Spatial Sustainable Development Model for Tourism and Recreation Areas: Conceptual Approach

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Abstract: The study presents the results of applying an interdisciplinary approach to spatial development concept for recreational-tourism territories. The conclusions and recommendations formulated by the authors are reflected in several key outputs. The first one is devoted to the systematic presentation of conceptual goals. Next one included the block diagram of the regional tourism space development concept. The third result presents the goal-setting system supplement. The last one introduces with indicator framework for municipal-level strategic tourism development as an example of practical use. For the first time, the authors have integrated an informational space into the structure of recreational-tourism space, reflecting the current trend towards economic digitalization. When defining goals for recreational-tourism space development, the authors justify the need for establishing a conceptual link between the geographic parameters of an area and the tourism resources within it. This linkage is essential for planning the placement of tourism industry facilities and determining potential socio-economic directions for tourism development in the area while adhering to principles of long-term sustainable development.

1 INTRODUCTION

The spatial region model can be regarded as one of the fundamentals for ensuring its long-term sustainable development (Elgin, Elveren, 2024). The recreational and tourist zone spatial model components through their complex functional characteristics enable the inclusion of all key aspects of territorial development. This feature of the model ensures the tourism-recreation complex development without causing harm to the environment or the local community.

There are varity of scientific researches, which are devoted to the sustainable tourism basics. All af them examine specific socio-economical aspects, which can be combined into a whole and be presented as a conceptual approach of special development. The conducted interdisciplinary study provides an opportunity to develop an element-wise framework of the recreational and tourist space, distinguishing within it the geographical, economic, sociological, cultural and informational spaces.

The development of geographical space is based on the planning of areas possessing natural recreational and tourist resources, such as water, mineral, forest, mountain, soil, air and other resources (Williams, 2014). In the planning of the geographical space of recreational and tourist zones, special attention is given to the natural therapeutic resources of the area (Zhang, Zhang, Xu, 2021), coastal zones (beaches), landscapes, and associated infrastructure (green corridors, parks, squares, recreation areas and photo zones), as well as regulated climatic parameters and ecology.

The economic space, representing a set of tourism infrastructure objects, develops in conjunction with the planning features of the geographical space. Facilities that utilize natural therapeutic resources are concentrated at extraction sites. This spatial arrangement is dictated by the physicochemical properties of mineral waters and therapeutic muds, which lose their medicinal qualities during transport,

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thereby diminishing their positive impact on human health. Tourist accommodation facilities, depending on their type, are located on the first coastal line, near or at some distance from resort clinics, or within specially protected natural areas. Food service and retail businesses oriented towards tourists tend to be located near mass tourist accommodation areas. The transport logistics solutions in recreational and tourist zones are determined by the tourists routes from the destination points of arrival to taccommodation and from their accommodation to balneological clinics and tourist attractions. The economic space is structured to maximize the economic benefit to the region from tourism activities conducted within its territory (Liu, Kim, Song, 2022).

The sociological space involves assessing and analyzing the conditions and opportunities for the development of social actors within the boundaries of the recreational-tourist zone, including the behavior of tourists and local residents and their value orientations (Cohen, Cohen, 2012). It is also essential to determine methods for motivating demand for tourism products developed in the region based on its available recreational and tourist resources.

The cultural space is defined by the local culture and cultural heritage of the region. It involves evaluating the potential interest of travelers in the local culture, traditions, customs, folk crafts, tourist sites, cultural assets, and heritage (Yu, Xu, 2019).

The information space is characterized by its presence both within the boundaries of the recreational-tourist zone and beyond, due to its intangible nature. At the local level, it can manifest as a tangible asset in the form of a navigational network such as signposts, address and information plaques and printed reference materials. As an intangible asset, the information space exists as a suite of digital services, including informational websites and tourism-oriented mobile applications (Pencarelli, 2020). The spread of the information space beyond the tourist zone is facilitated by informational resources, channels of information exchange and information infrastructure.

The integration of the listed above elements into a system of interacting and interrelated components can be achieved by creating a spatial model of the recreational-tourist zone based on sustainable development principles.

Consequently, the aim of the study is to provide a conceptual approach for the spatial development model of tourism space with Russian national specifics.

2 MATERIALS AND METHODS

The study is based on monographs and chapters in it, academic papers, scientific reports, annual reports from local governments, state statistical reporting. All these materials are related with topical issues in the special aspects of regional development and spatial evolution of tourist and recreation areas.

Based on the theoretical foundation, a range of current spatial development of recreational and tourist zones issues has been identified. Significant changes have been noted in the geographic space, particularly in the balance of resort territories: reductions in the areas allocated to sanatoriums, deforestation of long-standing green areas, rapid expansion of residential zones, an increase in physical barriers along central streets, hindering pedestrian navigation within resorts. From the perspective of sustainable development principles, these trends in geographic space utilization can be considered negative, naturally leading to imbalances in the economic space and disrupting resort functionality in the following areas: excessive strain on public utility systems and increased pressure on the highway transportation network. The rapid tourist flow increase to Russian resorts is driven by restricting international travel policies for Russian citizens. The result of increase in the number of tourists is overuse of beach areas and recreational zones, which worsens both the conditions for visitors and the quality of life for local residents. On the one hand, this reduces tourists' perception of the quality of the sociological space within the resort area. On the other – it raises the level of dissatisfaction among local residents regarding the development of tourism activities. The information space, intended to promote the tourist destination, becomes filled with negative reviews from tourists, leading to a deterioration of the destination's image as a comfortable tourist center. Non-compliance of existing recommendations for the development of sensitive recreational and tourist zones, as conceptually outlined in sustainable development theory, is substantiated in practice through surveys conducted among local residents, recreational and tourism service consumers, as well as industry experts, including executives of tourism enterprises.

The methodological foundation of the study is the systems approach. In preparing the materials, general scientific methods and specific economic research techniques were employed, including the descriptive method, structural-functional analysis, abstract-logical method, content analysis, comparative analysis, as well as data systematization and

interpretation. Conceptual framework of spacial sustainable development model for tourism and recreation areas is based on multi-case investigation approach.

3 RESULTS

The study revealed that the main principles of spatial development are governed by several regulatory legal acts. The primary one is the «Spatial Development Strategy of the Russian Federation until 2025» (approved by the Government of the Russian Federation, Resolution No. 207 dated February 13, 2019), which aligns with the Federal Law «On Strategic Planning in the Russian Federation» (Federal Law No. 172-FZ dated June 28, 2014), the Presidential Decree «On Approval of the Fundamentals of State Policy for Regional Development in the Russian Federation until 2025» (Presidential Decree No. 13 dated January 16, 2017), and the Presidential Decree «On National Goals and Strategic Objectives for the Development of the Russian Federation until 2024» (Presidential Decree No. 204 dated May 7, 2018). The Spatial Development Strategy of the Russian Federation outlines key trends, including: the concentration of economic growth in a limited number of centers; stabilization of the population in economic growth centers; reduction of interregional socio-economic disparities; transformation of infrastructure constraints of federal importance; and the increasing influence of scientific and technological progress on the spatial development of the regions of the Russian Federation.

The analysis and assessment of regional spatial development strategies revealed that their design is based on spatial modeling theory, employing models such as «center-periphery», «growth poles», and «territorial clusters». These models can be grouped into three categories:

1. Functional models (socio-economic zoning, designation of specialized zones);
2. Framework models (development of territorial frameworks, corridors, development axes, and agglomerations);
3. Cluster models (territorial complexes with cores-key objects and development zones).

In the ten regional spatial development strategies analyzed, the proposed development scheme was classified as functional in nine cases, framework in two cases, and cluster-based in six cases. Spatial aspects of recreational and tourism development were emphasized in those regional strategies where federal-level tourist centers are located. The chosen spatial form of development in these cases was territorial clusters.

The analysis of strategic actions implemented across regions in the Russian Federation revealed a lack of a unified conceptual approach to the spatial organization of regional recreational and tourist centers. As a result, the current development trajectory does not facilitate the integration of the diverse tourism products offered by the regions into a cohesive national system of recreational and tourism services.

Based on the fragmented system of theoretical and methodological approaches within the topic at hand, key principles were formulated, collectively representing a conceptual perspective on the spatial development of recreational and tourist areas, aimed at ensuring the long-term sustainable development of regional recreational and tourism systems.

The conceptual approach to tourism space development presented in Figure 1 substantiates the need to integrate natural resource, infrastructure, economic, and social aspects into a unified system. This combination aims to fulfill the vision of developing a regional tourism space capable of providing the necessary conditions for the sustainable production and reproduction of regional tourism products. The concept, as a specific method of understanding the mechanism of tourism space formation and development, ensures the adequacy of resources for sustainably maintaining the unity and continuity of the reproduction process of the regional tourism product, as shown on figure 1.

Due to the specific nature of the elements comprising the recreational and tourism space, a differentiation of their development goals and outcomes was conducted, as shown on fig. 2.

Developed within the framework of the Concept policies ultimately aim to ensure a high level of competitiveness for the regional tourism product line, achieved by balancing service costs, quality and price. The Concept is designed to align state and business interests while empowering the local community to make key decisions regarding tourism development in the region.

The Concept, which defines the strategic directions for the development of the region's tourism space, is based on a goal-setting system and presented in Figure 3.

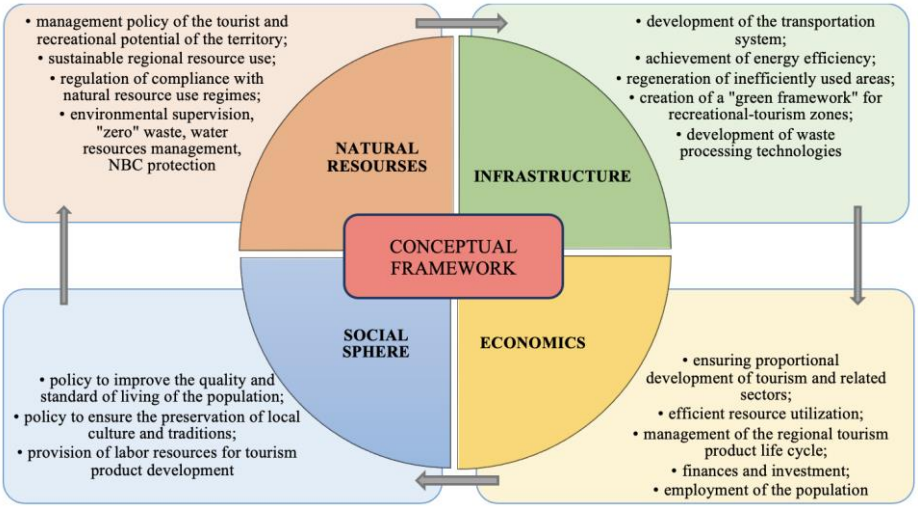

Figure 1: Development of Regional recreation and Tourism Space concept.

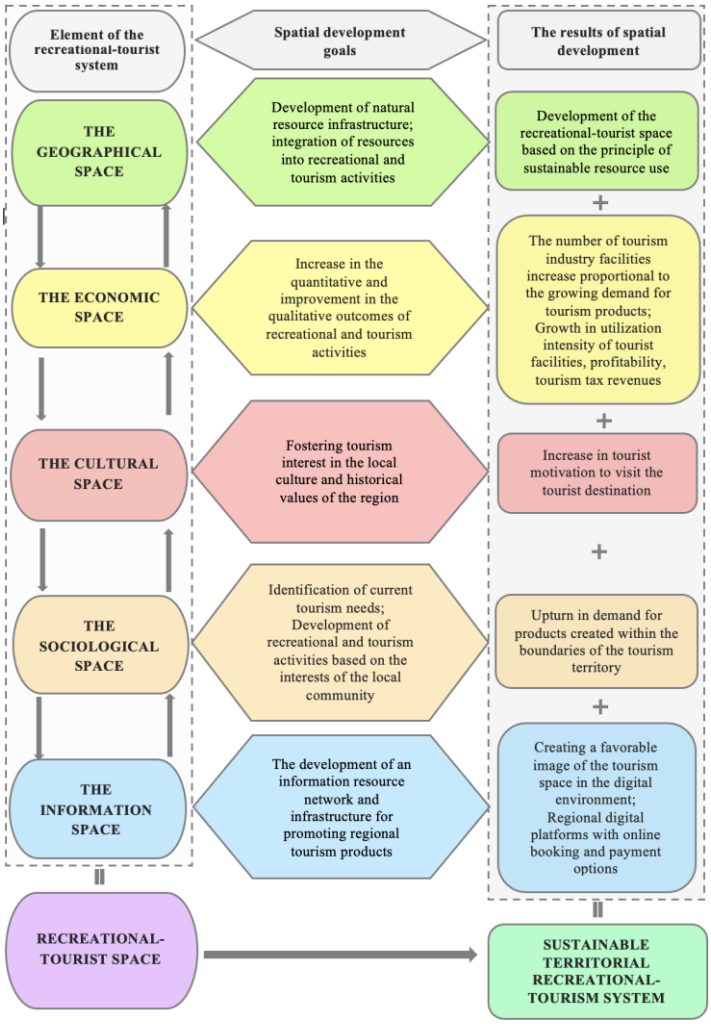

Figure 2: Conceptual goals and projected outcomes for tourism space development.

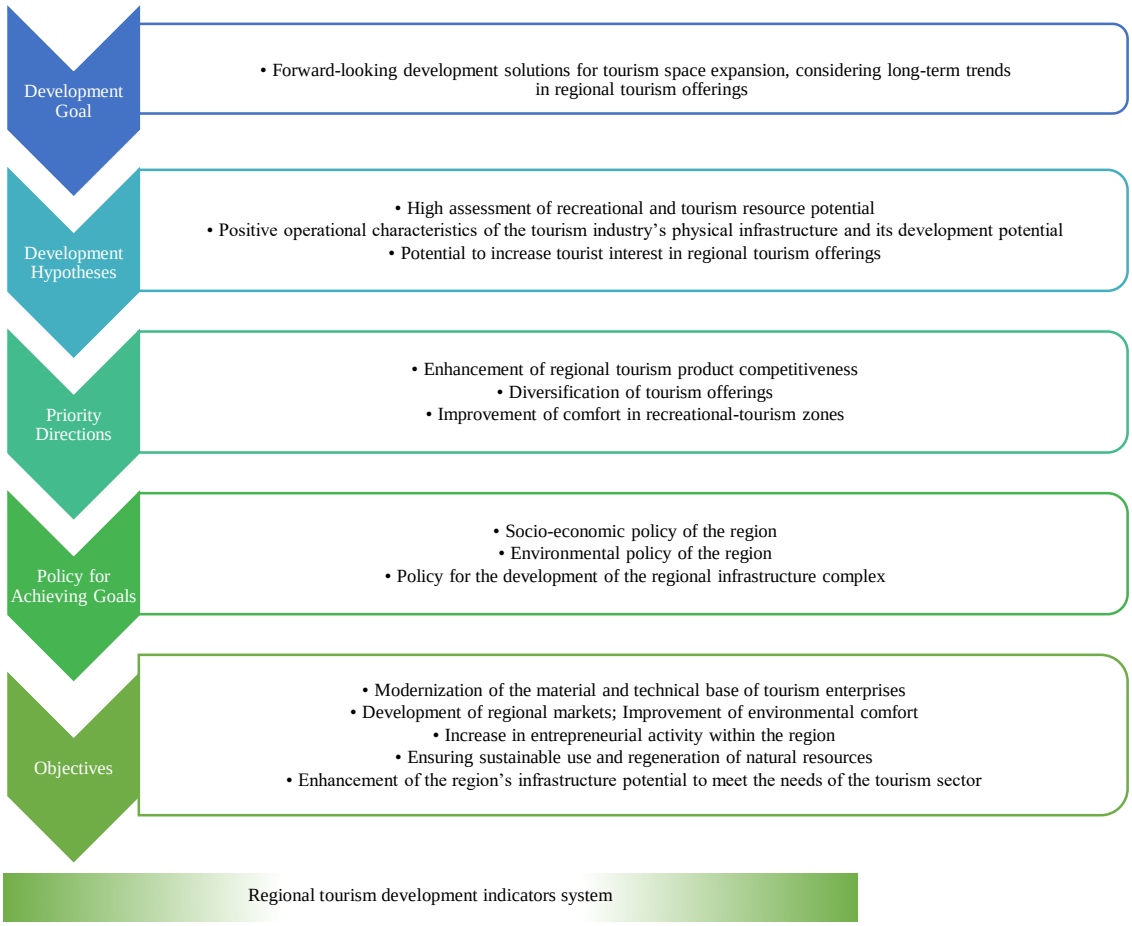

Figure 3: Goal-setting system for the Concept of regional tourism space development.

Within the Concept for the Development of Regional Tourism Space, the creation of policies is essential, and their comprehensive implementation will enable the achievement of the main program goal. The approximate content of these sections of the Concept might be as follows:

- Socio-Economic Policy of the Region: development of the tourism-recreation market, consumer goods market, resource consumption market, capital market, and human resources market.
- Environmental Policy of the Region: enhancement of the region's ecological sustainability (waste disposal; protection of water resources); sustainable resource use (specifically in the use of natural tourism resources).
- Regional Infrastructure Development Policy: improvement of transportation, and heating, water, and electricity supply networks; establishment of an accessible and safe environment in resort destinations.

The Concept harmonizes development parameters across all elements, avoiding miscategorization under a single field. For example, transportation infrastructure development incurs costs (economic aspect) but yields benefits in both the economic (revenue growth for transport companies) and social domains (road quality, accessibility of public transport infrastructure).

The list of evaluation developed parameters (indicator system) is based on the objectives set to achieve program goals for each policy within the Concept. Baseline development parameters are taken into account and then aligned with strategic goals and priorities.

The system of indicators can be organized according to the scheme presented in Table 1. It can

be used at the beginning of the spatial development modelling procces on the municipal level.

Table 1**:** Framework for developing strategic tourism development indicators at the municipal level.

Environmental (Natural Resource) Indicators – En	**Infrastructure Indicators – In**
En_1 Capacity of natural tourist and recreational resources - natural healing resources; - natural coastline and % of beaches	In_1 Transport and Communication Complex - vehicle fleet - public transport - loading of the airport, railways
En_2 Condition, changes in the air and water basin	In_2 Transport network
	In_3 Traffic jams
En_3 Greenhouse gas emissions	In_4 Public water supply
En_4 Consumption of raw materials and waste production	In_5 Water quality
En_5 Changing the landscape	In_6 Land-use change
En_6 Waste production	In_7 Energy independence
En_7 Wastewater treatment	In_8 Energy Consumption by Source Type
En_8 Volume of specially protected natural areas	In_9 Raw material consumption
En_9 Local flora and fauna	In_{10} Residential areas
En_{10} Ratio of built-up area to natural areas	In_{11} Public recreation areas
	In_{12} Resort and tourist complex
En_{11} um population density (peak season) per km^2	In_{13} Waste treatment
	In_{14} Information technology, communications
Economic indicators – Ec	**Socio-cultural indicators – So**
Ec_1 Sanatoriums and hotels occupancy	So_1 Public tourism organizations
Ec_2 Number of tourists and duration of stay	So_2 Poverty and social inequality
Ec_3 Employment rate in tourism	So_3 Level of education
Ec_4 Quality management of tourist services	So_4 Crime rate
Ec_5 International events	So_5 Public health
Ec_6 Salary level	So_6 Quality of food
Ec_7 Consumer price index	So_7 Sports and physical activity
Ec_8 The state of the real estate market	So_8 Operating sports facilities
Ec_9 Investment risks	So_9 Existing cultural and leisure institutions
Ec_{10} Volume and structure of investments in tourism	So_{10} Educational institutions that train personnel for tourism
Ec_{11} The Economic role of the State	
Ec_{12} Structure of budget revenues	So_{11} Opinion polls
Ec_{13} Structure of budget expenditures	So_{12} Homelessness, the real estate market and affordable housing
Ec_{14} Structure of tourist expenditures	So_{13} Cultural program
Ec_{15} Tourism catalyst effect	So_{14} Complaints against enterprises and organizations providing services to tourists
Ec_{16} Tax revenues from tourism	
Ec_{17} Gross Regional Product	So_{15} Image of a tourist destination
Ec_{18} Gross regional product per capita	So_{16} Accessibility of public services

Indicators for assessing space development might include the following:

- availability of well-maintained public spaces (parks, squares, beaches) for residents and tourists;
- proportion of improved public spaces within the total area;
- length of developed sidewalks and pedestrian zones;
- proportion and accessibility of landscaped green spaces for residents and tourists;
- variety of leisure and household services;
- street and park lighting;
- length of bicycle routes;
- development of barrier-free environments;
- citizen engagement in important spatial development initiatives;
- absence of unauthorized dumps;
- percentage of commercial buildings and residential units adhering to sanitary-protection standards;
- proportion of hotel industry enterprises employing energy-efficient technologies;
- regeneration of inefficiently used spaces, availability of public parking, and number of parking spaces, among others.

4 DISCUSSION

Leading ideas of the study and the resulting proposals were grounded in extensive discussions on the subject. Dadau Lu (Lu, 2024) explored the relationship between spatial structure and regional development, noting that modern socio-economic development trends and the theory of production facility location originated from the single-location theory of objects and evolved into a complex system of regional development. The forms and outcomes of interactions among factors have grown more intricate, playing a defining role in regional planning practices. He emphasizes that the evolution of production location theory is fundamentally based on spatial structure, which largely explains the causes of regional development imbalances.

The growing role of strategic spatial planning is evidenced by the work of Anna M. Hersperger, Simona Grădinaru, Eduardo Oliveira, Sofia Pagliarin, and Gaëtan Palka (Hersperger, Grădinaru, Oliveira, Pagliarin, Palka, 2019). They argue that, from theoretical and conceptual perspectives, strategic spatial development is a complex, multidimensional category shaped by numerous socio-political and institutional complexities and highly dependent on the situational context. The main discussion centers on the outcomes of the strategic planning process, with insufficient attention given to its impact on urban transformation. Their proposed framework, SPlaMI, based on an analysis of 21 European regions, reflects planning practices and consolidates the European perspective on strategic spatial development.

Qi Wang, Qunli Tang, and Yingting Guo (Wang, Tang, Guo, 2024) examined the spatial interaction spillover effect on tourism eco-efficiency and economic development. They developed a spatial econometric model to analyze tourism eco-efficiency, which has a significant impact on regional economic growth. Xingyu Huang, Honggang Xu, and Xiang Li (Huang, Xu, Li, 2022) explored the influence of tourism development on spatial change, identity, and social relationships in destinations.

Various aspects of spatial development across different regions have been addressed by T.G. Nefedova (trajectories for enhancing Russia's spatial development strategy) (Nefedova, 2024); Bezrukov L.A., Druzhinin A.G., Kuznetsova O.V., and Shuper V.A. (conceptual approach to the spatial development of Greater Eurasia) (Bezrukov, Druzhinin, Kuznetsova, Shuper, 2024); Andreev V.A., Varkulevich T.V., and Arnaut M.N. (prospective scenarios for spatial development in Primorsky Region) (Andreev, Varkulevich, Arnaut, 2020); Seliverstov V.E. (trends in spatial development and regional policy in Russia) (Seliverstov, 2022); Fauzer V.V., Smirnov A.V., Lytkina T.S., and Fauzer G.N. (special aspects of territorial development) (Fauzer, Smirnov, Lytkina, Fauzer,. 2019); Zhukov K.V., Zaretskaya A.S., & Popova A.L. (basic concepts of rural spatial development) (Zhukov, Zaretskaya, Popova, 2019); as well as Efimova E., Prostova D., and Lukashenok T. (core issues in Russia's spatial and regional development) (Efimova, Prostova, Lukashenok, 2023).

Despite the diversity of spatial development aspects considered by these authors, a common theme across their studies is the necessity of an interdisciplinary approach. This thesis formed a foundational principle in conducting the research.

5 CONCLUSIONS

The conceptual-strategic management mechanism can be considered a highly effective approach to achieving sustainable spatial development in tourism and the hospitality industry, particularly amidst increasing instability in political, economic, social and other societal relations.

The Concept aims to ensure the optimal use of available resources for the sustainable development of tourism space. On one hand, it offers opportunities for all economic entities involved in the production, distribution, and exchange of tourism services to create a high-quality, competitive product. On the other, it endows the space with qualities that will maintain tourist interest in the region over the long term.

The development and implementation of the Concept for spatial development in recreational-tourism territories will address existing and growing issues, including: institutional barriers and the need to resolve property rights issues over natural mineral therapeutic resources; decreased accessibility of natural therapeutic resources; establishing rules for the use and development of especially valuable land categories; solving logistical and transportation issues that intensify with the urbanization of resort centers; preserving marine and land ecology; and ensuring high service quality by mitigating the effects of overtourism.

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