RAIL SAFETY REGULATORY ENVIRONMENT: A SOUTH AFRICAN EXPERIENCE

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ABSTRACT

Post-1994, the railway environment in South Africa could best be described as monopolistic competition. The former South African Railways & Harbours, which later became Transnet Freight Rail, was and still is the only role player. Transnet was able develop regulations and standards to manage their operations. The new dispensation brought with it many changes; chief amongst which was the introduction of the transport agencies that function at arms-length to promote safety in and across all transport modes. The Railway Safety Regulator was established in 2002, has been in operation since 2005, promoting, and regulating safety in the railway environment. The purpose of this paper is to look at the key elements of the railway safety regulatory regime in South Africa and compare it to other local and international regulators. There a number of differences between the regulations of railway safety in South Africa when compared to other countries. However, it is important to consider South African conditions and environment before adopting some of the best practices.

1. INTRODUCTION AND BACKGROUND

This paper highlights key issues pertaining to the railway safety regulatory environment in South Africa (SA). This paper compares the regulatory environment in SA to other countries in terms of roles and functions according to the different institutions that perform them. It should be noted that, the aim is not to adopt what other countries are currently doing but rather to learn from them and adapt practices that fit with our local conditions thereby improving our railway regulatory regime.
The information used in this study was obtained from the literature review as well as strategic documents obtained from the Rail Safety Regulator (RSR). Some of the information was also obtained from railway operators in SA.

1.1 The Railway Industry in South Africa

There are a number of role players in the SA rail industry that contribute to the regulation of railway safety in South Africa. Figure 1 below, provides an overview of the current role players and the governance structure.

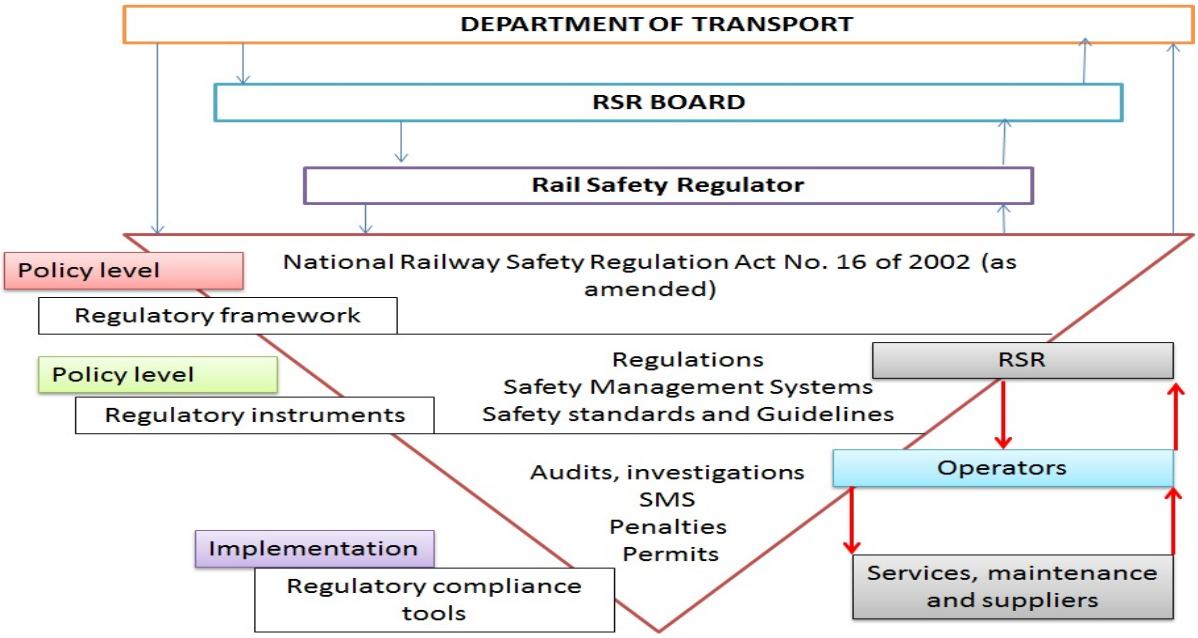

Figure 1: Role Players in the Railway Industry in South Africa (Source: Huntley *et al*, 2013)

1.1.1. National Government

In terms of the Constitution Act of 1996, the regulation of the railway sector is a function of the national government. The national government is responsible for policy formulation and in the case of railway safety regulation the RSR is responsible for policy implementation. The National Department of Transport is in the process of developing rail policy for SA.

1.1.2. The Railway Safety Regulator

Prior to 2002, the rail industry in South Africa was self-regulating. This means that operators set their own standards, investigated their own incidents and were accountable to no one in particular for safety performance (Railway Safety Africa, 2011).

The RSR came into effect in 2002 by virtue of the creation of the National Railway Safety Regulator Act, 2002 (Act 16, 2002) or NRSR Act. This came after the National Department of Transport had recognized the need for a safety regulator for the rail sector as the previously dominant operator, Spoornet, could no longer play a dual role (being both player and referee) in the changing railway landscape. In addition to this, the safety legislation at the time did not make enough provision for the regulation of railway safety. This was because the Occupational Health and Safety Act (Act 85, 1993) as well as Mine Health and Safety Act (Act 29, 1996) did not cover railway safety specifically. In essence the NRSR Act is permission based, meaning that the persons who are subject to its jurisdiction are not allowed to undertake activities, unless they obtain railway safety permits to this effect. The RSR is governed and controlled by a Board of Directors (Huntley et al, 2013). The role of the Board members is ensuring that the RSR executes its mandate as well as exercise oversight over the Regulator's performance and functions. Governance of railway safety forms the foundation of the regulatory framework and the relationship among its partners.

1.1.3. Provincial and Local Government

All nine provinces supported the National Railway Safety Regulator Amendment Bill in 2008. During that time the various provinces highlighted issues to do with security at railway stations, financial implications of the Bill and broadening the Bill so that the RSR could disclose instances where operators paid little or no attention to safety and the transportation of explosives (Parliamentary Monitoring Group, 2008).

1.1.4. Railway Operators

There are a number of operators in the rail industry in South Africa. For the purposes of this paper an operator refers to any one of the following:

- a railway network operator e.g. Transnet Rail Engineering;
- train operator e.g. Passenger Rail Agency of South Africa (PRASA) or Transnet Freight Rail (TFR)
- station operator
- rolling stock manufacturer??

These operators are classified into Class A (large, high risk) and Class B (small, low risk). Since the current regulatory regime is permission based all these operators have to receive a safety permit before they can operate. These permits are renewed at intervals set out by the RSR subject to meeting the requirements of the permits (Huntley *et al*, 2013).

2. CURRENT STATE OF RAILWAY SAFETY IN SOUTH AFRICA

The RSR monitors the safety performance of the railway industry in its "State of Railway Safety" annual report. The report is based on the analysis of occurrence and incidents data reported by railway operators to the RSR as prescribed by the National Railway Safety Regulator Act 16 of 2002.

More than 4000 railway incidents are reported annually under the operational occurrences category. In 2012/2013, railway safety improved to 4262 operational occurrences resulting in 1787 injuries but relatively higher fatalities of 440 compared to that of 2011/2012. This information is shown in Figure 2.

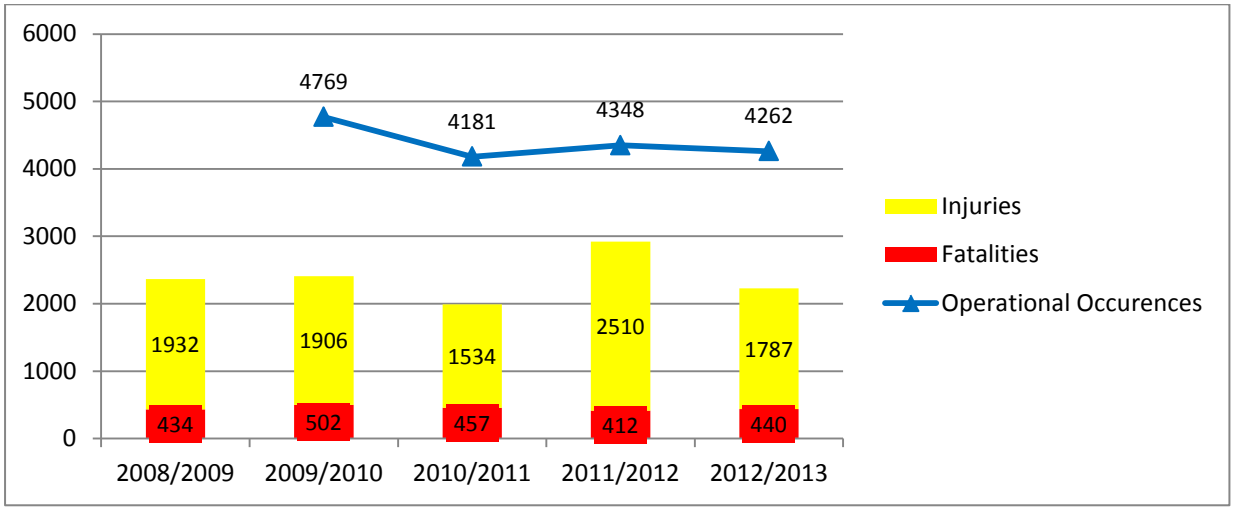

Figure 2: Operational occurrences according to year. (Source: RSR's Annual State of Safety Reports)

Figure 3 shows a comparison of railway fatality rates for South Africa to other countries including the 27 countries that make up the European Union (EU). The fatality rate for the 27 member states of the European Union is presented as EU-27. The source of data for estimating the fatality rates for the rest of the countries was derived from their respective national transport safety statistics published annually. While the definition of a fatality and train-km are comparable between countries, the reporting practice for trespassers (unauthorized access) and suicide fatalities may not always be comparable.

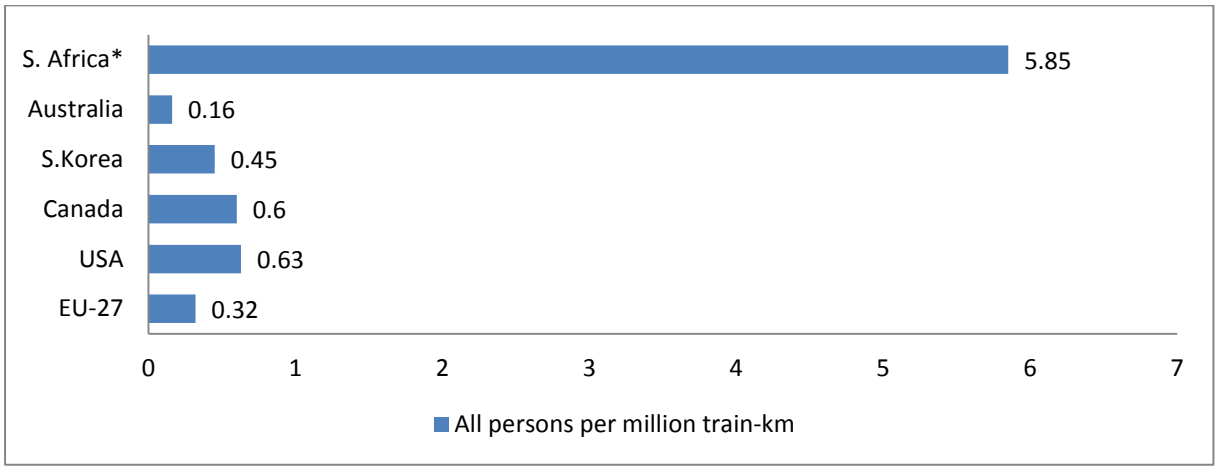

Figure 3: SA and International Comparison of Fatality Rates

Figure 3 illustrates that South Africa performs poorly when considering railway fatalities as compared to other international countries that have a regulatory environment comparable to SA. SA has a fatality rate of 5.85 fatalities per million train-km as compared to 0.16 and 0.85 for Australia and USA respectively.

3. REGULATORY FRAMEWORK

The primary set of legislation dealing with rail safety regulation is the National Railway Safety Regulator Act, 2002 (Act No. 16 of 2002). This Act has been amended twice, once in 2007 by the Transport Agencies General Laws Amendment Act, 2007 (Act No. 42 of 2007, and once in 2008, by the National Railway Safety Regulator Amendment Act, No. 69 of 2008. In essence the NRSR Act is permission based, meaning that the persons who are subject to its jurisdiction are not allowed to undertake activities, unless they obtain railway safety permits to this effect.

The Act is reasonably modern in the sense that it was only published in 2002, with amendments as recent as 2008. However, it should be noted that it is clear that operators are primarily responsible for railway safety and the RSR's is mainly responsible for regulatory oversight.

The RSR Act, 2002 empowers the RSR with regulatory tools that ensures that the regulator is able to deliver on its mandate. These regulatory tools include:

- Safety permits
- Safety management system
- Standards, regulations and guidelines.

These regulatory tools are described in brief in the next section.

3.1. Safety Management System (SMS)

Railway operators in South Africa are required to develop and implement a railway SMS in order to comply with National Railway Safety Regulator Act, 2002. In order to manage safety in a more structured and formalised way and to be issued with an operator permit, operators are duly required to have a fully documented and implemented SMS. The content of SMS is directly proportional to the size and complexity of railway operations, which in turn determine the risks to be managed.

3.2. Railway Safety Permits

The Act requires all railway operators to apply for a Safety Permit from the RSR, prior to engaging in any railway operation including the construction phase. This is a requirement for all operators involved with the operation of any railway within the Republic with a track gauge of 600 mm or more. The safety permit is issued once the RSR has satisfied itself that the operators have a sound SMS in place. The safety permits are classified into Class A (High risk) and Class B (lower risk). This classification allowed for the reduction of the administrative burden placed on smaller operators.

3.3 Occurrence Reporting and Investigation

An operator must report to the RSR Chief Executive Officer (CEO) the category and type of all railway occurrences, in the manner and form prescribed by the Minister. An operator is expected to investigate every railway occurrence that takes place directly or indirectly in connection with that operator's railway operations. The operator should identify the root cause or causes thereof, within a reasonable time after that occurrence and must, upon request, furnish any occurrence investigation report to the RSR. The RSR may also on its own accord, or upon receipt of a directive from the Minister be obliged to, investigate any railway occurrence for the purposes of preventing similar occurrences in the future. In performing the investigation, the regulator has wide powers of inspection, calling witnesses and producing reports and recommendations.

3.4. Standards, Regulations and Guidelines

The RSR is empowered to fulfil a broad range of regulatory functions, built around the safety permit system, including developing of standards and regulations (or adopting those set by other bodies). These regulatory tools are important in ensuring that the RSR delivers on its mandate.

4. FUNDING OF THE REGULATOR

In terms of the RSR Act, the RSR is funded by money appropriated by Parliament, fees paid to the RSR, penalties payable in terms of regulations made under the RSR Act, permit fees and other fees or sources of income as determined by the Minister by notice in the Gazette. The Minister determines permit fees annually and includes a non-refundable application fee.

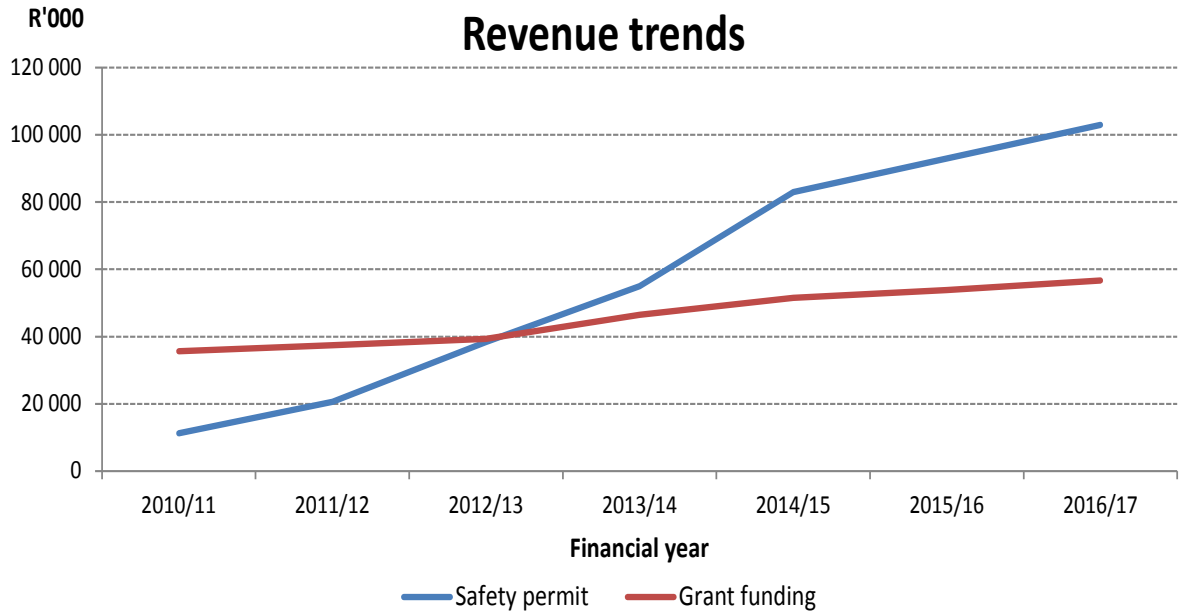

Figure 4: Five Year RRS Revenue Trends *(Source: National Treasury, 2014)*

Figure 4 illustrates that rail operators' proportional contribution to the total revenue base through safety permit fees paid to the RSR has decreased from 63% of total revenue in 2012 to 50% in 2013. Correspondingly, the grant money from the government has also increased significantly from contributing 35 % to the funding arrangement in 2012 to 49 % in 2013.

Evidently, rail operators continue to finance a great proportion of the regulators functions and this could potentially erode the grant funding from the state and result in the RSR becoming self-sustaining; and thus become wholly funded from user fees. Nevertheless the latter is dependent and influenced by the extent to which the cost of levying and collecting user charges is considered efficient and justified based on the principles advocated by the Organisation of Economic Development (OECD) on funding regulatory agencies operating in the safety sphere (OECD), 2013).

5. INSTITUTIONAL ARRANGEMENT

It is important to note that there are a number of institutions within this regulatory environment. Table 1 shows the different elements of the current railway safety regulatory framework and the institution responsible for its execution.

5.1 Institutional Arrangements in South Africa

The table below (table 1) shows that most of the roles within the regulatory regime are fulfilled by the RSR in an independent capacity. Railway safety regulation is not an in-house function of the DoT. The RSR is responsible for the following major functions among others:

- Rail safety regulation oversight.
- Development of standards in collaboration with the industry experts andthe South African Bureau of Standards (SABS).
- Rail accidents investigations.

Table 1: Railway Safety Roles and Responsibilities In SA

Role	Responsibility			Name
	Government	Independent	Industry	
Rail safety regulation		✓		Rail Safety Regulator (RSR)
Economic regulation	✓			Interim Rail Economic Regulator
Development and maintenance of the Act	✓			Department of Transport (DoT)
Accident investigation		✓		Rail Safety Regulator (RSR)
Development of standards		✓		Rail Safety Regulator (RSR)

The DoT is responsible for the development and maintenance of the NRSR Act which is the primary legislation for railway safety regulation in SA. Economic regulation is supposed to be done through an in-house department within DoT known as the Single Transport Economic Regulator(STER)which will provide economic regulation across all transport modes. However, this unit is still in conception and therefore not yet functional Therefore currently, rail safety regulation is elevated above economic regulation because at the moment economic regulation is left to the industry whereas safety regulation is done through an independent agency.

5.2 International Comparisons

This section looks at the major functions of a railway regulator in SA and other countries. The comparison looks at the different institutional set up in these countries for railway safety regulation. The information is summarised in Table 2.

Table 2: Comparison of Rail Safety Organisations With Other Countries

Role	Responsibility			Name of institution
	Government	Independent	Industry	
RAIL SAFETY REGULATION				
South Africa		✓		Railway Safety Regulator
Canada	✓			Transport Canada (Rail Safety Directorate)
Australia		✓		Office of the National Railway Safety Regulator.
USA	✓			Federal Railroad Agency (FRA)
UK		✓		Office of Rail Regulation (ORR)

ECONOMIC REGULATION				
South Africa	✓			Interim Rail Economic Regulator
Canada		✓		Canadian Transportation Agency
Australia		✓		Australian Competition and Consumer Commission (ACCC)
USA		✓		Surface Transportation Board (STB)
UK		✓		Office of Rail Regulation (ORR)
ACCIDENT INVESTIGATION				
South Africa		✓		Railway Safety Regulator (RSR)
Canada		✓		Transportation Safety Board (TSB)
Australia		✓		Australian Transport Safety Bureau
USA		✓		National Transportation Safety Board (NTSB)
UK		✓		The Rail Accident Investigation Branch (RAIB)
DEVELOPMENT OF STANDARDS				
South Africa		✓		Railway Safety Regulator (RSR)
Canada	✓		✓	Transport Canada & Rail industry
Australia			✓	The Rail Industry Safety and Standards Board
USA	✓			Federal Railroad Agency (FRA)
UK			✓	Rail Safety and Standards Board

5.2.1 Rail Safety regulation

The regulation of railway safety in South Africa is compared to other countries namely Canada, United States of America (USA), Australia and United Kingdom (UK). The comparison is in terms of whether the regulation of safety is done by an independent agency or it is part of a government department.

Table 2 shows that the regulation of railway safety is done through and independent agency in SA, Australia and UK. Independence of the regulator is one of the principles underpinning a good regulatory framework. In Canada and the USA this is all part of a government department.

5.2.2 Economic Regulation

Economic Regulation must be designed to achieve national transport sector objectives. The broad duties of an economic regulator or regulators should be legislated. The role of economic regulation in the railway industry may include any of the following:

- Regulating tariffs and services in an environment of little or no competition
- Developing competition
- Ensuring non-discriminatory access
- Determining access charges
- Ensuring infrastructure investment (PPIAF, 2012).

In SA, economic regulation of the rail industry is mainly left to the industry itself. This is contrary to all the other countries where independent agencies and dedicated units within the government are responsible for rail safety regulation. The downside to this arrangement in South Africa is that safety directives have a huge bearing on business costs within and there is a need to balance the level of safety with the cost of achieving that level. In addition, rail network access issues can also impact on safety therefore it is necessary that this is not left to the industry to regulate itself. In the UK, economic regulation is done through the Office of the Rail Regulator, the same agency responsible for regulating railway safety (Office of Rail Regulation, 2014).

In Canada the Transportation Appeal Tribunal of Canada (TATC), is responsible for dispute resolution within the transport industry (Transportation Appeal Tribunal of Canada (TATC), 2014).

It is recommended that rail economic regulation becomes more visible in the railway industry today. It will be important for the economic regulator to regulate tariffs and services in an environment where there is little completion in the railway space. The economic regulator can also help with handling issues of infrastructure investment in the industry. There is no single model for economic regulation but the framework adopted must be designed to achieve national transport sector objectives

5.2.3 Development of Standards

The development of standards in SA is a main function of the RSR, whereas in Australia it is a function of the industry. In South Africa the development of standards is done mainly by the regulator where as in other countries it is done through the industry or as a function within the government department. The advantages of having the industry take a lead in development standards is that industry has a sense of ownership of those standards therefore compliance is much better. There are challenges with the industry when the regulator prescribes and enforces the standards all on its own. Involving the industry also helps in tapping the industry for critical skills and expertise required in the development of these standards.

5.2.4 Accident investigation

It is only in SA where the regulator is responsible for overseeing railway safety and on top of that investigating rail accidents. In order to instil confidence in the public regarding the transportation accident investigation process, it is essential that an investigating agency be independent and free from any conflicts of interest when investigating accidents, identifying safety deficiencies, and making safety recommendations (Rail Safety Review Secretariat, 2007). In all the other countries compered to SA, investigations of rail accidents are done by independent boards. It is also important to note that most of these agencies work across all transport modes so they are not specific to rail only. The only exception is the UK where rail accidents

are investigated by the Rail Accident Investigation Branch (RAIB) (The Rail Accident Investigation Branch, 2014).

It is recommended that an independent accident investigation body be set up in line with international trends. This will help improve the stakeholders' confidence in the investigation process.

6. CONCLUSION

The rail safety regulatory framework in South Africa is based upon a reasonably modern Act in the sense that it was only published in 2002, with amendments as recent as 2008. The Act builds on modern international standards in establishing an independent safety oriented regulator – the RSR - for the railway sector.

It is evident that the RSR is mainly funded from permit fees and government grants. However, in the coming years there is a drive to ensure that the RSR gets funded more from permit fees as opposed to relying more on government funding. This will be in-line with the government's user-pay principle. This can also help to ensure that the regulator will deliver value for money to the operators responsible for funding it.

SA has a high fatality rate of 5.85 per million train-km when compared to other countries from EU, USA, South Korea and Australia. This shows that SA still has a lot work to do as far as improving railway safety in this country.

The current rail safety regulatory framework shows that most of the functions are carried out by the RSR for example regulation oversight, development of standards and investigation of rail accidents.

When compared to other regulatory frameworks, it looks like rail economic regulation is not receiving enough attention. At the moment economic regulation is left to the industry. SA is the only country among the ones that were studied where accident investigation is part of the regulator's functions.

It should be noted that this study gave good insights as to how regulatory frameworks are structured in other countries. The idea is to learn from them and adopt some of the best practices while bearing in mind the local socio-economic and environmental concerns. Sometimes best practices in another country might not be a best practice in SA without modification to suit local conditions.

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