

Tolling Asia-Pacific 2024: Trends, trials, and transformations

Summary Report of Report TOL-24-004
Aurora Insights



TOLLING ASIA PACIFIC: TRENDS, TRIALS, AND TRANSFORMATIONS

An Executive Summary of Report TOL-24-004

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INTRODUCTION

Road User Charging Conference Asia Pacific 2024 successfully concluded on October 3rd, at the Four Points by Sheraton Singapore, Riverview hotel. The event brought together key public and private sector stakeholders from across the region to discuss how revenues raised by **user-financed transportation** – including tolling, pricing, and road-usage charging – can enhance transportation infrastructure, improve road safety and support wider sustainability initiatives and decarbonization efforts.

The conference served as a vital platform for dialogue and knowledge-sharing, featuring **16 speakers** representing 12 different countries, offering a broad spectrum of perspectives and expertise on the global and local aspects of tolling, pricing and road-usage charging.

John Thornton, editor-in-chief at Akabo Media, organizer of the Road User Charging Conference, noted that although not at the forefront of innovation in user-financed transportation compared to regions such as Europe or North America, the Asia-Pacific is an emerging market, facing unique challenges and exciting opportunities. From congestion in densely populated cities to a rise in accidents and fatalities on toll roads, the region is increasingly aware of the need for efficient, sustainable, and safe solutions to manage its fast-growing transportation infrastructure.

SESSION HIGHLIGHTS

The opening session saw **Amit Ranjan Chitranshi**, chief operating officer of the Indian Highway Management Company at the National Highways Authority of India, outline the significant milestones India has achieved in its tolling landscape and the innovative steps being taken toward implementing global navigation satellite system (GNSS) tolling. Chitranshi recounted the key phases of India's tolling journey, which has transformed from a manual, cash-based system into a more efficient, electronic toll collection (ETC) model through RFID technology. He highlighted the success of FASTag, India's nationwide RFID-based tolling solution, which has drastically reduced congestion at toll plazas, streamlined traffic flow, and contributed to the growth of digital payments across the country. This system has been instrumental in making toll payments cashless, eliminating long queues, and improving the overall user experience on India's extensive highway network. However, despite these advancements, Chitranshi pointed out that the current system, while significantly more efficient than before, still relies on physical infrastructure at toll plazas, which can create bottlenecks

and limit scalability as traffic volumes continue to grow. Moreover, ensuring consistent compliance and adoption across all regions presents an ongoing challenge. The most anticipated part of the session was Chitranshi's discussion of India's initiatives toward GNSS-based tolling. He described GNSS as a revolutionary, barrierless solution that would eliminate the need for physical toll plazas altogether. By leveraging satellite-based tracking technology, GNSS tolling would allow for real-time, distance-based charging, offering a more equitable and flexible tolling model. This would also reduce infrastructure costs and provide seamless tolling experiences for road users, regardless of their location on India's highways.

Shamil Muzaffarli, chief advisor at Azerbaijan's Ministry of Digital Development and Transport, shed light on how toll roads are playing a pivotal role in shaping a more sustainable future for Azerbaijan's transport infrastructure. He provided context on the current state of toll roads in Azerbaijan, noting that as the country modernizes its infrastructure, toll roads are emerging as a critical component in reducing traffic congestion, improving road quality, and ensuring the financial sustainability of road maintenance and development. These initiatives are aligned with Azerbaijan's broader economic and environmental sustainability agenda, which aims to reduce carbon emissions and promote greener transport solutions. One of the standout projects discussed was the Baku-Guba toll road, Azerbaijan's first major tolling initiative. Designed to serve as a model for future tolling projects in Azerbaijan, the Baku-Guba toll road is not only improving connectivity but is also seen as a step forward in reducing the environmental impact of transport by promoting better road usage and reducing congestion.

Another key session focused on Indonesia's evolving transport payment landscape, presented by **Tory Damantoro**, chairman of the Indonesia Transportation Society. The introduction of multi-lane free flow (MLFF) technology was showcased as a major development, enabling toll collection without the need for vehicles to stop, thus improving traffic flow and reducing congestion. This technological shift is seen as a crucial step towards streamlining road payments across the nation, particularly given Indonesia's archipelagic geography and its large, growing population. Indeed, the integration of MLFF technology across Indonesia's diverse regions has proven to be complex, with issues such as varying levels of infrastructure readiness and the need for greater public awareness about the new system. Moreover, Damantoro pointed out that implementing such systems requires significant investment and coordination between public and private sectors. Looking to the future, Damantoro was optimistic about the potential growth of Indonesia's road payment market, particularly for businesses seeking to invest in or expand within the region. He highlighted opportunities for companies involved in technology, infrastructure development, and financial services, as the Indonesian government continues to push for modern, digitized transport solutions.

A standout discussion focused on the asset monetisation of highways, where **Alok Deepankar**, member (technical) of the National Highways Authority of India, and **Dr Zafar Khan**, joint CEO at Highways Infrastructure Trust, delved into the challenges and opportunities associated with funding expansive infrastructure development projects.

The session opened with an analysis of different monetisation models, including Build-Operate-Transfer (BOT), Public-Private Partnerships (PPP), and Toll-Operate-Transfer (TOT), which are commonly used across the region to fund and manage large highway projects. The panelists discussed how these models offer distinct advantages depending on the specific requirements of a project. BOT and PPP models were emphasized as viable solutions for new road development, while the TOT model is increasingly being used to extract value from existing infrastructure assets.

Another important panel discussion explored how toll systems measure up to other road systems in terms of safety, and what design principles can be employed to reduce road fatalities. The panel featured **Elly Sinaga**, president of the Indonesia Road Safety Partnership, and **Dr Iskandar Hamid**, senior research officer at the Malaysian Institute of Road Safety Research, who shared their expertise on enhancing road safety within toll systems. The presence of consistent funding through toll revenue was highlighted by Sinaga as a key factor that enables these roads to maintain higher safety standards, ensuring regular upkeep and better infrastructure. Hamid expanded on the topic by discussing safe road design strategies that can help decrease fatality rates on toll roads. He pointed to innovations such as wider lanes, clearer signage, and better-lit roadways as crucial elements in reducing accidents. The panelists agreed that integrating safety into the design of toll systems from the beginning is essential to improving overall road safety in the region.

CONCLUSION

Delegates from across the Asia-Pacific region and beyond participated in the discussions, providing insights into how businesses and governments can work together to embrace user-financed transportation models and mechanisms, both as a means of generating revenue for infrastructure development and maintenance, and as a policy tool to manage traffic congestion, reduce environmental impacts and promote safe and sustainable transport solutions.

The event concluded with a consensus on the need for continued industry-wide collaboration to ensure a sustainable and resilient future for user-financed transportation. Speakers across all sessions highlighted digital transformation, technological innovation, and the development of sustainable infrastructure as critical drivers for achieving climate goals while maintaining economic competitiveness.

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