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Regional Spotlight

Climate change and peak oil—two large-scale disruptions likely to adversely affect long-term tourism growth in the Asia Pacific

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1. Introduction

Peak oil and climate change have the potential to cause significant disruptions to the projection of tourism growth in the Asia Pacific region. Disruptions can be defined as events that cause a structural shock to the tourism system, through impacts on the demand side, the supply side, or both. They may be generated by natural events, human interventions, or a combination of both. Disruptions may be of a short or long duration, generate little or substantial long-term impacts, and have the potential to cause significant changes to the structure and operation of the tourism system in the affected area. Defined in this way, the term disruption has a broader meaning than the more commonly used terms crisis and disaster, which are often used interchangeably to describe unpredictable or unanticipated shocks to the tourism system.

The ability of the tourism industry to recover from relatively short-term disruptions such as those resulting from the SARS (severe acute respiratory syndrome) outbreak in 2003, the 2004 Indian Ocean tsunami, the global financial crisis (GFC) of 2007–08 and the 2011 Japanese tsunami is well understood. The industry is generally able to deal with some, but not all, slow-moving disruptions that are capable of generating significant structural change, such as the information technology revolution and the growth of the low-cost carriers over the last two decades. The industry is, however, less well-equipped to deal with other structural disruptions that may not begin to generate serious impacts until well into the future. This regional spotlight will focus specifically on peak oil and climate change, and briefly examine the long-term disruption they are likely to cause to forecast growth in the Asia Pacific region. Successive decades of rapid tourism growth in the Asia Pacific region have encouraged the tourism industry and national governments to regard long-term growth as a given. Past success is, however, not always an accurate predictor of future success. As a consequence, there is a pressing need to commence deliberations on the potential long-term impacts of the impending disruptions identified in this regional spotlight, as well as the possible responses to them. An understanding of this nature is essential if the industry is to firstly adapt to the disruptions it is likely to encounter in the future and secondly provide a more effective platform to service future growth.

As with any type of consumer product, the future demand for travel and tourism will be governed by economic forces centred on supply and demand, including the price of holidays, consumers’ disposable income, political factors and, importantly, environmental factors. The potential for significant growth in the cost of oil (Becken, 2008, 2011) and future disruptions caused by climate change (Gössling, Scott, Hall, Ceron, & Dubois, 2012; Prideaux, McKercher, & McNamara, 2013) represent two long-term structural problems that are likely to generate major adverse impacts, on a global basis as well in the Asia Pacific. However, due to its size (two continents, two oceans and numerous islands), the vast distances involved, and the spectrum of economic development that ranges from some of the world’s poorest countries to some of its richest, the response of many countries in the region will necessarily differ to those developed in Europe, Africa and the Americas. To deal effectively with these disruptions, policy makers

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abstract

Climate change and peak oil are likely to have a significant impact on future tourism growth in the Asia Pacific region. Dealing with these issues and the policies and strategies required for mitigation and adaptation need to be given far greater attention by the tourism industry and the public sector than has hitherto been the case. Existing approaches based on crisis and disaster management may be inadequate and a new approach to deal with shocks of this nature is required. This regional spotlight suggests a new approach based on the concept of disruption which is defined as an event that causes substantial and long-term change in the structure of the tourism industry.
and the tourism industry in the Asia Pacific region need to develop an understanding of the potential scale and impact of the disruptions caused by drivers such as peak oil and climate change, develop estimates of how consumer markets will respond and incorporate these understandings into planning the region’s future infrastructure needs.

2. Regional growth trends

With the Asia Pacific's share of global GDP predicted to rise from 28% in 2010 to 44% in 2035 (Lee & Park, 2013), demand for travel to, from and within the region is expected to grow rapidly. The United Nations World Tourism Organisation (UNWTO, 2011) has forecast that arrivals to countries in the Asia Pacific region will increase from 204 million in 2010 to 535 million by 2030. During the same time period, departures from the countries of the Asia Pacific region are forecast to rise from 204.5 million to 541 million. In both cases, the majority of trips will be inter-regional (83% of arrivals and 82% of departures by 2030). The UNWTO's growth forecasts are reflected in forward orders for new airliners. Boeing (2012), for example, expects that by 2030 the number of commercial passenger aircraft operating in the Asia Pacific will grow to 13,480, a 306% increase from 2010. Ideally, the new infrastructure required to satisfy projected growth should include provision for responding to the types of disruption flagged in this spotlight article.

3. The nature of long-term disruptions

Analysis of UNWTO (2011) tourism forecasts shows a near linear growth trend that assumes future disruptions of the nature of those encountered in the past will be dealt within a manner that produces rapid recovery. Looking backwards from 2013, this view appears to be supported, with long-term growth trends in the Asia Pacific being consistent, sustained and resilient, with factors such as the GFC and recent problems in the Euro zone having little impact on the overall upward trends of tourism arrivals and departures. Even specific disruptions such as the 2004 Indian Ocean tsunami and repeated disruptions in Thailand including extensive flooding in 2011 and ongoing political tensions in 2005–2006, 2008 and 2010 appear to have done little to dampen long-term growth in the destinations involved. This well-established pattern of recovery assumes, however, that once infrastructure is restored or post-event marketing has resumed, pre-event growth patterns will re-emerge. Where a major disruption results in a fundamental change to the manner in which a tourism system functions, a new equilibrium position may be achieved. To this end, the new growth patterns will re-emerge. Where a major disruption results in a fundamental change, recovery of the nature that has occurred in the past may not be possible.

Recent growth in the Asia Pacific region coincided with an era when fuel was relatively cheap and there was a high public-sector tolerance for increasing global CO2. In the future, the disruptions to the tourism industry that will be caused by increases in fuel prices and greenhouse-gas emissions will need to be managed by the industry within a public-sector policy framework that will be restructured to achieve lower levels of atmospheric greenhouse gas. If the tourism industry fails to engage with the public sector in pre-disruption consultations, it will lose important opportunities to influence policy.

4. Peak oil

The global supply of oil is finite, and the point at which global output peaks and then begins to decline is generally referred to as ‘peak oil’. While there is considerable debate about the timing of peak oil, there is almost no dispute over its inevitability (Becken, 2008). As in any commodity market, oil prices will continue to increase as the quantity demanded exceeds the quantity supplied. Given that much of the increased demand for oil is being driven by economic growth in China, India and other emerging nations (International Energy Agency, 2011), it is unlikely that demand will plateau in the near future.

As the price of aviation fuel continues to increase in response to further growth in demand and increasing scarcity of reserves, the cost of air travel will increase significantly (Becken, 2008). Despite the enhanced fuel efficiency of the latest generation of commercial airplanes (Boeing 787 Dreamliner and the Airbus 350), the cost of fuel as a percentage of airline operating costs, currently averaging about 30%, will continue to rise (CAPA, 2012), reflecting past patterns of increase. In 2001, fuel costs across the globe averaged 13.2% of airline operating costs, rising to 33.2% at the height of the 2007–08 fuel price spikes.

A report by BP forecast that in the period 2013–2030, demand for energy, including oil, will increase by 36%. The report optimistically concluded that ‘increased demand can be met as long as competition is present to drive completion, unlock resources and encourage efficiency’ (BP, 2013, p. 5). Other sources (e.g. Ragnarsdóttir, Sverdrup, & Koca, 2012) are less optimistic, particularly in relation to oil. Oil production has remained relatively static since 2004, although this may change in the near future as US production of oil extracted from shale increases significantly. In Asia, the demand for oil imports is expected to increase from 11 million barrels per day in 2011 to 31 million barrels per day in 2035, placing great pressure on demand (Lee & Park, 2013).

From a supply-side perspective, the major problems confronted by oil companies are locating new sources of oil and developing the infrastructure to bring these into production. New supplies are being found but in unconventional forms, including oil shale, oil sands, presalt deepwater and so-called ‘tight oil’ which can only be obtained through a process known as ‘fracking’. While new discoveries (in Australia and Madagascar, for example) and improved recovery technologies will act as moderating factors on price, the growing demand for oil leads to the unavoidable conclusion that oil prices are likely to continue to rise into the foreseeable future.

As oil prices increase, airlines will be forced to respond by adding fuel surcharges to offset increased costs. This will have the effect of reducing the attractiveness of air as a means of vacation transport. While the cost of travel by all transport modes will increase, the actual degree of impact will depend on a combination of factors including the elasticity of demand for travel, the willingness of consumers to substitute short-haul for long-haul travel, and the propensity for consumers to substitute international holidays with domestic holidays. The impact of the spike in oil prices in 2007/2008 (Hamilton, 2009) is an example of how closely the demand for tourism is tied to the price of air travel. Demand fell as the price of fuel increased and recovered when the price of fuel later returned to pre spike levels. The actual timing of the structural disruption caused by peak oil is unclear and will depend on external factors, such as the growth of the international economy, as well as oil-related issues such as the introduction of biofuels, the cost of recovering oil in difficult-to-access reserves, the potential for new oil-replacement technologies (such as hydrogen), and how rapidly consumers respond to price rises. The response by consumers to increases in the cost of air travel will have significant implications for all aspects of the tourism industry.
industry. The immense size of the Asia Pacific precludes many land- or sea-based transport alternatives to air travel, particularly in the medium-to-long-haul markets. In Asia’s continental countries, such as China and Korea, and potentially also India, high-speed rail has the capacity to supplement or even replace air in many short-haul markets, reducing the scale of possible impact. However, in the insular nations of the Pacific, such as Australia, Fiji, Vanuatu and New Zealand, there are no realistic alternatives to aviation for inbound or outbound travel. If the cost of fuel increases at a rate well in excess of global GDP, airfares will increase and the tourism industries of these countries will suffer in the long run. A similar situation can be expected to occur in air routes that can best be described as medium haul, examples being China to Australia and Japan to the Middle East.

Given the price-sensitive nature of mass tourism, it may be anticipated that demand will fall as the price of air travel escalates once the inelastic portion of demand has been exceeded. One response from the affected countries in the Pacific may be to look for options to reposition from the low-cost mass market to the less price-sensitive high-end market but given the relatively small size of the high-end market in relation to overall demand, this option has significant limitations. In Australia, any fall in the quantity of demand for outbound travel due to price increases in air travel is likely to benefit the domestic market and nearby destinations such as Papua New Guinea and New Zealand. In continental Asian countries, such as China and India, the increased cost of international tourism, particularly in the medium-to-long-haul sectors, will create an opportunity for the domestic tourism industry to replace lost international visitors with more domestic visitors.

5. Climate change

Allied to the projected increases in the price of oil is the potential for disruptions caused by climate change. Climate change is anticipated to lead to higher global air and water temperatures, generate sea-level rises, have a significant impact on weather patterns, lead to more powerful wind storms (cyclones, hurricanes, typhoons and anti-cyclones) and adversely affect biodiversity (Intergovernmental Panel on Climate Change, 2007). At a human scale, increased ambient temperatures are likely to have an adverse impact on human society by making life in the tropics more difficult. This in turn may make some tropical destinations unsuitable for tourist activity in the peak summer months (Branwell, Dixon, Mambrick, Edwards, & Kjellstrom, 2012) as the risk of heat stroke and heat exhaustion increase.

The scientific community has a largely united view on the global danger posed by climate change and its anthropogenic causes (United States National Academy of Sciences, 2008). There is also an agreed view that unless the rate of greenhouse-gas emissions is arrested in the very near future, global temperatures will begin to rise significantly in the coming decades, having significant economic and ecological costs for future generations (Intergovernmental Panel on Climate Change, 2007). The 2007 Intergovernmental Panel on Climate Change (IPCC) report provided a wake-up call to which both tourism researchers and the industry have begun slowly to respond (Prideaux et al., 2013). While the European Union, Japan, Australia and the other signatories of the 1997 Kyoto Protocol have introduced measures to reduce carbon emissions, a number of Asian nations continue to defend their right to pollute without legislative restraint as they strive to increase their per capita GDP to the level enjoyed by developed nations. Because of the failure of the world community to agree on meaningful and common strategies to mitigate climate change, it is not possible to predict the final extent of the problem with any degree of certainty. The great unknowns include the tipping points for rapid temperature increases and sea level rises, the level at which global temperatures will peak, and the measures policy makers will implement firstly to mitigate the problem and secondly to adapt to it (Prideaux et al., 2013). It is apparent that the longer it takes for agreed global action to combat climate change, the higher will be the ultimate cost of adaptation. The best hope presently is an international agreement to implement the 2011 Durban Platform to cut emissions, however this is not likely before 2020 (Black, 2011). Ultimately, this agreement will impose further costs on the tourism industry as emissions levels need to be reduced.

The response by consumers to price signals of this nature will have a significant effect on overall demand for tourism and the composition of that demand. The extent of possible responses by consumers and impacts on the tourism industry has yet to be investigated in detail but can be expected to lead to significant changes, including decline in long-haul air travel, more energy-efficient buildings and a growing market segment that will demand holiday experiences that are sustainable and have a small carbon footprint. From the consumer perspective, growth in environmental awareness and associated concerns about the carbon cost of travel to destinations are likely to lead to personal action by individual tourists to reduce their individual carbon footprint: in effect, a ‘carbon guilt’ response. Combined, these factors are likely to change the patterns of holiday travel.

6. Responding to disruption

Although presently slow to respond, the public sector will ultimately be forced to establish a framework that will determine national and global responses to peak oil and climate change. Academics have begun to debate these issues but, as the literature indicates (McKercher, Prideaux, Cheung, & Law, 2010), there is a ‘knowledge-action’ gap wherein tourists realise they are contributing to climate change but are reluctant to change their pattern of holiday consumption and where governments understand the problem but, for various political and economic reasons, are hesitant to take action. Overcoming this ‘knowledge-action’ gap will be difficult but may be forced upon tourists, the tourism industry and governments as the dangers become more obvious.

The implications of these issues need to be carefully considered by policy makers as well as the tourism industry. It is easy to dismiss these issues by citing the potential for new innovations to solve them, as previous innovations have solved the problems of the past. For example, concerns over global food security were alleviated by the 1970s green revolution and more recently by improved farming methods, supply-chain management and genetically modified foods. However, notwithstanding possible technology fixes, the effects of climate change have begun to attract the attention of policy makers, although there are still significant issues, such as sea-level increase, which have yet to be considered seriously by many nations. The need to consider sea-level rise will, for example, become more pressing as the size and number of coastal cities in the Asia Pacific continues to grow. One particularly pertinent question that needs to be addressed is how low-lying cities such as Bangkok (Thailand) and parts of Guangzhou (China) will deal with anticipated sea-level rises: do their populations stay and defend or do they relocate? Questions of this nature can only be addressed through the establishment of policy settings that enable the private sector to make informed decisions about continuing to invest in areas that may be subject to future inundation.
To date, the tourism industry and tourism academia have spent relatively little time debating the issues raised in this discussion (Park, McKercher, & Prideaux, 2013). The same is true of research into the impact of oil prices on tourism (see Becken, 2008, 2011). Just as the fall in the real price of travel in the last three decades of the 20th century stimulated demand, it may be anticipated that a future rise in the real price of long-haul travel either from peak oil, climate change, or both, will generate a shift in the composition of tourism demand but possibly not the overall volume. In the Asia Pacific region, it may be anticipated that there will be a decline in long-haul arrivals and departures in preference for greater intra-regional travel, a shift from international travel to domestic travel, and a switch to more energy-efficient transport systems such as high-speed long-distance rail. Changes of this nature will have significant implications for airport construction, coastal resort development, investment in high-speed rail networks, the location of tourism-related infrastructure such as hotels and shopping districts, and how governments respond through legislation and regulation.

Given the complexity and current uncertainty about the potential impact of rising oil prices and uncertainty about the final level of global temperature rise, there is a need for both the tourism industry and policy makers to focus on long-term implications. This has yet to occur, in part because of the failure to invest in new methodologies such as scenario analysis (Yeoman, 2008), which have some potential to develop new insights into the scale of the issues that will be faced in the future. There is also a reluctance to invest in research that investigates the long-term implications of these issues. For example, there has been relatively little interest in policy research, yet the manner in which governments in the Asia Pacific respond to climate change will have a significant impact on the cost of travel and the investment decisions that need to be made to support the tourism industry.

Given the demonstrated propensity of consumer demand for tourism to withstand short shocks and even significant increases in price, it may be envisioned that consumers in the Asia Pacific will respond to future changes in price and government policy settings by amending their patterns of holiday making, possibly substituting high-carbon travel for low-carbon travel. Rapid advance in new mobility technology may be part of the solution but is not likely to be a solution in itself. It is also likely that the vastness of the Asia Pacific region, its complex political and economic structures, and the sheer number of people living in the region will force the private and public sectors to respond to these issues in ways that will have few parallels in Europe, the Americas or Africa. For example, while long-distance overnight rail is feasible in many parts of Europe, the opposite is true in large parts of Asia and Africa due to distance and cost.

7. The way forward

It is apparent that future tourism growth in the Asia Pacific region will be affected by emerging trends of the type briefly outlined in this regional spotlight. This observation points to an opportunity for the academic community in the Asia Pacific and beyond to engage in research that provides the industry, the public sector and, importantly, our students, with the opportunity to engage in frank and informed debate about these issues in a manner that has hitherto not occurred. Specifically, there is a need to develop a focused action agenda around which debate about potential impacts and possible strategies to respond to future oil price rises, climate change and other major issues (population ageing, for example) can take place. Research in these areas will also need to be underpinned by a range of associated research, including the impact of public-sector policy on the private sector and consumers, and, more specifically, the role that technology is able to play in shaping future markets, the capacity of the natural environment to respond to change, the role of innovation, settlement patterns with a specific focus on at risk coastal cities, and mobilities. At an industry level, organisations such as the Pacific Asia Tourism Association (PATA) have a major role to play. Other organisations and associations that have an organisational capacity to participate in the debate include the UNWTO and other UN agencies, the World Bank, the International Monetary Fund, the World Tourism and Travel Council, the Asian Development Bank, ASEAN and the G20.

Importantly, the issues discussed are bigger than individual governments and can only be effectively tackled by adopting international solutions. In Europe, the EU is able to provide collective leadership of a nature not currently possible in the Asia Pacific. Given the significance of these issues, there is a strong case for the Asia Pacific tourism industry to work through its representatives such as PATA, WTTC and the UNWTO to push for proactive action, rather than be sidelined later. Without a debate of the nature suggested above, the tourism industry is likely to be caught on the back foot and forced to react to public-sector policy actions. Ideally, the industry should have an informed input into policy deliberations at their formative stage, providing an opportunity to shape the debate and achieve outcomes that are favourable to the tourism industry.

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