

THE ROLE OF INSURANCE AND TOURISM INDUSTRIES IN ACHIEVING CLIMATE RESILIENCE

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Abstract

Purpose – Global warming and the consequential climate change effect have an impact across multiple lines of insurance and tourism industry. The paper is focused on the interest and role of both the insurance and tourist industries in financing and implementing the policies of protection of natural resources.

Design – First chapter describes environmental vulnerabilities, while the second one identifies specific features of Croatia. The third chapter proposes sustainable solutions, fourth chapter emphasizes the need for new insurance products and the fifth one defines long-term obligations for resilient tourism industry.

Methodology – Given holistic focus of the topic, the authors applied qualitative research based on observations, authors' previous research and experiences and the reports on current research on the subject, with emphasis on the Republic of Croatia.

Approach – The authors implemented holistic approach.

Findings – Insurance industry should play major role in increasing resilience through following measures: 1. introducing obligatory climate insurance policy for businesses in general, 2. loss prevention, 3. charging high premiums for developments taking place in the vicinity of vulnerable natural resources that provides protective service, and 4. linking insurance business policy to the compliance of tourist and also other undertakings with non-financial reporting requirements and initiatives, such as those implementing the triple bottom approach which besides financial, also considers environmental and social aspects.

Originality of the research – The paper provides original framework for preservation from the part of industries that have and should have a longer-term financial interest in existence of natural landscape and resources.

Keywords environmental law, ecology, climate changes, insurance industry, tourism industry, resilience

INTRODUCTION

Tourism is contributing substantially to the global economy and supports the livelihoods of an estimated one in ten people worldwide. Much of that tourism depends on the natural world – on beautiful landscapes and seascapes and man's connection with nature itself. Coastal and marine tourism represent a significant share of the industry and is an important component of the growing, sustainable Blue Economy, supporting more than 6,5 million jobs. With anticipated global growth rates of more than 3,5%, coastal and marine tourism is projected to be the largest values-adding segment of the ocean economy by 2030, at 26% (Brumbaugh 2017, 1).

Tourism simultaneously depends on and exerts an impact on local natural environment. About urban environment, making the cities, communities and localities healthier for own inhabitants automatically enhances their attractiveness for tourists (Runko Luttenberger 2013, 389).

Considering that global warming and the consequential climate change effect have an impact across multiple lines of insurance and tourism industry the paper elaborates the role of both the insurance and tourist industries in financing and implementing the policies of protection of natural environment. The paper describes environmental vulnerabilities, identifies specific features of Croatia, proposes sustainable solutions, emphasizes the need for new insurance products and defines long-term obligations for sustainable tourism industry.

1. ENVIRONMENTAL VULNERABILITY

Given that natural environment represents an asset of the locality and tourist destination and that uncontrolled expansion of tourism leads to environmental destruction, tourism may consequently destroy its own base.

Besides excessive energy consumption entailing climate change, other detrimental effects on the environment are the way of living, land use, and consequently physical planning favoring intense tourist development involving deforestation, expansion of impervious surfaces and transport infrastructure, pollution in storm runoff, pollution of rivers, lakes and the sea, the quantity of water directed into aquifers, water transport, the problems with seasonal solid and liquid waste management, roads and other utilities.

Negative impacts of tourism therefore involve those from tourist development (e.g. hotels, resorts, marinas, roads) and from the tourists themselves. Some of the most pertinent ecological impacts in coastal areas are listed hereinbelow (Runko Luttenberger and Luttenberger 2016, 405-406):

- Loss of terrestrial and freshwater habitat caused by clearing of vegetation for site preparation and changed land use of the surrounding environment,
- Loss of habitat in offshore areas caused by dredging or reclamation works, construction of berthing facilities and marinas, changed circulation patterns caused by water-based facilities, by the earthworks on land near the shoreline, and anchor damage from large cruise ships and other vessels,
- Decline in water quality, eutrophication caused by sewage discharges,
- Presence of hazardous substances in seawater,
- Shadow and lighting,
- Noise (underwater and above water)
- Visual impact upon shoreline areas,
- Development in scenic and pristine coastlines,
- Significant use of ozone depleting substances (ODS) by refrigerators, air conditioners, propellants and emissions from jet aircraft,
- Climate change.

With regard to climate change, since tourism involves the movement of people from their homes to other destinations it contributes significantly to the rising concentrations of greenhouse gases in the atmosphere. Conversely, climate change and natural disasters such as floods, wildfires, avalanches, droughts and diseases can have a serious effect on local tourism industry. Global warming may cause harm to vulnerable ecosystems, it results in rising sea levels which threat coastal and marine areas with widespread floods, with beaches and islands that are major tourist attractions being the first to be affected (UNEP 2015, Luttenberger and Runko Luttenberger 2015, 516).

Investment in adaptation certainly requires anticipating climate change impacts at a local level, and there is large uncertainty in future climate change at this particular scale (Herweijer et al. 2009, 364)

2. SPECIFIC FEATURES IN CROATIA

Regional development is identified with intense construction activity which at the same time means the removal of natural land vegetation cover. That is particularly pronounced in the Republic of Croatia, a country of exceptional natural beauty, biodiversity, geodiversity and rich cultural heritage that is precisely for the sake of its attraction exposed to the pressures of new construction, particularly along the Adriatic Coast.

Croatian coast is thus undergoing intense urbanization. The last 50 years witnessed fourfold development of coastal areas compared to that undertaken by all preceding generations together (Nactr Strategije 2015, 51). Dominant tourist development model in Croatia are greenfield investments associated with creation of new impermeable surface areas which result in increased quantity, duration, intensity and destructive character of storm water runoff and an additional route for transmitting the pollution, reducing the recharge of underground waters and rendering possible the microclimate change. Croatia is particularly vulnerable because it has a wide variety of exceptionally sensitive ecosystems, including karst.

Thus, planning and development models prevail which greatly impair Croatian ecosystems and put enormous costs on the taxpayers for developing the utilities that will serve such undertakings.

At the same time, it is often neglected that trees and plants stabilize the soil, recycle nutrients, cool the air, modify wind turbulence, intercept the rain, absorb the toxins, reduce fuel costs, neutralize sewage, increase property values, enhance social awareness, provide beauty, cut noise, give privacy, promote tourism, encourage recreation, reduce stress, and improve personal health as well as provide food, medicine and accommodation for other living things (Beckham 1991, 2).

Where there are more trees, there is greater rainfall (Fitzgerald 2006, 4). Vegetation fulfils the function of a valve between the ground and the atmosphere, providing the cooling and air-conditioning capability (Kravčik 2007, 15).

In no other Croatian region is the issue of anti-erosion and water protection function of forests so pronounced as it is in the Mediterranean (Matić et al. 2005, 20). Public benefit functions of forests are thus more pronounced in the Mediterranean than in continental part of the country (Jurjević et al. 2011, 521).

Croatian Mediterranean area is the one for which it may be claimed that each tree in karst terrain has an exceptional value as an ecological niche for numerous living organisms. Jurjević et al. mention camping grounds that use parts of the forest, where a guest approaches nature, but exerts potential damage to a forest. Camping grounds of today are unfortunately set up in a way that trees are cut and container-type accommodations are laid, so that camping grounds lose their originally designated purpose by becoming the spaces where great quantities of water are consumed from municipal infrastructure and enormous quantities of waste generated. Consequently, their carbon footprint is significant.

3. SUSTAINABLE SOLUTIONS

Sustainability would imply less roads and utilities mileage, reduction of impermeable surface area, reduced pollution, reduced greenhouse gas emissions, along with improved ecosystem and water management. Communities, would thus be made more livable for local inhabitants and more attractive for tourists.

Worldwide, there are examples of simple, cost-effective, natural solutions to climate change that offer sustainable protection for communities and protect residents' ability to make a living. Cultivating mangrove growth is one solution that has proven to be tremendously successful in warding off coastal erosion, drastically reducing storm surges and protecting biodiversity needed to sustain the fishing industry. Coral reefs, mangroves, wetlands, and sand dunes are the first lines of defense, recognized for their ability to slow waves, reduce flooding and protect infrastructure (Baughman McLeod and Scheurer 2016, 3). Protecting and restoring the natural infrastructure of source watersheds can directly enhance water quality and quantity (Abell 2017, 1). Storm-water management capacity can be improved, and heat island effect mitigated (Town of Gibsons 2015, 14).

In the case of specific geology and vegetation in Croatia, the focus should be placed on afforestation, careful land use, long-term coastal zone management, and less impermeable surfaces to avoid flooding and pollution of the sea.

The governance of the risks from climate change needs both urgent at reducing global emissions and adapting to climate changes at local level.

Draft Low-carbon Development Strategy in Croatia (MZOE 2017) which should in an integrated manner set out measures, priorities and implementation for resilient and sustainable development mentions tourism superficially, mainly in the context of energy efficiency in buildings, green branding and establishing sustainable destinations, without further elaborating what such destinations and obligations of stakeholders operating therein imply. Final document should in authors' opinion perceive all the pressures of

tourism development and tourists on transport and utilities infrastructure as well as land use and provide for appropriate physical planning, less reliance on fossil fuels and preservation of natural resources. True low carbon strategy would certainly bring opportunities through decentralization not only in energy sector, but also in water and waste management and stimulate small-scale agriculture. That would result in higher local employment, less costly living, healthier environment and certainly high-quality tourism.

4. THE NEED FOR NEW INSURANCE PRODUCTS

According to Elkington, one key shift that will drive us is surely the awakening of financial markets to key elements of the triple bottom line (TBL) agenda (which besides financial performance considers environmental and social dimensions) over the next decade (Elkington 1999, 27). The scale of the losses sustained to date by the insurance industry is mind-numbing. For example, as much as a fifth of the losses which rocked Lloyd's insurance market to its financial foundations were linked to policies covering risks related to asbestos, soil contamination, and toxic or radioactive wastes, but now something new is looming on the horizon. When Hurricane Andrew hit Palm Beach, Florida in 1992, the resulting claims soon totaled \$16 billion and the losses were so catastrophic that the reinsurance market shrank almost overnight (Woolf 1996).

The insurance industry is investing in global climate modeling and exploring ways to drive the necessary changes (Elkington 1999, 28).

Insurers are conscious that threat to insurance industry and the global economy is precisely not acting to combat climate change. Insurance coverage is characterized by increased deductibles, reduced limits, and exclusions also in commercial insurance markets such as hotels and the energy sector. Insurers are realizing that a more proactive, holistic approach to climate change presents significant opportunities to grow revenues, reduce risk and improve brand value. Insurers are called upon to pursue climate change solutions to ensure the preservation of private insurance markets (Mills 2009, 324).

Insurance has over the years protected us financially, and physically by reducing the risks and helping solve big societal challenges (Baughman McLeod 2015, 1). Just as the insurance industry has historically minimized risks from building fires, earthquakes, and improved auto safety, it has a huge opportunity to develop creative solutions and products that will reduce climate-change related losses for consumers, government and insurers (Mills 2009, 336).

The industry began to demand that cities upgrade their infrastructure – adding fire alarms, escapes and hydrants and enacting building codes to make structures more resistant – to qualify for coverage. Early fire stations were owned by property insurance companies. All that resulted in safer cities, novel infrastructure and fewer disasters. As natural systems have a role in reducing climate-related disaster risks, there exists a huge opportunity to protecting people, reducing costs, and saving/restoring nature (Baughman McLeod 2015, 2).

United Nations Framework Convention on Climate Change (UNFCCC) in its Art. 2 aims to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. According to Art. 4.8 UNFCCC calls for the actions related to funding, insurance and the transfer of technology, to meet the specific needs and concerns of developing country Parties arising from the adverse effects of climate change and/or the impact of the implementation of response measures (UNFCCC, 1992).

Kyoto protocol to the United Nations Framework Convention on Climate Change (Kyoto Protocol 1998) in Art. 3.14 is highlighting the obligation for considering what actions are necessary to minimize the adverse effects of climate change and/or the impacts of response measures, among others, the establishment of funding insurance and transfer of technology (Kyoto Protocol 1998).

Possible approach in solving the issue is the establishment of a climate insurance framework with the capacity to support weather disaster insurance systems in high-risk areas jointly with risk occurred financing (Linnerooth-Bayer, Mechler, 2006, 393).

The insurance industry, which covers financial losses once an accident or disaster occurs against premium to pay, has a role in increasing the resilience and should practice proactive approach in reducing climate risk. Those could be accomplished through a range of measures such as introducing obligatory climate insurance policy for businesses in general and tourism industry in particular. The aim could be achieved through improving loss prevention, and/or charging high premiums for developments taking place in the vicinity of vulnerable natural resources that provide protective service.

Insurance industry should link their business policy with the compliance of tourist and other undertakings to non-financial reporting requirements and initiatives described in the following chapter.

5. LONG-TERM OBLIGATIONS FOR RESILIENT TOURISM INDUSTRY

In the case with water, which can be used as an illustration, stakeholders – corporations, as core beneficiaries of water security, are key champions and leaders in water security efforts. Corporations should explore where they face business risks related to water quality or availability, including indirect use such as the power their operations depend upon, and partner with the civil and government sectors to establish water funds in those locations. Corporations might also explore where their own business operations might be expanded to deliver some of the components required to achieve source water protection (Abell 2017, 15). This principle should apply to any other natural resource on which corporations depend in long term.

That nature is the foundation for much of the world's tourism is clear – travelers are willing to pay a premium for a room with a view, and words like pristine, remote and unspoiled are frequently assigned to amenities like beaches, coral reefs and panoramic seascapes. The dependency of the travel and tourism industry on a healthy environment goes much deeper than that, however. Not only does a reef provide entertainment value

for seaside visitors, but it can deflect waves that cause erosion and reduce the risk of storm surges that can harm the industry's bottom line (Brumbaugh 2017, 1).

Clearly, nature contributes enormous value to tourism and other industries. But one of the challenges is knowing exactly where these benefits are produced in the first place. This knowledge can enable smarter investments in management and conservation actions that support both nature and the tourism businesses that support coastal economies. Tourism industry should acquire knowledge of the true value of natural assets to make more informed decisions concerning the management and conservation of natural resources on which it depends. The value of nature should be institutionalized into business practices and corporate sustainability investment and business opportunities captured when we realize that we need nature (Brumbaugh 2017, 3).

As mentioned above, depending on some locality, circumstances and surroundings, tourism may potentially exert actual negative effects on the environment, local and wider community, as well as the economy. Therefore, methods of valuation thereof should be considered and developed as basis for taking decisions on the policy, intensity, and method of development of this vital sector (Runko Luttenberger and Luttenberger 2016, 405).

Also, growing portion of the sustainability agenda will by default end up with the business and civil society, the institutions and public activities that create the social context within which markets evolve and business is done (Elkington 1999, 28).

Corporations are being held responsible for a range of activities and non-financial impacts. They are being called to account not only by investors and shareholders but by politicians, whistle blowers, the media, employees, community groups, prosecutors, class-action lawyers, environmentalists, human rights advocates, public health organizations, and customers (Savitz 2014, 6).

Directive 2014/95/EU regulates the obligation for large undertakings which are public-interest entities exceeding the average number of 500 employees to include in the management report a non-financial statement containing information to the extent necessary for an understanding of the undertaking's development, performance, position and impact of its activity, relating to, as a minimum, environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters (Directive 2014/95).

The disclosure of non-financial information is the legal basis for measuring, monitoring and managing of undertakings' performance and their impact on society. Environment performance indicators (GRI 2000-2011) organized by authors in table 1 may be the basis for non-financial environmental reporting for entities operating in tourism, and the monitoring thereof also the prerequisite for defining the rules of insurance.

Table 1: Environmental indicators GRI, core and additional

Materials	EN1	Materials used by weight or value
	EN2	Percentage of materials used that are recycled input materials
Energy	EN3	Direct energy consumption by primary energy source
	EN4	Indirect energy consumption by primary source
	EN5	Energy saved due to conservation and efficiency improvements
	EN6	Initiatives to provide energy-efficient or renewable energy-based products and services, and reductions in energy requirements as a result of these initiatives
	EN7	Initiatives to reduce indirect energy consumption and reductions achieved
Water	EN8	Total water withdrawal by source
	EN9	Water sources significantly affected by withdrawal of water
	EN10	Percentage and total volume of water recycled and reused
Biodiversity	EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas
	EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas
	EN13	Habitats protected or resorted
	EN14	Strategies, current actions, and future plans for managing impacts on biodiversity
	EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk
Emissions, effluents, and waste	EN16	Total direct and indirect greenhouse gas emissions by weight
	EN17	Other relevant indirect greenhouse gas emissions by weight
	EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved
	EN19	Emissions of ozone-depleting substances by weight
	EN20	NO _x , SO _x , and other significant air emission by type and weight
	EN21	Total water discharge by quality and destination
	EN22	Total weight of waste by type and disposal method
	EN23	Total number and volume of significant spills
	EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally
	EN25	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff
Products and services	EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation
	EN27	Percentage of products sold and their packaging materials that are reclaimed by category
Compliance	EN28	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations
Transport	EN29	Significant environmental impacts of transporting products and other tools and materials used for the organization's operations, and transporting members of the workforce
Overall	EN30	Total environmental protection expenditures and investments by type

Data source: GRI 2000-2011, Indicator Protocol Set Environment (EN)

Communication from the Commission is intended to help companies disclose high quality, relevant, useful, consistent and more comparable non-financial (environmental, social and governance-related) information in a way that fosters resilient and sustainable growth and employment and provides transparency to stakeholders. As an example, a company may consider including specific disclosures explaining actual carbon emissions, carbon intensity, use of hazardous chemicals or biocides, natural capital impacts and dependencies, comparison versus targets, developments over time,

mitigating effects of policies implemented and plans to reduce carbon emissions (Guidelines 2017).

The non-financial reporting therefore ceases to be mere listing of environmental and social aspects of making business and is even more becoming the quantification, analysis and reporting of material aspects for the company and its stakeholders (Vukić 2015, 50). What gets measured gets done. The very establishment of a reporting mechanism – the TBL – creates pressure on companies to improve their behaviour (Savitz 2014, 237).

There is also another aspect to be considered in preserving natural resources, besides insurance and non-financial reporting. According to current concept of law, nature is the property. It is therefore the task of humans themselves to redefine relationships in the society and to dismiss the belief that the Earth belongs to them. The new Earth-centric approach to environmental protection defines status of a human being in the environmental context, with that the nature is designated as being a center of the system. Present environmental law, being an element of the existing humancentric system, should be upgraded with achievements of the Earth-centric approach (Runko Luttenberger and Luttenberger 2012, 42).

CONCLUSION

Given holistic focus of the topic, analysis is made of the possibilities of valuing nature in a way that would foster financing of its preservation from the part of tourism industry that has and should have a longer-term financial interest in preserving natural landscape and resources. Tourism industry should be subject to the obligation of sustainability reporting which considers financial, environmental and social aspects.

Insurers are important stakeholders in educating and informing potential customers on risk management for climate change and loss prevention procedures. Moreover, first class insurers have capacity to finance measures to reduce the risk rate and to improve the resilience of properties to damage.

Authors are advocating for a major role of insurance in increasing the resilience and practicing proactive approach in reducing climate risk. The following options should be considered: 1. introducing obligatory climate insurance policy for businesses in general, 2. loss prevention, 3. charging high premiums for developments taking place in the vicinity of vulnerable natural resources that provide protective service, and 4. linking insurance business policy to the compliance of tourist and also other undertakings with non-financial reporting requirements and initiatives, such as those implementing the triple bottom approach which besides financial, also considers environmental and social aspects.

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