



**REPORT ON THE STATE AND MANAGEMENT OF RAILWAY TRANSPORT
SYSTEMS IN ZAMBIA**

**SUBMITTED TO THE COMMITTEE ON COMMUNICATIONS, TRANSPORT,
WORKS AND SUPPLY**

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EXECUTIVE SUMMARY

The Zambia Railway System (ZR) is mainly comprised of Zambia Railway Limited (ZRL) and Tanzania-Zambia Railway Authority (TAZARA). ZRL is a stated owned enterprise (SOE) while TAZARA is jointly owned between the Tanzanian and Zambian Governments. These two (2) railway systems cover an approximate railway network of about 1, 922 km. This railway network connects to major sea ports in Southern African via different corridors. These include Durban in South Africa, Dar es Salaam in Tanzania and Beira and Maputo in Mozambique. The Benguela-Lobito corridor connects the country to the west in Angola.

The state of railway infrastructure and rolling stock for the railway subsector has deteriorated over time due to insufficient rehabilitation and maintenance and general lack of investment. The highest spending allocation to the railway subsector in the past decade was in 2013 when ZMW 619.31 million was allocated. These funds were sourced from the US\$ 750 million debutant euro bond contracted in 2012. This lack of reinvestment has resulted in low performance leading to falling levels of freight tonnage and passenger count. In addition, average train speeds have dropped to about 30 km/h and transit time has increased. Expectedly, the quality of services offered for both freight and passenger railway has dwindled over time causing a shift in demand from rail to road transportation.

Management of the railway subsector is entrusted in the hands of the Board of Directors. However, the appointment of the Boards by politicians for both railway institutions poses a strategic risk of political capture leading to sub-optimal strategic decisions. Anecdotal evidence points to the fact that these political appointees have led to the overall underperformance of the railway systems. This argues in favor of private sector participation as ZRL now assumes the role of both the service provider and regulator. Thus the establishment of an independent and transparency regulator will restore confidence and credibility in the railway subsector.

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1 INTRODUCTION

This paper describes the state and management of railways systems in Zambia. Zambia's railway subsector comprises of two main railway systems covering a length of about 1, 922 km. These are Zambia Railway Limited (ZRL) and the Tanzania-Zambia Railway Authority (TAZARA).

Despite having been in existence for a long time now, Zambia's railway systems continue to underperform, prompting some performance reviews and changes in the management systems of some. Accordingly, the Minister of Finance in the 2017 national budget speech included ZR among the state owned enterprises (SOEs) that require situational analyses to determine their business case. Pronouncements were also made in the preceding national budgets about the need to engage a strategic partner for TAZARA.

This paper therefore begins by introducing the subject matter in Section 1 and then goes on to describe the state of the railway subsector in Section 2. The management of the subsector is briefly discussed in section 3. Key issues influencing the state of the subsector are highlighted in Section 4 and recommendations for resolving some of the identified issues are presented in Section 5. The paper concludes by stating the position of ZIPAR regarding investments in the subsector.

2 ZAMBIA'S RAILWAY SYSTEMS AND CORRIDORS

2.1 Zambia Railways

ZR is a state owned enterprise (SOE), established by the Railway Act of 1982 to operate both passenger and freight services. The management of ZR has changed hands overtime from state controlled at establishment to a concession in 2003 and back under state control in 2013.

The ZRL network stretches over a distance of 1, 062 km from the Victoria Falls in Livingstone to Chililabombwe on the Copperbelt. The mainline which is cape gauge is about 848 km long while the branch lines cover an estimated length of 214 km. Notable railway branches include the Maamba railway used mainly for

transporting coal from Maamba to Copperbelt via Choma, and the Mulobezi Railway (which links to the mainline in Livingstone) used for timber transportation (Ministry of Transport and Communications, 2013).

The ZR mainline is of strategic importance to Zambia because it is a major part of the North South Corridor under the Southern Africa Development Community (SADC) transport infrastructure master plan. The master plan seeks to link landlocked southern Africa countries to the west and east coasts (SADC, 2012). This is advantageous for Zambia in its undertaking to become the regional transportation hub. It provides potential routes to the alternative ports including Durban in South Africa, Walvis Bay in Namibia and Maputo and Beira and Nacala in Mozambique (Ministry of Transport and Communications, 2013).

The Lobito-Benguela railway in Angola is linked to ZR in Chililabombwe via Congo DR but geo-politics of the Congo region has prompted the need to consider development of 300 km alternative rail link from Kalumbila in the North-western part of Zambia through to Jimbe town in Angola (Ministry of Transport and Communications, 2013). However, compared to Durban and Dar es Salaam with the annual container throughput of 2, 664, 300 and 612, 600 Twenty-one-foot Equivalent Units (TEU) respectively, the capacity at Lobito which currently stands at 118, 000 (TEU) is still of concern until the proposed upgrades have been undertaken¹.

¹ Dynamar, 2015 "Report on East and Southern Africa Container Trades"

Table 1: Container Capacity, Proximity and Efficiency of Major Ports in Southern Africa

Name of Seaport	Annual Container Throughput (TEU)	Distance from Lusaka (km)	Distance from Ndola (km)	Efficiency Rank by Dwell Time
Durban	2,664,300	2,639	2,824	1
Dar es Salaam	612,600	2,090	1,980	3
Walvis Bay	359,500	2,300	2,610	2
Beira	218,700	1,050	1,360	5
Maputo	134,000	2,056	2,380	4
Lobito	118,000	2,148	1,863	6
Nacala	97,081	1,982	1,872	7

Source: Constructed by author from the Report on the East and Southern Africa Container Trades, 2015

2.2 Tanzania-Zambia Railway Authority

TAZARA on the other hand was established by the Tanzania Zambia Railway Act of 1975 and developed using funding from China. It is jointly owned by the Zambian and Tanzanian Governments. Unlike ZR, TAZARA was never privatised.

The TAZARA network covers an approximate distance of 2, 060 km. The mainline between Kapiri-Mposhi and the Tanzanian Port of Dar es Salaam is about 1, 860 km while the Zambian side between Kapiri-Mposhi and Nakonde covers an approximate distance of 860 km. TAZARA is also part of the North-South corridor. It links the Dar-es-Salaam port to the Transnet Railways of South Africa through Malawi and Zimbabwe.

The Maputo Corridor links Zambia to South Africa and Mozambique while Port Nacala (Nacala Development Corridor) will be linked to TAZARA in Serenje via the Chipata-Mchinji route (National Assembly, 2014) (SADC, 2012).

3 STATE OF THE RAILWAY IN ZAMBIA

3.1 State of Railway Infrastructure

Most of Zambia's railway infrastructure has deteriorated overtime due to lack maintenance and rehabilitation, resulting in reduced speeds and long transit time. This poor state of railway infrastructure was one of the reasons Government decided to privatize ZR in 2003.

The concessionaire (Railway Systems of Zambia) had pledged to invest over US\$ 64 million to maintain and rehabilitate the infrastructure and rolling stock but that was not realized. After the termination of the concession in 2013, Government started to invest in infrastructure improvement using part of the funds from the first euro-bond. By 2015 about 117 out of the 442 km tracks allocated for rehabilitation had been completed and 113 km were still expected to be completed by the end of the year. Per se the main rail is laid on concrete slippers where rehabilitations have been completed and wooden slippers elsewhere. Branch lines are mainly laid on steel slippers. However, train speeds are currently still as low as 25 km per hour.

The railway infrastructure of TAZARA is also deteriorated. The current liquidity issues that characterise the railway has made it difficult to cover the day to day operation costs. Lack of investment from the shareholding governments (Tanzania and Zambia) and failure to attract private investments has led to the deterioration of the railway infrastructure to the point where it can only handle less than 0.3 million out of the initial capacity of over 1 million tonnes of freight annually.

The infrastructure on the branch lines is also as bad and in some cases worse than the main rail. This explains the omission of the Mulobezi Railway from the Railway Systems of Zambia concession because it required huge investments for rehabilitation and maintenance, thus was unattractive².

3.2 State of Railway Equipment

Despite a considerable level of repair and maintenance of locomotives and wagons carried out to improve freight and passenger services at both ZRL and TAZARA, the current state of equipment is still insufficient compared to international standards³. For instance in the past decade (2005-2015), TAZARA operated at least six trains per week. In addition, the number of passengers per year has sharply declined from around 1,090,359 to almost half (491,826) due

² Phipps, Larry, 2009, "Review of the effectiveness of Rail Concessions in the SADC region".

³ AfBD, 2015, "Rail Infrastructure in Africa, Financing Policy Options"

to lack of serviceable stock, frequent breakdowns and lack of comfort for passengers⁴.

The situation at ZRL is similar to TAZARA. According to the ZRL five (5) year strategic business plan (2014-2018), an estimated US\$ 400 million will be required to upgrade and maintain the state of railway equipment. These funds will also be used to procure 2, 600 wagons, 13 locomotives and acquisition of the latest technology in rail transport which will lead to safer rail network⁵.

3.3 Quality of Services

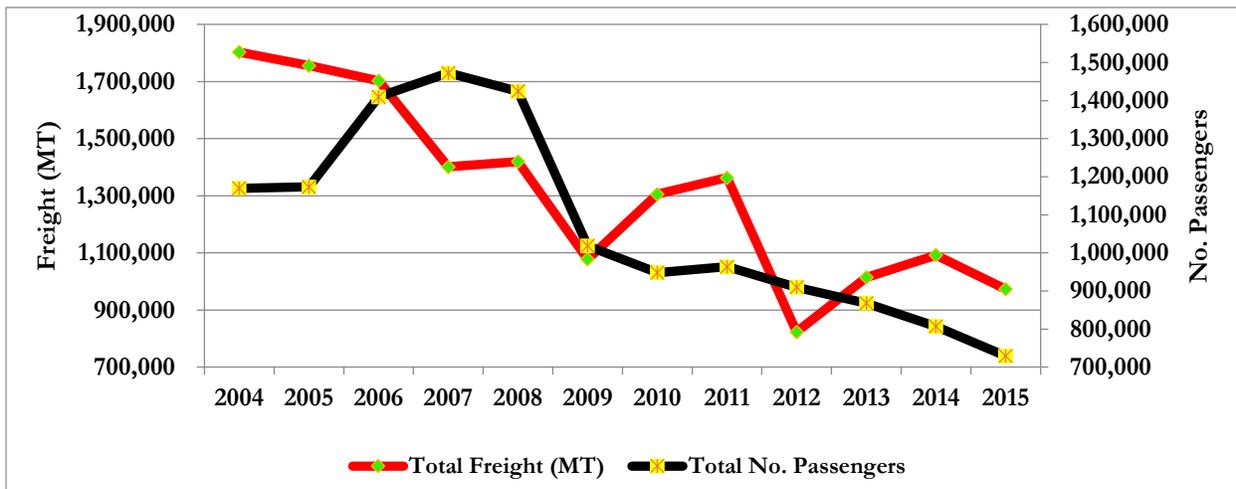
The massive deterioration of rail infrastructure and rolling stock and lack of adequate rehabilitation and maintenance has led to declining service delivery and reduced passenger and freight volumes overtime. The aggregate number of passengers carried per year between 2004 and 2015 decreased by about 38% from 1, 169, 913 to 729, 468 persons. Freight also decreased by 46% that is from 1, 803, 341 to 973 427 metric tonnes in the same time interval as shown in Figure 1 below.

The transit times for trains are nearly 5 folds for that of road on all the railway systems. Further, the cost per passenger and tonne kilometre for railway is significantly larger than for road leading to shift of demand for both freight and passenger services to roads. The temporary rise in the number of passenger using railway transport between 2005 and 2007 in Figure 1 was attributed to the 15% increase in the passenger fares for road transport resulting in mode substitution on long distance routes.

⁴ <http://www.railwaygazette.com>

⁵ Zambia Railway Limited Five Year Strategic Business Plan (2014-2018).

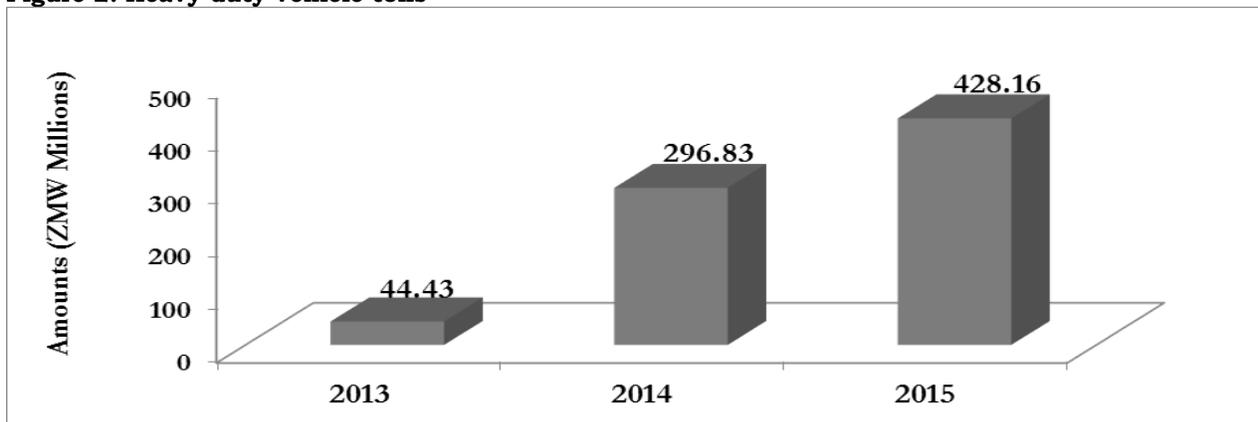
Figure 1: Railway Subsector Freight & Passenger Services Levels



Source: Constructed by Author from Economic Reports of MoF

The frequent labour withdrawals by employees (especially for TAZARA) has placed additional strain on already inefficient railway systems. These shortfalls in the quality of services delivered has created space for the trucking business to gain traction and now transport the majority of the country’s mineral production to the major sea ports. Currently, there are 1, 500 local trucks plus an estimated 3, 000 foreign ones which are relatively more price competitive and offer better services compared to rail.

Figure 2: Heavy duty vehicle tolls



However, the shift from rail to road comes with trade-offs. The transportation of heavy cargo by road causes enormous damage to road infrastructure and therefore entails more public expenditure on maintenance and rehabilitation. At the same time, as shown in Figure 2 above, much needed public resources are raised through toll fees. For instance in 2015 alone, at least ZMW 428 million was raised from heavy duty vehicles.

3.4 Investments

For many years, investment in the development and maintenance of the railway infrastructure has not been prioritised. Table 1 below compares the government spending allocations to infrastructure development and recapitalisation of railways between 2009 and 2017.

Table 2: Investment Spending Allocations for the Railway Sector

		Government Spending (ZMW, million)								
Spending Function	by	2009	2010	2011	2012	2013	2014	2015	2016	2017
Support to Railway Institutions - Operations		-	-	1.61	1.41	2.95	1.00	-	-	0.50
Railway Infrastructure Development		-	6.01	1.60	1.35	2.58	2.00	-	-	-
Railway recapitalisation and Investment		-	-	-	30.52	619.31	339.80	-	-	-
Total Railway Investment		-	6.01	1.60	31.87	621.89	341.80	-	-	-
GRZ Roads Spending		1,356.90	1,461.20	3,098.00	4,481.00	3,434.00	5,126.90	5,626.51	6,629.40	8,644.50

It is clear from the Table that railway investment is neglected with some years having no spending allocation for rail for both operations and investment even in the absence of equity partners. The highest spending allocation to the railway subsector in the past decade was in 2013 when ZMW 619.31 million was allocated. These funds proceeded from the debutant euro bond and were aimed towards recapitalisation and investment. In that way the total

investment expenditure for railways neared 19% of the spending allocation towards the road subsector.

The result of the sparing investment in the railway subsector has been drastic reduction in the capacities of the tracks and the rolling stock, deterioration of services and widening of the investment gap for all railway systems in the country. This has led to lack of extension of major railway lines to new mining areas, hence the limited share of railway freight compared to road.

4 MANAGEMENT OF RAILWAY SYSTEMS

4.1 Management Structures

Currently the management of both ZRL and TAZARA is as prescribed in the respective Acts of their establishment. Like many SOEs, the management of ZRL is established by the sector Minister who appoints the Board of Directors to provide the strategic direction and set policies. The other responsibilities of the board include revisions of salaries, conditions of service, raising of capital and new development plans and investments such as new branch lines. The Board of Directors then appoints the Chief Executive Officer to implement the adopted strategies and policies.

TAZARA is also entrusted to a Board of Directors. However, there is a Council of Ministers comprising three (3) Zambian and three (3) Tanzanian ministers that meets at least twice a year to consider and determine all relevant policy issues such as the tariffs charged and the quality of services rendered. The Council of Ministers retains explicit and extensive powers of control over the railway authority.

However, the appointment of the Boards of both railway institutions by politicians poses a strategic risk of political capture leading to sub-optimal strategic decisions. Over staffing is an example. For instance in 1985, the number of employees at ZRL stood at 8,000 when the optimal should have been 5,000. These politically influenced decisions have largely contributed to the poor performance of the railway subsector over time. This argues in favor of

private sector participation such as Public-Private Partnerships (PPPs). Though the country had a bad experience with the RSZ concession (2003-2013), establishment of an independent and transparent regulator should address most of the challenges encountered.

4.2 Personnel

The management of ZRL has a wealth of experience in the subsector. The average number of years of experience at the railway is 25 years. Although the company currently enjoys cordial relations between management and employees, there still remains a few weaknesses in its Human Resources and Administration systems. The company lacks sufficient qualified technical staff necessary to effectively spearhead the much needed turnaround of its dismal performance.

Most of the employees of TAZARA joined the Authority at or shortly after its establishment in 1976. This resulted in the huge numbers of employees retiring at the same time, resulting in shortages of skilled man power. However, the general management of the authority has been in the hands of individuals with less than required expertise and skills to run the entity smoothly. This has led to workers downing tools on several occasions protesting over delayed salaries (dating as far back as 6months in arrears). These work stoppages have greatly affected operations causing delays and huge loss of business.

Compared to most European countries such as Belgium, France and the United Kingdom that have between 15, 000 to 45, 000⁶ qualified members of staff for major railway lines, ZR is seriously understaffed with each railway (TAZARA and ZRL) currently having less than 5, 000 members of staff. For instance, ZRL has approximately 1, 090 employees and projects to have at least 3, 000 by the year 2018⁷. This is significantly below international standards

⁶ The European Rail Advisory Council (ERRAC), 2016 “Regional and Suburban Railways; Market Analysis Updates”

⁷ Zambia Railway Limited Five Year Strategic Business Plan (2014-2018).

even for the Sub Saharan Africa region. For example, Transnet freight rail of South Africa has approximately 25, 000 employees spread across the country⁸.

4.3 Revenue and Cost Management

Up until 1991, ZRL enjoyed monopoly in the transport sector. It could dictate the services it offered and the prices charged without regard to customer preferences. However, things changed overtime. For a long time, there has been very little investment in the company's infrastructure and rolling stock. This led to the company's performance deteriorating drastically from a haulage of 4.6 million tonnes during the 1988-89 financial year to 2.6 million tonnes in the 1993-94 financial year. Correspondingly, the company's revenue declined significantly while the operating costs continued to rise. Between January and April 2014, ZRL had incurred a loss of approximately ZMW15, 865, 474. This is a stark contradiction to its performance in the previous year (2013) where the company posted a net income of about ZMW 41, 186, 000.

In the same vein, TAZARA has registered losses over the years. In September 2013, it reported monthly losses of about US\$ 1 million. However, for the 2015-16 financial year, the company made a profit of US\$ 13.5 million and projected to generate about US\$ 44 million in net profits in the 2016-17 financial year. This expected rise in earnings have been attributed to good business planning and increased haulage from 87,000 tonnes in 2015 to 130,000 tonnes in 2016.

⁸ www.transnet.net/Divisions/FreightRail

5 KEY ISSUES

- i) The railway infrastructure has deteriorated overtime leading to reductions in train speeds and consequently longer transit time. Further, both passenger and freight volumes have declined over the years.
- ii) The current state of equipment for the Zambian railway systems is insufficient compared to international standards and road transport.
- iii) The frequent labour withdraws by employees due to poor remunerations have placed additional strain on the already inefficient railway systems.
- iv) Limited scope for autonomous decision making by the management structures of the railway systems have led to less than optimal strategic decisions, thus perpetuating underperformance.
- v) The railway subsector lacks sufficiently qualified technical staff to adequately manage railway institutions.
- vi) Railway investment is neglected with some years having no spending allocations even when it is clear that there are no equity partners to fill the investment gaps. Since the termination of the RSZ concession in 2013, Government has shouldered all the financial investment requirements aimed at restoring the efficiency of the railways in Zambia. However, Government has been soliciting for equity and strategic partners for both ZRL and TAZARA.
- vii) The management structures of the railway systems do not encourage private participation and competition as they own the infrastructure and run the services thereof. Currently, both ZRL and TAZARA are operating as service providers and regulatory authorities.
- viii) TAZARA is currently experiencing severe liquidity issues making it difficult to cover its day to day operational costs or attract private investments.
- ix) Zambia does not have a clear and strategic focus on greenfield and brownfield railway investments projects. There is need to prioritise between the two especially now when the country is constrained financially.

6 RECOMMENDATIONS

- i) All future plans to improve rail transportation systems should sufficiently audit and disclose the investment gap that must be filled as well as adequately address the complementarities between road and rail transport to make the systems operate efficiently and maximize its social benefit.
- ii) There is need to establish a transparent, independent and an impartial regulator to monitor performance of the railway systems and protect private interests.
- iii) There is need to upgrade railway infrastructure and the state of the rolling stock in order to improve train speeds and consequently reduce transit time.
- iv) There is need for improving the current working conditions and remuneration packages offered to employees in order to attract and retain highly qualified personnel. In addition, a rigorous and competitive process should be employed to recruit qualified staff such as civil and mechanical engineers, and other administrative and managerial personnel for both TAZARA and ZRL.
- v) Track and service provision should be viewed as separate businesses and thus ZR should be unbundled between freight and passenger service provision in order to facilitate increased private sector participation and improve efficiency of the transportation mode.
- vi) Government must consider employing off-budget financing models such as public-private partnerships (PPPs) especially now that the country is about to implement an economic and fiscal recovery programme.
- vii) There is need to develop a National Rail Development Policy (NRDP) that will look into increasing rail capacity, introduction of rail commuter services and upgrading the current rolling stock and rail connectivity.
- viii) Prioritize existing railway links:
 - a. Zambia Railways to be given first priority since it links to several Ports including Durban (largest and most efficient port) in South African and

Beira and Maputo in Mozambique. The network is also envisaged to be linked to Walvis Bay in Namibia.

- b. Second priority should be given to TAZARA since the Port of Dar es Salaam (Tanzania) is still indispensable for shipping copper and other minerals. This will also facilitate the link from Chipata to Mpika as part of the plan to link to Port Nacala.

ix) Proposed short to medium-term railway expansions:

- a. First priority should be given to the Trans Caprivi Corridor in order to link Walvis Bay to Zambia via Katimamulilo.
- b. The Kalumbila–Jimbe railway link should also be prioritised as it offers the shortest route to the mines in North-western and Copperbelt province. The Zambian Government should take the fore in liaising with the Angolan Government for connecting Jimbe to the Lobito–Benguela Corridor as this port (Lobito) is scheduled for expansion.
- c. Thirdly, the Kafue to Lions Den railway link (306 km) should be developed as it links to port Beira in Mozambique which has a considerably high annual container throughput and efficiency.

7 CONCLUSION

While this paper has provided a lot of evidence on the current state and management of the railway systems in Zambia, it still needed more data to carry out rigorous economic appraisals concerning the efficiencies of the proposed different corridors. Concerning the rivalry between road and rail transport, it is worth noting that whereas it is desirable to shift bulk and heavy freight from road to rail, this will come with some revenue trade-offs. For instance, heavy duty trucks in 2015 contributed about ZMW 428 million towards road-revenues (tolls) which are vital for road development. These funds would be significantly reduced in the event of a policy to redirect the freight.

World over, railways are known to be less competitive compared to road transport. The cost per passenger and tonne-kilometre for railways are internationally known to be in the region of five (5) to seven (7) times as that of roads. Therefore, whichever model of management of the railway systems maybe opted for, Government spending is still expected to continue flowing if these railway systems are to operate effectively.

In this regard, it is the position of ZIPAR that Government should avoid investing thinly on railway projects and instead concentrate efforts on improving operations of a corridor of choice before moving on to other projects. Further, Government should intensify its quest for strategic partners in order to improve management efficiencies across railway systems. To make this a reality, there will be need to consider unbundling Zambia railways between service provider and regulator. The creation of an independent, transparency and impartial railway authority will encourage and attract private capital participation in the subsector.