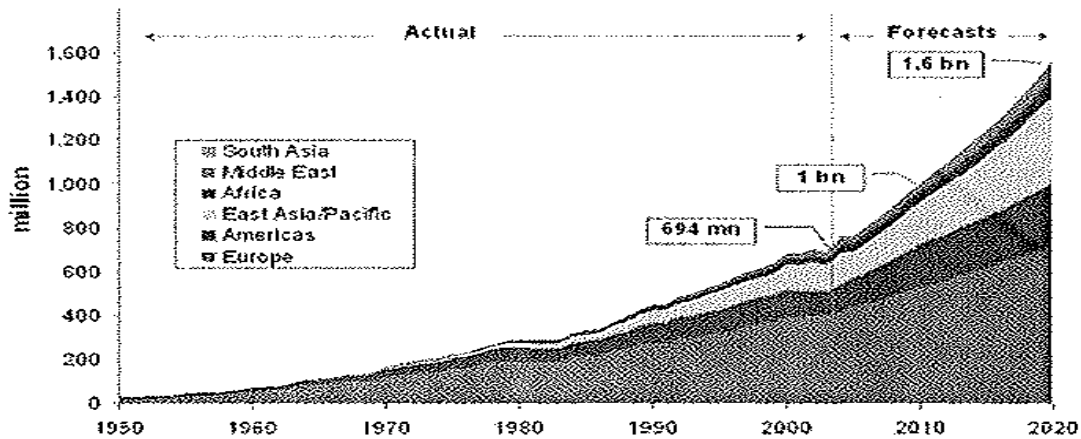
The World Tourism Organization forecasted and assessed the development of tourism in their Tourism 2020 Vision, which covers a 25-year period from 1995 and includes a forecast for 2010 till 2020. The development of tourism has been irregular the last few years but UNWTO maintained its forecast as the underlying structural trends do not show significant change. Experience shows that in the short term, periods of faster growth (1995, 1996 and 2000) alternate with periods of slow growth (2001 to 2003). While the pace of growth till 2000 actually exceeded the *Tourism 2020 Vision* forecast, it is generally expected that the current slowdown will be compensated in the medium to long term<sup>2</sup>.

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<sup>1</sup>World Tourism Organization (2003) defines sustainable tourism as “tourism which leads to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support system”.

<sup>2</sup>World Tourism Organisation – Tourism 2020 vision, <http://unwto.org/facts/eng/vision.htm> (Accessed 29 Nov 2009)

Figure 1: Tourism 2020 vision



Source: World Tourism Organization

Tourism 2020 Vision forecasts that international arrivals are expected to reach nearly 1.6 billion by the year 2020. It projected that of the worldwide arrivals in 2020, 1.2 billion will be intraregional and 378 million will be long-haul travelers. The total tourist arrivals by region projected by the 2020 vision indicates that the top three receiving regions will be Europe (717 million tourists), East Asia and the Pacific (397 million) and the Americas (282 million), followed by Africa, the Middle East and South Asia<sup>3</sup>.

Figure 2: Tourism 2020 Vision forecast

	Base Year	Forecasts		Market share (%)		Average annual growth rate (%)
	1995	2010	2020	1995	2020	1995-2020
	(million)					
World	565	1006	1561	100	100	4.1
Africa	20	47	77	3.6	5.0	5.5
Americas	110	190	282	19.3	18.1	3.8
East Asia and the Pacific	81	195	397	14.4	25.4	6.5
Europe	336	527	717	59.8	45.9	3.1
Middle East	14	36	69	2.2	4.4	6.7
South Asia	4	11	19	0.7	1.2	6.2

Source: World Tourism Organization

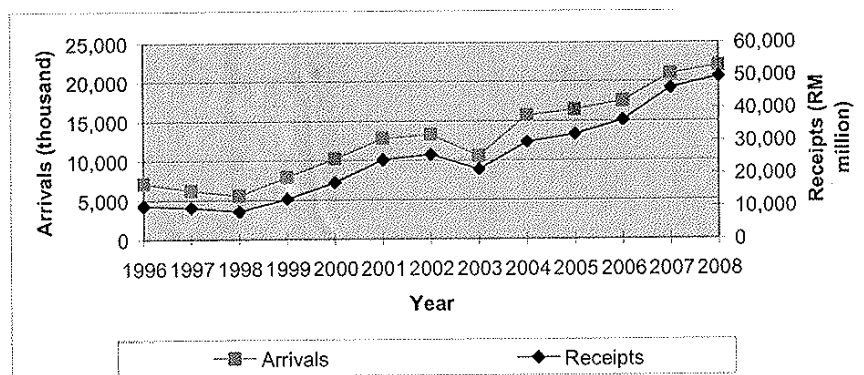
<sup>3</sup>World Tourism Organisation – Tourism 2020 vision, <http://unwto.org/facts/eng/vision.htm> (Assessed 29 Nov 2009)

Travelling within and outside the country has become a global phenomenon. The tourism industry has become one of the most lucrative, commercialized and biggest GDP contributors for many countries today. Traditional mass tourism is still prevalent, however it is evolving into a “new tourism” often called responsible, soft, alternative green, or sustainable ecotourism. The future of the tourism market includes cultural tourism, health, wellness and spa; nature-based; educational; wildlife; geo-genealogic; gastronomic or food and wine, photographic, volunteer; virtual; experiential; space; ethical or moral and community.

For Malaysia, although manufactured goods has been leading the foreign exchange earnings from past to current decades, the tourism sector has registered an increase of RM4.1 billion in foreign exchange earnings from RM46.1 billion in 2007 to RM 50.2 billion in 2008, up 7.6%. This sector is ranked as the second largest contributing sector to the Malaysian economy. The outstanding performance is mainly attributed to the continual aggressive “Malaysia, truly Asia” advertising campaign and promotions implemented in conjunction with the Visit Malaysia Year 2007. Malaysia received 22.05 million tourists from all over the world, surpassing the 21.5 million target set by the government under the Ninth Malaysia Plan.

Malaysian tourist arrivals and tourist receipts have been moving along the same direction from 1996 to 2008 (Figure 3). Both tourist arrivals and receipts grew negatively in 1997 and 1998 with 13.0% and 10.6% decrease in tourist arrivals respectively, due mainly to the Asian financial crisis that occurred in the middle of 1997. Many foreign as well as local tourists reduced their spending in travelling as it was considered as luxury goods and services in economic terms instead of necessity goods. However, tourist arrivals and receipts recovered in 1999 with an increase of about 43% compared to that of 1998. The number of tourist arrivals and the amount of tourist income then escalated steadily from 1999 to 2001. Nevertheless, the trend moved at a slower pace in 2002 due to the September 11 terrorism attacks on the United States. During that time, many travelers, especially those from US and Europe, were afraid to fly. A huge slump in tourist arrivals and receipts emerged in 2003 due to the sudden outbreak of the SARS epidemic that started in Hong Kong and spread throughout South East Asia. Deceleration was then expected to occur in 2009 as a result of the global economic crisis which started during the second half of 2008. The initial negative impact was felt in many industries, especially the manufacturing and electronics industries, during the final quarter of 2008 and in the early quarters of 2009. However, tourism was not as badly affected as the manufacturing industry as the tourist arrivals show slower positive growth throughout the first two quarters of 2009.

**Figure 3: Tourist Arrivals and Receipts to Malaysia, 1996-2008**



Source: Key Performance Indicators 2009, Tourism Malaysia.

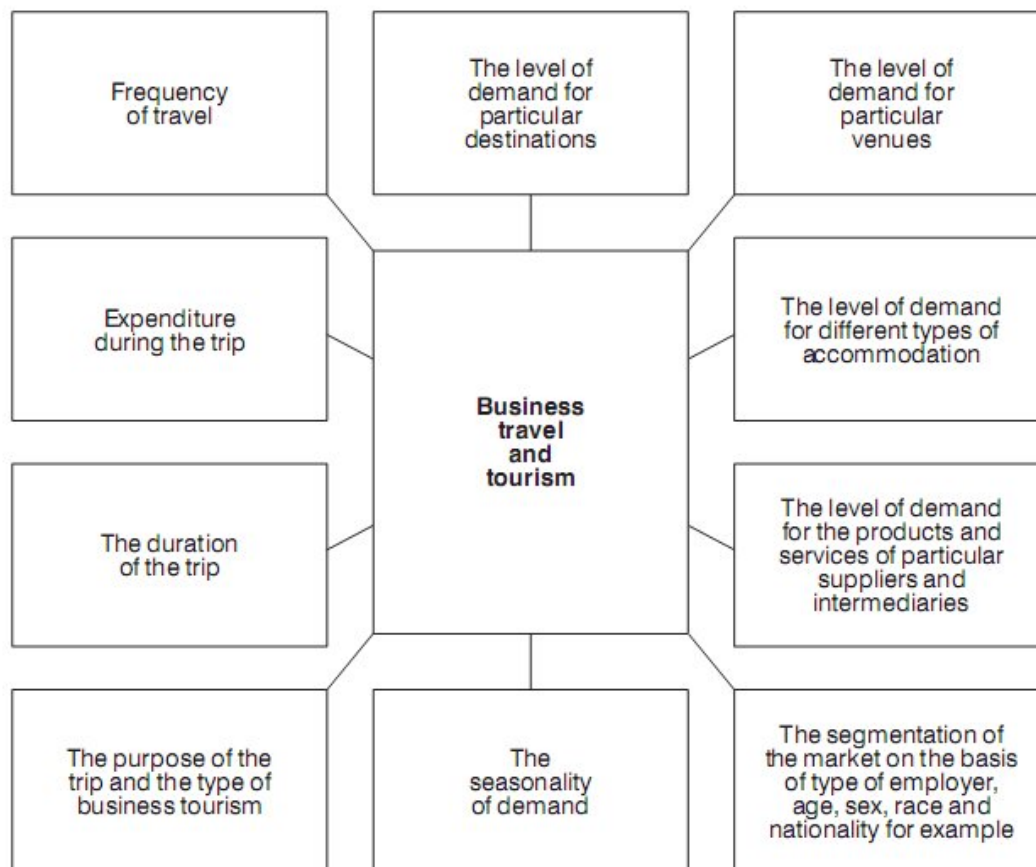
## Objectives of the study

This paper attempts to examine the role of the tourism industry in terms of sustainability and viability. The paper examines the socio-demographic and geographic background of East Malaysia and studies the trend of the monthly tourist arrivals, and identifies the peak and lean periods of international tourist arrivals for East Malaysia by using the seasonal decomposition procedures. The impact and policy recommendations for tourism development towards the sustainable ecotourism are suggested to the industry players as well as the policy makers.

## Review of literature

The business of tourism has a number of dimensions. These dimensions can be categorized into a number of ways as seen in Figure 4 below:

**Figure 4: Dimensions of demand of business travel and tourism**



Source: Swarbrooke and Horner (2001)

These demands of business travel and tourism are influenced by a broad range of factors. These factors are the forces that will influence the demand of tourism to generating region and a particular destination. The economic, environment and social indicating factors will be discussed below.

## **Economic indicators**

### **Exchange income**

As studied by Lee and Chang (2008) and Lau et al. (2008), tourism development is an emerged sector in the current economy scenarios as it increases foreign exchange income, creates employment opportunities and triggers overall economic growth. Habibullah and Dayang (2008) also showed, using the cointegration and two-way causality tests, that the growth of the state of Sabah was largely affected by the growth of the bordering country/states Brunei Darussalam, Sarawak and Kalimantan Timur. Altman (1988), Johnston (1990), Smith (1989), Leong (1997), Xie (2001) and Yang and Wall (2009) found that ethnicity was commonly involved in tourism planning as it is a source of income generation and foreign exchange to a country. Naude and Saayman (2004) discovered that the exchange rate between the currencies of the destination and origin country is also important.

### **Income level**

Naude and Saayman (2004) indicated that income levels affect the ability to pay for overseas travel. Nominal or real per capita disposable or national income is often used as a proxy of a country's income. From the result of the tourism average income multiplier, tourist expenditure is related to the creation of local incomes in the form of salaries, wages, profits, rents and interest; it is also shown that the nature of tourism industry is relatively categorized under the high wage intensive sector (Nurul et al. 2009).

### **Standard of living**

Different levels of living standard may affect whether or not tourists visit a country. A number of studies have been done on the significance of this indicator towards the development of tourism. Altman (1988), Johnston (1990), Smith (1989) and Xie (2001) indicated that ethnic tourism would lead to a higher level of living standard.

### **Employment opportunities**

Alternatively, Altman (1988), Johnston (1990), Smith (1989), Xie (2001) and Eilat and Einav (2003) also pointed out that tourism industry would provide economic benefit in terms of greater employment opportunities. Tourism could also generate more employment and improve entrepreneurial opportunities for marginalized community groups (Van and Berghe 1992). In terms of employment multiplier, tours and transportation and shopping generated the highest amount of employment.

### **Relative prices of goods and services**

According to Naude and Saayman (2004), the relative prices of goods and services purchased by tourists in the origin and target destinations influence tourist expenditure. This indicator is usually represented by the consumer price index ratio. Christie and Crompton (2001) discovered that competitive tour packages to a particular destination depends greatly on relative prices. For example, airfare and hotel costs may significantly affect the price of tour packages.

## **Natural and physical environment**

### **Livability of local community**

Castellani and Sala (2009) indicated that sustainable tourism development policies are important and useful to encourage new forms of business. Sustainable performance index was used as a measurement tool to mainstream sustainability in order to minimize the adverse effects on the environment and promote the conservation of local and traditional values. Kara et al. (2003) revealed that the quality of the physical environment is positively related to the tourism revenue in Turkey. The study also found that more efforts are needed to improve and support the policies that will stimulate economic development.

### **Social, culture, history and heritage**

Promotion of cultures, arts, performances and festivals are some of the ways to strengthen ethnic identity in tourism industry (Graburn 1989; Van and Berghe 1992; Jamison 1999; Yang and Wall 2009). Specifically, Van and Berghe (1980, 1992 and 1994) and Yang and Wall (2009) pointed out that tourism often constitutes a form of family relationship, particularly in developing countries. The study of Kahn (1997) and Yang and Wall (2009) revealed that celebrations of ethnic diversity constitute an important aspect to tourism and is a beneficial area to promote. Through the promotion of tourism, an ethnic group can be a niche market so that international tourists are aware of and support the said ethnic group, its history and its culture. To position Penang, Malaysia along sustainable lines, Richard (2009) mentioned that Penang's heritage tourism has to remain UNESCO-worthy and compliant in the longer term.

### **Personal safety and political stability**

According to cross-sectional data results, Gauci (2002) and Naude and Saayman (2004) indicated that political stability was a significant indicator for international tourists, particularly those arriving from the Americas and Europe. Eilat and Einav (2003) found that tourism demand in both developed and developing countries is significantly affected by the political risk of a country. Public health services and fears of personal safety also contributed to the decision making process of visiting a country. These obstacles degrade the image of a country, and draw poor perceptions from and cause conflicts for tourists.

### **Economic facilities**

Lack of banking system services and communication facilities would be a significant factor in tourism development (Cleverdon 2002). Shopping facilities in a town area are another important tourism service. Some travelers would seek out shopping paradises, especially shopping complexes which are different from the shopping complexes found in the travelers' countries of origin.

### **Hospitality**

Rashid and Bashir (2004) found that hotels and restaurants would be potential sectors in tourism. Tang and Jang (2009) analyzed the relationships between the performance of tourism related industries i.e. airlines, casinos, hotels and restaurants and the GDP in US by applying cointegration and Granger causality tests. The results suggested that the revenue of

tourism related industries are potentially affected by economic development in the long run. However, Chen (2007) indicated that the stock prices of hotels do not have long run equilibrium with the GDP in China. Nevertheless, the economic performance could vary from industry to industry. Thus, individual tourism industries may have different causal relationships with GDP. In addition, several studies also focused on the performance of tourism related industries, namely the restaurant industry (Choi 1999), hotel industry (Choi 2003) and the airline industry (Guzhva and Pagiavlas 2004).

### **Information technology and networking**

Information technologies (ITs) provide various functions to the development of tourism industry. It has become an increasingly important marketing and management tool for travel agents and travelers to search for appropriate information. ITs transform the strategic position of organisations by altering their efficiency, differentiation, operational cost and response time (Dimitrios 1998). Besides, the information-intensiveness of the tourism industry means that the internet and web technology has a vital role in promoting and marketing a destination (Bill et al. 2002). Booking air tickets and guest rooms are cheaper compared to walk-in purchases. These are emerging marketing strategies that need creative and innovation management for survival in the competitive market. However, traditional distributional channels by travel agencies are also important and both online and traditional distributional channels should co-exist in the future (Law et al. 2004).

### **Logistics**

Easy access to bus stands, airports and hotels is crucial to ensure and enhance the number of tourist arrivals and tourism revenue to a destination (Stephen 1978). Good and clear signage on bus schedules and directions to hotels/airports, with international and major languages, are important so that tourists are able to access the places comfortably and conveniently. Proper bus services and educated bus conductors/drivers could assist visitors and introduce places of interest. Maintenance of buses and airports should also be constantly carried out.

### **Sustainable ecotourism**

The developmental aspects of tourism should be economically, socially and environmentally sustainable. The challenge to ecotourism in any country or region is to develop its tourism capacity and the quality of its tourism products without adversely affecting the environment that maintains and nurtures it. This involves the location and level of ecotourism use which does not cause harm to natural areas. There are many advocates of the need to integrate environmental conservation with tourism development (Romeril 1985; McNeely et al. 1988). According to Wight (1993), the partnership between tourism and conservation takes many forms including:

- Donation of a portion of tour fees to local groups for resource conservation
- Education about the value of resources
- Opportunities to observe or participate in scientific activities
- Involvement of locals in the provision of support services or products
- Involvement of locals in the explanation of cultural activities
- Promotion of a tourist or an operator code of ethics for responsible travel.



## **Research methodology**

This research will tap on existing data already available from Tourism Malaysia, Ministry of Tourism and Heritage Sarawak and Ministry of Tourism, Culture and Environment Sabah.

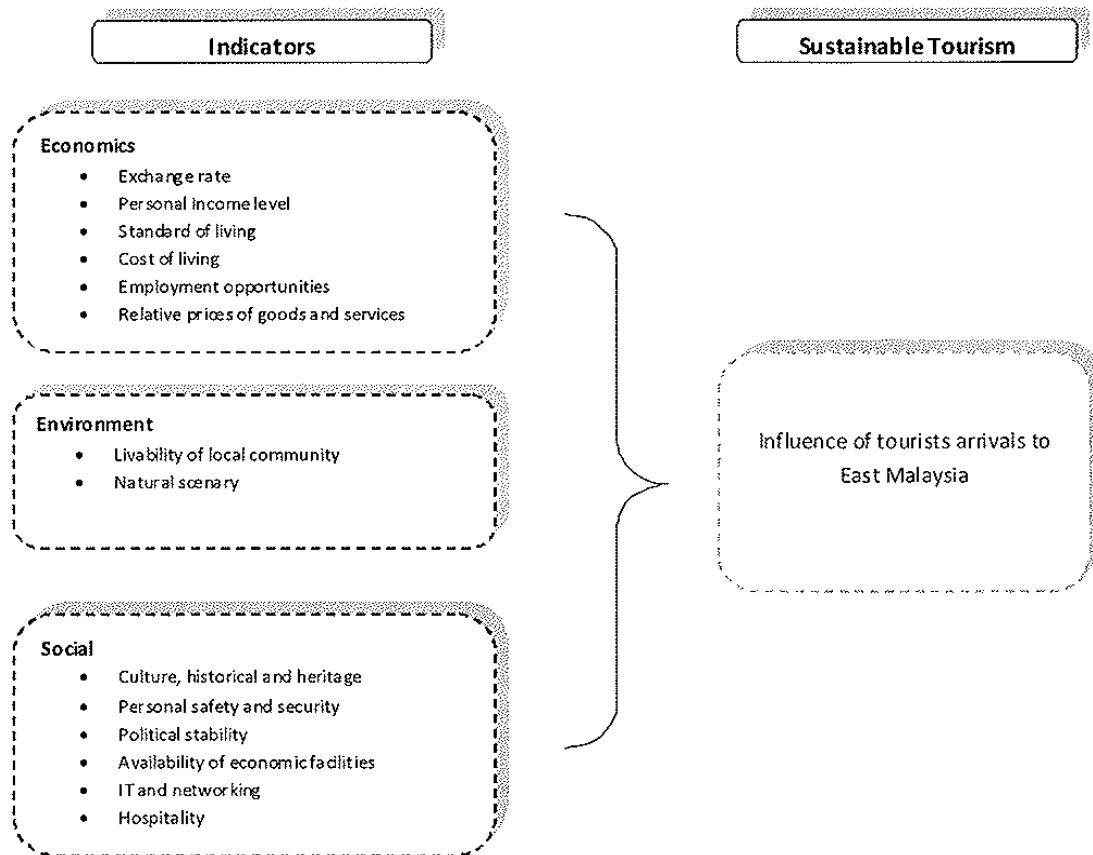
### **Existing data on tourism**

The process of gathering data began with the compilation of the state tourism agencies' directories, comprising 13 states and 2 Federal Territories in Malaysia, by searching through the web page of Tourism Malaysia. The management and operational research of Tourism Malaysia is decentralized towards the independent tourism bodies in each state and territory in order to develop a comprehensive database for the current study. Data such as international arrivals and tourism revenue data was gathered from Ministry of Tourism and Heritage Sarawak and Ministry of Tourism, Culture and Environment Sabah websites.

An attempt was also made to search the data from the webpage of all the states and federal territories in Malaysia. It was found that Sabah Tourism Board has a well-established database in which international visitor profiles and statistics are available on the webpage itself. The webpage is written in five languages (English, Bahasa Malaysia, Chinese, Japanese and Korean); this enables visitors to choose whatever language comfortable to them. The sites contain fundamental information on where to eat, what to see, what to do and where to stay.

Socio demographic and geographic data on Sabah and Sarawak were gathered for background information. The international tourist arrivals for Sabah and Sarawak were gathered from the official state ministry website. The data available on both states varied in terms of time period. The data available for Sabah were from 1998 to 2009 and the international visitor profile data was available from 2002 to 2009, whereas for Sarawak, visitor arrival statistics were available from 1992 to 2009. The visitors' arrival data were then imported into the SPSS statistical package to carry out analysis of seasonal decomposition. This study is based on the following research framework whereby the economic, social and environment factors influence the demand of tourism to a generating region and a particular destination.

Figure 5: Research Framework



## Significant findings and results

### Socio-demographic and geographic backgrounds of Sabah and Sarawak

Sarawak is the largest state in Malaysia, located in East Malaysia on the island of Borneo with an area of 123,156 square kilometers. Its population is not sufficiently outsized compared to other states in Malaysia such as Sabah (3,131.6 thousand), Selangor (5,071.1 thousand) and Johor (3,312.4 thousand). Over 65 per cent of the land in Sarawak is mainly covered by the tropical rainforest. Sabah, on the other hand, is adjacent to Sarawak, with an area of 74,876 square kilometers and tropical rainforest covers nearly 58 per cent of the land. Sabah and Sarawak own many national parks when compared to other states in Malaysia.

According to Tourism Malaysia (2008), out of 22.05 million of total tourist arrivals, only about 4.5% visited the national parks in Malaysia in 2008. 65.1% were domestic visitors and the remaining 34.9% were foreign visitors. In other words, over 900,000 tourists were visitors to national parks, out of which 586,000 were domestic visitors and 314,000 were foreign visitors. These proportions might be a healthy sign to the tourism industry as it can be seen that the national parks received great support from domestic visitors. Sabah appeared to be the leading state that received the highest number of visitors, even though the national parks in Sabah are fewer in number than that of Sarawak. However, national parks in Peninsular Malaysia only attracted 6.67 per cent of the total visitor arrivals, showing the

attractiveness of natural greenery and breathtaking environment in Sabah and Sarawak (Exhibit 1 and 2).

In terms of sex ratio, Sabah and Sarawak recorded 106 males per 100 females and 105 males per 100 females respectively. Also, Sabah and Sarawak have unique ethnicities not found in other states of Malaysia. In Sabah, nearly 75 per cent of the total population is of native origin and about 25 per cent of them are non-citizens, which is a relatively high percentage compared to Sarawak (3.8%). Sabah comprises the following races: Malay (12.1%), Kadazan/Dusun (17.3%), Bajau (13.3%), Murut (3.3%) and Chinese (9.5%). Sarawak comprises 22.3 per cent Malay, 2.9 per cent Iban, 5.6 per cent Melanau, 8 per cent 5.6 per cent of Bidayuh, 25.4 per cent Chinese and 0.4 per cent others. This shows that Sarawak has more Malay and Chinese people compared to that of Sabah.

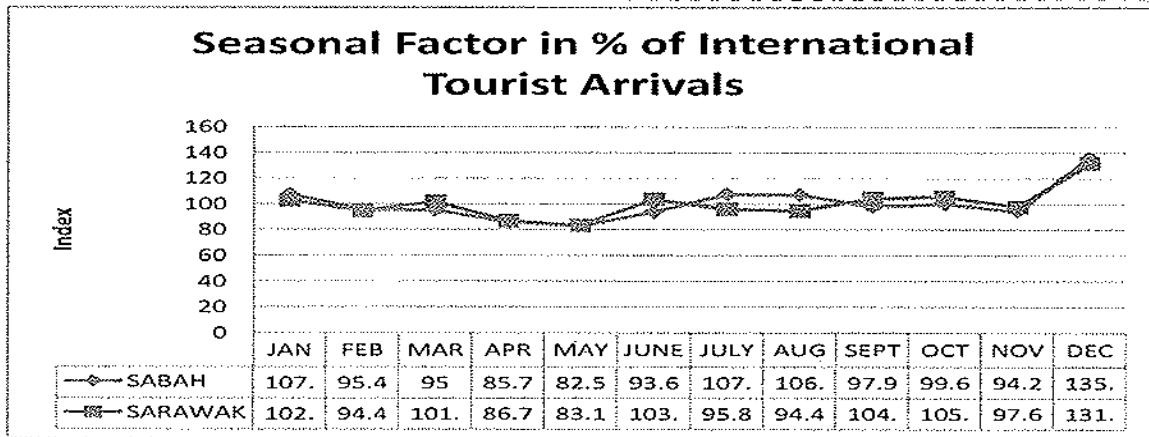
### **Focus of tourism industry in Sabah and Sarawak**

The seasonal variation index is calculated using the multiplicative decomposition moving average method for the different periods considered for each state, namely Sabah and Sarawak. The seasonal fluctuation index for the two states is provided in Figure 6. On the whole, the seasonal variation shows that Penang international tourist arrivals oscillates around the base value of 100% throughout the year from 2002-2007 whereas Sabah and Sarawak have a high spike in December for the period considered. Comparably, the seasonal variations of international arrivals for these states move closely along the same direction all year, except for July until October in which Sarawak attracts lesser international tourists during July and August, but lures more international tourists during September and October compared to Sabah.

Interestingly, the results show that Sabah only receives more tourists during January, July, August and December. However, both states experience the highest international tourist arrivals during December with 135.3 and 131.2. Although it is not encouraged to visit Sabah and Sarawak during the year end due to the rainy season, many still turn up to visit these places for the unique floral and fauna, diverse culture and ethnicities and a vast variety of handicrafts.

In terms of lean periods, the minimum arrivals for Sabah and Sarawak occur during May, with values 17.5% and 16.9% respectively lower than the base value. This is possibly due to the South West Monsoon in Sabah and Sarawak during May which falls during the end of January or early of February every year.

Figure 6: Seasonal Factor (in %) of International Tourist Arrivals



### Comparison between Sarawak and Sabah on tourist-generating countries

The top ten tourist-generating countries are chosen based on the number of residents from the origin country who most visit the states of Malaysia based on the time period considered. Grouch (1994) and Naude and Saayman (2004) revealed that the demand of international tourism varies across nationalities since cultural difference affect travel behavior. The top ten tourist-generating countries are thus identified and the results are provided in Table 1. From the overall perspective, it is shown that all the states received more tourists from neighbouring countries such as Indonesia, Singapore, Brunei and Philippines. In particular, Brunei and Indonesian residents are more likely to visit Sarawak.

Indonesian tourists are more likely to visit Sabah compared to Malacca and Sarawak. This might be due to the fact that Sumatra Island and Kalimantan of Indonesia are located close to Sabah. About 26 per cent of the total international tourist arrivals in Sabah originated from Indonesia in 2008.

On the other hand, Brunei ranked first place for visiting Sarawak. This is a rational result as Sarawak shares a border with Brunei and therefore, Bruneians have a higher tendency to visit Sarawak for business and holiday purposes. A higher currency exchange rate for the Bruneians may be a crucial factor in them to visit Sarawak as it enables them to obtain and enjoy more products and services.

**Table 1: Top Ten Ranking Tourist-Generating Markets**

Top Ten Ranking for Tourist Generating Markets		
1st	INDONESIA	BRUNEI
2nd	CHINA & HONG KONG	INDONESIA
3rd	KOREA	PHILIPPINES
4th	PHILIPPINES	SINGAPORE
5th	BRUNEI	CHINA & HONG KONG
6th	JAPAN	UNITED KINGDOM
7th	TAIWAN	THAILAND
8th	UK & IRELAND	AUSTRALIA
9th	AUSTRALIA	INDIA
10th	SINGAPORE	BELGIUM, LUXEMBOURG, NETHERLAND

### **Environmental impacts**

The indicators given in Section 4 represent the increase in international tourist arrivals to East Malaysia. As both Sabah and Sarawak are blessed with bountiful natural treasures, from the tropical rainforests, friendly tribal people, underwater sites, cave adventures, tropical wildlife creatures and plants, it is important therefore to foster sustainable ecotourism. However, if sustainable ecotourism development is to occur, trade-offs are inevitable and often nature will be the loser. The best ecotourism will foster environmental conservation and cultural understanding (Harrison 1997). However, Dowling (1997) identifies five key principles to ecotourism: nature based, ecologically sustainable, environmentally educative, locally beneficial and generates tourist satisfaction. Some of the ecologically sustainable activities to be developed for East Malaysia are listed below:

### **Trampling**

Trampling of vegetation is a universal problem which causes both damage to soil and vegetation. It can take place when visitors wander away from trails and pathways to take a photograph or pursue a particular animal. Both Sabah and Sarawak have UNESCO World Heritage sites. In the case of Sabah, these sites could be the Crocker Range Park in Keningau, a protected area for jungle trekking or four-wheel drive excursions, or the Sepilok Orang Utan Rehabilitation Centre, Sandakan, where visitors have opportunities to see orang utans up close. In the case of Sarawak, it could be the Bako National Park, where one can follow a proboscis monkey trail or the Semenggoh National Park which houses various faunas, floras and large bird inhabitants.

### **Access roads and trails**

The negative impact frequently associated with roads and traffic include clearing and road construction, sediment and pollutant runoff, weed invasion and disturbance to wildlife due to noise. Reijnen et al. (1995) asserted that noise is likely to be the most important factor in reducing bird densities close to roads. This factor should be taken in consideration by the national park rangers when breeding hornbills in Sarawak.

Hiking trails are an important means of access to facilitate the recreational experience in many natural landscapes. Trails also serve to focus visitor attention, helping to prevent more dispersed and randomized soil erosion and trampling of vegetation. Leung and Marion (1996) pointed out that degradation of trail resources, through multiple treads, track widening, root exposure and soil erosion (track deepening) is an increasing problem worldwide. With the existing trails degrading, park rangers should consider creating additional trail networks to ensure the sustainability of the national parks.

### **Facilities**

Accommodation and shelter ranging from simple overnight huts, campsites to resorts and hotel developments provide continuous focal points of activity. The site clearance for these facilities may result in substantial sources of disturbance to the natural habitat in the nature reserves, with physical impacts on soil, vegetation, wildlife as well as social impacts (Hammit and Cole 1998).

### **River banks, lakes and reservoirs**

Tourism and recreation activities may take place along river banks and amongst riparian vegetation; these include access viewpoints, fishing, boat launching, camping and access for wading, tube floating and swimming. The major impact arising from these are trampling and destruction of the line of riparian vegetation, loss of vegetation, river bank erosion and pollution (Hammit and Cole 1998). Rivers are the only way to access the interiors of Sarawak, as most towns and villages are built beside rivers. Most of the native tribes at the rivers are the Dayaks. The Kinabatangan River in Sabah stretches 560 kilometers from the mountains of Southwest Sabah to the Sulu Sea, east of Sandakan. The ecology of the river is severely damaged and disrupted by logging and land clearing. The local governments should minimize activities that endanger ecology by the river banks in order to maintain sustainability.

### **Coastal areas**

The coast line consist of beaches, mangroves, salt marshes, mud flats and rock pools, which attract many visitors who engage in a variety of activities – bathing, swimming, boating, recreational fishing and excessive collecting of shells and organisms from rock pools. These can lead to depletion in local fauna and flora resources. A combination of sunbathing, picnicking and swimming can result in litter and human waste, which in turn can lead to water contamination. Contamination of water also takes place in the form of suntan oils, sunscreens, soap and bacteria derived from human skin (Liddle 1997). The local governments should legislate these areas as protected areas to maintain sustainability. Therefore, tourism planning frameworks are crucial to manage protected areas for the sustainability of ecotourism.

Some examples of recreation/tourism planning frameworks, which local governments could look into to build a more sustainable ecotourism for East Malaysia, are given below:

1. The Recreation Opportunity Spectrum (ROS) was developed in the 1970s by researchers associated with the United States Forest Service (Clark and Stankey 1979).
2. The Limits of Acceptable Change (LAC) planning framework builds on and goes beyond ROS to set measurable standards for managing recreation in natural areas (Stankey et al. 1985).
3. The Visitor Impact Management (VIM) planning framework was developed for national parks by researchers working for the US National Parks and Conservation Association. (Graefe et al. 1987). Similarly to LAC, VIM was developed as an alternative to carrying capacity; however it was intended to be simpler, narrowing the focus to visitor impacts.
4. The Tourism Optimization Management Model (TOMM) was developed in the 1990s by the Sydney-based consulting firm Manidis Roberts, through application to Kangaroo Island off the coast of Southern Australia (McArthur 2000).

## **Conclusions**

The State Tourism Action Council may organize more events and activities during the lean periods and extend the promotion of the state tourism preliminary to our neighboring countries such as Brunei, Thailand and Indonesia. For instance, Sabah should showcase its natural national parks to Kalimantan, Indonesia and Brunei from February to June and from September to November as Sabah receives less international arrivals within these periods. It is also important to promote the strengths of the state in terms of social, economic and environmental aspects for each state. The unique flora and fauna, diverse culture and ethnicities and variety of handicrafts form a niched international tourism market in Sabah and Sarawak.

Conservation and preservation of these typical areas should be maintained and improved to ensure a higher standard of living for the local community. Adequate supply of quality accommodation, infrastructure and services at tourist attraction sites are also vital especially for elderly and physically disabled persons. More funding from the federal government is much needed to ensure the upgrading and adaptive reuse of historical buildings, architectural and cultural sites.

The prices of goods and services sold need to be controlled by the authorities. The prices of food, entrance fees and public transportation fees must be imposed according to the ceiling price policy which is sensible for tourism products. Besides, optimizing the use of taxes and subsidies to improve social, economic and environmental facilities and infrastructure could be another important move to enhance the sustainability of the tourism sector in these states. However, recommendation of such policies without any action plan and enforcement would not succeed.

## Acknowledgement

This research is sponsored by RU grant, Niche Project, Universiti Sains Malaysia (USM), RU Grant No.1001-PMGT-816066. The authors wish to thank the reviewers for their valid comments and suggestions which were helpful in enhancing the quality of this research article.

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