

The quantification of risk and tourism

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Abstract

Tourism in South Africa comprises 9.5% of Gross Domestic Product (GDP), but remains an under-researched industry, especially regarding the quantification of the risks prevailing in the social, political and economic environment in which the industry operates. Risk prediction, extrapolation forecasting is conducted largely in the context of a qualitative methodology. This article reflects on the quantification of social constructs as variables of risk in the tourism industry with reference to South Africa. The theory and methodology of quantification is briefly reviewed and the indicators of risk are conceptualized and operationalized. The identified indicators are scaled in indices for purposes of quantification. Risk assessments and the quantification of constructs rely heavily on the experience - often personal - of the researcher and this scholarly endeavour is, therefore, not inclusive of all possible identified indicators of risk. It is accepted that tourism in South Africa is an industry comprising of a large diversity of sectors, each with a different set of risk indicators and risk profiles. The emphasis of this article is thus on the methodology to be applied to a risk profile. A secondary endeavour is to provide for clarity about the conceptual and operational confines of risk in general, as well as how quantified risk relates to the tourism industry. The indices provided include both domestic- and international risk indicators. The motivation for the article is to encourage a greater emphasis on quantitative research in our efforts to understand and manage a risk profile for the tourist industry.

Key words: tourism; risk; South Africa; economic indicators; exchange rates

Background to the study

Increasingly governments all over the world are placing a higher priority on

tourism business development, as it fosters increased foreign exchange income and creates employment opportunities. Studies indicate that tourism

development has a direct and positive effect on gross domestic product (GDP), and adding to a positive exchange rate advances economic growth (Lee & Chang, 2008). This seems to be even truer for South Africa. Together with many other economic and political factors, the nature of tourism in the country has undergone a significant evolution since the achievement of democracy. The post-apartheid governmental policy interventions and analysis of possible risks to the development of this industry, echoes the importance of tourism as an economic driver (Visser & Rogerson, 2004; Tassiopoulos and Haydam, 2008).

Since 1994, these interventions and policy changes by government seem to have had a very positive effect on the tourism industry. Traditionally the economy of South Africa was seated in the primary sectors. This was mainly due to the countries richness in minerals. During recent decades the country has witnessed a shift in the structure of economic output. Economic growth is now predominantly driven by the tertiary sector, with tourism credited as one of the key sectors currently contributing to GDP. In 2013 the tourism industry contributed 9.5% to the total GDP of South Africa (Business events sector, 2014).

First National Banks' head of tourism, when stating that despite some instability experienced during the global recession and the aftermath of the 2010 Soccer World Cup, the international travel market is now recognising South Africa as a "sought after destination". He goes even further stating that the tourism offering and partnering by professionals in this regard can add a great deal to the overall transformation in this young democracy (South African tourism industry upbeat, 2013). According to an article published by a leading short term insurance company, the National Department of Tourism intends to attract 15 million tourist arrivals by 2020 (Booming tourism industry at risk, 2013). By doing this the department not only aims to increase tourism contribution to the GDP, but also to create 225 000 new jobs. Looking at what has been

achieved since setting these targets, it becomes clear that this may be one of the more successful industries in South Africa, showing an average annual increase of at least 10% per annum. Adding to this the 2013 World Economic Travel and Tourism Report ranked South Africa.17th in the world natural resource category and 58th for cultural heritage. Domestic travel should also take some credit, showing a very impressive increase in spend from R5.2 billion in quarter 2 of 2013 to R7.2 billion during the same period in 2014 (South African Tourism Domestic Indicators, 2014).

According to Brand South Africa, internationally the greatest increase in visitors to the country in 2013 was from Africa air markets (15.0%), followed by the Americas (11.7%), Europe (9.4%) and Asia and Australasia (9.1%). The total number of foreign visitors in 2013 increased by 10.5% on 2012. This is the highest number of foreign visitors ever recorded. (SA tourist approach 10-million mark, 2014)

Although tourism alone cannot explain economic growth, Sequeira (2005), finds that countries specialising in tourism have higher economic growth rates than those that do not. In South Africa tourism can be credited for being the country's main foreign exchange earner (Perry & Potgieter, 2013). It is thus imperative for South Africa to maintain this focus on and sustain growth in the tourism industry. Managing perceptions regarding risk factors for tourists is key to achieving this. Pro-active management of international perception increases a country's global competitiveness and attracts both social investment and tourism.

Using case studies from all over the world to categorise tourism risks, Beirman (2003:66) concludes with the following generalised risk areas; terrorism and political instability; crime; epidemic; natural disasters; war and combination crisis. However, when discussing the risk of crime, specific reference is made to South Africa.

Given that the aforementioned factors are generalised, we take a more specific look at factors that are in some way unique to, and more prevailing in South Africa. This article takes into account crime, HIV, xenophobia, poaching, corruption, terrorism and natural disasters as risk factors for South African Tourism.

Risk and tourism

The quantification of risk is a prevailing feature of both the political and economics discipline. The methodology is uncontested, but the quantification of social constructs remains contentious if not controversial. Economic indicators, by its very nature, is assumed to be quantifiable and the relational tissue between variables is embedded in sufficient consensus, but the 'amorphous' conceptual content of social constructs precedes an operational ambiguity which obfuscates the relational tissue between social/operational constructs. It was in this context that Mathews (1975) suggested that 'political research', or more specifically the quantification of social and political constructs related to the tourism industry, lacks a justifiable scholarly emphasis. In 1994, Hall criticized the political discipline for neglecting the operationalization of tourism as a conceptual variant of policy studies and following on that logic, Poirier (1997) investigated the 'significance of political science in tourism studies'. This article seeks to take the scholarly predicament of these three authors one step further with an attempt to submerge the operational features of tourism as a social construct in the disciplinary domain of risk analysis.

With regard to risk analysis, both politics and the economics discipline tend to focus on indicators with a measurable influence a quantified variable, such as for instance foreign direct investment (FDI). The assumption is that risk is a manageable feature of social, political and economic relations and if measured or quantified it could be manipulated as an independent variable to the benefit of various and varying interests. As the research and

literature review of Shaw, Saayman & Saayman (2012) shows, most "risk management in the tourism industry (of South Africa) takes place reactively".

However, it seems as if industry-specific interests have a preference for qualitative research and analysis and thus also a qualitative understanding of the political and economic risks as it relates to tourism. The aim of this article is to quantify a number of variables as it relates to the tourist industry of South Africa and to advance a measurable or quantified index of indicators which will provide for a more nuanced understanding of the changing conditions in which the industry operates. It should be obvious that an understanding of measurable risks which could be extrapolated with both a correlational and causal connective methodology will lead to significantly more 'proactive' risk identification and management.

Risk and risk management: theory and methodology

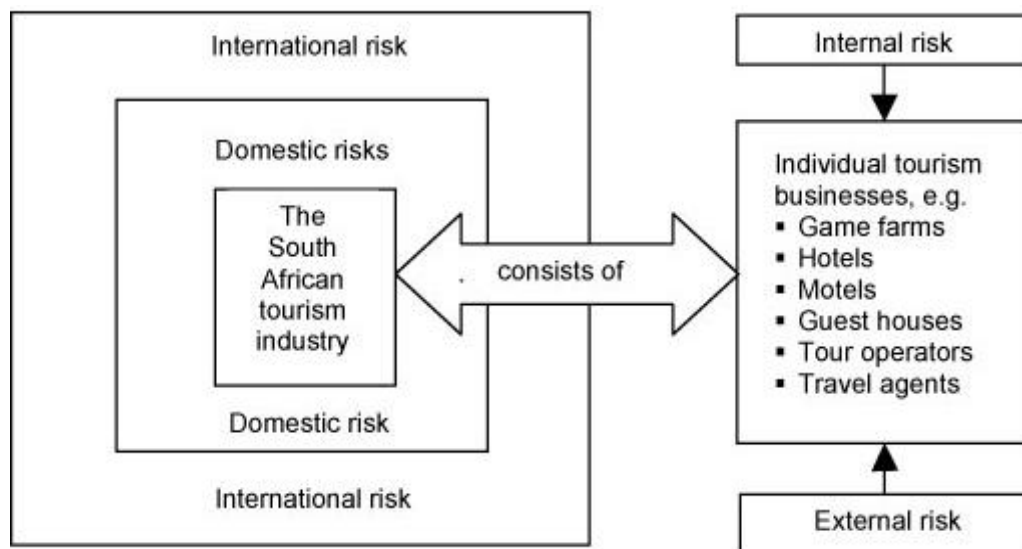
Ideally risk management is a process founded upon a proactive design conceived in what Gray and Larson (2006) describe as a linear evolution; from risk identification followed by risk evaluation which then concludes in a proactively designed strategy with which to manage the risks as it pertains to each specific aspect of the industry (cf. Shaw, Saayman & Saayman: 2012). Risks are, however, rarely managed in isolation. A whole range of actors and regulatory institutions beyond the managerial reach of an individual actor or concern are involved in the operational implementation of a management profile. The state and its statutory regime are fundamental to a risk management system or profile and both internal and external risks will weigh on the proactive outcomes as perceived and envisaged by those who design the system.

The tourism industry is faced with internal risks as well as external risks. Including all possible risk is beyond the scope of this article. It is however of value to note that internal risks relate to managerial and

bureaucratic capacities and external risks to state intervention/regulation, regional competition and the availability of

infrastructure. An illustration of the dynamics of these risk is provided in Figure 1.

Figure 1: Flow of risks



Source: Jarvis (2008)

From this, the following question arises regarding theory and methodology; is there a monolithic or all-inclusive theory from which to extrapolate qualitatively that will suffice as a scholarly architecture for the quantification of social constructs? The discourse on 'the political method' is embedded in at least three dominant scholarly dispositions; the so-called catalogue school, the system-event school and thirdly the 'method versus theory'-dichotomy. For the purpose of the catalogue-school-disposition, the question simply was; which indicators of risk is the most fundamental to risk to, for instance, FDI in an identified political economy? From the dominant liberal-utilitarian perspective, no distinction was made as regards the varying qualities of the democratic systems which were subjected to analysis. Authoritarian systems and liberal democratic systems were analyzed from a uniformly Eastonian regime-preference and economic variables or indicators were assumed to be selected based on a rational choice-logic (cf. Jarvis, 2008). Obviously, both the state and the market were dealt with, simplistically, as if the conceptual and operational confines

reflected an uncontested universal consensus.

The weaknesses of a dominant theory all too often lead to what Anderson (2011) refers to as an 'incremental' approach to theory-design. The Systems-Event School, which followed the Catalogue School, sought to address the question of varying stages of 'democratic consolidation' by suggesting a linear dichotomy between *observable* relationships in states - in various stages of democratization - and the *measurable* risks that could be extrapolated from every particular stage. However, the rational choice logic of the Catalogue School remained, including the ideological bias of utilitarianism as regards the (imperfect) market economy.

All too often a 'third generation theory' incorporates the identifiable strengths of the preceding two theories by 'incrementally' eliminating the weaknesses of the first two 'stages' of theory design only. The 'third theory' is not necessarily conceived in a scholarly consensus, but rather reflects a conceptual compromise with inevitable operational consequences

for the social construct to be measured or quantified. Inevitably the limitations of master-theories regarding universal applicability is the reason why 'third generation theories' succumb to the need for a case-study-approach. This allows for a justifiable inductive logic in the intellectual milieu of post-modernist relativism.

But, contrary to relativism the Method versus Theory-paradigm emphasizes quantification as a method of analysis (Jarvis: 2008). The methodology applied makes provision for a questionnaire and 'experts' who identify observable indicators of risk which is then quantified and extrapolated to measurable risks. From this risks are forecasted at the level of specific industries or even smaller units of analysis. In a study on tourism in South Africa, which applied this methodology, Shaw, Saayman & Saayman (2012) conducted a survey in nine provinces and then used 57 statements in a structured questionnaire, based on seven risk categories, to do a factor analysis from which a various risk categories were identified as well as the questionnaire items that defined them. This article aims at justifying this methodology.

Risk indicators

The conventional methodology for the design of a risk profile for the tourism industry would be to focus on both domestic- and international risk. Social scientists of all disciplines who used either qualitative or quantitative methods employed stability as an important or even fundamental independent variable in their research into risk factors for tourism. As Poirier (1997) points out, however, all too often the notion of *stability* is equated with *democracy*, which is problematic as the operational features of a democracy such as South Africa may also exhibit significant levels of instability of political uncertainty (cf. Chilcote, 1994). As Lewis (1975) points out, political instability may not necessarily be an *obvious* variable for

manipulation as economic conditions could have a detrimental effect on the tourism, even in the presence of sufficient social- or political stability. The question, therefore, is how to define risk in a developing political economy?

Risk is best defined in the realm of indices as opposed to single variables, because ultimately the operational architecture of all risk reflects a dense network of complimentary, but also contending indicators preceding the dependent variable. In a *risk assessment*, especially quantitative assessments, the size of a potential loss in the presence of a risk indicator, as well as the likeliness that the loss will indeed be a quantified outcome will form the crux of the applied logic (cf. Howell and Chaddick, 1994).

Jarvis (2008) subdivides Risk into transfer risk (risk to capital advances), country risk (risk associated with the business environment in which a particular industry operates) and sovereign risk (risk associated with governments failing to fulfill their loan responsibilities and obligations). Schmidt (1986) included "ownership control risk" (threats to ownership and control), an indicator with relevance to many African political economies, and certainly also that of South Africa.

Quantified indicators of risk in the tourism industry

The table below reflects political as well as economic and social risks pertaining to the tourist industry of South Africa. The 'value in relation to other indicators' is a standard 10, but that does not imply that these indicators affect the industry in exactly the same severity or that the industry in its diversity is similarly influenced by the variables/indicators. The indicators are however selected based on its prevalence in the industry as the most dominant determinants of outcomes or behavior.

Table 1: - Risk index: domestic risks

Indicator	Value in relation to other indicators	Risk value <i>10=high risk</i> <i>1=low risk</i>	High/medium/low <i>H = 7 - 10</i> <i>M = 4 - 6</i> <i>L = 1 - 3</i>
Unemployment and labor	10	7	High
Inflation	10	6	Medium
Corruption	10	5	Medium
Labor force instability and cost	10	6	Medium
Poverty	10	6	Medium
Health/epidemic	10	4	Medium
Crime	10	7	High
Quality of social services	10	3	Low
Social unrest	10	6	Medium
Xenophobia	10	7	High
Environmental risks	10	6	Medium
	110	63	Medium

Domestic risks to tourism

Economic risks

Inflation

The South African Reserve bank is responsible for monetary policy in South Africa and the monetary policy committee (MPC) seeks to manage the inflation rate by determining the repo rate (rate at which money is lend to banks). Currently the repo rate is at 5.75% with inflation at 6.3% just above the 3%-6% target band of the Reserve bank. While a weak currency is beneficial to foreign visitors, it adds pressure on the general cost of doing business in South Africa and specifically with reference to the cost of labor. The low levels of growth in South Africa's GDP, increases the risk of inflation to the tourism industry. Amongst other upward pressures, inflation is a justification in a unionized industry for high labor costs.

Corruption

Corruption constitutes using a position of public office or authority in order to achieve some sort of private, material or social gain at the expense of others (Voster, 2013). Du Plessis, and Breed (2013) quote statistics to prove that Africa stands out as the most corrupt region in the world. South Africa lives up to this title by recording loses close to R30 billion annually due to bribery and corruption.

Many attempts have been made by the South African government to try and

counter different forms of corruption. Sadly even bold attempts, such as those launched by the National Prosecuting Authority have failed. The establishment and actions of the "Scorpions" were greatly favoured by the South African public as it seemed that this organisation was at least making some headway in the fight against corruption and various other crimes. Not surprising to some critics of government, the Scorpions efforts were soon stopped. The organisation was disbanded and operating outside their jurisdiction, and performing acts outside of their mandate was hailed to justify this (Berning & Montesh, 2012).

Mathur and Singh (2013) find a direct correlation between the perception of the level of corruption in a country and FDI. Countries ranking poorly for corruption perception receive significantly lower amounts of FDI, than those perceived to be less corrupt. Worldwide anti-corruption intervention and campaigns are characterised universalistic measures, technical control, retribution mechanisms and a general appeal to morality. These have healed little to no success (Gebel, 2012).

Unemployment

Unemployment in South Africa is officially measured by StatsSA to be 25.8%, but that is in terms of the so-called narrow definition and the 'broad definition' is measured at 35% - 40%. It is considered high by any standards, but specifically so

when compared to the rates measured in other middle-income countries or even South Africa's Brics-partners.

Labor force instability

South Africa is, contrary to popular perception, not a highly unionized political economy. Only 22% of the total labor force are members of a union and if the state is excluded from this figure then a mere 12% of the total labor force rely on union-membership to manage their relationship with employers (StatsSA, internet). However, violence or the threat of violence has always been an integral medium to air grievances or to inflate the intensity of demands made by workers. The contested managerial capacities of the state's coercive apparatus may well be (partially) to blame for the Marikana-tragedy of August 2012, but intimidation and violence is an integral part of union-behavior in South Africa. Unionism in the state-sector is often blamed for the cost of labor which is 36% higher in the bureaucracy than for an equivalent position in the private sector. If parastatals are included in the equation, the cost of labor is measured at 46% compared to a similar position in the private sector (StatsSA, internet). Surely, this will have an effect on both the cost of services and labor-stability in the tourism industry.

Social and political risks

Poverty

Poverty has a quantitative measure, but often the social costs of poverty is much wider and includes the disintegration of family structures, low levels of education, the prevalence of (exploited) low skilled labor, poor health and high levels of unemployment.

Health/epidemics

South Africa's health care system is functional and relatively advanced, but also costly and inaccessible. The real question is, what extent can the healthcare-system deal with an epidemic such as the Ebola-virus, currently largely contained in Western Africa? By October 2014, the World Bank has estimated that the tourism market in sub-Saharan Africa

experienced losses of \$36billion (R400 billion) due to stigma and perceptions about the capacity of the African continent to manage an epidemic with the magnitude and reach of the Ebola-virus.

Accounting for only 13% of the world's total population, 70% of people living with HIV are from sub-Saharan Africa (Impact of HIV and Aids, n.d). The Human Science Research Council reports that South Africa has made significant progress in fighting the incidence of HIV. This 2014 report reveals that since 2008 the nation has witnessed a decline in HIV incidences specifically among the younger population.

Encouraging as this reported decline is, little information is available on what the international perception is of HIV in the country. A study investigating the nature of British citizens that become HIV infected while spending time in another country, reveal that 15% of its' countries HIV positive population became infected while spending time abroad. South Africa was noted as the 3rd most common contributor to this number, preceded by Thailand and the USA (Rice, Gilbert, Lawrence, Smith, Kall & Delpech, 2012:3). Many instances of uninformed perceptions regarding HIV have been documented. However considering the search results on perceptions of South Africa, it is clear that the prevalence of HIV is of little importance in the consideration to visit the country.

Crime and safety

Looking at both popular and academic research it is evident that crime is possibly the largest risk factor for tourism. South Africa is often referred to as the crime capital of the world. According to Perry and Potgieter (2013:44) actual crime, as well as the mere perception thereof negatively impacts the well-being of the vast majority of South Africans and naturally impacts major economic sectors, such as tourism. This perception of fear about crime is further embedded in the public discourse by the media, social media and the internet. Social media, such as Facebook, Twitter, Blogs, etc., has

increased the frequency of sharing information about crime. Even though the extent to which these mediums influence perceptions about crime could be difficult to measure, there can be no doubt, that the ever present media reinforces images of fear, and levels of concern. It is no surprise that Ntuli and Potgieter (2001:6-7) find that the reports of national crime incidents impacts negatively on the international perception of South Africa as a tourist destination.

The good news is that it seems these negative perceptions are soon shattered as internationals actually visit the country. A report released by South African Tourism in 2010 showed that exiting visitors indicated high levels of satisfaction regarding their visit in general and specifically their experiences around safety and security. It could be argued that this data was gathered right after the World Cup was hosted in South Africa, and that during that time security measures throughout the country, but especially in tourist areas were significantly increased (SAT, 2010a).

More recently an overview of crime statistics recorded by the South African police service during the period 1 April 2013 to 31 March 2014 indicated a second consecutive increase in murder. Crimes relating to aggravated robbery, street or public robbery, house and business robbery and car hijacking also increased. Somewhat encouraging, the results show a decrease in crime relating to assault, sexual offences and rape. (FACTSHEET: South Africa's official crime, 2014).

Perry and Potgieter (2013) conclude that it has become imperative for South Africa to address perceptions relating to crime and security, if the sector is to continue as a key driver of job creation and strategic development of the country.

Environmental risks

Environmental factors

South Africa's greatest asset may well be its climatic conditions which is conducive to a wide variety of both indoor and

outdoor tourism. Compared to India and Asia, air pollution is not a factor in most parts of South Africa, mainly due to relatively low levels of industrialization. Water pollution is, however, a growing concern, mainly due to weak regulatory enforcement in mining areas such as Mpumalanga and the degeneration of municipal infrastructure, especially so in rural and peri-urban areas.

Natural disasters

Exposure to media has increased the general perception that we live in a world where natural disasters are ever increasing. This perception can be made true, as the number of natural disasters has shown as increase in recent decades (Faulkner, 2001). South Africa is fortunately not known for its frequency or severity of natural disasters. The scarcity of up-to-date statistics reinforces the notion that natural disasters are not seen as a significant threat. With the exception of flooding storms, drought and the occasional mild earth quake, the southern tip of Africa has been relatively free of severe disasters when it comes to nature. (South Africa – Disaster Statistics, 2010).

As noted earlier in this article, South Africa is experiencing a significant rise in amount of tourists visiting the country. This increase in visitors, especially to national parks has an impact on environmental factors, relating not only to sustainability but also to the overall experience of the visitor (Du Plessis, Van der Merwe & Saayman, 2011). Adding to this growing concern, South Africa also has existing environmental challenges. Like many countries in the world water is becoming a scarce commodity. The challenge of providing in this life source is aggravated by increased land use and a growing population. The World Wildlife fund list destruction of natural habitats, over fishing, and pollution to the list of South Africa's environmental priorities.

Social unrest

Social scientists place inordinate value on the notion of stability in developing political economies (Poirier, 1997). A distinction should be made between social unrest

and political instability even though the operational dissimilarity is not always obvious. 'Service delivery strikes' strikes

International risks

International risks are operative beyond the organizational reach of the local

industry and related sectors, but are often managed through treaties, bi-lateral or multi-lateral diplomatic arrangements or statutory regimes determined by international trade-practices. The list of indicators in table 2 is by no means exhaustive, but does reflect the dominant indicators in existing political risk research.

Table 2 - Risk index: International risks

Indicator	Value in relation to other indicators	Risk value 10=high risk 1=low risk	High/medium/low H = 7 - 10 M = 4 - 6 L = 1 - 3
Health	10	7	High
Perceptual risks	10	7	High
Terrorism	10	6	Medium
International crime	10	7	High
Natural disasters	10	2	Low
	50	29	Medium

Health

The Ebola virus causes rapidly haemorrhagic fever in the human body, and is more often than not fatal (Chandran, Sullivan, Felbor, Whelan & Cunningham: 2005). Ebola is originally transmitted to a human from a wild animal, then it spreads to other humans through direct contact with the blood, secretions, organs or other bodily fluids of an infected body (World health Organisation, 2014). March 2014 saw the largest outbreak of the virus in West Africa since the virus was first discovered in 1976. The current outbreak has seen the virus spread over borders to Guinea, Sierra Leone, Liberia, Nigeria, Mali and even Europe and the USA. The World Health Organisation declared the current outbreak a Public Health Emergency of International Concern on 8 August 2014 (Ebola crisis, 2014).

Fears relating to the prevalence of the virus in Africa are affecting the tourism industry. The Southern and Eastern regions of Africa are noting significant decreases in inquiries and bookings, despite being thousands of kilometres away from the affected areas. Tour operators attribute this to a misperception among international tourist about just how was Africa is. Early surveys indicate a

drop in bookings of up to 70% in certain instances (Karla Cripps: 2014:76). This effect is set to become even worse, since information supplied by the South African health department predicts 20 000 infections before the virus will be contained.

Terrorism

Research indicates that globally terrorist attacks most definitely have an impact on tourism. More specifically the frequency rather than the severity of the terrorism act impacts on the tourists' consideration to visit that specific area (Pizam & Fleischer, 2002).

Since the founding of democracy in 1994, terrorist acts in South Africa have been mainly criminal-based. The available literature shows that urban acts of terrorism mainly stem from Muslim fundamentalist groups and minority white, right-wing groups (MacFarlene, 2003). These acts often simply relate to criminal activities, and could be confused with terrorism (Boshoff, Botha & Schonteich, 2011).

After the 11 September 2001 attacks in New York, government birthed the Disaster Management Act 2002. At national, provincial and local levels the act

provides for risk assessment, limitation and disaster mitigation (MacFarlene, 2003).

Although no real International terrorist attacks have been recorded in South Africa, the country has been gaining a reputation for being a hiding place for terrorists. Specific reference can be made to the suspected al-Shabaab operative Samantha Lewthwaite. The notorious "White Widow", suspected to be an operative in the September 2013 shopping mall attack in Nairobi, Kenya had been residing in a Johannesburg suburb for more than two years, and had entered Kenya on occasion using a fraudulent South African passport. According to certain critical media reports, a current concern for South Africa should be the growing presence of al-Shabaab in the country (Al-Shabaab: How much of a threat, 2014).

Crime: International risk (Rhino horn poaching, money laundering)

South Africa is home to 80% of the world's rhino population. According to the World Wildlife Fund (WWF) rhino poaching has reached a crisis level. The trade in rhino horn is fuelled by the vast demand from the Asian medicine market. However the medicinal value of rhino horn has not been proven, scientifically or otherwise. As a traditional medicine the horn is highly prized as a wrongly perceived cure for illnesses ranging from nosebleeds to impotency. This enormous demand has led to the creation of a highly profitable and extremely organised international poaching syndicate. These syndicates are well funded, allowing them to operate using advanced technologies and expensive equipment.

Compared to rest of Africa, South Africa has taken the lead in conservation efforts when it comes to rhino poaching. According to the Wildlife and Environment Society of South Africa in 2014, 232 arrests relating to poaching have been made. When considering the available statistics on rhino poaching it becomes frighteningly clear that conservation efforts

r have not seemed to deter poachers. In 2010 333 rhinos were poached for their horn throughout the country. That fatality figure has risen staggering 1004 rhinos poached in 2013. Year to date 2014 has already produced 791 rhino killings with just fewer than 3 months of the year still remaining (Current rhino poaching stats, 2014).

Conclusion

The quantification of social constructs as an analytical method is used in various social sciences disciplines. The theoretical discourse as regards quantification as well as qualitative analysis is embedded in a recognized scholarly history. Tourism and both the internal and external risks which affects the operational functionality of the industry, however, is most often only assessed descriptively or on the basis of qualitative extrapolation. Perhaps the greatest advantage of the quantification of social constructs is that it allows for longitudinal analysis and review. Another, secondary, advantage is that when combined with qualitative analysis, it allows for a more complex understanding of the relevant variables and also a more challenging analysis of the relational tissue between variables.

This article briefly reflects on indicators of risk which are generally considered to be approximate to the industry. It was not the intention to redesign or review the validity of the indicators, but merely to reflect on them quantitatively for the purpose of emphasizing a suggested methodology. The important point is that quantitative methods might not provide for a sufficient analysis of any research project and in this case certainly not of the tourism industry. But, in combination with qualitative analysis it will enhance the capacity to extrapolate or even predict risks to the industry - in general, but also to sectors within the industry. A time-dimension is added to the equation as quantitative analysis is more suited to longitudinal research designs, which should provide for a greater understanding of the risks

permeating the environment in which the

industry or sectors of the industry operate.

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