

# IMPROVING LOCAL SAFETY MANAGEMENT IN KOREA: A CASE STUDY ON LOCAL SAFETY INDEX AND LEISURE SPORTS SAFETY MANAGEMENT

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**Abstract:** With the increasing frequency of natural and man-made disasters, Koreans pay greater attention to safety management. In response, the Korean government has developed a ‘local safety index,’ which measures the level and awareness of safety management by region. This index has been annually reported based on statistical measurements of seven safety areas: traffic accident, crime, suicide, infectious disease, fire, safety-related accidents, and natural disaster. Among the seven areas, the study examines weaknesses of leisure sports safety measures. Furthermore, it recommends how Korean safety management can be strengthened.

Along with diversified types of leisure sports, the risk and likelihood of safety-related accidents have grown due to insufficient precautions. Despite increased demand for leisure sports, legal measure and institutional framework for safety management are still weak in Korea. Often, individual laws and regulations of different government entities are to be jointly applied according to recreational site or facility standards. But the legal basis for direct safety management is insufficient. Hence, the Korean government seeks to improve safety policies. The underlying problem is the absence of safety education and training activities. In response, the legislation on leisure sports’ safety should be enacted by incorporating various aspects like safety education, safety inspection, facility safety management, etc. Only then, everyone can safely enjoy leisure sports.

**Keywords:** safety accident, leisure sports, safety management, safety index, local safety index, local disaster risk governance

## Introduction

Increased occurrence of natural disasters and man-made accidents have led the Korean public to acknowledge the importance of safety management. In response to such periodic demands, the ‘local safety index’ measuring the regional safety level and

safety awareness has been developed. Incorporated in the Article 66-8 (Public Announcement of Safety Index) of the *Framework Act on the Management of Disasters and Safety*, a local safety index is reported annually.

As a numerical measure of the safety level, the local safety index utilizes key safety related statistics to provide information on traffic accident, crime, suicide, infectious disease, fire, and safety-related accident. It is calculated based on ‘risk indicators’ of seven areas (number of deaths, and number of incidents) and other related indices: ‘vulnerability indicators’ and ‘mitigation indicators’ that are significantly correlated. The ‘risk indicator’ refers to a result indicator such as the number of deaths in each field or the number of incidents. ‘Vulnerable indicators’ refers to human and physical factors that cause risk indicators, and ‘mitigation indicators’ refers to indicators that prevent, minimize, and respond to such risk indicators or vulnerable indicators in advance. The local safety ratings calculated by each indicator are then divided into 1 to 5 grades. Upper 10 percent is classified as Class 1, the following 25 percent as Class 2, 30 percent as Class 3, bottom 25 percent as Class 4, and lowest 10 percent as Class 5.

Among the seven safety areas, the study has identified weakness and reviewed enhancement measures on safety-related accidents, particularly leisure sports. The range of safety accidents is wide, but one of the key indicators used to derive the local safety index is the number of rescue and emergency medical service cases, which occur in many places in various forms. Such incident types include fall, submersion, suffocation, poisoning, and other injuries in residences and critical infrastructure such as houses and roads as well as mountains, rivers and seas, paddy fields and construction sites, etc.

The study focuses on the vulnerability of leisure sports accidents that occur in Korea among various types of safety-related accidents. With increased life quality, higher number of Koreans enjoy sports as part of their leisure activities. As the popularity of leisure activities increases, leisure sports have been also diversified into different types. However, it has also increased the risk and likelihood of safety-related accidents. Consequently, improving safety management standards and policies are growing concerns in Korea.

In the case of leisure sports-related accidents, safety regulations and management are essential because they are increasing annually and can lead to death in severe cases. Yet, despite the increased demand for leisure sports, legal and institutional measures for safety management and regulation is weak in Korea. Individual acts are applied depending on the location and set-up facilities. However, existing laws do not cover all types of diversified leisure sports without any legal clause on leisure sport safety.

For enhancing safety measures, the research presents status of current ATV (All-Terrain Vehicle) safety measure, a common sport among Koreans.

### **Definition of Leisure Sports**

Leisure sports is a socially accepted term referring to ‘voluntarily conducted recreational activities to improve the quality of life’. Increased income and free time, leisure sports are popular adhering to public interest in exploring the nature. In recent years, ATV (All-Terrain Vehicle), a motor sports adventure in a natural environment, and air sports such as paragliding and hang gliding have also become popular.

ATV is a four-wheel drive motorcycle, which means individuals can drive at any topography. It was first introduced in Korea in the late 1970s and began to be on demand in early 1990s. Relatively easy to operate, ATVs can be used by anyone at any terrain like mountains, valleys, rivers, deserts, and farms. Not only it is widely used for agricultural and military purposes but also for leisure sports because of its safety, manoeuvrability and loadability.

Air leisure sports is enjoyed in the sky using special devices and equipment. The sports are classified into different types according to its purpose either as a personal drive or flight activity for others: hobby, entertainment, education, league, etc.



**Figure 1: Images of ATV (All-Terrain Vehicle).**

*Sources:* fir0002 (2005) All-terrain vehicle (CC-BY 3.0); Krause, Stefan (2011) All-terrain vehicle (CC-BY 3.0)



**Figure 2: Images of air leisure sports.**

Sources: Clément Bucco-Lechat (2011) Hang gliding (CC-BY 3.0); Don Ramey Logan (2014) Air racing (CC BY- 4.0)

## Risk status of leisure sports in Korea

### *1) Status of leisure sports related safety accidents*

Along with increased demand for leisure sports each year, and safety-related risks and accidents rise accordingly. The problem is that leisure sports based on the geographical environment and adventurous nature can cause death or serious injury in an accident. In fact, one out of four domestic adventure sports have experienced accidents. In the case of popular on-ground sports, the rate of ATV accident was 24 percent of accidents, and 25 percent for paragliding, representing air sports. ATVs and paragliding accidents are increasing by a factor of two or more, and by a factor of four every year, and the damage symptoms are not as light. Symptoms of ATV accidents include fractures, bruises, abrasions, and lacerations. In addition, symptoms such as damage to the organs or a concussion can also cause life-threatening symptoms. In case of air leisure, fractures, bruises, abrasions, organ damage, and pain are similar in appearance. Injuries usually occur in chest, waist, whole body, head and leg which may have a great influence on life or daily life.

### *2) Status of leisure sports safety (focused on ATV, air sports)*

Korean leisure sports industry is still at the early stages of implementing comprehensive safety management. In the case of ATV, most of the injuries have been caused by drivers not wearing any safety equipment while driving. In particular, domestic ATV exhibition sites are in mountains, rivers, and beaches because highway driving is not allowed. Furthermore, the risk of accidents is higher because drivers can operate ATV without license since the *Road Traffic Act* does not apply. Especially, ATV experience sites are classified as free industries and are not under the control of local governments. So, they are not well monitored and managed. In fact, a survey of the safety status of 12 ATV test sites in Korea revealed that there are many companies

have low safety standards. For example, ATV tires are poorly managed, or inappropriate tires are used. In addition, 50 percent of bumpers were damaged and/or the vehicles were in poor condition. In addition, 25 percent of the sites had set-up dangerous diving course with risk of overturning, falling due to presence of obstacles like rocks and trees, and poor driving skills. In the questionnaire conducted for ATV users, it was identified that minimum safety requirement was wearing safety equipment like open-road helmets. Through the survey, thorough in-advance safety education, securing safety facilities and development of specialized qualifications had been identified as indicating a great demand for safety management of ATV experience sites.

The air sports face similar safety problems. Based on the Korea Consumer Agency, 73.3 percent of respondents reported that safety measures were only notified before the take-off, and very few companies practiced pre-flight practice and video-based safety training. Also, although the pilot is to check securing seatbelt of passengers, not a single company double checked this either by pilots and other safety personnel. Accidents caused by seat belts can be sufficiently prevented through preliminary inspections. Thus, pilots and safety officers need to check them thoroughly. Safety management at the time of landing is as important since air leisure can cause fatalities in landing process as well. However, only about 20 percent of airline leisure companies use archery, roads, and parking lots as landing sites, and the remaining 80 percent use grasslands such as rice paddies and fields. Especially in the case of using archery, roads, and parking lots, the risk of collision with vehicles or other facilities is very high, which increases the risk. One of the basic requirements for air leisure landings is absence of any obstacles like trees, reeds and rocks on the slope of the aircraft, and that the slopes should be gentle. The landing area also suggests that space for safe landing should be provided without any obstacles. In addition to such facility problems, safety frustration of passengers and business places has been addressed. In air leisure, there is a tendency that accidents occur more frequently among experienced passengers. In addition, only 13.3 percent of the companies are reporting or recommending restrictions on boarding alcoholic beverages on the premises. Because of the nature of air leisure, it is likely that many companies operate under heavy weather conditions such as weekends and holiday seasons. Safety education and management are essential considering air leisure characteristics.

Popular ATV and air leisure experience site fields have common problems in terms of safety education, safety management, lack of supervision, and legal/institutional measures. Safety education, management and supervision are required through institutional improvement of leisure sports. Of course, there are some legislation related to the safety of leisure sports, but separate laws such as *Aviation Act*, *Water Leisure Safety Act*, and *Building Act* are applicable depending on geological requirements,

location of the facilities. But they are not very comprehensive. To solve these problems, legislation related to leisure sports was introduced to the National Assembly, but it was abolished frequently due to limitations of legislative process and issues raised in the legislative process.

The *Physical Facilities Act* facilitates the central and local governments to oversee users' safety of physical facilities. However, in the case of leisure sports with a greater risk, users can operate freely without supervision, disregarding their safety. Therefore, it is necessary to develop a legal basis for safe leisure activities of users to respond to increasing demand for leisure sports.

## **Enhancing Leisure Sports Safety: Infrastructure Management and Spreading Safety Culture through the Establishment of a Basic Law**

### ***1) The Need for Establishing a Basic Law on Leisure Sports Safety***

To secure safety of leisure sports, legal and institutional framework should be first established. In many areas, the basic law is aimed at setting an integrated discipline just to serve its purpose. The basic law is a legal means that sets basic principles and rules. With increasing diversity of leisure sports, and unique characteristics of each type, a comprehensive approach is effective than regulation. In the field of leisure sports, promoting a culture of following the basic law should be practiced before following other individual laws and regulations of individual ministries.

### ***2) Related Overseas Legislation on Leisure Sports: United States and United Kingdom***

Safety management on leisure sports in the United States (US) and the United Kingdom (UK) is comparatively better than Korea. As a federal state, the United States, many institutions operate at the state level. Thus, most states have separate regulatory responsibilities related to leisure sports. The remarkable legislative nature of the United Kingdom in relation to leisure sports is that the discipline of the matter is being promoted on an individual level. The level of legislation for leisure sports management and discipline is directed to the *Local Government Act*, and the characteristics of each province are considered in relation to facility operation required for leisure sports management. Furthermore, since the importance of related facility management is very important, they strive to prevent the accidents caused by the operation of facilities by specifying the age related to facilities usage.

The leisure sports legislations in the US and the UK provide a lot of implications on establishing a basic law for leisure sports in Korea. At this point, as new types of leisure sports are rapidly increasing, efforts should be made to reflect local specialties through management of leisure sports at the local level. Although the number of lei-

sure sports consumers continues to increase, safety management standards for installation and operation of leisure sports facilities, equipment and devices are insufficient. Therefore, a systematic qualification on safety education and safety personnel should also be improved.

### ***3) Securing Safety Measures on Leisure Sports***

Therefore, establishing a basic law for leisure sports safety is essential to secure the overall safety of the leisure sports industry. The law should be operated considering regional characteristics. The basic law should set a range that can be applied to a wide range of leisure sports in a comprehensive manner, and should clarify and supervise the responsibilities of national and local governments. In addition, it should specify the establishment and operation standards, safety inspection and maintenance standards for the safety management of leisure sports. It should also address safety management provisions such as safety training, professional training, and insurance.

There is a risk of large safety accidents due to poor management, facilities and safety regulations in ATV experience sites. Especially, since there is no safety standard for insurance or general obligation, an insurance system is to be operated only by notifying the competent local government and service business (lending business), and compensation for damages in the event of user accidents. In addition, as leisure sport can be conducted without a special license, preparing standard guidelines on ATV driving course is critical. Also, comprehensive and regular safety education programs are critical to raise safety awareness and prevent accidents caused by carelessness passengers.

In the case of air leisure, safety management standards should be developed separately because as there are differences from on-ground leisure sports. Airplanes used in the air leisure require safety certification more than any other leisure equipment. Therefore, detailed standards and certifications for air vehicles used in aeronautical and leisure activities should be guided such as conditions and qualifications for operating aerospace and leisure facilities, designated operation and safety management standards for airport and gliding sites. In addition, institutional arrangements to alleviate the damages from leisure sports should be developed. Most of all, leisure sports regulatory organizations should be established for effective safety monitoring and evaluation.

## **Conclusion**

Leisure sports has become a popular recreational activity in Korea with increased socio-economic development. However, leisure sports safety management lies in a blind spot due to a lack of comprehensive legal framework to oversee growing de-

mand and safety management in leisure sports. Accidents occur without warning and the impact is directly related to fatalities and damages. In some cases, individual laws and regulations of different government ministries may be applicable according to place or facility standards, but a specific safety management legal measure is required. Inadequacy of these legal grounds is accompanied by the absence of safety education and safety culture activities to minimize human errors such as poor leisure sports facilities management, carelessness, and safety frustration. Therefore, a direct legislation on leisure sports safety should be enacted to eliminate potential risks. Through enhanced safety education, inspection, and facility management, the public can safely enjoy leisure sports.

## Acknowledgement

The paper presents some findings from a Korean local government led research project titled, “A study on developing a master safety plan for Boryeong City” that has been conducted in 2007.

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