

RISSB Product Proposal (and Prioritisation)

Primary information			
Type of product being suggested:	Guideline		
Title of product being suggested:	Preparing for the effects of global warming on rail infrastructure and operations.		
Date of suggestion:	14/02/2019		
Reason for suggestion:	<p>Extreme weather events are an existing risk to the rail network and are forecast to increase in intensity over the coming decades. For example, previous incidents have caused the:</p> <ul style="list-style-type: none"> • flooding of track, pedestrian subways, and other infrastructure • washing away of formation • wind damaging rail infrastructure directly • dispersing vegetation onto train tracks and electrical infrastructure; and • extreme heat forcing speed restrictions on the rail network. <p>These events have been predicted to worsen and become more frequent due to the onset of global warming. Therefore, an industry strategy/ guidance document for future proofing your operations and/or the detailing of common controls will be useful in preparing to mitigate the effects of global warming on the rail industry.</p>		
Railway discipline area:	Multidisciplinary, Environment		
Objective:			
The objective is to prepare the rail industry for the effects of global warming on infrastructure and operations. This should be done by the development of a guideline. This will enable stakeholders in the rail industry to develop a plan and implement controls in the short, medium and long term in order to minimise the disruption on the industry.			
Scope:			
<p>Scope would include the following stakeholders in the rail industry (Australia and New Zealand), a strategy would be developed for the following:</p> <ul style="list-style-type: none"> • Operators • Infrastructure maintainers • Above rail operators • Designers • Manufacturers <p>The strategy would identify key risks and opportunities related to climate change. It would provide advice on common actions and best practice in mitigating these risks. It may also contain advice on how to improve environmental innovation and /or planning for climate change within rail organisations.</p>			
Hazard identification:			
1	<u>Water Related</u>	6	<u>Heat Related</u>
			<u>Other</u>

2	Extreme rainfall	7	Fires	Storm activity such as severe wind and the impact on rolling stock and infrastructure.
3	Sea surging, tides and swell Wharves – Inundation of sea water at ports	8	Heat related stress on assets	Operational hazards such as outages, delays, speed restrictions, weight restrictions.
4	Sea level rising	9	Effects on customers	
5	Landslides	10	Reduced average rainfall	

Benefits:

Maintaining the safe operation of our transport network will support all goals below:

Safety

- Reduced risk of derailments;
- Reduced risk of injury to the public and works within the rail industry;
- Reduced risk of injury from heat stress for staff;
- Innovation of not only rail industry, but also other sectors safety practices;

Interoperability / harmonisation

- Industry wide standard on global warming response;
- Requires interactions between networks, passenger and freight operators;
- Improved understanding of impacts at interfaces to other transport modes (eg. Ports)
- Applicable to all operations, not freight or passenger or network specific

Financial

- Will maximise the value of current and future investment.
- Less maintenance and downtime
- Lessening the impact to services (equates to revenue)
- Less potential for asset write off or damage due to inclement weather

Environmental

- Reduced number of incidents with the potential for environmental harm;
- Increase industry awareness on environment and climate change;
- Responding to climate change / effects of global warm drives environmental innovation

Impacts:

This task may require analysis to be completed by specialists.

Reference / source materials:

#	<u>Reference / source material</u>	<u>Available from</u>	
1	<i>Climate Change Act 2017</i>		
2	Climate change in Australia	https://www.climatechangeinaustralia.gov.au/en/publications-library/technical-report/	

3	IPCC report – 6 th assessment report	https://www.ipcc.ch/report/sixth-assessment-report-working-group-3/	
4	Climate change and the railway industry: A review	https://www.researchgate.net/publication/245388154_Climate_change_and_the_railway_industry_A_review	
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Definitions

ii **Interoperability** is the ability of a process, system or a product to work with other process, systems or products (aka compatible systems through managed interfaces).

iii **Harmonisation** - the act of bringing into agreement so as to work effectively together (aka uniformity of systems).