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UNECE Standard on PPPs in Railways

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Contents

I. Introduction

The Sustainable Development Goals (SDGs) identify a range of measures to encourage the building of energy efficient infrastructure and to promote inclusive and sustainable development for the world's population. To realise this, the 2030 Agenda recognises that successful delivery of the SDGs will depend on global partnerships and cooperation between public, private and civil society.

UNECE supports the use of global partnerships for sustainable development and has produced this Standard to provide guidance to governments considering the use of Public-Private Partnerships (PPPs) to deliver investment in railway infrastructure as a way of meeting the SDGs and achieving People First Public Private Partnerships (PfPPPs).

II. Objectives of the Standard

If managed well, Rail PPPs can help governments tackle development needs by bringing sustainable investment, replicable processes and expertise to complex rail systems. This Standard is intended to assist governments in the successful use of rail PPPs as a step towards achieving the SDGs and specifically the achievement of PfPPPs.

There are many different models of PPP in the rail sector worldwide. The challenge for governments developing rail PPPs is to ensure consistency between their project delivery strategy and programme, and the achievement of the SDGs and PfPPPs.

III. Scope of the Standard

This UNECE Standard offers guidance on best practice in relation to the development and implementation of PPPs in the rail sector. PPPs in rail is capital investment in rail infrastructure, and often railway stations and rolling stock, that are funded using primarily commercial finance repaid over a long-term concession period. This is to be distinguished from light rail transit (LRT) and other metropolitan/urban rail systems such as metro railways, monorails, subways, skybus and others which focus primarily on ferrying passenger traffic and providing transit solutions within urban settings.

For the purpose of this Standard, the term PPP is defined as an arrangement under which a public authority grants a long term contract (with a duration typically exceeding 20 years) to a private sector partner for the design, financing, construction or refurbishment, operation, and/or/ maintenance of rail facilities and the provision of related services. The term 'public authority' may include a government department or a statutory provider of rail systems and services.

Under the terms of these PPP contracts, the private sector partner will typically raise all or a portion of the private capital to pay for the facilities to be created or renewed, and in most cases will be repaid by a lease, rental fee, or service concession from the public authority, provided the facilities and services are made available and meet a specified outcome standard.

IV. Central Question

To achieve the SDGs, significant investment in the improvement of railway infrastructure is required. The following SDGs are considered particularly relevant to Governments achieving success with their Rail programs.

<table>
<tr><td>SDG 3 Ensure healthy lives and promote well-being for all at all ages

3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents
3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</td><td>SDG 5 Achieve gender equality and empower all women and girls

5.1 End all forms of discrimination against all women and girls everywhere 5.5 Ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life</td></tr>
<tr><td>SDG 8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries</td><td>SDG 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all 9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry’s share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries 9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities</td></tr>
<tr><td rowspan="2">SDG 11 Make cities and human settlements inclusive, safe, resilient and sustainable

11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons 11.a Support positive economic, social and environmental links between urban, per-urban and rural areas by strengthening national and regional development planning</td><td>SDG 13 Take urgent action to combat climate change and its impact

13.2 Integrate climate change measures into national policies, strategies and planning.</td></tr>
<tr><td>SDG 17 Strengthen the means of implementation and revitalise the global partnership for sustainable development

17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships</td></tr>
</table>

This UNECE Standard on PPPs in Rail proposes a PPP model that is designed to assist governments in achieving their sustainable development goals, and in doing so place people high in the priorities of their PPP projects and programmes. These 'People-first' PPPs (PfPPP) are driven by outcomes and require projects to bring real transformational change and benefits to people; they must go beyond 'value for money' and deliver value for people.

People First for Rail PPPs

People-first in the Rail context is inter alia, rail that contributes to poverty eradication and the creation of economic opportunity through enhanced modes of transport. Systems that are more efficient, create less dependency on fossil fuels, and reach father to provide greater access and mobility to vulnerable members of society. Rail lines that are viable from both an economic and business perspective but are also durable and sustainable for the environment, the government, and the communities they impact. .

A. Project Types and Examples of Rail PPPs

There are a number of contractual approaches for PPPs in the rail sector. Naturally PPPs can be adapted to suit the transport system needs and desired outcomes of a government, but the predominant focus of Rail PPPs falls into one of four categories:

- **Equipment / rolling stock PPPs** where specific rail related equipment and systems (train control systems, signalling, train sets) are provided by the private partner to the Government with a long-term obligation to maintain those assets, and in some circumstances the Government may also procure related, but limited, physical infrastructure such as a rail maintenance facility to service the rolling stock.

- **Airport Rail PPPs** where the private partner builds and operates a stand-alone rail line to and from an airport. These Rail systems typically run between downtown/urban areas and outlying airport facilities and are dedicated to airport traffic, although some have other service and stops and tie into larger urban rail networks.

- **High Speed Rail (HSR) PPPs** where a private operator constructs a high speed rail line that is typically an adjunct to but is not connected directly to conventional rail lines, and upon completion many HSR lines are open to different train operators.

- **Conventional Rail Lines** where the private partner is responsible for the entire rail system to be built, designs some or all of the system, constructs the infrastructure, installs the systems and rolling stock, and then operates the line for the life of the contract.

Common Contractual Arrangements for Rail PPPs

These Rail PPPs are typically concession arrangements where the private sector is afforded under contract the right to install and/or operate a Rail line or its major components (e.g. rolling stock). These concessions can be:

- 'user pay' where the private partner is compensated for its capital investment and/or effort by the users of the system (e.g. ticket sales / fares) or
- 'availability' based where the private partner is compensate for making the system available and operating at a minimum standard, regardless of the ridership and fare box, if any.

Rail PPPs are furthermore most often structured contractually as:

- **DBFOM** [Design, Build, Finance, Operate and Maintain] contracts where the concessionaire takes construction and operation risk over the life of the rail concession, as well as, in some cases, traffic risk;

- **DBFM** [Design, Build, Finance and Maintain] contracts where the concessionaire takes construction and maintenance risk of the rail system, like a DBFOM, but operation (and the risk associated with operation) is retained by the public authority;

- **DBF** [Design, Build and Finance] contracts where the concessionaire is responsible only for building the railway infrastructure and the associated financing; and

- **O&M** [Operation and Maintenance] contracts where the rail construction is pre-existing or is procured separately by the public authority and the concessionaire only takes on operational and maintenance responsibilities.

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Rail PPP Examples these approaches include:

- Using the DBFM approach, **HSL Zuid** is a 125 Km high speed railway line connecting Amsterdam Zuid and Rotterdam via Schiphol airport. It is a 25 year concession primarily funded by the Dutch transport ministry. A EUR 5 Billion project it separated the construction works from the track and signalling to have a better risk management profile and facilitate the project financing. This means the funding for the civil works, including tunnels, bridges and elevated sections, was provided by the Dutch transport ministry (EUR 2.6 Billion) while finances for all other works, including track and signalling, were raised by the private concessionaire. This approach made the project more financially viable and ultimately sustainable over the long term for both the Dutch government and the private sector partner.

- **South East Atlantic HSR** is a very recent 50 year DBFOM concession to develop a new high speed railway between Tours and Bordeaux in France. It has reduced travel time between Paris and Bordeaux by almost one hour and ridership projections are positive. At Euro 7.8 Bn it is one of the largest PPP projects in France and Europe and the initial segments were completed and have been running since early July 2017. While it shortens existing travel times and better connects two urban centres, its future, contemplated extension to Toulouse and Spain offers significant development potential as it will create a new high speed new cross border corridor between those countries.

- Sydney's Waratah rolling stock PPP procured 626 new train carriages under a 30 year agreement. At $3.6 billion, it was the single largest procurement of trains in Australia's history and was equivalent to approximately 50% of Sydney's total suburban train fleet. The project aimed to update the trains and system but also offered increased security, improved safety features, and greater enhanced disability and wheelchair access thus improving the overall quality of and access to the service.

- (Full system example) Signature project, Gautrain South Africa?
  Additional case studies and examples are set out in annex 2

B. Pros and cons of PPPs in the Rail Sector

Governments may select the right delivery approach by better understanding the pros and cons of PPPs in Rail:

Complex

Rail systems are inherently complex. There are multiple operational systems, from safety to signalling and security, and virtually all lines intersect or interact with road networks, other rail lines (e.g. passenger and/or cargo), and interface with other uses along the route and at its terminus. The project is therefore complex, with many moving parts, and the risk allocation is similarly complex.

Will the private partner or the public entity bear the risk of policing the system? Who will monitor ticketing and fare enforcement? What occurs when the service is delayed because of another mode of public transport or a line blockage? Who bears the risk when governmental inspector identifies a safety issue and must halt the system? What if local or regional leaders increase a tax such that the fare is now insufficient to cover the cost of operations? What if a permit isn't issued and there is now delay in delivering the system for service?

Rail project risks such as these must be thoroughly identified and catalogued, and then carefully negotiated and apportioned in order for the PPP to remain viable. A common approach is to allocate the risk to the party best able to manage that risk, but there are gradations of risk that must be calibrated carefully within a PPP to ensure a well-functioning, sustainable system is crafted. This level of complexity in deal making is often beyond the expertise of many public officials and can be difficult to manage even with experienced advisors; and it applies to all aspects of the project from technical, to financial, legal, and transactional elements.

Cost

Rail PPPs are perhaps the perfect example of how and why PPPs are an effective tool for government. Rail systems, while long lasting and offering significant direct and indirect development opportunity, are prohibitively expensive. That cost is a very real barrier to accessing their benefits, and PPPs, with their ability to be privately financed, can bring these major undertakings that are otherwise too costly, within reach., PPPs in Rail therefore offer real development potential and can be a financing solution that also delivers critical updates and

advances to aging rail infrastructure or and help governments better achieve their Sustainable Development Goals.

Critics argue rail is already massively expensive and adding the complexity and cost of preparing a PPP, along with private finance and the expectation of returns on that investment, results in the government taking on too much risk and the system costing 'more than it should'. Ultimately that is a political question for governments, but these 'costs are weighed through a 'value for money' analysis prior to project inception (and a value for people analysis in accord with the SDGs), so governments can be fully aware of the costs and benefits of a PPP delivery. These costs can also be offset by other long term benefits such as project revenue sharing, savings on operations and maintenance costs, increases to tax revenues as a result of the development, etc. Because a PPP allows a govoernment to pay for a system over the life of the contract and overcome the high cost barrier, the PPP approach can also simply be the difference between a project occuring and not occuring.

Other Pros and Cons

Other advantages include:

- Private sector delivery of projects is often quicker than public sector delivery. Faster delivery of rail systems means existing rail lines can become more efficient or decongested sooner, new links and routes for passengers can be established more rapidly, and the economic and trade benefits can be realized sooner. s.
- Governments which are perennially short of funds for rail works and operations can look to a well-designed PPP to leverage private capital and bring financial (and technical) capacity where there was little or none before.
- Driven by profitability and contractual performance requirements, private partners are better incentivized, and have greater flexibility to adjust and refine the service to maximize its functionality and efficiency. Private operation brings innovation in the day to day operations and maintenance also as private operators are more likely to introduce new, modern technology to improve service, and extend the life of the asset.
- Private investment in railway infrastructure is for the long term and such a long term perspective incentivizes well-kept and well run systems that are optimized and more likely to contribute to the government's strategic plans for transport, interconnectedness, and social development.
- Rail PPPs can accommodate restructuring during the life of the concession. Including monetising the project, and give the Government an opportunity to transform its rail system into both a performance driven asset as well as a profit making centre.
- Rail PPPs allow for innovative forms of financing and co-development such as transit oriented real estate development along the rail lines.

Disadvantages:

- PPPs in Rail require the crafting and negotiation of comprehensive concession agreements and a fair number of specialty advisors and consultants to develop the project which results in additional time and cost of preparation.

- Rail systems need users to become viable, and when coupled with the use for private finance, new rail systems often require subsidy or absolute availability payment structures as the traffic is too speculative and the risk too great to successful finance the project. Many Rail systems around the world have operated with subsidies or tariffs that do not reflect the actual cost of building and operating the system. Converting to a private system means the artificially low fares or tariff may have to increase, which in turn can make the service less accessible to certain classes of people and cast the project in a negative light as stakeholders conclude the private operator is 'profiting' from the project.

Rail projects are particularly susceptible to political opportunism where a project is justified for political benefit, but has poor economic justification and/or is financially strained and unlikely to survive.

C. PPPs Meeting People First Objectives

With reference to the 2030 Sustainable Development Agenda, and acknowledging the need for Rail PPPs to deliver 'value for people' in addition to 'value for money', this standard recommends to governments contemplating a Rail PPP, a conventional rail line under a DBFOM structure. This model is proven in the market and has the greatest likelihood of bringing the transformational change called for in the SDGs.

Firstly, DBFOM means the private sector partner will 'design' and 'build' the rail line to achieve the service. This implies the creation of a new line, or the updating of an existing one, and because of the SDGs call for transformative change, new, expanded, or dramatically renewed systems will be required. Dedicated airport lines, or equipment related PPPs, may provide targeted improvements, but new or substantially renewed lines offering greater interconnectedness and mobility are what are needed.

'Design' and 'build' also means the private partner has control over the project from very early stages which ensures greater constructability of the system; reduces the likelihood of material changes and delays during construction; improves the chances of the line being delivered on time and on budget; and, promotes long term sustainability, efficiency, and innovation in design (and operation) of the system because the private partner will be operating the same system which they are constructing. This also incentivizes a more sustainable delivery methodology that prioritizes long term, consistency in service provision, and can overcome the 'build it and forget it' mentality many governments suffer from.

A DBFOM model also puts positive pressure on the financial viability of the project and injects rigor into the project planning and operations phases. When the private partner has control of the project for the life of the contract, and must finance the endeavour by convincing investors and lenders to commit capital for such a long period, the viability of the project must be well thought out and truly 'viable'. In the past, Rail concessions have failed due to overly ambitious traffic forecasts that were coupled with 'user pay' revenue structures. If the service level did not meet the projections (which was often the case given in some circumstances the 'halo' effect of new projects and political pressure to implement them), the project would have revenue shortfalls, and

eventually fall into financial crisis. This would require restructuring of the deal, new accommodations from the government, or the public partner simply taking over the project. These lessons have been learned and governments are either opting for very rigorously reviewed 'user pay' projects, or full availability payment structures -- which provide the benefits of a PPP but the traffic volume (revenue) risk is retained by the government and it simply pays for the 'availability' of the system from the private provider. After all, if a government wants to put people first in its Rail PPP projects, it must therefore also ensure those projects are viable, sustainable, and provide consistent service for the long term, and not putt the government in financial or operational turmoil.

People first Rail PPPs will also:

- be designed and located such that they link ports, urban areas, industrial zones, tourism destinations, and/or population centres to boost trade and economic activity within and across borders;
- focus on extending coverage into and between urban and rural areas to help provide better mobility, safe and efficient travel, reduced travel times, market access, and/or include larger portions of the population in the public transport service area;
- leverage the procurement process and project requirements to address social issues like improving gender equality and serving underserved groups, e.g. requirements for women in the labour force or contracting and sub-contracting opportunities on the project, improve system design and facilities to accommodate disabled persons, etc.
- prioritize sustainable, resilient systems that can withstand changing operational circumstances and climate change;
- locate the service to reduce the reliance on cars, relieve congestion, improve road safety, reduce carbon emissions, and/or reduce trucking, and wear and tear and maintenance on roadways;
- promote safety and feature enhanced safety measures for users;
- create land value and commercial activity by locating development opportunities along rail lines and at stations;
- align with other modes of transport and the overall transport development strategy for the region or country;
- focus on governmental sustainability by relieving the operational and/or financial burden on the government, ensuring technology and skill transfer to the public partner, and maintaining a fair project equilibrium where all parties benefit;

Considering all aspects, i.e. conventional PPP parameters and PfPPP goals, it is **recommended to pursue a conventional rail system under a DBFOM PPP model** for development of new and renewed railways.

V. Delivering the Model

The recommendations on the following pages represent a concise statement of matters that should be considered when determining whether to implement a project using DBFOM PPP and attracting private investment in railway infrastructure.

A. Project Selection and Baseline Requirements

A1 Prepare an evidence-based delivery plan

In preparing for a Rail DBFOM PPP, governments should draw upon experience from other rail PPP projects and also other jurisdictions to develop a robust and evidence-based plan for delivery of the PPP (DBFOM PPP Delivery Plan). The plan should set out the process of analysing the 'Financial Viability' of the project in great details. Coupled with meticulously planned 'revenue model' that will constitute the foundation of DBFOM project. It should be considered a live document and subject to strategic review at routine intervals. It needs to take account of lessons learned from international best practices and project examples like those provided in this Standard.

A2 Financing the DBFOM Model

A2.1 Carry out transparent business model analysis

Within the PPP Delivery Plan, the government should develop an overall financial and economic model (Business Case) that clearly sets out the whole life cost, the charging basis for making the railway infrastructure available, and objective criteria for the financial, social, environmental and economic benefits it will yield. The project should be costed in outline terms prior to commencement of procurement, and should only proceed if and when it is bankable and represents the best value for money of the realistically deliverable options.

A2.2 Develop a clear planning context

DBFOM viability depends on revenue generation post commissioning. Earning through traffic and other possible sources need to be projected as accurately as possible keeping in view all factors which are in realm of possibilities over the entire concession period. Governments should develop traffic forecasts to fully assess current and future supply and demand for rail services in the project demographic area and taking into account possible competition from other modes of transport. Governments may need to enter into various support agreements or provide a sovereign guarantee to ensure revenue streams are sufficient and not adversely impacted and patronage risk is minimised.

A2.3 Setup performance standards

The Business Case should feature detailed output-based specifications that set the performance standards for the DBFOM project, and include people first concepts and outcomes. These should otherwise be in conformity with national/ international standards for railway infrastructure and measure performance in an objective manner and minimize room for discretion. There should be clear and realistic contractual sanctions on the private sector partner as well, if such standards are

not adequately achieved during the concession period. Thus there should be a demonstrated quality and quantity of difference made as a result of the project.

Performance requirements should include a plan to integrate and involve local people in orchestrating, constructing, operating and improving the project.

B. Financing Requirements

B1 Sources of finance and governance structures

B1.1 Financial institutions to remain onboard from beginning

A typical DBFOM PPP rail project is likely to be in the range of many hundreds of millions dollars. It is thus advisable to identify prospective lenders early in the process. These could be local and international commercial debt, international financial institutions (including Development Finance Institutions and Export Credit Agencies), government debt (including capital grants and other forms of public subsidy) and the local and international capital markets. Provisions should exist for 'Viability Gap Funding (VGF)'. Further, there should be regular, structured interaction while developing the business model, identifying qualifying conditions, formulating bid criteria and identifying current and future revenue streams along with associated risks. Such onboarding is helpful in working out needs for new legislation or contract requirements that may impact the project and its ability to attract finance. It also facilitates an expeditious 'Financial Close' of the concession as many of the lending conditions or concerns will have been addressed.

B1.2 Offer robust payment security that guarantees investment return and debt repayment

A framework should be established to manage government commitments arising from the DBFOM projects, including fiscal commitments such as ongoing subsidies or payments for the use of the railway infrastructure, and contingent liabilities such as guarantees. Governments should maximise project financial viability by offering bidders and investors formal instruments having sovereign backing so as to assure timeliness and adequacy of payments. These can reduce the cost of finance and enhance 'bankability' of the project.

B1.3 Develop a standardised 'shadow' financial model against which to compare value generated by DBFOM project viz other models

Governments should develop a robust and locally relevant system of capital and operating cost benchmarks. This system should be used to establish transparent evidence that the DBFOM model represents the best possible value for money as compared to alternative ways of achieving its objectives – particularly the direct delivery of the same project by the public sector through

traditional procurement processes. Such information could be critical for shaping public opinion and gathering support from stakeholders.

B2 Consultation and Risk Assessment

B2.1 Realistically match capacity

Considering the scale and dimensions of DBFOM PPP projects, should formally consult with private sector contractors, service providers and advisors with relevant expertise in the rail sector to:

- Assess market capacity to deliver the project, and develop a programme of capacity building if necessary;
- Ensure that there is capacity and capability to accurately assess and accept the risks proposed to be transferred to the private sector; and
- Test in advance areas of risk allocation that are innovative or unprecedented.

Consultees should include the following:

- Contractors;
- Designers;
- Sponsors / equity investors;
- Legal, financial, technical and insurance advisors;
- Senior lenders and, where appropriate, international financial institutions;
- Insurance and reinsurance companies; and

B2.2 Clearly set out risk transfer proposals

A formal schedule of risks along with a mitigation/allocation plan will add to the objectivity of the DBFOM procurement process and foster true comparable competition from potential partners while reducing uncertainties associated with negotiating final concession agreements.

C. Legal Requirements

C1 Establish a legislative framework

The legislative framework for a DBFOM PPP in railways should be in sync with the government's transport and environmental policy, economic and fiscal policy, and other relevant policies such as those governing urban planning and land use. These frameworks should also be consistent with the UN SDGs. Legislation that could impact the viability and operations of the Rail system must also be examined, such as monopoly, tax, and occupational health and safety standards. This might also involve amending existing laws in areas such as insolvency.

C2 Standardisation of procurement protocols and documentation

D. Feasibility for low and middle income countries

The projects highlighted in Annex 2 are all examples of Rail PPPs that have been implemented in developed and developing countries. While lessons may be drawn from all jurisdictions, rail projects in low and middle income countries face different, and sometimes significant, challenges that make the 'developed countries' Rail PPP models unlikely to succeed. Conversely the demand for Rail PPPs in low and middle income countries is arguably greater than developed countries, yet the environment is less conducive.

Existing rail systems in many low and middle income countries are dated, with some systems in Africa being over 100 years old.[1] This results in antiquated physical and operational conditions with, for example, little to no signalling or communication infrastructure, and overall poor service. Ridership and usage suffers too, which then leads to the need for greater public subsidy and financial support because the system cannot support itself. It is a vicious cycle of underutilization resulting in greater costs. PPPs in rail will be particularly challenging in these environments as systems need to be cost reflective, meaning fares or tariffs need to be sufficient to cover initial capital investment, long term operational costs, and private finance returns. This may require governments in low and middle income countries to consider a phased in approach, where rail projects are provided support in the early stages of their operations or implementation, and only until the service (or the network as a whole) is established sufficiently to become self-sufficient.

Old systems cause further problems with modelling and sizing the project appropriately. It is difficult to forecast traffic and ridership volumes for new or improved systems when there is inaccurate traffic data, or such data simply doesn't exist. This results in completely speculative estimation of ridership and usage and will require stronger guarantees and volume support from governments. Governments should also use conservative estimates of ridership and plan financial support accordingly so that systems designed to remain viable. Similarly, because of the deteriorated condition of old systems, the capital costs to replace or renew such systems should not be underestimated.

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DBFOM models in low and middle income countries have had some success however, especially on routes which are exclusive to a particular port or mines. Mainstream passenger and freight lines remain challenging.

Tariff and fare rates are also politically sensitive issues in some low and middle income countries, as rail is a preferred mode of transport. Governments must therefore be sensitive to these stakeholders and design a system that remains accessible to the ultimate users, the people, yet viable (and bankable) from a financial perspective.

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Smaller projects are also advisable for challenging environments. These reduce the overall risk exposure of the government, allow for a gradual capacity development both from the project delivery perspective as well as the overall rail system. It may also be possible to combine, sometimes distinctly different projects, in order to make the whole 'Bankable' and more viable. Governments must only be careful of the trade-off that must be arrived at when bundling smaller projects, which is the loss of competition when several smaller projects are bundled into one and the potential efficiency gains from such bundling.

E. Other issues related to the Rail sector

E1 Regulation

DBFOM model, to succeed needs to have an independent regulator who will regulate the performance standards and tariff. In developing the legislative framework, governments may consider establishing such a regulatory framework to govern access to railway infrastructure, and the manner in which its maintenance and operation is delivered. Jurisdictions without an Independent regulator have more difficulty in developing comprehensive, consistent railway systems.

E3 Mixed Economy Infrastructure

Governments should consider whether Rail line capacity should be reserved for different categories of service and how priority should be allocated between them on and amongst lines. This includes the analysis of the consequential impact of line speeds and interconnectedness with other mode of transport in order to best serve the people.

E5 Early Termination Arrangements

The suite of contract documentation developed for a Rail PPP will include provisions regulating early termination, for example in the event of material failure to perform the contract. A particular issue for railway infrastructure is finding suitable replacement operators with the necessary competence. This can be difficult and time consuming and require the 'work out' of many contractual arrangements between the government, its private partner, lenders, and the various contractors and subcontractors on the project. Contracts should therefore

allow sufficient time pre-termination for satisfactory arrangements to be put in place, including preservation of key sub-contracts to ensure continuity of service.

E6 Real Estate Development

A key feature of projects involving the development of railway infrastructure is the potential for development of adjoining areas of real estate such as railway stations or car parks, which can make a financial contribution to the project as well as providing possible urban regeneration benefits.

VI. Indicators of Compliance

The Indicators of Compliance for a Rail PPP project relate directly to the SDGs.

VII. Credits and References

These recommendations are based on a UNECE project which took place between June 2015 and [ ] 2017, managed by a multidisciplinary team of experts with experience of PPPs in the rail sector and sustainable development. The project comprised a review of published information, and responses to detailed questionnaires from public and private sector organisations with experience of programmes of this kind, whose contribution is gratefully acknowledged. Recommendations are aimed at governments considering the development and implementation of PPPs in the rail sector.

We are very grateful for the active contribution of agencies and organisations in the countries listed in Annex 1 who contributed to the development of the standard by making available published guidance, project case studies and/or responding to detailed questions based on their own experience.

The full list of projects and programmes from which lessons and experience were considered based on published information in the development of the Standard is available on the project team website at [ ] for governments seeking more detailed advice, experience and lessons learned from the delivery of PPP. The Standard will be maintained by UNECE and the Rail PPP Centre of Excellence.

- **High Speed 1** Formerly known as the Channel Tunnel Rail Link, it also created a faster shared line for domestic trains. It was the UK's first high-speed rail project and Britain's first new railway in a century. Conceived and awarded as DBFOM project it is a prominent success story of PPP in railways. It displays a clear pattern of how the grit and determination of public authority in realising a project can overcome various financial, legal, structural and technical hurdles while realising large scale PPP projects. It is characterised by:-
    - **Procurement Strategy**. The initial contracts provided enough flexibility to allow hiving down the project to two subsidiaries of concessionaire when the project was about to run aground. It was nothing short of a life-saving manoeuvre for such an ambitious project.

- **State Aid** played a key role in realising the project. It allowed various restructuring and ensured the project has adequate funds.
- **Unique Format** as in this PPP rail project there is no concession fee payable and there is no compensation payable either for termination caused by contractor default. There are long cure periods to allow time to find solutions and default thresholds are comparatively higher.
- **Regulatory Regime** A separate regime exists to regulate the track access charges for HS 1. Regulator office is same as for British domestic railway.
  (For full case study please refer Annex 2)