
Abstract

This study analyzed the dynamics of the DMZ (Korean Demilitarized Zone) tourism system through causal loop construction and nonlinear patterns of changes in the system. Furthermore, policy scenarios were applied to the simulation model to predict changes in key variables and improve the resilience of the DMZ tourism system. The process of analysis is largely divided into building causal loop diagrams with systems thinking and system dynamics modeling.

First, topic modeling analysis was performed on the media data related to DMZ tourism to explore the main variables of the DMZ tourism system. Second, based on the derived variables, causal loop diagrams of the DMZ tourism system were established, and the subsystem consisted of the demand and supply of tourism, the environmental impact of tourism, and the income of local residents.

This study further develops a simulation model of the DMZ tourism system and analyzed how the key variables of the system change over the next 30 years if policy scenarios are applied. The simulation result of the basic model showed that if the DMZ tourism system is maintained as it is, the number of tourists and tourism businesses, the military installation protection areas, tourism development area, and the total income of residents increase, while the level of biological diversity reduces. However, assuming that the level of the peace agreement on the Korean Peninsula deteriorates, the result revealed that as the above variables appear to decrease, conflict situation in inter-Korean relations has a negative effect on the DMZ tourism system.

In addition, the policy experimental scenario is largely divided into a development-oriented policy model and a ecotourism policy model. As a result of the analysis of the development-oriented policy model,

as the intensity of policy implementation increased, the number of tourists and tourism businesses, and the area of tourism development increase while biological diversity decreased, which was more rapid compared to the base model. In the case of applying the ecotourism policy model, the number of tourists and tourism businesses and the area of tourism development increased as the intensity of policy implementation increased. In particular, compared to the development-oriented policy model, the rate of increase in the number of tourists is slow, but the rate of decrease in biological diversity is somewhat moderated.

In sum, the government's development-oriented policy can contribute to the revitalization of DMZ tourism and the income of the residents, but in the long term, it can negatively affect the biological diversity and eventually lead to the decline of tourist destination. In other words, it means that if the environmental capacity of the DMZ is exceeded due to indiscriminate tourism development, it will be more difficult to recover the ecosystem. In contrast, ecotourism policies can realize a sustainable tourism system by inducing the gradual growth of the DMZ and conserving biological diversity.

Based on the results, this study suggests the following strategies to enhance the resilience of the DMZ tourism system. First, short-term, mid-to-long-term measures should be prepared to recover the DMZ tourism system, which has been rapidly stagnant due to worsening inter-Korean relations. Second, a sustainable ecosystem should be maintained by minimizing tourism development zones in the DMZ and creating alternative habitats when development is unavoidable. Third, it is necessary to establish a virtuous cycle system that can utilize tourism revenue generated from the DMZ as an ecosystem conservation project. Fourth, in order to ensure that the DMZ ecological resources are well conserved, it is necessary to conduct ecological monitoring of the DMZ

area and provide environmental education for visitors. Fifth, local residents-led tourism programs should be operated. Finally, cooperative governance should be established in which various stakeholders related to DMZ tourism participate.

Keyword DMZ tour, Tourism System, Resilience, Policy Model