



*Research Article*

## Economic and Labour Market Implications of Climate Change on the Tourism Sector of the Maltese Islands

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**Abstract.** This paper reviews threats to, and consequences of, current climate and environmental change on tourism destinations. The paper reviews recent published research on the impacts of climate and environmental change and consequences of such on the physical social and economic character of tourism operations using the Maltese Islands as a case. The validity and practicality of management options to tackle the complex nature and juxtaposition between tourism growth, climate and environment change and tourism destination management are considered, including an evaluation of management responses, the efficacy of local governance and consequent policy options and choices. The research methodology is focussed upon a qualitative evaluation of contextual issues utilising media analysis techniques from case studies drawn from the immediate locality of the study area. These are used to highlight and illustrate particular sensitive issues and points for contention and how these in turn might relate to tourism in Malta and its future prospects. Conclusions from the research demonstrate and discuss the efficacy of current predictions and how tourism infrastructure and destination management issues should be tailored to more strategic policy responses from all key tourism and environmental stakeholders in both the private and public sectors. In this respect the paper highlights the current impasse between public perception and policy implementation which, to date, largely continues to ignore immediate threats and thus fails to provide adequate strategic management responses or responsible governance. In conclusion strategic and combined management strategies are considered and advocated for managing tourism destinations and for addressing the increasing demands from the often complex tiers of stakeholder groups that are represented. In this context implications are further drawn for the future prospects for tourism within

the Maltese Islands. These specifically relate to changing demands to tourism employment, tourism product and service growth, tourism capital investment, tourism competitiveness and tourism skills and educational development.

**Keywords:** environmental change, climate change, tourism, tourism destination management, Malta, Mediterranean

### 1 Climate & Environmental Change and Global Tourism: Contemporary Problems

This paper focuses on current strategic management issues that are critical to the growing complexity of relationships between global tourism, predicted climate and environmental change and policies for tourism destination management. The Stern Review (HM Treasury-Cabinet Office, 2005) published over a decade ago, concluded at the time that there was clear scientific evidence to show that emissions from economic activity, particularly the burning of fossil fuels for energy, was causing changes to the Earth's climate. The Intergovernmental Panel on Climate Change (Intergovernmental Panel on Climate Change - IPCC, 2007) also provided stark warnings. The 2007 study, by world leading experts, predicted that global warming would happen faster and be more devastating than previously thought and concluded that climate change would be far more destructive and have earlier impact than was first estimated. Predictions suggested devastating storms will increase dramatically; sea levels will rise over the century by around half a metre; snow will disappear from all but the highest mountains; deserts will spread; oceans will become acidic, leading to the destruction of coral reefs and atolls and deadly heat waves would be-

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come more prevalent. It is now widely accepted that the findings from both The Intergovernmental Panel on Climate Change - IPCC (2007) and The Stern Review (HM Treasury-Cabinet Office, 2005) have provided the framework and initial evidence to confirm predicted changes to the environment, particularly through climate change and these are now firmly recognised as affecting the planet in potentially adverse ways. It was seen, at the time, that such predictions would also ultimately adversely impact on many coastal environments, particularly island destinations, and that impacts for tourism destinations, would in turn, be far reaching. The most recent Intergovernmental Panel on Climate Change – IPCC (2014) Fifth Assessment Report has also (with alarming warnings) reconfirmed that the process of climate change is accelerating with profound impacts from rising temperatures and extreme weather (Intergovernmental Panel on Climate Change – IPCC, 2014; Gosden, 2014). In this context the report also highlights that tourism economies across the world will not escape from such events and will in turn be severely affected.

The relationship between climate change and tourism is, however, not a new phenomenon. Over the last few years, relationship between climate change and tourism has generated much debate and discourse which has stemmed from initial research by, for example, Agnew and Viner (2001), Lohmann (2002), Viner (2006), Smithers, R (2006, September 22). In this context, Smithers highlighted the fact that some of the world's most famous tourist destinations could be closed to visitors by 2020 because of worries about climate change and environmental damage. Areas particularly highlighted in the Mediterranean included tourist areas such Pueta de Marrozon and the Murcian coastline of Spain, the island of Crete, the Amalfi coast of Italy and Athens including the Attica region of Greece. Again, such sentiments have, more recently been supported and evaluated by authors such as Becken and Hay (2007), UNEP (2009), UNEP and OECD (2010), Phillips and Jones (2006), Jones (2011), Gössling (2011), Ranade (2012), Hall (2011), Scott, Hall and Gössling (2012), Sing (2012) in their current assessments.

From such evidence, it seems that there is a growing concern that the continued development of tourism destinations is under mounting physical and socio-economic pressure. With future predictions of climate and environmental change, albeit the exact science still remains uncertain (Booker, 2009; Hulme, 2009; Dessler & Parson, 2010; Henson, 2011; Giddens, 2011), ongoing predicted increases in extreme climate and environmental change together with implications for socio-economic and physical impacts, suggest growing threats. In this context the well-being of many tourism destinations including Malta and the Mediterranean Basin will remain

at best, uncertain and in the longer term may be severely compromised with perhaps critical consequences for future sustainability.

To date, it is probably true to claim that climate and environmental change is increasingly seen as one of the major long-term threats facing global economies both in the developed and developing world. As such tourism does not escape, especially those regions that are reliant on tourism based economies. Malta is a particular case in point. It is now clearer that predicted threats could potentially lead to the loss of many tourist destinations whose appeal depends on their natural environment, amiable climate and coastline settings. In this respect many low-lying coastal regions are specifically at risk from adverse climate and environmental change. Evidence of this process is already underway with many examples of coastal tourism destinations experiencing at least early signs of stress or significant signs of negative impact. Ridderstaat, Oduber, Croes, Nijkamp and Martens (2014) work on the island of Aruba in the Caribbean, Meyer-Arendt (2011) work on the Gulf coastline of Louisiana, USA, Wilson and Turton (2011) work on the Queensland coast and Great Barrier Reef in Australia or Jones (2011) review of coastal destination issues in the UK together with Jones (2011) broader strategic assessments on coastal tourism issues are good illustrations in this respect. Authors such as, Prats (2011), Scott et al. (2012), Sing (2012) provide other contemporary assessments.

The concept, however, is not a new one. In the mid-1990s organisations such as the United Nations began to highlight such issues, particularly in developing tourist regions such as the Caribbean (UNEP, 1997). The Townsend and Harris assessment in 2004 was also significant in this respect. A report by The World Wildlife Fund (WWF) suggested that the tourism industry's heavy reliance on the local environment and climate to sell holidays means that it could face serious challenges as a result of climate change (World Wildlife Fund For Nature, 2007). More recent reports from UNEP (2009), UNEP and OECD (2010) have reinforced such concerns. UNESCO (2007) assessment of impacts on world heritage sites has already illustrated and predicted that many of the world's tourist sites may be under threat from climate change particularly through rising sea levels, increased flooding risks and depleted marine and land biodiversity. Such predictions claim that this could have disastrous effects on over 830 designated UNESCO world heritage sites.

Together with these global assessments more local evidence assessing coastal destinations and national tourist economies has been reviewed by Williams and Micallef (2009), Mushi (2011) who highlight the key economic and social impacts from climate change on coastal

tourist communities. In a similar light, research by EEA (2006), the European Union's Environmental Agency, also suggested that the biggest driver of development in the European coastal zone in recent years has been the demand for tourism and the growing concern on the need for more sustainable management strategies to offset continued growth demands and adverse environmental impacts. Similarly Greenpeace (2007) issued controversial warnings by predicting a hypothetical future 'post climate change' Spanish coastline at La Manga: a visual analysis illustrated the consequences of severe flooding if steps were not taken to stop the effects of severe environmental damage caused by climate change. In this respect Greenpeace advocates a much more strategic approach to offset such threats by promoting a much more vigorous approach to problem recognition and stakeholder engagement and in turn encouraging wider impact adaptation and amelioration measures. However, such predictions as well as proposed actions still remain controversial.

Such predictions are still not an exact science and there still remains a gap in measurable empirical research on the subject. Nonetheless a report in *Time* (2011) has suggested that decaying ecosystems can account significantly for a decline in tourism GDP Quiret, M (2011, October 17). Despite, however, the lack of empirical data, there has been much other discourse. For example, in 2009, the consulting firm KPMG claimed that tourism is one of the global industries least prepared and one of the most vulnerable to environmental and climate change. It suggested that the tourism industry has yet to come to terms with the associated risks and costs it is facing as threats from heat waves, droughts and rising sea levels are just some of the factors that will continue to adversely impact upon the industry, especially in terms of social conflict and continued economic viability KPMG (2009). In the same year a review by the United Nations Environment Programme in association with the French Government and World Tourism Organisation (UNWTO) highlighted growing concerns between the need for better integrated coastal management and the need to adapt tourism destinations for climate change (UNEP, 2009). In this context, Jones (2011) review of 'Disappearing Destinations' also highlighted the need for a much more coordinated and strategic approach. Such an approach promotes a three 'pronged' management push to ensure (i) problem recognition, (ii) meeting stakeholder expectations and (iii) delivering sustainable solutions. Their review of specific global cases illustrated current practices and challenges and provided a platform from which to determine new ideas and concepts for future policy directions. However, despite much rhetoric on conceivable solutions the discussions tend to raise more questions

than answers of how to tackle and manage contemporary threats. Despite such negatives or even impasse, over more recent years there has been an increased momentum from the travel industry to address the challenges from climate change. The WTTC (World Travel and Tourism Council) (2009) (World Travel and Tourism Council) and Responsible Travel (2014) has been at the forefront of this push by promoting accountability by endorsing travel and tourism development awards that recognise good practice in sustainable tourism and carbon management. Other travel conglomerates such as TUI (2014) have followed suite advocating environmental and social responsibility.

Such developments and predictions should, however, be also considered within the context of the continued growth of broader global tourism markets, and Malta cannot be excluded in this context. Despite the current economic gloom, forecasts for global tourism remain buoyant and predictions, however conservative, show that world tourism statistics are set for further growth over the next decade (United Nations World Tourism Organisation (UNWTO), 2014). To this end, the recent United Nations World Tourism Organisation (UNWTO) (2014) report on global tourism states that one third of all international tourists arrive in the Mediterranean making it the world's most visited region. It also states that between 1990 and 2013 the Southern Mediterranean Region has seen sustained growth of approximately 5.7% annually. In turn, tourism in Malta has reflected and also exceeded such growth figures by posting annual tourism growth rates for 2014 in excess of 7% Malta Tourism Authority (MTA) (2015). These figures present quite a conundrum. The demand across the region for such growth raises the mounting question of how growing demand for tourism can be sustained, balanced or for that matter strategically managed in the light of the ongoing predictions for climate and environmental change and its consequences.

Paradoxically, such issues have become quite complex, with adverse climate events and associated assessments for environmental damage, now threatening to destroy the very nature of tourism (sun sea and sand) that, in the past, amenable climate, has so successfully nurtured. Most recently it has been suggested that such concerns pose a threat to both tourism stakeholders and tourism infrastructure especially as the ever growing demands for recreational and tourism facilities along coastal fringes increases. Predictions also suggest that this will also be exacerbated by ever increasing concerns and debates over the continued need and merits for remedial actions such as 'hard' and 'soft' mitigation measures (e.g. hard engineering options, smart technology and smart design options, skills and training through capacity building) to offset such problems and the need to

protect such facilities. Who takes responsibility for the implementation and funding of such actions remain key questions that remain unanswered (Argarwal & Shaw, 2007; Kunreuther & Erwann, 2007; Jones, 2011; Prats, 2011; Gössling, 2011).

Suffice to say it is now fundamentally clear that evidence from existing literature on predicted climate change and the consequent impacts or threats to tourist economies is now well documented. As such the evidence or science, although not exact has fairly unambiguous consequences for the Southern Mediterranean and the Maltese Islands where both significant predictions for adverse climate change and unprecedented levels of tourism growth appear to be on a rising collision trajectory.

## 2 The Research Approach

The research is based upon a phenomenologist-qualitative approach, focussing primarily on existing case study literature, from existing media sources, which provide indicators for 'new or consolidated' research evidence that currently fills gaps in existing knowledge. As already stated the availability of empirical data is thus far limited. The basis of this approach was, therefore, to develop a portfolio of consolidated data and research material associated with the researched subject (Veal, 1994). In this respect Ryan (1995) reference to Witt and Moutinho (1989) research approach which suggests that such techniques are designed to find the 'emotional hot buttons' in relation to a particular subject, by bringing hidden stimuli up to the level of conscious awareness. It is an interesting notion which goes some way to justify the methodological approaches adopted. In this respect, using case study approaches by undertaking a review of existing published literature from media sources to evaluate issues and contemporary debates or 'emotional hot buttons' as Moutinho suggests, and how this might relate to the tourism dynamics of Malta, was very much the key research objective and focus for this study. Cashmore (2006) approach to methods utilising media analysis techniques with the examination, interpretation and critique of both the material content of media, communication and structure was also pertinent in this respect.

The case study on Malta thus provided the basis for the detailed research focus in reviewing information and discourse. Yin (2003) has written much on the application of case study research and the way in which this technique has grown extensively and been increasingly applied to the social sciences especially practice orientated fields such as urban planning, public policy and managerial science. The case study method allows investigators *'to retain the holistic and meaningful characteristics of real-life events such as organisational or managerial processes and the maturation of industries'*

(Yin, 2003). Adopting such a technique can lead to concerns regarding the lack of rigour and the ability to make wider scientific generalisations. However such concerns, as Yin suggests, can be offset by using case studies to generalise results to theoretical propositions as opposed to populations and that a case study can be used to expand and generalise theories or in this instance provide indicators for future tourism policy formulation (Yin, 2003).

The methods adopted were thus, to 'probe and explore' the current and contemporary issues pertaining to tourism development and climate change impact with tourism management consequences, particularly in Malta and the Mediterranean. The review of key issues from a range of contemporary media and case study sources certainly helped facilitate a contemporary assessment of the pertinent key issues and challenges, in this respect. There are of course limitations to such an approach especially where much anecdotal evidence is utilised from media sources. However, Walker (2012) for example suggests that anecdotal evidence can be used to support theoretical models especially when evidence is primarily in the form of anecdotes, in part because the processes can be used to bridge structural holes or fill data gaps from varied and sensitive contexts.

The key research aim was therefore to analyse existing media data on tourism and climate change and predicted impacts using the case of Malta. Key objects set included (i) to evaluate current threats from climate change on the tourism industry, (ii) analyse, current tourism stakeholder responses to predicted and actual climate change threats and (iii) to synthesise current and future policy options for tourism on the Maltese islands in the light of climate change predictions.

## 3 Malta and the Mediterranean-Climate and Environmental Change: Tourism Growth – Impacts – Implications – Outcomes

### 3.1 Climate and Environmental Change – Tourism Growth and Demand – The Policy Contexts

According to studies done by the Malta Tourism Authority (MTA) (2015), tourism has seen a steady growth year after year and it now accounts for 29% of the GDP and the largest contributor to the market services sector. Tourism now accounts for 22% of government income, 11% of imports and outflows and 17% of fulltime equivalent employment.

From 2007 to 2011, tourism across the Maltese Islands attained record yearly performances mainly attributed to increased air routes and more effective marketing initiatives placing Malta as a year-round destin-

ation. MTA statistics illustrated this as arrivals exceeded 1.4 million visitors by 2012, with an expenditure exceeding Euro 1.3 billion, a 16% increase on the previous year. Statistics for 2015 show that Maltese tourism again grew by another 9.3% per annum and despite a slight divergence to niche markets traditional forms of tourism based upon sun and sea still remained the predominant market share. In 2014 statistics show another 7% rise from 2013 figures (Malta Tourism Authority (MTA), 2015). The recent Ministry for Tourism (2015) Strategy for Tourism, albeit rather ambiguous on the subject of climate change, does highlight the need to promote better sustainable approaches for future tourism development across the Maltese islands. Little advice, however, on the tangible ways in which this can be achieved are effectively offered. That said the tourism policy for the Maltese Islands 2015–2020 primarily sets out to ensure that managing visitor numbers within the concept of sustainable tourism development is given due importance. In turn it encourages the tourism industry to adapt to tourism trends as they evolve. The Maltese Government's policy directions for future tourism growth are thus fairly clear. However impact forecasts for climate and environmental change particularly for Malta and its tourism industry and for the wider region as a whole remain less clear and less well-defined. A report from the Malta Independent (2009, August 16) did attempt to start a serious debate on the consequences of climate change for tourism on the islands. This highlighted predicted threats from severe climate events, flooding, infrastructure damage and adverse ecological change. In a similar vein the Maltese Government also established a Climate Change Committee on Adaptation (CCCA) which reported on a National Climate Change Adaptation Strategy (CCCA, 2010) which again contributed to the ongoing debate and stressed the tourism industry as a specifically vulnerable sector.

### 3.2 Climate and Environmental Change – Contemporary Impacts on Tourism Operations

That said, the continued growth in tourism numbers, particularly in the peak summer period is already creating environmental strains which are now leading to carrying capacity issues, resource, waste and pollution impacts (Austin, R, 2012, November 28; Dodds, 2007; Anon, 2014, June 17).

The Maltese government's own assessment (Malta Tourism Authority (MTA), 2012) has also highlighted significant threats posed to the tourism industry from climate and environmental change. Such recognition stems from earlier assessments particularly from the Maltese Ministry for Resources and the Environment (2004) which, at that time, highlighted potential threats from, for example, the deterioration of potable water supplies and quality, more frequent extreme weather

events, soil degradation, erosion and an accentuated desertification process, threats to public health, changes in sea water mass characteristics and effects on fish stocks, coastal erosion and inundation together with biodiversity reduction. The resultant possible impact on the tourist economy of the islands was specifically highlighted.

Such reports have provided a framework for the contemporary understanding of threats in Malta. More recent research by the European Union does provide a number of additional indicators and more tangible forecasts. For example the European Commission and other international bodies have gone some way to address current predicted forecasts for environmental change for the Mediterranean region. A joint report by the IUCN and MedPan (2012) clarify the predicted changes to the Mediterranean marine environment illustrating considerable increases to sea temperature and salinity over the last forty year period. In a similar vein a report by NASA (2013) maps global temperature increases between 2008–2012, showing an average temperature rise across the Mediterranean of over 3 °C during this period. The European Environmental Agency (2012) report on Climate Change Vulnerability in Europe adds some quite stark predictions for environmental change across the Mediterranean region with forecasts measuring significant increases in temperatures, proliferation of more simultaneous hot days and nights, intensification of drought, the rise of solar radiation and surges in insect infestation and hazardous ecological change together with significant decreases in water availability. The report particularly highlights the vulnerability of the Southern Mediterranean regions, pin-pointing coastal environments, areas of high population and high dependency on summer tourism at the forefront of current risks. These are very much key characteristics of the tourist economy of the Maltese Islands and provide profound warnings in this respect. Importantly, the report concludes that “the suitability of Southern Europe for tourism would decline markedly during key summer months” (European Environmental Agency, 2012).

Apart from such documentation which provides some substantiated research on current changes to Mediterranean environments, there remains little first-hand empirical data supporting evidence of climate change and impacts on tourism. This is particularly true when data for such is considered for Malta. There is however a growing volume of more anecdotal evidence, particularly emerging from the local media sources that point to emerging climate and environmental change and the resulting impacts on the current Maltese tourist economy. For example Mercieca, F (2012, October 12) has indicated that Malta is among the ten poorest countries globally in terms of water resources per inhabitant (172

out of 180) stating that nowhere else in Europe is water more scarce. Of course Malta has always had a particular water problem but the arguments associated with a changing climate suggest that these will be severely exacerbated increasing Malta's water poverty. Osbourne, H (2014, January 2) also confirms such a concern, suggesting that water shortages are one of the most significant dangers to the economic wellbeing of the Mediterranean region. Clearly this also has profound resource and environmental implications for continued and sustainable tourism growth in Malta.

Tremlett, G (2013, June 3) has highlighted that the changing ecology of the islands is now significantly affecting tourism by suggesting that the record surge in, for example, jelly fish blooms, is not only transforming local Maltese ecosystems but also now threatening the health of tens of thousands of tourists. Similar assessments by Piraino et al. (2014) and summarised by Tremlett, G (2013, June 3) shows that the island of Lampedusa (some 160 km from Malta) has only one swimming week a year free from jelly fish and that the social-economic impact on tourism will result in the loss of millions of Euro per annum. In a similar vein Mercieca, F (2012, October 12), Chetcuti, K (2012, October 3) also highlight the rise in numbers of victims bitten by the 'Asian Tiger Mosquito' and the rise in incidence of severe attacks during recent summer months. Whilst the arrival of the Asian Tiger mosquito is probably not directly attributable to climate change the EU European Environmental Agency (2012) does highlight the changing ecology of the region which supports extended habitats for such species. These incidents again present serious hazards and risks associated with the continued growth in tourism across the Maltese Islands. Burns, Wrobel and Bibbings (2010), Jenkins (2011) also raise the consequential adverse risk and impact of such phenomena and how this might manifest into negative social media platforms. As an example social media networks (such as Tripadvisor) are already providing a platform for expressing dissatisfaction or disquiet with tourist experiences which can seriously impact on competitiveness. In this respect the growing concerns, for example of 'mosquitos' and 'jellyfish' have already made their mark on social media sites for Malta.

Added to this, there has also been a growing discourse on the increased frequency of severe weather events (Fritz, A, 2014, November 7; Micallef, M & Perigin, C, 2012, Merch 11), severe storm damage increased heat stress and the growth of heat related illness (Sansone, K, 2012, July 13). The consequences for public, health, utilities and the disruption to supplies on the island are also highlighted. Disruption to the power grid, air services, ferry services and road links have been frequently mentioned with the consequent impact on tourism ser-

vices and operations (Anon, 2014, June 17). These issues present some current evidence of where strains and impacts are emerging. Less tangible but still perceived as a potential threat is the growing awareness of sea level rise and the potential flood risk to existing Maltese tourism resorts and coastal localities. These potentially include for example the beaches and resorts of Mellieha Bay, Ramla and Golden Bay, Sliema (ferries), St. Julians and Spinola Bay, Marsaxlokk and Birżebbuġia (Sansone, K, 2012, July 13; Muscat, C, 2014, April 7, 2014, June 8; Micallef, M & Perigin, C, 2012, Merch 11). In turn such occurrences will have significant implications for local infrastructure and the local tourist economy across the islands. Again, Muscat, C (2014, April 7) illustration and visual projection of how Manoel Island and The Strand, Sliema, would look with a 0.5 m sea level rise is a dramatic case in point.

### 3.3 Climate and Environmental Change: Policy and Management Outcomes and Implications for the Tourism Industry

Evidence from the literature, thus far, illustrates that new threats derived from climate and environmental change are emerging and in turn can adversely impact upon tourism environments and tourism operations. In this respect tourism in Malta would appear to be at a cross roads.

As such, over the last decade two factors have clearly emerged. One suggests that tourism is having a major environmental impact on many established tourism destinations and the second suggests that potential threats from climate and environmental change are likely to create considerable adverse impacts to tourist economies unless managed effectively. Thus we can begin to infer that a clear juxtaposition and paradox has emerged between, on the one hand, tourism, itself, creating many undesirable impacts at tourism destinations and on the other, environmental and by association climate change threatening to adversely impact on tourism infrastructure and operations, ultimately threatening the very nature, character and socio-economic wellbeing of many tourist destinations. This so called 'double whammy' and the resulting implied threats to the Maltese tourist economy are again very real in the context.

Given the evidence thus far, current predictions present some stark warnings and future indicators for the sustainability of tourism in Malta and associated economic and labour markets. These indicators probably fall within five clear categories which relate to (i) tourism product and service growth, (ii) tourism employment and human resource management, (iii) tourism capital investment (iv) tourism competitiveness, and (v) tourism skills and educational development.

(i) tourism product and service growth: In this respect



**Figure 1:** Climate and environmental change: Impacts for the Maltese Tourism economy.

evidence would suggest that the summer season will become less sustainable due, particularly, to periods of prolonged high temperatures, resource shortages, high solar exposure and increased risk from ecological hazards. Such issues would suggest that seasonality and shift in tourism numbers to shoulder and off season tourism periods might be a real actuality in the short to medium term. In this respect there could be arguments to support a balance in net loss and net gain over the summer and shoulder seasons with a net summer season loss but a net shoulder season gain. A move to more specialised tourism products or niche markets away from traditional sun and sea markets will inevitably be a considerable challenge in the realignment of traditional tourism industries and operations in this context. The need to increasingly move toward new opportunities for sustainable tourism niche market development probably away from existing coastlines will in turn, present both new challenges and new op-

portunities for the Maltese tourism industry. The need to respond to long term spatial redistribution, meeting green consumer and low carbon agendas ensuring quality products, perhaps developing inter regional agendas and exploring alternative transport options provide some thoughts for the longer term.

- (ii) tourism employment and human resource management: The need to adapt the labour market and economy to less numbers of tourists during the summer and the need to promote better quality, higher spending tourists that do not wholly rely on the sun and sea factors during the spring, autumn and winter should perhaps be a priority consideration. The availability of a traditional/casual summer seasonal workforce and the demand for additional highly trained, educated and specialist personnel presents a quandary. This may ultimately lead to some sizeable difficulties for human resource management that will also need to re align staffing

demands across all seasons and cater for additional expertise and 'know how' to develop new markets and support technological innovation.

- (iii) tourism capital investment: To this end, there will also be a need to consider capital investment options that are more focussed on for example, new niche products, quality products and environments, safe or high resilient environments, risk adverse localities, green alternatives and smart design, low carbon agendas, passive and active mitigation investment and low/smart growth development options. The re alignment from traditional forms of tourism investment to these 'greener' orientated and focussed agendas will, again, be critical choices for the future.
- (iv) tourism competitiveness: Challenges for competitiveness and the additional economic costs and security questions regarding, for example, the disruption to transport operations (air, land and sea) or the continuity in supply of public utilities such as electricity and water also present growing concerns. Whilst this is not an exact science this will in turn provide challenges to the existing way in which tourism growth and development can be maintained and the way in which the economic well-being of the islands can be sustained. The cost increase associated with, for example, travel, utilities, risk, insurance, liability, health and capital costs associated with establishing safe environments for tourists although not exactly quantifiable may also lead to pressures to maintain competitive advantage. The need to be astute with social media developments will increasingly call for better perception and shrewdness. This could include responding to better self-sufficiency agendas, resource conservation, supply and cost mitigation. Future government policy or intervention in the form of increases to carbon and eco-taxation or passing on costs and responsibility to meet risk, litigation and safety threats may also have significant future impact on competitive advantage.
- (v) tourism skills and educational development: Ultimately the quality and educational expertise of personnel who have to coordinate and respond to such needs will be pivotal for long term sustainability and future well-being of tourism operations. The skill sets associated with capacity building, strategic thinking and being richer in skills, creating quality markets, delivering innovation and environmental awareness and facilitating synergy between tourism stakeholders will all be essential skills for a forward looking tourism destination which seeks to remain relevant and prosperous. It is a concept that Maltese tourism will increasingly need to address.

From the evidence and discourse reviewed, such complex relationships raise several questions on the continued need for tourism destinations including Maltese tourist resorts to address key management issues. These, in summary, would appear to include a collection of what would appear to often be quite disparate interests that require a more strategic and coordinated approach in order to address both the impacts of climate and environmental change and the need to sustain tourism economic wellbeing. These are largely concerned with the synergies (or lack of) between the often disparate stand points and interests between stakeholders that attempt to, recognise predictions for climate and environmental change, take action to mitigate against climate change, and in turn, meet the economic and social needs and aspirations from tourism growth demands. It is probably still too early to speculate on definitive outcomes, but the interaction and relationship between these concerns will, as time will tell, ultimately determine the future sustainability and viability for Maltese tourism and the future prospects for tourism growth. A better coordinated and strategic approach to problem recognition and management solutions is now probably overdue and one that presents a real challenge for the continuation of tourism growth prospects across the Maltese Islands today.

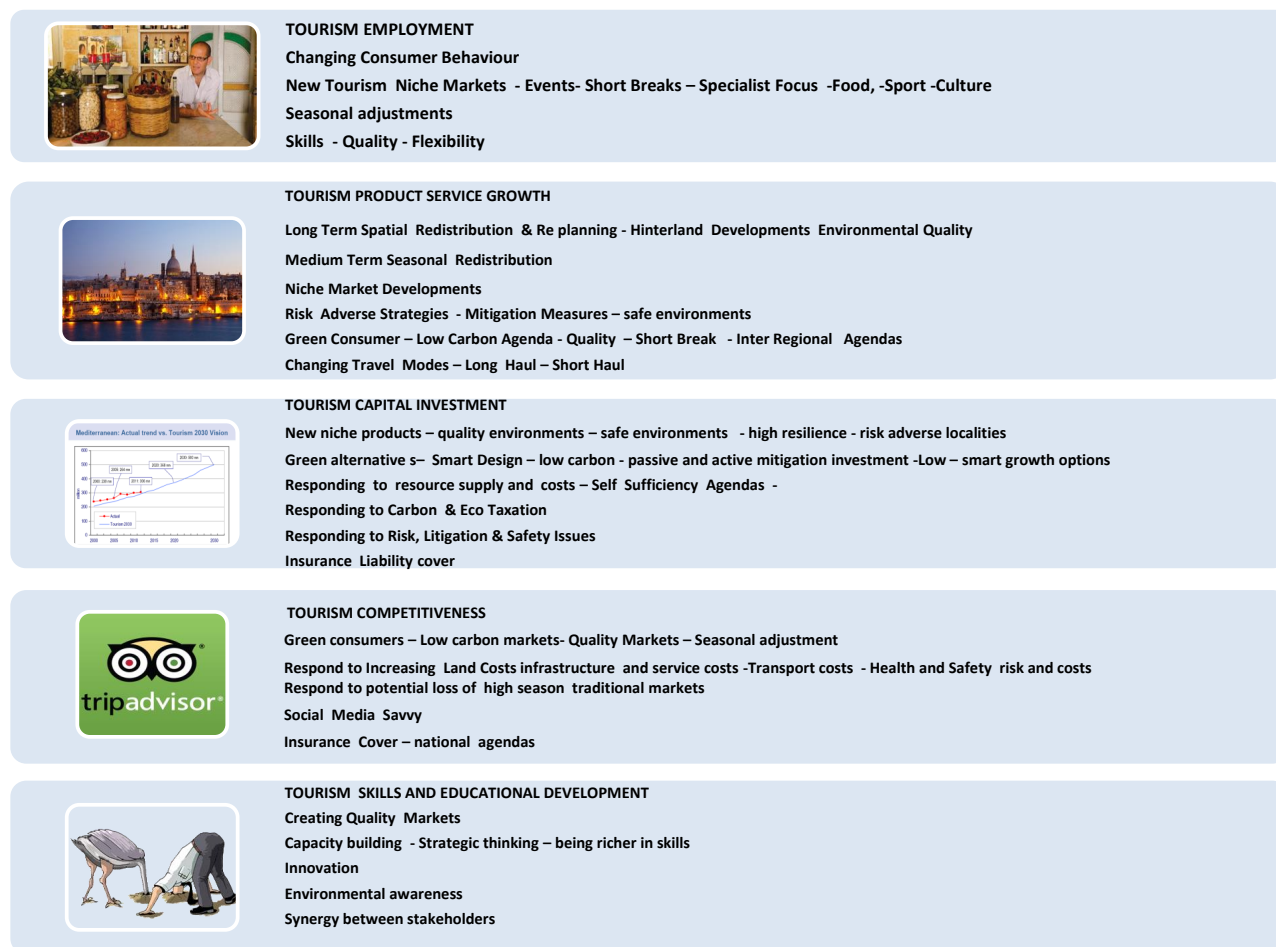
The need for intra-governmental synergy may also be very applicable within these contexts. As an illustration, for example, climate change falls under one Maltese government ministry and tourism under another and, given the way government structures tend to function (and this is not unique to Malta), there is usually an assumption by one side that a problem is being catered for by the other.

#### **4 Conclusion: Identifying Problems, Understanding Challenges and Advancing Resolutions.**

Potential impacts of predicted climate change particularly for the Maltese Islands will, in time, pose a significant threat to natural coastal environments, tourism infrastructures and the tourist 'communities' at specific localities across the Maltese Islands. Contemporary evidence from the literature illustrates that perceived and actual threats are, indeed, real although accurate predictions and current assessments still remain at best somewhat anecdotal and at worst suffer from vagueness, ambiguity and to some extent 'media' hyperbole. In conclusion this review presents a broad assessment of key contemporary threats, key challenges and possible resolutions to current threats to Maltese tourism from perceived climate change predictions.

It seems fair to state that there still remains continuing uncertainty regarding the science of climate change





**Figure 2:** Climate and environmental change: Implications for the Maltese Tourism economy.

and the validity of current predictions. However, as already stated, the very recent findings and conclusions from the Intergovernmental Panel on Climate Change – IPCC (2014) report would confirm worst assertions. In this regard, general perceptions from the literature demonstrate that there is recognition of adverse climate and environmental events such as ecological change, resource depletion, heat stress, increased incidence of storm surges and a general rise in sea level. Perceptions also recognise erosion, destruction, structural damage, health threats and general the disruption to tourism operations that will result from such incidents. There are however mixed responses when resolutions, responses and actions are considered. Here, knowledge gaps and disagreement can frustrate options to take ameliorative action. In essence there remains a complex relationship of interrelated processes or multi-faceted dynamics that combine at differing levels and stages of tourism operation management systems. This multi-faceted dynamic involves processes associated with several parameters

including, tourism destination management, processes of problem recognition, balancing strategic policy decisions, meeting stakeholder expectations and providing solutions to the key challenges, problems and threats currently at hand. In many Maltese tourism resorts and destinations, these are ongoing processes, the dynamics of which are often complex consisting of multi layers of diverse stakeholder interests. Synergies between these diverse groups would still appear to remain in their infancy with little strategic direction being taken. More disappointing perhaps is that these dynamic processes, particularly the predictions for adverse climate and environmental change vis-à-vis ever ongoing strides to promote further tourism growth, are increasingly and clearly in conflict or at odds with one another. The current growth strategy from the private sector to boost tourism visitors to over 2 million per annum is a case in point. That said the growth to these quoted volumes could have much more limited impact than that implied and inferred if it were to be channelled mostly into leaner

shoulder and low season months together with a declining average length of stay. Nevertheless this current prediction does not bode well for the future prospects for Maltese tourism in the short term.

Despite remaining uncertainties, there is evidence to suggest that there is an unequivocal necessity to maintain strategic momentum for all tourism stakeholders, and this includes both public, private, business, user and community representatives to engage and integrate more fully with decision making and policy processes. Pertinent to this, is engagement with appropriate long term policy implementation measures which connect more closely with existing, environmental, governmental, legal, financial and technological frameworks. These are themes now commonly explored in the literature (e.g. UNEP and OECD, 2010; Jones, 2011; Scott et al., 2012; Sing, 2012). In essence, such discourse means creating or ensuring structures for management, governance and decision making that are fit for purpose. At present, evidence suggests that such structures and organisational frameworks are still fragmented. The future success in managing tourism, and this is particularly pertinent to the Maltese Islands, is a need to promote effective measures that support a strategic cyclic process of problem recognition, addressing challenges and implementing effective resolutions at destinations. On a positive note there have already been many initiatives and measures already taken that demonstrate that such new approaches can be effective. These albeit not extensive can, for example, include hard and soft engineering works that protect tourism assets and resources, passive and active design measures particularly in hotels that help to mitigate against environmental change, strategic planning, environmental design and zoning regulations, smart marketing, labelling and promotion that 'influences' visitor choice, introduction of carbon related charging and 'green' taxation, visitor management and capacity controls together with supporting greening initiatives, green transportation, adaptation, the initiation of environmental management systems and increased levels of professional training that build 'capacity' and innovation.

Outside of Malta there are now many initiatives that go some way to promote some of these more effective and sensitive forms of tourism that are both sustainable and mitigate against threats from climate and environmental change. As an example The World Tourism and Travel Council (WTTC) already mentioned in the literature, through its 'Tourism for Tomorrow Awards' is a case in point (WTTC (World Travel and Tourism Council), 2014). The Responsible Tourism Awards coordinated by Responsible Travel (2014) and TUI's sustainable travel and tourism policy guidance (TUI, 2015) provide other examples. In this respect there are the

beginnings of change in Malta too. Evidence from projects such as the environmental management initiatives implemented at the Radisson Blu Hotel complex and resort at Golden Bay and the Hilton hotel at St. Julians demonstrate that environmental management systems that conserve resources and reduce impacts (particularly in carbon) can be economically sustainable. The more comprehensive 'ECO GHAWDEX' project on Gozo which promotes broader sustainable tourism practices also provides a good starting platform. In Malta, as elsewhere however, these tend to remain largely a loose uncoordinated patchwork of schemes and unfortunately, because of this, their wider influence and impact remains somewhat marginal. These initiatives also present stakeholders with a paradox. Obviously, such measures go some way to constitute Malta's contribution to an overall global effort. However, in this respect the benefits of carbon saving measures and other associated initiatives will tend to have a global rather than localised impact. As such climate change in a locality will be perceived by most tourism stakeholders as a function of a global climatic phenomenon not local behaviour and this often presents tourism stakeholders with at best a conundrum and at worst a valid excuse for continued apathy or inaction.

Only time will tell. Destinations that are most strategically aware, most innovative, most environmentally informed, best coordinated, most efficiently managed, most sustainably aware, most professionally skilled and most technological advanced will, almost certainly, be the ones best placed to survive ongoing threats from both climate and environmental change and thus ultimately succeed and prosper in the long term. The evidence is now clear. Maltese tourism will inevitably have to adapt to changing patterns of tourism growth with perhaps shorter summer seasons and longer spring autumn and winter seasons and in turn the required changes in economic and social operations that result from such. The challenge also remains one which requires action in the form of better coordinated mitigation initiatives (already mentioned above). Without such measures the risks from climate and environmental change and the predicted negative impacts this will have on the Maltese tourism economy will inevitably escalate, threatening the very nature, economic sustainability and the continued sustainable growth of the industry. These are nevertheless threats and challenges that all the tourism stakeholders in Malta still need to fully recognise. It is a notion raised earlier in the literature from the KPMG (2009) report. Nevertheless such notions still remain a very potent warning for Maltese tourism operations today.

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