# REGIONAL DEVELOPMENT, SUSTAINABILITY AND TOURISM:
## CONTRIBUTIONS FROM SISTUR'S METHODOLOGICAL PERSPECTIVE

Filipe Guimarães[1]
Jadson Luís Rebelo Porto[2]
Alex Pizzio[3]

**Abstract**

From the 1960s onwards, several proposals based on the General Systems Theory (TGS) started to be applied in the scope of Tourism. In Brazil, the most prominent name in TGS studies, in the scope of Tourism, was Beni, through the model that he called the Tourism System (SISTUR) launched in the late 1980s. The systemic perception was relevant to tourism research, becoming the main methodological tool for tourism studies adopted by the Brazilian academy. Combined with strategic planning, Sistur becomes a relevant tool for the development of sustainable tourism, a social interest in accession. The Sistur guides researchers to investigate Tourism as a system to the extent that it operates in an environment (or environment); it has internal elements that guarantee systemic perception; has specific attributes; is influenced by input; generates output and promotes feedback guaranteed to your development. This article describes the Sistur, working on the Tourism environment, its systems, indicators and using examples that facilitate the absorption of its proposal.
**Keywords**: Sistur. Turismo. TGS. Regional development.

**Introduction**

From the 1960s onwards, several proposals based on the General Systems Theory (GST) started to be applied in the scope of Tourism. Researchers like Raymundo Cuervo, Neil Leiper, Mathieson and Wall, Cohen, Molina, Mil and and the Brazilian Mario Beni, left a legacy in this field of studies.

The basis of GTS is found in the research of biologist Ludwing Von Bertalanffy. He argued that in a system the whole would be more than the sum of its parts, the whole are the

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[1] Pós-doutorando em Desenvolvimento Regional e Turismo pelo PNPD/CAPES, vinculado ao PPGMDR da Universidade Federal do Amapá (UNIFAP), Brasil. OCIRD: https://orcid.org/0000-0002-5613-8477. E-mail: filipeoligui@gmail.com.
[2] Geógrafo; Doutor em Economia; Professor Titular da Universidade Federal do Amapá (UNIFAP), Brasil. Docente do Mestrado em Desenvolvimento Regional na UNIFAP. ORCID: https://orcid.org/0000-0002-0316-3898. E-mail: jadsonporto1967@gmail.com.
[3] Doutor em Ciências Sociais, docente do Programa de Pós-Graduação em Desenvolvimento Regional da Universidade Federal de Tocantins (UFT), Brasil. ORCID: https://orcid.org/0000-0001-7181-6355. E-mail: alexpizzio@uft.edu.br.

interconnected parts, in other words, it is holistic. In this sense, the isolated study of one of the parties prevents the real understanding of the system (LOHMANN; PANOSSO, 2008).

One of the systemic models that achieved great notoriety in tourism research was proposed by Neil Leiper, who worked on Tourism as a system possessed of five elements, namely: Social Element (Tourist); Issuing area (residence of tourists); Transit Area (tourist displacement route); Receiving area (place of tourist destination); Tourism Industry (tourist equipment). This simplicity and functional logic were relevant to help identify, clarify and relate the limits and the themes specific to the tourist phenomenon (MARTÍNEZ, 2005, p. 119).

In Brazil, the name that achieved greater prominence in TGS studies in the field of Tourism was Beni. At the end of the 1980s, taking as a reference the system developed by the geographer Antônio Christofoletti, he built an open system model (capable of dialoguing with the environment) that he called Sistema de Turismo or Sistur (PANOSSO, 2005), whose purpose was

> to place tourism, in all its scope, complexity and multi-causality, in a dynamic synthesizing scheme capable of demonstrating the multifaceted combinations of forces and energies, always in motion, in order to produce a referential model (BENI, 2003, p. 44).

In the 1970s, we noticed Christofoletti's interest in investigating systemic models:

> (...) among the various existing concepts about the system, some authors state that in order to characterize a system it is necessary that there is any set of objects that can be related in time and space. However, others say that in addition to relationships, there must be a purpose, the performance of a function by this interrelated set, so that it can be considered as a system (CHRISTOFOLETTI, 1979).

From the perspective of functionality, proposed by scholars in the field, Christofoletti differentiated systemic models. He said that

> according to the functional criterion, proposed by Forster Rapoport and Trucco, the systems are classified as isolated and not isolated. Isolates are those where there is no exchange of energy or matter with other systems. The non-isolated ones can be divided into closed and open: in closed ones there is only an exchange of energy, and in open ones there is an exchange of energy and matter (CHRISTOFOLETTI, 1999).

According to this conception, it was understood that the open systemic model was a more comprehensive proposal, creating a counter-proposal to the Cartesian model that defended the need to divide the phenomenon, or isolate the parts, in order to investigate its components separately, contributing to lose the holistic view of the phenomenon.

Tourism, within an open systemic perspective, would then not be perceived as a piece within the gear, but as a gear that works together with other gears. It would be a structure composed of several internal components and external variables that dialogue with each other all the time and at the same time depends on the proper functioning of other structures. The malfunction of a component, and / or structure, directly affects the other components. In this sense, the study, or research, of tourism presents itself as a complex, intersectoral and multidisciplinary phenomenon.

> We must understand tourism as a broad system of relationships that presents interactions with the economic, legal, social, political, ecological, technological environments, among others, so that those who dedicate themselves to their study must assume a generalist perspective in their approach, using several fields of knowledge, and seeking to reach conclusions that demonstrate the implications arising from this multidisciplinary interaction (DIAS, 2005, p. 25).

According to Beni (2003, p.17) "each variable, in a system, interacts with the other variables so completely that cause and effect cannot be separated. A single variable can, at the same time, be cause and effect ". Based on this principle, he defined the system as a "set of parts that interact in order to achieve a certain end, according to a plan or principle". (BENI, 2003, p.23)

For Christofoletti (1979), a system was characterized by: a) its elements or units; b) their relations - the elements depend on each other, through links that denounce flows; c) its attributes - are the qualities attributed to a system so that it can be given characteristics, such as length, area, volume, composition or density of the observed phenomena; d) input; e) output (CHRISTOFOLETTI, 1979).

The systemic perception proved to be relevant to research in tourism, which started to be investigated as a system as it operated in an environment (or environment); it had internal elements that guaranteed systemic perception; it had specific attributes; was influenced by input; it generated output and promoted feedback guaranteed to its development.

**Understanding the essence of SISTUR: analogy and indicators**

For didactic purposes, before we approach the subsystems worked according to the proposal of the Structural Analysis of Tourism in Beni, we will illustrate the importance of interdependence from the scope of information technology - we could also think about it within the spectrum of human anatomy or even from the point of view functional mechanics of a car.

The vast majority of Brazilians, and the inhabitants of the world, use the Windows Operating System on their computer machines - some prefer other systems, such as Linux or Mac, as well as those that have more than one system installed on their computer.

Windows is a system of great relevance for the development of our activities, according to the current molds that human existence has assumed. It is useful for countless activities, be it in the construction of reports, writing of academic papers, preparation of spreadsheets for accounting, development of graphs; construction of Power Point presentation etc. However, Windows does not depend solely on itself, it is software (program) that directly needs hardware (mechanical equipment) to become operational, just like the hardware, in our case the computer, is totally dependent on the software to fulfill its purpose.

In computing, when we think of the "environment", we can compare it to the physical part of the computer, the machine itself. The "system" is installed on the machine, in other words, it depends on the "environment" (the computer). The elements that form the environment are: computer keyboard, monitor, mouse, power supply, HD, memory, etc. All these elements are necessary for the "system", but they do not belong to Windows, they are part of the environment. The Windows system, in turn, also has elements, some of which are: Word, Excel, Power Point, Paint, Folders etc. They all also interact directly with the environment. Keys are required to use Word as well as the monitor to view the files being built.

The Windows system also has specific "attributes" (qualities). According to surveys 78% of people worldwide use this operational tool. One of the reasons alleged is that they find it more practical. So we can say that the practicality of Windows is an attribute of this system.

Windows also receives "imputs" from the environment. The quality of the machine on which it is installed directly interferes with its performance. For example, someone who had a 2 GB RAM in their computer, and decided to replace it with an 8 GB one, will find that the system will become faster, the opposite also applies. Replacing an 8 GB memory with a 2 GB memory will slow the system in its response.

"Outpus" are notorious when we think of the system's relationship as the means. Depending on the quality of the Windows operating system, Windows 10, for example,

requires a "machine" (environment) that has a minimum configuration of at least: 1 GHz processor, 1 GB of RAM, disk space of at least 16 GB. A setting lower than this does not run the system. The environment also has to play its part in the relationship.

With regard to "feedback", we can think of the calls for updates that users receive. Who has never received that message, which sometimes takes us out of time, "do you want to update the system now?" The system is constantly advancing through the development of new technologies (in some cases forcing us to replace the environment, such as, for example, changing a cell phone because there is no more space in the memory).

We emphasize that, in addition to all the elements discussed above, Windows also needs an "operator", someone who knows him, at least the basics, about hardware (and that includes knowing how to connect a computer), as well as having a base on Windows Operating System, to achieve some result.

Transporting the analogy to the scope of Tourism, the "environment", in which the tourist activity is inserted may be a municipality, state, country or even the world. The type of "machine" (city, state, country or world) in which it will be "installed" will depend on the sphere of interest.

The elements that make up the "environment", which in the methodological proposal of the Tourism System (Sistur) must be perceived as Subsystems alongside Tourism that interact with each other in the environment, generating "imputs", "outputs" and "feedback", are : economic, political, cultural, ecological, social variables, etc. Tourism does not exercise control over them (they are perceived as stronger subsystems than Tourism), however there is interdependence.

According to Beni (2003), it is essential to understand each subsystem by analyzing its indicators. There are six main subsystems identified as partners of the Tourism Subsystem: Economic Subsystem, Ecological Subsystem, Cultural Subsystem, Social Subsystem, Infrastructure Subsystem and Superstructure Subsystem.

When analyzing the Economic Subsystem, it is essential to research the following indicators: main economic activity in the region, impact of tourism on the local primary, secondary and tertiary sectors, HDI of the sending community, HDI of the receiving community, unemployment rate, direct and indirect taxes generated by tourism in the destination, percentage that the public sector invests in tourism, generation of jobs and income, economic behavior of tourists and / or hikers, real estate speculation, GDP etc.

In the case of the Ecological Subsystem, attention should be paid to: identification of natural attractions, existence of laws that guarantee their protection, projects for their conservation, how they are organized and managed, impacts of tourism on the ecological

environment (positive and negative) , tourism education, increased erosion, degraded vegetation, increased waste due to tourism, etc.

When we work on the Cultural Subsystem, the desired responses must be obtained through indicators such as: what are the cultural attractions of the locality, what are the main cultural preferences of tourists, the existence of a cultural inventory, how the government encourages culture, the existence of public policies aimed at heritage preservation, which groups are involved with cultural heritage, what impacts tourism has caused on culture, what local culture brings to tourists, etc.

With regard to the Social Subsystem, some indicators that cannot be left out of the analysis will be: degree of direct involvement of the community with tourism, degree of indirect involvement of the community with tourism, how does the community perceive tourists (do they have tourismism?), what kind of experience tourists are looking for at the destination, tourist satisfaction with the destination, tourist behavior at the destination, how the local population is benefiting from tourism, etc.

Regarding the Superstructure Subsystem, which according to Beni (2003, p.99) refers to the "complex organization, both public and private, that allows to harmonize the production and sale of different services of the Sistur", and involves "ordering legal-administrative that is manifested in the set of measures for the organization and promotion of official bodies and institutions, and governmental strategies that interfere in the sector "(BENI, 2003, p. 99).

It is incumbent upon this Subsystem to develop a development policy for Tourism that promotes the preservation of the cultural, artistic, historical, documentary and natural landscape of a country, state, region or municipality; encouraging creativity, the arts and social, artisanal and folkloric manifestations, and that the number of people affected by this policy and the areas interested or benefited by it be increased; creation of programs and projects that activate and revitalize the enterprises that operate in the sector, with broad support to commerce, hotels, specialized and artisanal production, transport, travel agencies and any other initiatives valid in the sector, private or public (BENI, 2003). Some basic indicators are: local bodies are involved with the elaboration of policies for tourism, tourism policy adopted by the municipality, tourism policy at the state and federal level that benefits the locality; tax incentive for tourism etc.

The sixth Subsystem that dialogues with Tourism is that of Infrastructure. When it comes to infrastructure, we can divide it into two classes: general (basic) and specific. In the first one, we seek to know about the structural foundations that serve all economic activities, such as water supply, garbage collection, public cleaning, quality of public lighting, air quality, "road and transport network, telecommunications system , distribution of energy, water, sewage collection and others "(BENI, 2003, p. 126).

Some indicators that guide the assessment of basic infrastructure are: the minimum of 80% of the population to be served by treated water, the decrease in the incidence of diseases, the volume of water, distributed daily, reaching 250 liters per inhabitant, the water distributed being quality, permanent availability of water, compatibility between capacity and operation of the system in all its stages, the extension of the collector network and the material with which they were constituted, the number of household and industrial connections in the locality, the percentage of population served, visiting posts and pumping stations, frequent problems in the network, method, treatment and the place of disposal of waste after treatment, percentage of urban and rural population served by electric (or wind) energy, quality of public transport (the ideal is to reach any location in the municipality within 45 minutes), access to telephony, internet speed, efficient postal service, supply of essential products for the population, quality of the road network, etc.

The second turns directly to Tourism. According to Fonseca and Fogaça (2012, p.91), the provision of specific infrastructure (or tourism infrastructure) is one of the major challenges that planners and public managers in general must face. The need to build or expand an air, road and river terminal, construction of tourist terminals, access roads to tourist sites is highlighted. Some indicators analyzed in this category are: existence or not of specific infrastructure, percentage of floating population served, visitor satisfaction in the service provided, reservation of areas for the construction of leisure areas, etc.

When it comes to the variables directly linked to the Tourism subsystem, we are referring to those that characterize Tourism in its essence, such as: which are the existing tour operators, tourism agencies, receptive services, commercial establishments dedicated to the sale of souvenirs , handicrafts, equipment and tourist services such as means of accommodation (quantity and quality), food services, entertainment and entertainment, transport, car rental, events, guides, information and other tourist services (GUIMARÃES , 2020, p.76).

The set of operational actions of the Tourism System are responsible for generating inputs, outputs and feedback. Seeking to clarify this environment Bani (2003) organized the theme into six subsystems, namely: market; offer; production (product); demand; consumption and distribution.

The tourism market must be treated as an object with a high degree of delicacy. According to Beni (2003, p. 146) he is "(...) impersonal, decentralized and very sensitive to changes in the conditions of the different elements that make up him, so that he is also quick to react and adapt to each situation". This item is built from indicators such as: tourist offers at the destination, main attractions, main target audience, main time for visitation

(seasonality), political security, quality and security of the destination, cultural differences, etc.

The essence of the tourist product subsystem is the tourist activity itself, in other words, it is the tourist practicing tourism. The basic indicators for knowing the tourism product are: degree of qualification of local professionals, degree of companionship of companies, way in which the tourism product is produced (is there planning? Was there market research?), Degrees of satisfaction of tourism consumers etc.

The demand subsystem is of a composite nature in tourism. This means that goods and services are demanded. The trip is organized thinking about factors such as: visiting attractions, service, accommodation, food, purchase of souvenirs, transportation etc. All of these factors are connected to the tourist profile, taking into account indicators such as: age, sex, income, education, marital status, exchange rate, values, type of work, place of residence of the tourist, motivation of the trip, etc.

Very close to the demand subsystem is the consumption subsystem. The main question that needs to be answered is: what makes tourists choose a particular product? It seeks to analyze the tourist decision-making process. Marketing certainly plays a significant role in tourist decision making. Some important indicators to be raised are: tourist expectations when deciding to organize a trip, needs, tourist profile etc.

The sixth subsystem that integrates the Sistur is called distribution. Its function is to make the product reach the tourism consumer. The main indicators to be analyzed are: strategic location of products, affordable price, product suited to the consumer's profile, awareness of the existence of the product by the consumer, direct, indirect or mixed distribution, use of virtual platforms, etc.

The "inputs" that impact the Sistur are economic variations, health problems (Ex: Coronavirus), political instability, political decisions, environmental problems (Ex: fires) etc., which directly affect the tourist activity, generating profound impacts such as , for example, the impacts of Covid-19. On the other hand, the outputs generated by Sistur have the ability to influence the environment by attracting new investments, generating public policies, employment and income for the environment, dynamism in the economy, etc.

The "feedback" can be viewed when, on the one hand, there is a "medium" interested in the tourism sector and, on the other hand, a response from that sector promoting a return to the "medium". Thus, in a concrete way, we can perceive this response when we see, for example, a municipal management interested in tourism acting in order to promote its continuous development, as well as the response of tourism to be productive in generating taxes, jobs, generating sustainable awareness for population and income for workers. When

feedback is occurring regularly, indicators such as HDI (Human Development Index) tend to rise.

**Final considerations**

Nowadays, society calls for analyzes from tourism that generate sustainable benefits capable of raising the regional quality of life. According to Beni, such actions become attainable when regional development is worked on from the Regional Tourism Planning defined as

> set of hierarchical tourist development poles, united by a common infrastructure, which, in its totality, contributes to dynamize the economic and social development of extensive parts of the national territory. The Tourism sector, which always needs to be expressed and represented in its complex totality, demands a type of planning to which the word integrated is added, indicating that all its components must be properly synchronized and sequentially adjusted, in order to produce the reach of the goals and guidelines of the area of operation of each of the components at the same time, so that the global system can be implemented and immediately start offering opportunities for prompt monitoring, evaluation, action and review (BENI, 1999, p.11)

Achieving sustainable goals from a tourism perspective, a long-term goal, becomes feasible from the awareness of managers who must work on strategic planning with a focus on environmental policies.

> The global sustainability policy, in which environmental conservation is closely related to economic efficiency and social justice, has gained wide acceptance. This vision emphasizes efforts to link environmental protection to tourism development policies. (BENI, 1999, p.12)

Tourism policies are integrated with social, economic and environmental policies, but do not precede them. Sistur is able to map this interaction generating results that indicate the level of this relationship with a focus on sustainability. However, it is necessary to think about sustainability not at the global level but at a regional scale. In this sense, Sustainable Tourism will be interpreted from a sectorial point of view.

If well developed through strategic planning and managed, tourism, regional development and environmental protection can evolve side by side. Respect for nature and the environment has the potential to make tourism a profitable and lasting activity.

What is the purpose of the system? It is certainly to make people's lives easier by generating some kind of benefit. In the case of the Windows system, it helped to improve the quality of professional, academic and personal projects, increasing the dynamics of production, raising the quality of our actions. Think, for example, of the benefits generated by a teacher who, in addition to transmitting oral information, also uses Windows to generate visual information through Power Point for the class. The result is an increase in class quality. In Tourism, it is expected that the analysis methodologies, in our case Sistur, will help local Tourism achieve its objectives by generating tourist awareness, employment, income and sustainable development.De acordo com Fonseca e Fogaça (2012, p.227),

> For the tourist activity to fulfill its true function, which is to bring social promotion based on economic development, the appreciation of culture and environmental awareness, this must be planned in a participatory and integrated way. This means that, in the planning process, all environmental, cultural and social aspects must be considered. We must also defend that tourism activity should never be planned unilaterally. Therefore, it must be integrated with the macroeconomics and the social, cultural and ecological dimensions that pre-existed, always adding up and never developed in isolation.

According to Bissoli (2001, p.34), tourism planning can be understood as

> a process that analyzes the tourist activity of a given geographic space, diagnosing its development and establishing a performance model by establishing goals, objectives, strategies and guidelines with which it is intended to boost, coordinate and integrate tourism into the macroeconomic context in which it operates. it's inserted.

As much as we do not have mastery over the environment, understanding it is a responsibility of all tourism professionals and researchers. The clearer our vision of the environment, the more efficient our position will be in the development and analysis of tourism activity. Regarding the elements of the tourism system, the relationship is different, there is greater control of this system by the managers of the area (Ex: a public tourism policy developed by MTur has the power to directly influence tourist organizations). In this,

understanding the Tourism subsystem is essential to generate positive results for stakeholders and benefits for the environment.

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