

MODEL OF SUSTAINABLE TOURISM – THEORETICAL AND EMPIRICAL APPROACH

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Abstract

Purpose. This paper is devoted to the presentation of a model of sustainable tourism.

Method. The main objective of sustainable tourism assumed in the model is to strive toward a balance in reaping benefits by two main groups of stakeholders in tourism: tourists and local communities in destinations; at the same time it is assumed that an acceptable level of the degradation of natural and sociocultural tourist resources cannot be exceeded.

Findings. The model is presented in graph form from a mathematical function. Conditions of sustainability and unsustainability are described by means of algebraic notation.

Research and conclusion limitations. The model presented in the paper constitutes a kind of simplification of empirical reality. The author has striven to take into account those features (and interdependencies occurring between them) which have particular influence on sustainability or unsustainability. Empirical verification of the model has been conducted in three different destinations. This was a piloting study.

Practical implications. The model has been subject to a tentative verification project carried out in: Turkish Mediterranean coast and Polish Western Pomerania regions in 2013 as well as in the Republic of Cyprus in 2014. The results of this research point out that the model can be used as a good tool for the evaluation of tourism in different destinations.

Originality. Relatively weak theoretical grounds, combined with the ambiguity and diversity of views on sustainable tourism as well as the descriptive approach, which dominates in the literature, have prompted the author of this paper to make an attempt to render the essence of sustainable tourism in a model approach.

Type of paper. The article is of a review character and it presents a theoretical conception. The paper includes a number of case studies that were used for empirical verification of the model.

Key words: sustainable tourism, model approach, theoretical assumptions, empirical verification, Cyprus, Poland, Turkey.

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Introduction

The notion of sustainable tourism refers to a wider conception of sustainable development [Coccosis, Parpairis 2000; Harris, Leiper 1995; Hunter 1997; Lanfant, Graburn 1992; Leśniak 2008; Liu 2003], which stresses the need for rational management of natural environment resources. The first sign of the need for change on a global scale within the general understanding of economic development was the report of the Secretary-General of the United Nations, S. U Thant, entitled “Man and His Environment”, published in 1969. Another significant report was the 1st Report of the Club of Rome entitled “Limits to Growth”, published in 1972. The problems of threats to the natural environment were the main subject of the discussion during the UN conference in Stockholm (the *Stockholm Conference*), which took place in the same year. Around that time, the term “sustainable development” was first introduced. The next important milestone in the discussion on sustainable development was the publication of the report entitled “Our Common Future” [1987], which contained a summary of the activity of the World Commission on Environment and Development (the *Brundtland Commission*). This document introduced a fundamental (and still valid) assumption according to which sustainable development sought to “meet the needs and aspirations of the present without compromising the ability to meet those of the future.” In 1992, in Rio de Janeiro, the United Nations Conference on Environment and Development (the *Earth Summit*) took place. Two important documents were adopted during that conference. The first document was the *Rio Declaration*, which contained 27 principles defining the rights and duties of nations in the field of sustainable development, and the second one was called *Agenda 21*, a global action plan which proposed actions necessary to ensure sustainable development and a high quality of life [Kowalczyk 2010; Niezgoda 2006].

Tourist conceptions related to the principles of sustainable development began to appear in international literature on a larger scale in the mid-1980s. It should, however, be noted that as early as 1965, W. Hetzer formulated the notion of *responsible tourism*, which in fact was very close to the principles of sustainable development in tourism [Blamey 2001; Leslie 2012]. It seems that the discussion about new ways of developing tourism began with the conception of *alternative tourism*. The first definition of the term was coined by J. Krippendorff, who published an article in 1986 entitled “Tourism in the system of industrial society” (in the *Annals of Tourism Research*). As the term “alternative” suggests, the idea was conceived in opposition to mass tourism, which the supporters of Krippendorff’s views considered the “bad option”. Alternative tourism, often identified with small-scale tourism and treated as the “good option”, was meant to oppose the “bad option” [Clarke 1997; Lanfant, Graburn 1992; Szwichtenberg 1993; Weaver 2001a; Weaver 2001b].

The same period saw also the appearance of various conceptions connected with *ecotourism*; the first definition of this term was proposed

by H. Ceballos-Lescuráin in 1987 [Kowalczyk 2010]. At the same time, scholars began to introduce other terms similar to *ecotourism* or *alternative tourism*, for example *green tourism* (*tourisme vert, nature-based, naturnäher*), *soft tourism* (*saufere Tourismus*), *nature tourism*, *environmentally-friendly/environmentally-sensible tourism*, *responsible tourism* (*angepasst*), *discreet tourism*, *appropriate tourism*, *ecoethnotourism*, and *pro-poor development* [Boo 1990; Cater, Lowman, Hill et al. 2006; Hunter 1997; Krippendorf et al. 1998; Niezgoda 2006]. Interestingly, the authors of these definitions stressed primarily the desired way of cultivating tourism, the natural-environmental aspect and the small scale of the phenomenon. They often adopted an evaluating approach and juxtaposed the “new” forms of tourism with the “old” ones, by which they usually meant mass tourism [Wall 1993; Wheeler 1993].

A broad overview of definitions of sustainable tourism was included in R.W. Butler’s paper entitled “Sustainable tourism: a state-of-the-art review” [1999]. This author was particularly skeptical towards the view that sustainable tourism constituted a panacea for all contemporary tourism’s problems and consequently presented his own view on the meaning of sustainability in tourism. He claimed that sustainable tourism could be seen in two ways [Butler 2005]. First, it could be approached from a semantic-dictionary side, interpreting the feature of sustainability as a guarantee of a long-term survival on the market. According to M. Mika [2008], such an approach seems to be closer to the representatives of economic sciences, who stress the problem of the self-maintenance character of tourism development. The second way of understanding sustainable tourism that Butler mentioned was much closer to the conception of sustainable development; it suggested treating sustainable tourism as a tool for the development of destination areas without breaking the principles of sustainable development. Obviously, this attitude was closer to the representatives of environmental science and the humanities. Butler’s view on the ambiguity in understanding the term “sustainable tourism” was later supported by A. Niezgoda [2006], who claimed that the conception of sustainable tourism had appeared as a result of research on interrelations between tourism, environment and development. According to Niezgoda, sustainable tourism was treated by scholars as a tool for the realization of sustainable development or a tool for the development of tourism itself. B. Lane [1994] used the term “sustainable tourism” to distinguish the rules, legal regulations and methods of management that determine development of tourism in areas of high natural or cultural merits in need of protection [Kowalczyk 2010]. T. Forsyth [1997] understood the term similarly as he claimed that sustainable tourism could not cause harm to the natural and cultural environment.

An entirely different scientific perspective was adopted by B.H. Farrell and L. Twinning-Ward [2003]. In the article entitled “Reconceptualizing Tourism”, they postulated a total change in the methodological approach to the studies on tourism (including sustainable tourism). First, they criticized

strongly the hitherto, according to them the most widespread, way of conducting research in the field of tourism; they disapproved of basing research on narrow specializations, assuming predictability of phenomena and the presence of cause and effect and linear reductionism. They claimed that such an approach, due to the complexity and unpredictability of the behavior of tourist systems and systems influencing tourism, could not guarantee satisfactory results. Instead, they proposed a new paradigm that was based on an interdisciplinary approach encompassing relatively new fields, such as: ecosystem ecology, ecological economics, global change science and complexity theory. They assumed that natural and social systems functioned in a relatively independent and non-linear way and consequently postulated an implementation of the complex adaptive systems theory into the studies of tourism. Simultaneously, they introduced the notions of comprehensive tourism system and complex adaptive tourism systems (CATS).

The essence of sustainable tourism was not only extensively discussed by the world of academia, but also presented and explained to the public in a variety of declarative, explanatory or quasi normative institutional documents. Among numerous publications of this type, one should note i.a. the "Charter for Sustainable Tourism" (adopted in 1995), whose signatories agreed that development under the influence of tourism should refer to the principles of sustainable tourism, i.e., it should take into consideration the long-term needs of the natural environment, positively affect a given economy and be acceptable in terms of ethics and culture for local communities. The same document stated that tourism should contribute to sustainable development through a strict integration with natural and anthropogenic environments in destination areas. Also in 1995, the World Travel and Tourism Council, the United Nations World Tourism Organization and the Earth Council accepted the document entitled "Agenda 21 for the Travel and Tourism Industry: Towards Environmentally Sustainable Development" [1995]. This document defined i.a. the priorities of sustainable tourism. In 1999, the United Nations World Tourism Organization published the "Global Code of Ethics for Tourism", which took into consideration the postulates of sustainable tourism. In 2004, the same organization stated that the principles of sustainable tourism should apply to all forms of tourism (including mass tourism). The authors of this document also stated that the principles of sustainable development in tourism should concern environmental, economic and socio-cultural issues to the same degree in order to ensure a long-term balance [*Sustainable development of tourism. Conceptual definitions* 2004]. Finally, in 2008 during the World Conservation Congress, which took place in Barcelona, a document containing the "Sustainable Tourism Criteria" was adopted. As a kind of summary, it may be useful to refer to the United Nations World Tourism Organization, which stated in 2004 that the principles of sustainable development should be applicable as much as possible to all forms of tourism, including mass tourism, and to all aspects of the phenomenon: natural, sociocultural, and economic.

Simultaneously, it should be noted that the extensive scientific literature concerning sustainable tourism focuses its attention primarily on descriptive presentations of various aspects of the phenomenon, with particular emphasis on the idea, the origins and the evolution, related terminological issues and case studies. The authors make much effort to reveal the relationships between sustainable tourism (as a form of tourism development) and particular types of tourism (as forms of tourist movement). Worth mentioning here are skeptical voices, which question the role that sustainable tourism is being ascribed – that of a remedy for all the problems of contemporary tourism. It also seems that, taking into consideration the hitherto scientific output related to sustainable tourism, the works devoted to the theoretical aspects of sustainability in tourism are in minority.

Relatively weak theoretical grounds, ambiguity and diversity of views on sustainable tourism and dominance of a descriptive approach in the literature have prompted the author of this article to make an attempt to render the essence of sustainable tourism in a model approach¹. The construction of the model can be considered an instance of pure, conceptual research [as defined by Shuang, Tribe, Chambers 2013], but the verification of the model presented in the second part of the article is based on an empirical-qualitative analysis. While creating the theoretical model, the author sought to take into account all main features of sustainable tourism (and interrelations occurring among them) and to simultaneously follow certain basic guidelines, i.e., to ensure completeness, versatility, clarity and simplicity of the model.

Model Approach as a Tool Used to Present Selected Aspects of Sustainable Tourism

The author acknowledges the fact that some attempts to render the essence of sustainable tourism in a model approach have already been made, but it seems that they concerned, in majority, only particular aspects of sustainable tourism [Butowski 2012]. The issue of the evolution of the phenomenon, including the relations between alternative tourism, ecotourism and mass tourism, as well as the commonalities with sustainable tourism, was presented i.a. by A. Niezgodna [2006]. Model relationships between sustainable tourism and unsustainable tourism (often identified with mass tourism) have been an area of interest to other authors as well. Among them were D.A. Fennel [1999], R. Turner, D. Pearce and I. Bateman [1994] and D.B. Weaver [2001a], who claimed that it was impossible to set a clear boundary between sustainable and unsustainable forms of tourism. After analyzing various aspects of the supply side of tourism (attractions,

¹ First writings by L. Butowski concerning modeling of sustainable tourism (without empirical findings) were published in English (Butowski 2012) and in Polish (Butowski 2013).

transport, accommodation, product), Fennel put forward a concept of several stages of sustainable tourism. Weaver claimed that mass tourism (closer to unsustainable tourism) constituted a kind of continuum of alternative tourism (closer to sustainable tourism), and therefore these two should not be treated as separate, opposing categories. Two kinds of inferences can be drawn from the opinions of these authors. On the one hand, they both argued that the principles of sustainable development should be taken into consideration as much as possible in all forms of tourism (Figure 1); this would seem to suggest a desired direction of change from unsustainable tourism to sustainable tourism. On the other hand, Weaver's argument about mass (closer to unsustainable) tourism being a continuum of alternative (closer to sustainable) tourism seems to lead to the conclusion that the direction of change is rather undesirable, from sustainable tourism to unsustainable tourism. Both situations are illustrated in Figure 1.

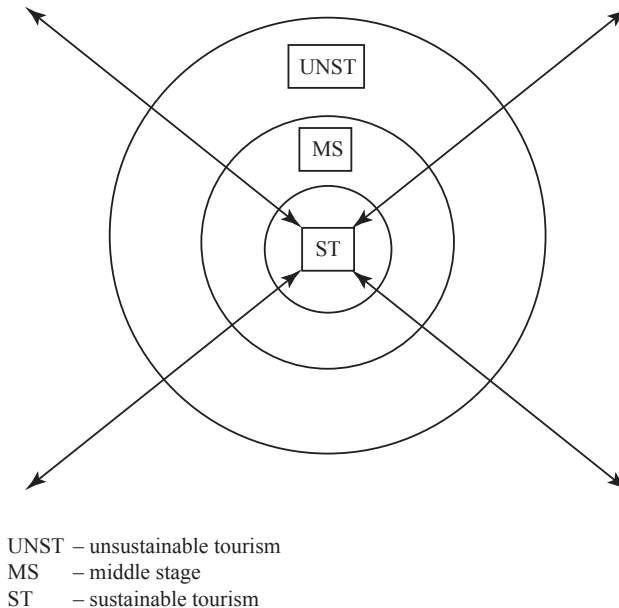
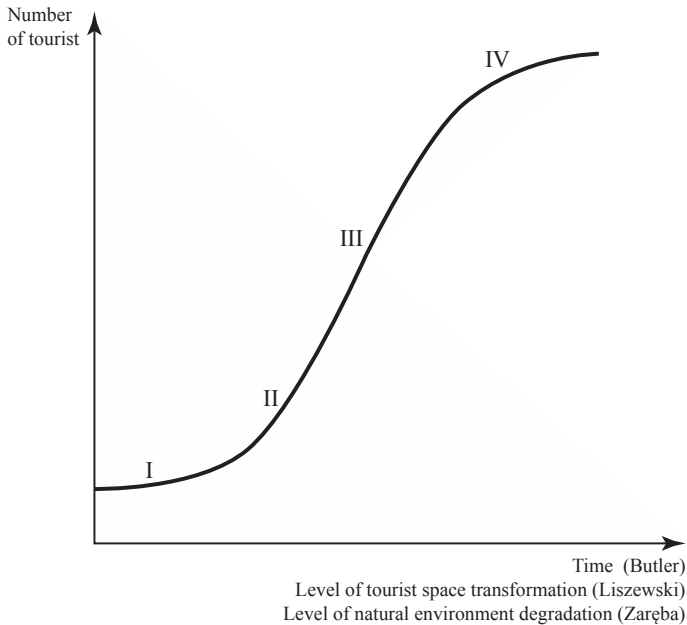


Figure 1. Sustainable and unsustainable tourism as a continuum of bidirectional changes
Source: Own elaboration based on: Fennel [1999], Turner, Pearce & Bateman [1994] and Weaver [2001a].

A similar conclusion concerning the occurrence of undesirable direction of change can be drawn from an analysis of three models of tourism: 1) of tourist area life cycle (TALC) by R.W. Butler [1980]; 2) of tourist space by S. Liszewski [1995]; and 3) of changes in the natural environment under

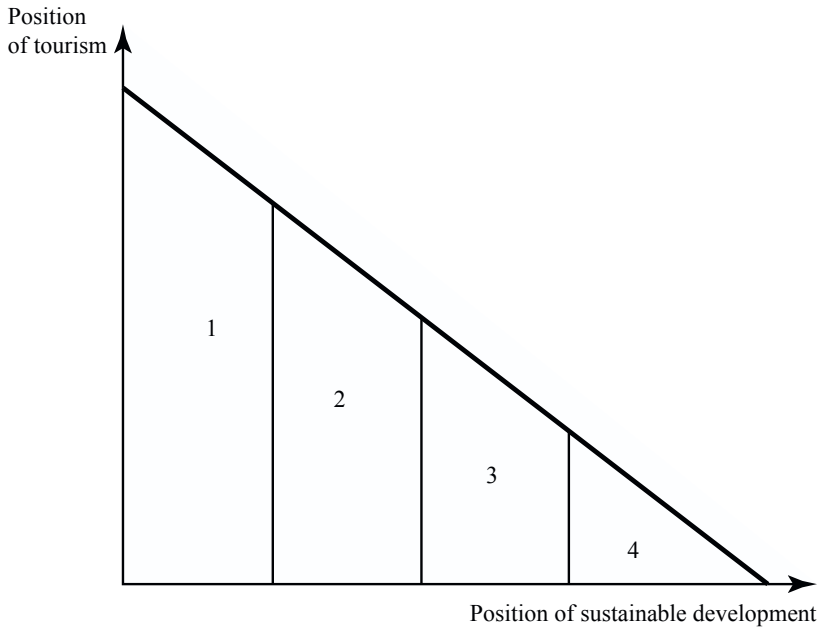
the influence of tourism by D. Zaręba [2010]. The curves of dependencies between the number of tourists in a given destination area and the time (Butler), the level of tourist space transformation (Liszewski), and the level of environment devastation (Zaręba) are quite similar. A closer investigation of the curves in the three models (simplified for the sake of comparison) suggests that there are four stages of change in the direction from the state of an original balance to the state of a new balance in a transformed, i.e., devastated in terms of nature, environment (Figure 2).



Conception Stage	Tourist area life cycle by Butler (1980)	Changes in the natural environment (based on Zaręba, 2010)	Types of tourist space by Liszewski (1995)
I	Exploration	Original balance	Exploration
II	Introduction	Threat	Penetration
III	Development	Degradation	Colonization
IV	Consolidation and stagnation	New balance	Urbanization

Figure 2. Tourism as a function of time, spatial changes and environmental changes
Source: Own elaboration based on: R.W. Butler [1980], S. Liszewski [1995] and D. Zaręba [2010].

A model conception of degrees of tourism development in relation to different (in terms of the natural environment and socio-economics) destination areas was also proposed by C. Hunter [1997]. This author conducted a contrastive analysis of the position of tourism and sustainable development on diverse areas and, based on that analysis, distinguished four variants of the functioning of tourism in the conditions of sustainable development. His conception can be illustrated with a graph of decreasing function showing relations between tourism and sustainable development (Figure 3). Hunter's model is controversial in that it excludes the possibility of wide scale tourism development that would take the principles of sustainable development into account.



Variant	Position of tourism	Position of sustainable development
1	Domination (imperative) of tourism	Very weak
2	Tourism determined by product	Weak
2	Tourism determined by environmental issues	Strong
4	Minimalised tourism	Very strong

Figure 3. Variants of the functioning of tourism in sustainable development conditions according to C. Hunter

Source: Own elaboration based on Hunter [2007].

Polish scholars also made an attempt to present the essence of sustainable tourism in a model form. M. Durydiwka, A. Kowalczyk and S. Kulczyk [2010] assumed that the conception of sustainable tourism (ST) referred mainly to three types of tourism [Kowalczyk 2010], i.e.:

- 1) tourism related to natural environment values (ST_{natural});
- 2) tourism related to cultural environment values (ST_{cultural});
- 3) tourism that requires certain skills from tourists (ST_{qualified}).

Taking into account these three types of tourism, they attempted to render the idea of sustainable tourism in the following formula:

$$ST = ST_{\text{natural}} + ST_{\text{cultural}} + ST_{\text{qualified}} + \\ + (ST_{\text{natural}}/k \times ST_{\text{cultural}}/k \times ST_{\text{qualified}}/k)$$

where k = correction factor.

This formula was intended to refer to the holistic conception of sustainable tourism according to which sustainable tourism should be understood as a combination of various forms of tourism, complemented by common objectives, such as: care for the natural environment, limiting the negative effects on local communities, bringing economic benefits to destination areas and meeting the needs of tourists.

Long-term Model of Sustainable Tourism

While constructing his model of sustainable tourism, the author tried to take into account the hitherto scientific output of the studies on sustainable tourism. Based on the previous works in the field, the author adopted main assumptions of the model. The model was then constructed based on these assumptions and by means of the conceptual research method [Shuang, Tribe, Chambers 2013]. The model is presented in graph form (Figure 4) with an extensive description which provides information about: 1) the purpose and the conditions of the construction of the model; 2) the main assumptions underlying the construction of the model; 3) the variables adopted; 4) model sustainability and unsustainability conditions; and 5) factors affecting the variables and capabilities and limitations of the practical application of the model.

Objectives and Conditions

The main purpose of the model is to render the essence of long-term sustainable tourism in a complete, universal, clear and simple form. First, these criteria should be fulfilled in order for the model to be applicable for teaching and explanatory purposes. Second, the model should also be suit-

able to serve as a theoretical basis for construction and application of further detailed models. Moreover, the model should be versatile, i.e., it should be applicable in all conditions (in any tourism destination area and for each type of tourism). The form of mathematical function and algebraic notation ensure the aforementioned clarity of the model and the minimal number of variables and graphical form ensure its simplicity. Another important feature of the model is that it allows to modify the values of the independent variables and to observe the impact that such modifications would have on the dependent variables (dynamic factor).

Assumptions

The model has been built basing on a main assumption that the goal of sustainable tourism in a given tourism destination area is:

1. to strive toward the state of balance in fulfilling the needs of all groups of tourism stakeholders, in particular: 1) tourists who visit a given tourism destination area; 2) the community that lives in a given tourism destination area; 3) internal and external entrepreneurs who provide services for tourists who travel to a given tourism destination area [Bramwell, Lane 1997; Gołembski 2009; Jones, Clarke-Hill, Comfort 2008];

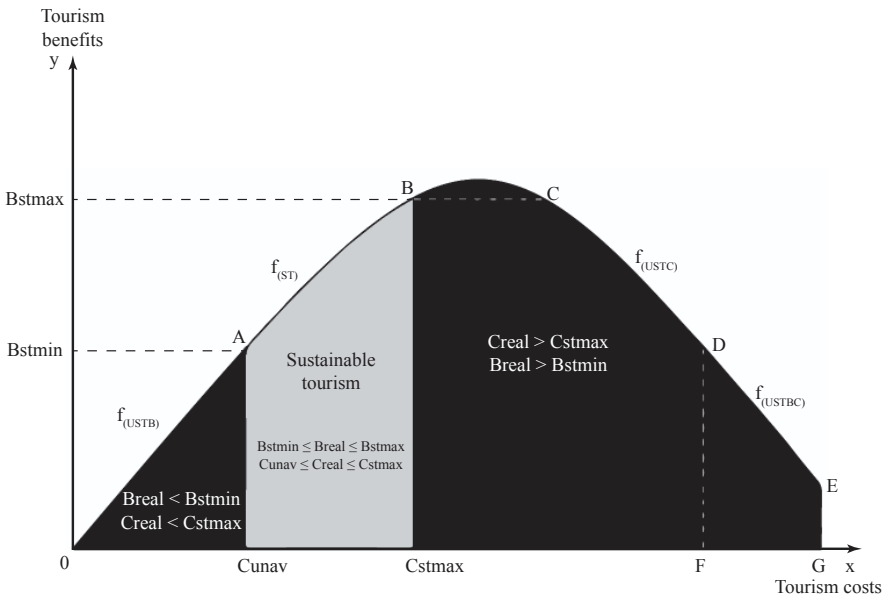


Figure 4. Long-term model of sustainable tourism

Source: Own findings.

2. while at the same time maintaining an acceptable in a long-term perspective level of costs (economic, social, environmental) connected with the development of tourism in a given area [Callicot, Mumford 1997].

The author also assumed that an increase (in the first period) in benefits reaped by all tourism stakeholders as a result of the development of tourism results in an increase in costs. In a longer perspective, however, after exceeding a certain level of costs measured by the level of natural, sociocultural and economic degradation, it will not be possible to reap further benefits – the benefits reaped by all tourism stakeholders will begin to decrease. This assumption is presented in Figure 4.

Explanation of the Symbols Used in the Model

1. Benefits from the development of tourism in a given destination area, i.e., benefits reaped by all groups of tourism stakeholders (tourists visiting a given destination area, local population, local and external entrepreneurs, authorities, other organizations, etc.) as a result of the development of tourism:
 - min acceptable benefits (Bstmin): denotes the minimal acceptable level of fulfilling the needs of all groups of stakeholders, beneath which the reaped benefits will be evaluated as insufficient; it is expressed by a value of the Bstmin point on the *y-axis* of the model graph;
 - max sustainable benefits (Bstmax): denotes the maximal desirable level of fulfilling the needs of all groups of stakeholders; it is expressed by a value of the Bstmax point on the *y-axis* of the model graph;
 - real benefits (Breal): the real level of benefits reaped by tourism stakeholders in a given destination area.
2. Costs of tourism development, i.e., all economic, sociocultural, and environmental costs, including incurred expenditures, environmental and anthropogenic (social, cultural, economic) degradation which occurs in a destination area as a result of the development of tourism:
 - max acceptable costs (Cstmax): denotes the maximal (in sustainable tourism conditions) level of all costs resulting from the development of tourism, which the stakeholders of tourism in a given destination area are ready to bear; it is expressed by a value of the Cstmax point on the *x-axis* of the model graph;
 - unavoidable costs (Cunav): denotes the level of unavoidable costs resulting from the development of tourism; it is expressed by a value of the Cunav point on the *x-axis* of the model graph;
 - real costs (Creal): the real level of costs incurred by all stakeholders as a result of the development of tourism in a given destination area.

Independent and Dependent Variables Used in the Model

The model employs two pairs of interconnected independent and dependent variables (Table 1).

Table 1. Independent and dependent variables used in the model of sustainable tourism

Independent variables	Dependent variables
min acceptable benefits (Bstmin)	unavoidable costs (Cunav)
max acceptable costs (Cstmax)	max benefits (Bstmax)

Source: Own findings.

- 1) Minimal acceptable benefits of tourism (Bstmin – independent variable) reaped by all groups of stakeholders result in certain unavoidable costs (Cunav), which are represented in the model as a dependent variable.
- 2) Maximal acceptable costs of tourism (Cstmax – independent variable) incurred as a result of the development of tourism; the value of Cstmax determines the maximal level of benefits (Bstmax) that can be reaped in the conditions of sustainable tourism (a dependent variable in the model).

Model Conditions of Sustainability and Unsustainability

Tables 2, 3, 4, and 5 show the model conditions of sustainability and unsustainability in particular components (benefits and costs). The conditions will be explained and described further in the article.

Table 2. Model conditions for sustainable tourism

Sustainable tourism	General conditions	
	Component of costs	Component of benefits
Sustainable tourism by components	$Cstmax - Cunav \geq 0$	$Bstmax - Bstmin \geq 0$
	$Cunav \leq Creal \leq Cstmax$	$Bstmin \leq Breal \leq Bstmax$
	Minimal conditions	
	Component of costs	Component of benefits
	$Cstmax - Cunav = 0$	$Bstmax - Bstmin = 0$
	$Cunav = Creal = Cstmax$	$Bstmin = Breal = Bstmax$
Function $f_{(ST)}$ – describes the existence of sustainable tourism for both components	General conditions	
	$f_{(ST)} = \{x: x \in [Cunav, Cstmax]; Cstmax - Cunav \geq 0\}$	
	Minimal conditions	
$f_{(ST)} = \{x: x = Cunav; Cstmax - Cunav = 0\}$		

Source: Own findings.

Table 3. Unsustainability in the component of benefits

Type of disruption	Conditions	Description
Lack of balance (unsustainability) in the component of benefits, balance (sustainability) in the component of costs	$B_{real} < B_{stmin}$, $C_{real} < C_{stmax}$	Occurs when real benefits (Breal) are lower than minimal benefits (Bstmin). At the same time, the level of real costs (Creal) is lower than the level of max acceptable costs (Cstmax).
Function $f_{(USTB)}$ – describes lack of balance (unsustainability) in the component of benefits while maintaining balance (sustainability) in the component of costs.	$f_{(USTB)} = \{x: x \in [O, C_{unav}]\}$	

Source: Own findings.

Table 4. Unsustainability in the component of costs

Type of disruption	Conditions	Description
Lack of balance (unsustainability) in the component of costs, balance (sustainability) in the component of benefits.	$C_{real} > C_{stmax}$, $B_{real} > B_{stmin}$	Occurs when real costs (Creal) are higher than acceptable costs (Cstmax). At the same time, real benefits (Breal) are higher than minimal benefits (Bstmin).
Function $f_{(USTC)}$ – describes lack of balance (unsustainability) in the component of costs while maintaining balance (sustainability) in the component of benefits.	$f_{(USTC)} = \{x: x \in [C_{stmax}, F]\}$	

Source: Own findings.

Table 5. Unsustainability in the both components (benefits and costs)

Type of disruption	Conditions	Description
Lack of balance (unsustainability) in the both components (benefits and costs)	$B_{real} < B_{stmin}$, $C_{real} > C_{stmax}$	Occurs when real benefits (Breal) are lower than minimal benefits (Bstmin) and at the same time real costs (Creal) are higher than max acceptable costs (Cstmax).
Function $f_{(USTBC)}$ – describes lack of balance (unsustainability) in the both components (benefits and costs).	$f_{(USTBC)} = \{x: x \in [F, G]\}$	

Source: Own findings.

Table 6. Destination areas, stakeholders and types of tourism investigated in the tentative research project

Tourism destination area	Type of tourism	Type of tourism stakeholders interviewed
Poland – Western Pomerania	Sailing tourism	Local professionals and tourists
Turkey – Marmaris region	Various types of tourism	Local professionals
Republic of Cyprus	Various types of tourism	Local professionals and tourists

Source: Own findings.

Factors That Influence Independent Variables as Determinants of Sustainable Tourism

Maximal acceptable cost of the development of tourism (in the conditions of sustainable tourism, i.e., not causing irreversible changes to the natural, sociocultural and economic environment) depends on the type of ecosystem and features of the social (economic, cultural) environment of a given tourism destination area. As regards the natural environment, it stands to reason that a low maximal acceptable cost (level of acceptable degradation) is characteristic of ecosystems that are very susceptible to external impulses. A higher maximal acceptable environmental cost is characteristic of ecosystems which have been considerably transformed and which have no particular natural values. As regards anthropogenic (sociocultural and economic) environment, smaller, traditional communities that do not maintain close relationships with the outside world seem to be more prone to degradation. In the case of such communities, the principles of sustainability would require the acceptable maximal level of social costs to be as low as possible.

The level of minimal benefits that all groups of stakeholders of tourism in a given destination area expect to reap depends on the views on tourism that these people have. The minimal acceptable level of benefits reaped by permanent inhabitants depends on such traits of this community as: age structure, education, ecological and cultural awareness, value system, self-esteem, previous quality of life, professional occupation and initiative, aspirations connected with the development of local tourism, participation of local authorities and the elite. As for tourists, their minimal acceptable level of benefits depends on their sociocultural background; the subjective evaluation of local tourism products (including i.a. attractions, accommodation, prices) will be based upon its traits. A tourism product will have to meet the needs of tourists to such a degree that they come to the conclusion that for the price they paid for this product, they reaped benefits at an acceptable level.

Taking into consideration the abovementioned model assumptions, the area of sustainable tourism, which is shown in the graph as:

$$\int_{C_{stmax}}^{C_{unav}} f dx$$

will depend on: 1) the specific resistance of given natural and anthropogenic environments to the negative impact of tourism, denoted by the position of the Cstmax point on the x -axis of the model graph (independent variable); and 2) the minimal acceptable level of benefits that all stakeholders of tourism in a given area expect to reap, denoted by the position of the Bstmin point on the y -axis of the graph (independent variable).

The area of sustainable tourism will therefore be dependent on the one hand on the willingness to give up the maximization of (short-term) benefits on the part of stakeholders (the lowest possible value of the Bstmin point on the y -axis) and on the other hand on the features of the environment (natural, social, economic) which determine the ability of this environment to accept all kinds of costs, denoted by the highest possible value of the Cstmax point on the x -axis.

Application of the Model – Possibilities and Constraints

1. Application for research and educational (explanatory) purposes – the model can be employed to explain the essence and the principles of sustainable tourism, in particular the interrelations occurring between all stakeholders of tourism and the natural and anthropogenic environment in which tourism is being developed. The model allows to analyze these interrelations from a dynamic perspective; it can be used to predict the consequences that various modifications to the independent variables would have for the stakeholders of tourism. Another feature of the model is its versatility, which means that it can be applied to all types of tourism and destination areas. In each case, the same factors, which set the framework for sustainable tourism, are taken into consideration. They are included in the model as independent variables. Versatility and clarity of the model are ensured by means of a graphical presentation of the functional dependency and algebraic notation used to describe the main assumptions, interrelations, and conditions of the model.
2. Application for practical purposes – the model can be employed to evaluate the extent to which the development of various types of tourism in a given destination area would comply with the principles of sustainable development. Particular types of tourism should be analyzed from the perspective of demand, as forms of tourist movement, as well as from the perspective of supply, as the corresponding types of tourism products. A practical application of the model would require constructing individual models for specific types of tourism. This would be possible after selecting the appropriate indices to determine the values of particular variables. After constructing separate model graphs, it will be possible to compare obtained model areas of sustainable tourism characteristic of particular types of tourism. The results of such an analysis can be especially useful when determining the preferred types of tourism for

a given destination area, in the context of their compliance with the principles of sustainable development.

3. It seems that the main barrier for the application of the presented model of sustainable tourism can be difficulties with the quantification of the adopted variables. The easiest way to quantify them would be to express them in financial values, but this is not always possible or relevant. Another solution would be to take advantage of a variety of indices described, i.a. in the publications of UNWTO and other organizations (and programs), for instance *Making tourism more sustainable* [2005] or *The VISIT initiative* [2004, pp. 9–12]. When selecting the indices, one should try to look for those which meet the criteria of an ideal index of sustainable tourism as fully as possible. These criteria are: 1) simplicity of identification and measurement; 2) natural, social, cultural, economic, political significance; 3) stability; 4) simplicity and low cost of performing measurements; 5) sensitivity and quickness of reaction to changes; 6) understandability and clarity [Hughes 2002].

It should also be kept in mind that the variables assumed in the main model are diverse. One group includes net benefits reaped by both tourists and local communities (including entrepreneurs), another group pertains to total costs that manifest themselves in the degradation of the natural and anthropogenic (sociocultural and economic) environments. In order to establish the values of these variables one should consider separately each of their constituents and assume an appropriate minimum border value. In practice, it means that one would have to construct separate auxiliary models of sustainability for the components of benefits and costs [Butowski 2012].

Another solution worth considering may be an applicational simplification of the entire model. In this case, only one (border) component of a given variable would be quantified. For example, for the independent variable “minimal acceptable benefits (Bstmin)”, the operation would involve determining only the minimal level of benefits that would be acceptable for the local community and treating it as the assumed border level (thus assuming that the appearance of tourists in a given area itself testifies to the fact that these tourists do reap benefits at an acceptable level). The same procedure could be applied also to the second variable, but in this case the choice of the component should depend on the type of destination area (for areas valuable because of their natural environment, the selected component should be the maximal for a given type of ecosystems acceptable level of degradation of the natural environment).

Another serious difficulty lies in finding proper functional interrelations between the assumed variables (costs vs. benefits) in the particular models. The presented (main) model assumes only a general interrelation between tourist costs and benefits. This interrelation is represented in graphical

form as an increasing and decreasing function. Before the assumptions of the main model can be applied to particular destinations, the precise shape of the curve of this function must be determined and this can be done only by determining the values (border and intermediate) of the variables for various types of tourism in a given area.

Both problems (quantification of the variables and finding functional interrelations between them) need to be taken into account when considering a quantitative application of the presented model, as they directly influence the possibility of defining the model area of sustainable tourism.

4. It seems that the problems with the quantitative application of the model (resulting from the difficulties in the quantification of the variables) can be overcome by adopting a qualitative (interpretative) approach [Alejziak 2008; Bryman 2008]. It should be based on qualitative assessment given by representatives of particular groups of the stakeholders of tourism in a given destination area (purposive sampling). These people could evaluate the benefits reaped from tourism against the incurred costs by showing a point on the model graph corresponding to the state of tourism in their destination area. Such an approach has one significant advantage when compared with the quantitative one – it gives voice directly to those it concerns instead of imposing on them pre-defined values of independent variables, in particular those related to the acceptable level of costs in a given area.

Empirical Verification

A tentative fieldwork project of empirical verification of the model was carried out between May and August 2013 in different tourism areas in Poland and Turkey as well as in Cyprus (Nicosia) in May 2014.

Research Method and Results

In this research project, the qualitative method was adopted. The procedure involved conducting standardized interviews with representatives of selected groups of stakeholders (Table 6). After a detailed explanation of the model, the interlocutors were asked to choose a point on the model graph that would, according to their subjective views, correspond to the state of tourism in their destination area. Their answers could relate to any of the following variants:

1. Insufficient benefits from tourism (below the minimal acceptable level) and at the same time low (acceptable) costs of tourism development; the situation corresponding to part OA of the model graph (unsustainability in the component of benefits).
2. Acceptable benefits from tourism (above the minimal acceptable level) and at the same time acceptable costs of tourism (below the maximal

- acceptable level); the situation corresponding to part AB of the model graph (sustainable tourism).
3. Extremely high benefits from tourism and at the same time high costs of tourism, exceeding the maximal acceptable level; the situation corresponding to part BC of the model graph (unsustainability in the component of cost).
 4. Acceptable benefits from tourism and at the same time extremely high costs of tourism, significantly exceeding the maximal acceptable level; the situation corresponding to part CD of the model graph (unsustainability in the component of cost).
 5. Insufficient benefits from tourism (below the minimal acceptable level) and at the same time extremely high costs of tourism, far exceeding the maximal acceptable level; the situation corresponding to part DE of the model graph (unsustainability in the both components: benefits and costs).

The results of the tentative fieldwork project carried out in tourism destination areas in Poland and Turkey are presented below in graph form (the letter "T" on the graphs marks the position of tourism according to the majority of the interviewees from a given area).

In Western Pomerania, the survey was conducted among stakeholders of tourism (local professionals and tourists). They seemed to agree since they pointed at the insufficient level of tourism benefits (probably connected with the relatively underdeveloped tourist infrastructure) and at the same time at a relatively low level of costs (insufficient number of tourism investments). Such an evaluation corresponds to the position of tourism below point A on the model graph (Fig. 5).

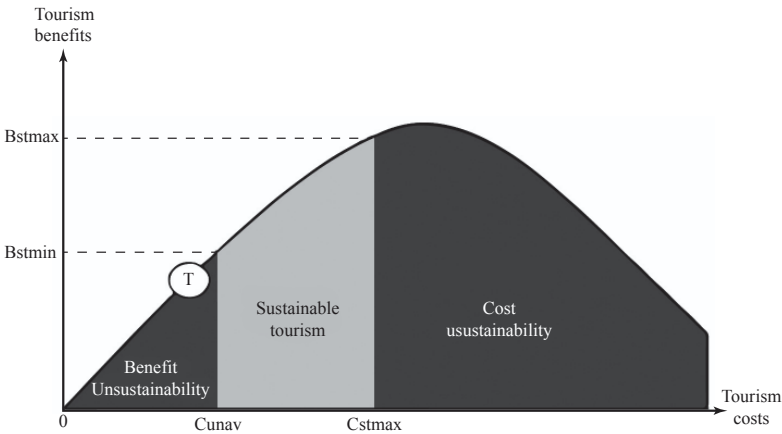


Figure 5. The position of tourism in Western Pomerania (Poland)

Source: Own findings.

In the region of Marmaris (Mediterranean Turkey), tourism is about to exceed the border of sustainability (Fig. 6). Local professionals point out a very high level of tourism benefits, but at the same time they notice that the level of costs connected with the development of tourism is also very high. The costs are beginning to exceed the border of the cost sustainability on the model graph (position of tourism around point B of the model graph).

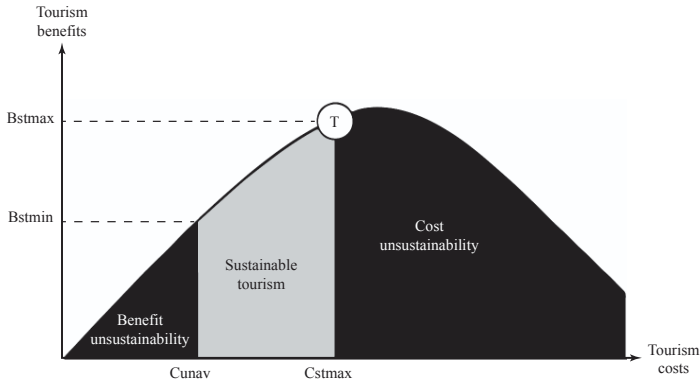


Figure 6. The position of tourism in the Marmaris Region (Turkey)

Source: Own findings.

In the Republic of Cyprus (not including the Turkish occupied part of the island), tourism is placed in the borders of sustainability (Fig. 7). Local professionals point out a relatively high level of tourism benefits, and at the same time they do not notice the risks concerning too high costs or degradation caused by tourism industry on the island.

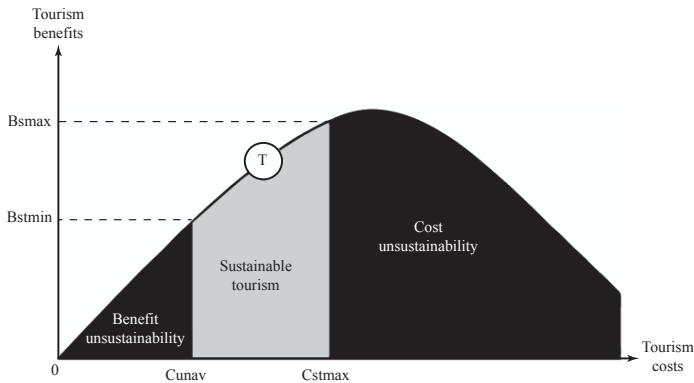


Figure 7. The position of tourism in the Republic of Cyprus

Source: Own findings.

Conclusion

The dominance of the descriptive style in the literature on sustainable tourism as well as the multidirectionality of the descriptions, which results in ambiguities in the understanding of the term, prompted the author of this paper to construct a model of sustainable tourism. One of the priorities was to ensure practical applicability, therefore the model has already been subject to a tentative empirical verification project.

This paper was devoted to the presentation of this model. In order to construct the model, the author accepted an assumption concerning the essence of sustainability in tourism; it lies in the striving for a balance between fulfilling the needs of all groups of tourism stakeholders (tourists, local community, entrepreneurs, etc.) and preserving natural, sociocultural and economic values of destination areas. In other words, the essential goal of sustainable tourism is to generate benefits that are satisfactory to all groups of present and future tourism stakeholders and that do not cause degradation to the environment above the maximal acceptable level of costs. This goal should be pursued with a long-term perspective.

While constructing the model, the author made an effort to follow the basic guidelines of completeness, versatility, clarity, and simplicity. To this end, the graph form for the mathematical function and algebraic notation was employed. Thus, the model should be applicable for teaching and explanatory purposes. In order to verify the assumptions of the model in real-life conditions, the author carried out a preliminary empirical verification project in various destination areas. In the verification project, a qualitative method was adopted. Hopefully, the model of sustainable tourism presented in this article will complement the scientific output of the studies on sustainable development in tourism in both theoretical and practical aspects.

This, however, will be truly possible only after conducting further empirical research projects aimed at verifying the assumptions adopted in the model. Such projects should be carried out adopting both qualitative and quantitative approach. Most likely it will be necessary to construct auxiliary models to account for the differences in evaluations made by different groups of stakeholders of tourism in particular destination areas.

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MODEL TURYSTYKI ZRÓWNOWAŻONEJ – PODEJŚCIE TEORETYCZNE I EMPIRYCZNE

Abstrakt

Cel. Celem artykułu było przedstawienie długookresowego modelu turystyki zrównoważonej oraz zaprezentowanie wstępnych wyników jego empirycznej weryfikacji.

Metoda. Założono, że głównym celem turystyki zrównoważonej przyjętym do konstrukcji modelu jest dążenie do osiągnięcia stanu równowagi w zaspokajaniu potrzeb dwóch głównych grup interesariuszy turystyki, to jest turystów oraz społeczności ich przyjmujących. Jednocześnie uznano, że nie może być przekroczony pewien akceptowalny poziom kosztów, rozumianych jako degradacja środowiska społecznego, gospodarczego i naturalnego w związku z rozwojem turystyki na danym obszarze.

Wyniki. Do konstrukcji modelu posłużono się graficzną formą funkcji matematycznej. A do opisu warunków równowagi i nierównowagi wykorzystano notację formalną (algebraiczną).

Ograniczenia badań i wnioski. Zaprezentowany model stanowi uproszczenie rzeczywistości empirycznej. Starano się w nim uwzględnić te cechy (i współzależności między nimi występujące), które mają szczególnie wpływ na uzyskanie stanu równowagi lub jej braku. Empiryczna weryfikacja modelu została przeprowadzona na trzech różnych obszarach recepcyjnych. Miała ona charakter pilotażowy.

Implikacja praktyczne. Model został poddany wstępnej weryfikacji empirycznej na trzech obszarach recepcyjnych: w Polsce, Turcji i na Cyprze. Wyniki tych badań wskazują, że może on stanowić dobre narzędzie do oceny sytuacji turystyki na zróżnicowanych obszarach turystycznych.

Oryginalność. Stosunkowo słabe podstawy teoretyczne, a także niejednoznaczność i różnorodność poglądów na temat turystyki zrównoważonej, jak również dominujący w literaturze przedmiotu styl opisowy, skłoniły autora do podjęcia próby przedstawienia istoty turystyki zrównoważonej w ujęciu modelowym.

Rodzaj pracy. Artykuł ma zarówno charakter przeglądowo-teoretyczny, jak i zawiera wyniki badań empirycznych.

Słowa kluczowe: turystyka zrównoważona, ujęcie modelowe, założenia teoretyczne, weryfikacja empiryczna, Cypr, Polska, Turcja.