

# **The Safe System Approach in Action**

Evaluating municipal road-safety  
performance indicators in Korea

Case study

This case study is part of a package of materials accompanying the final report of a joint International Transport Forum–World Bank Working Group, entitled *The Safe System Approach in Action*.

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# Introduction

This case study was prepared by a joint International Transport Forum–World Bank Working Group convened in 2020–2021. The case study forms part of a package of materials accompanying the Working Group’s final report, *The Safe System Approach in Action* (ITF, 2022a).

The Safe System approach to road safety takes as its starting point the ethical position that there is no acceptable level of road deaths and serious injuries. The report proposes a framework for designing, implementing and assessing projects with a Safe System focus. It draws on lessons from real-world case studies to offer guidance on implementing Safe System interventions.

The Working Group analysed 17 case studies in total, paying special attention to their Safe System content. While not every case study was a perfect example of the Safe System approach, all contained valuable lessons. In addition, several common themes emerged. A separate ITF Working Paper (2022b) sets out the thematic analysis.

This case study contains four parts. First, it provides context for the specific intervention and the road-safety problems it aimed to solve. Second, it outlines the interventions implemented to solve these problems and the results. The analysis is structured according to the five key components of the Safe System framework outlined in the main report (ITF, 2022a), namely:

1. **Establish robust institutional governance.** Permanent institutions are required to organise government intervention covering research, funding, legislation, regulation and licencing and to maintain a focus on delivering improved road safety as a matter of national priority.
2. **Share responsibility.** Those who design, build, manage and use roads and vehicles and provide post-crash care have a shared responsibility to prevent crashes resulting in serious injury or death.
3. **Strengthen all pillars.** When all road-safety pillars are stronger, their effects are multiplied; if one part of the system fails, road users are still protected.
4. **Prevent exposure to large forces.** The human body has a limited physical ability to tolerate crash forces before harm occurs; the system should prevent those limits from being exceeded.
5. **Support safe road-user behaviour.** While road-user errors can lead to serious harm, the Safe System focuses on roads and vehicles designed for safe interaction with road users. It supports humans not to make mistakes and tune their tasks as much as possible to their competencies.

Third, the case study identifies lessons from the project, again structured according to the five key components of the Safe System framework. Fourth, it offers conclusions.

Access the full set of case studies on the ITF website: <https://www.itf-oecd.org/safe-system-in-action>.

# Context

Fatalities from roads managed by local governments account for more than 70% of total road fatalities in Korea. The Korean Transport Institute (KOTI) identified the need to understand whether or not differences in road-safety management systems (RSMSs) between local governments can result in differences in road mortality rates. More specifically, it was thought that a review of safety performance indicators (SPIs) for local governments in Korea was needed to determine differences in RSMSs.

*Road-safety themes: Safety performance indicators, Local-government interventions*

Comparing indicators can help local governments find strong and weak points when it comes to road-safety management. Evaluating indicators can also help central governments identify what kind of support they need to provide to local governments.

In total, 24 SPIs were developed and applied in 17 local governments. SPIs were grouped into four areas: institutional management, intervention, intermediate outcome, and final outcome. Composite scores of RSMSs for 17 local governments were calculated using the relative weights, which were derived from an analytic hierarchy process (AHP).

The comparison of indicators can help local governments find strong and weak points when it comes to road safety management. This clearly increases local governments' appreciation of road safety as active responsible stakeholders and gives them the ability to improve the value of SPIs once the results are published.

The development of this research was the baseline for the process of implementing improvements to the RSMSs of each local government.

## Funding

The initial assessment was undertaken by KOTI with the development of the SPIs and the methodology of application. This was performed with KOTI's own funds, without the need of additional budget.

## Actors and leadership

The assessment was undertaken by KOTI. The stakeholders involved in the implementation of this study included researchers from KOTI; road safety teams from each local government in Korea; road safety teams from the Ministry of Interior and Safety; and the road safety team from the National Police Agency.

# Interventions and results

## Establish robust institutional governance

The initial step involved the development of the SPIs and the methodology of application. Figure 1 shows the SPI scores for Seoul.

Figure 1. SPI scores for the different areas of the road-safety management system: Seoul



Source: KOTI

The dissemination of information on SPIs with the local governments was as follows. Several meetings and workshop were organised, with the support of the Korean Government. The main results of KOTI's research were also disseminated via social media as a way to call attention to this subject and further boost adoption of SPIs.

Comparisons between the different local governments in terms of road safety outputs and budget allocation really pushed adoption, as it created political pressure for further attention to this matter. Local governments are now using SPIs as a basis for policy making and considering the recommendations for allocating more funds and staff to road safety, without requesting additional funds (but rather reorganising their own budgets).

The establishment of a collaboration with the Police is currently happening as a way to expand the evaluation framework to local police agencies within the road safety management system.

The city of Seoul is an example for other local governments. Seoul developed a five-year road safety plan, and the SPIs are used as a basis for the identification of the interventions and for budget allocation. They receive several visits from the staff of other regions to understand recent solutions/interventions and their effects, that may also be applied in their governments. Road-safety staff of Korean local governments also

use an informal chat group (via a Korean equivalent of WhatsApp) to exchange information, news, experiences and data.

## **Strengthen all parts**

The use of SPIs with the identification of the strong and weak points for each local government clearly increases appreciation of their responsibility as a road safety manager. They tended to improve the value of SPIs once the results are published.

SPIs were developed for each local government in Korea. The results show that RSMSs varied between the different regions, and identify areas for improvement. In this sense, the study considers and strengthens multiple aspects of road safety.

## **Lessons**

The key takeaways of this project were:

- The comparison of indicators can help local governments find strong and weak points when it comes to road safety management.
- The evaluation of indicators can also help the central government to identify what kind of support it needs to provide to local governments.
- Comparisons between the different local governments in terms of road safety outputs and budget allocation created political pressure for further attention to this matter.

## **Establish robust institutional governance**

Following this initiative, some local governments set up a road safety team and increased the budget for road safety. This highlights the benefits of a comparative assessment of RSMSs. Nevertheless, there is still space to further improvement, as more organisations can be involved.

The main success factor of this initiative relates to the social and political pressure achieved through the dissemination of the results. The public results of the analysis included the status and ranking of local governments in terms of road safety outputs and investment. The lowest positions in the rankings clearly indicated bad road safety management, which no local government mayor or governor appreciated. As the methodology also presented areas for improvement and best practices from other local governments, apart from initial resistance, it was implemented all over Korea. It is now possible to define objectives and set up intervention priorities.

As local governments do not have legal obligations to follow any recommendations or methodology in RSMSs, their willingness to accept them was mainly due to a consideration of benefits and costs. Co-operation between Korea's local governments also contributed to the success of this initiative.

A mention should also be made of the collaboration with the police forces in the implementation of the new RSMS. As it was necessary to collect additional data, some resistance was also identified. Nevertheless, this was overcome by specific explanations about the whole process of SPI use, and their usefulness for road-safety improvement.

## Conclusions

The success of this project is demonstrated by changes in road SPIs and management systems in local governments. The success factors for the project include changing motivation through the social and political pressure achieved by the dissemination of the results for each local government; the engagement of the central government to fund the work; and the role of Seoul as a good practice example.

In countries where local governments play a major role in road safety, there is a strong local government example, and dissemination of comparative results will generate political pressure, a project modelled on this project may be effective.

## References

ITF (2022a), *The Safe System Approach in Action*, Research Report, OECD Publishing, Paris, <https://www.itf-oecd.org/safe-system-in-action>.

ITF (2022b), “Safe System Implementation in Practice”, ITF Working Paper, available on request.

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## Evaluating municipal road-safety performance indicators in Korea

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This case study details a project undertaken by the Korean Transport Institute to address the high incidence of fatalities on roads managed by local governments in Korea.

The case study is part of a package of materials accompanying the final report of a joint International Transport Forum–World Bank Working Group, entitled *The Safe System Approach in Action*.

The Safe System approach to road safety takes as its starting point the ethical position that there is no acceptable level of road deaths and serious injuries. The report proposes a framework for designing, implementing and assessing projects with a Safe System focus.

The report also draws on lessons from real-world case studies to offer guidance on implementing Safe System interventions. While not every case study was a perfect example of the Safe System approach, all contain valuable lessons for policy makers and road-safety actors.