



ACRI Rail Knowledge Bank update

Developed and maintained by the ARRB Group under the National Interest Services (NIS) program, the ACRI Rail Knowledge Bank is a managed online resource for the rail industry.

For more information, visit the ACRI website at www.acri.net.au, or you can [click here](#) to visit the Rail Knowledge Bank page directly.



New to the ACRI Rail Knowledge Bank

If you would like your name/organisation added to the ACRI Rail Knowledge Bank alert list, simply email rail@arrb.com.au with your request.

The primary, although not exclusive, focus is material relevant to an Australasian audience and is updated monthly. The Rail Knowledge Bank has grown in a range of subjects, including:

Human Factors

[A pilot study of low workload in train drivers](#)

This TRL study set out to investigate the types of train driving tasks and situational factors that might lead to low workload and reduced driver performance. It also investigated the effect that a mitigation designed to increase workload had on train drivers experiencing a relatively undemanding train driving scenario. Subjective and physiological measures were taken for both the baseline and mitigation drives, as well as performance measures such as speed and response

to critical events. The results from the study seem to suggest that applying a mitigation technique increases workload during a monotonous train driving scenario and has a positive impact on subjective measures of low workload, low arousal and fatigue.

[Fatigue in operators of land- and sea-based transport forms in Norway: literature review and expert opinion](#)

This report uses literature review and expert interviews to assess the need for improved fatigue management in Norwegian land- and sea-based transport sectors, an important safety risk in the road, rail and maritime sectors in Norway. The rail sector may be best at tackling the more serious fatigue problems faced by its operators. Recommendations for the improved management of fatigue are made. Promotion of the business benefits of tackling fatigue may be essential for widespread uptake of fatigue countermeasures across transport sectors.

Infrastructure

[Fatigue behaviour of steel-fibre-reinforced concrete beams and prestressed sleepers](#)

This research looks into the behaviour of steel-fibre-reinforced concrete (SFRC) beams and sleepers subjected to cyclic loading. In the experimental program, twelve (out of sixteen) reinforced concrete beams with fibre volume fractions 0.4 and 0.8 percent and eight prestressed sleepers with fibre volume fractions 0.25 and 0.5 percent were tested under constant amplitude cyclic loading. In this study, a finite element model is developed for the fatigue behaviour of SFRC structures. The model was verified with the experimental results from this study and is shown to predict the fatigue life of SFRC beams and sleepers with reasonable accuracy.

[Life cycle assessment of bridges, model development and case studies](#)

The overall aim of this Swedish research is to implement life cycle assessment (LCA) on bridges, thus eventually integrate it into the decision-making process to mitigate the environmental burden at an early stage. Specific objectives are to: i) provide up-to-date knowledge to practitioners; ii) identify associated obstacles and clarify key operational issues; iii) establish a holistic framework and develop computational tool for bridge LCA; and iv) explore the feasibility of combining LCA with life cycle cost (LCC). The developed tool (called Green Bridge) enables the simultaneous comparison and analysis of 10 feasible bridges at any detail level. The studied bridge types include: railway bridge with ballast or fix-slab track, road bridges of steel box-girder composite bridge, steel I-girder composite bridge, post tensioned concrete box-girder bridge, balanced cantilever concrete box-girder bridge, steel-soil composite bridge and concrete slab-frame bridge.

[Rolling stock perspective: moving Britain ahead](#)

This policy document sets out the Department for Transport (DfT) perspective on rolling stock and our aspirations for the sector as a whole. The aim is to make DfT act as better client of rolling stock for passengers and taxpayers, drive improvements in terms of passenger quality and offer improved information and transparency for stakeholders, with regard to passenger rolling stock.

[Alternative funding and financing mechanisms for passenger and freight rail projects](#)

This US report provides an assessment of broad financing and funding requirements in the context

of intercity passenger and freight rail systems, a detailed review of funding and financing options and associated considerations, and an in-depth assessment of implementation requirements for a broad spectrum of rail projects and services. The report summary, available separately, highlights the significant issues that underlie consideration of how to pay for rail projects and services that have an identified funding gap, including the policy considerations that must be addressed to bridge that gap.

Restructuring

[Railways restructuring and Ukrainian economic reform](#)

In this paper the crucial role that the Ukrainian Railways plays in the Ukrainian economy is first discussed, followed by a survey of the world experience with railways restructuring: a large number of countries have already undertaken the task of converting sagging government-owned monopoly railways into more dynamic and competitive transport enterprises, and their experience in very diverse settings may have important lessons to offer. The current state of rail reform plans in Ukraine is examined, concluding with discussions of alternative paths forward that seem most likely to be successful in Ukraine, based on both the experience elsewhere and the country's current situation.

[The economics of railways restructuring in South Korea](#)

South Korea, like many countries, is engaged in a policy debate concerning possible railways reforms. However, unlike most countries, here the focus of discussion has been the government's proposal to open high-speed passenger train lines to a second train company that would supply on-track competition to KTX trains. While such a policy may indeed lead to lower fares and greater efficiency, worldwide experience casts doubt on the government's hope that it would lead to such dramatic increases in ridership that the level of subsidies to the overall rail system could be reduced. A more promising reform strategy may be to introduce competition into freight rail.

Safety

RISSB Rail safety 2015 presentations are now in the Rail Knowledge Bank.

Browse to the collection by clicking [Browse > Rail Knowledge Bank conferences > RISSB Rail Safety > 2015](#)

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The ACRI Rail Knowledge Bank is maintained by ARRB Group through the National Interest Services (NIS). It gratefully acknowledges the support of rail sector bodies including the RTSA and legacy founding body, the CRC for Rail Innovation.

[National Interest Services supporting an informed land transport community](#)



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