TRANSPORT SECTOR

Final Sector Review Report
Directorate of Government Support and Infrastructure Financing Management

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List of Terms, Acronyms and Abbreviations

ABMS	Cost-Social Benefit Analysis / *Analisis Biaya Manfaat Sosial*
AP	Availability Payment
Bappenas	National Development Planning Agency / *Badan Perencanaan Pembangunan Nasional*
BKKBN	National Population and Family Planning Board / *Badan Kependudukan dan Keluarga Berencana Nasional*
BKPM	Investment Coordination Board / *Badan Koordinasi Penanaman Modal*
BOLB	Build, Own, Lease Back
BOO	Build, Own, Operate
BOOT	Build, Own, Operate, Transfer
BPJS	Social Insurance Administration Organization / *Badan Penyelenggara Jaminan Kesehatan*
BPJT	Indonesia Toll Road Authority / *Badan Pengatur Jalan Tol*
BPKP	Finance and Development Supervisory Agency / *Badan Pengawasan Keuangan dan Pembangunan*
BPOM	National Agency of Drug and Food Control / *Badan Pengawas Obat dan Makanan*
BPP	Central Government Expense / *Belanja Pemerintah Pusat*
BPS	Central Bureau of Statistics / *Biro Pusat Statistik*
BRT	Bus Rapid Transit
BUMD	Regionally-Owned Enterprises / *Badan Usaha Milik Daerah*
CAPEX	Capital Expenditure
CBSE	Central Board of Secondary Education
CoB	Coordination of Benefit
CVCU	Cardio Vascular Care Unit
DAK	Special Allocation Fund / *Dana Alokasi Khusus*
DBFLO	Design, Build, Finance, Lease, Operate
DBFM	Design, Build, Finance, Maintenance
DBFO	Design, Build, Finance, Operate
DBFOM	Design, Build, Finance, Operate, Maintenance

DG	Directorate General
DGH	Directorate General of Highways
DGLT	Directorate General for Land Transport / *Direktorat Jendral Perhubungan Lahan*
DGSIFM	Director of Government Support and Infrastructure Financing Management / *Direktorat Pengelolaan Dukungan Pemerintah dan Pembiayaan Infrastruktur (PDPPI)*
DGST	Directorate General for Sea Transport / *Direktorat Jendral Perhubungan Laut*
Dinkes	Local Health Agency / *Dinas Kesehatan Daerah*
Dirjen IPTEK & Dikti	Directorate General of Resources, Science and Technology, Higher Education / *Direktorat Jenderal Sumber Daya, Ilmu Pengetahuan dan Teknologi, Pendidikan Tinggi*
Dirjen Yankes	Directorate General of Health Services / *Direktorat Jenderal Pelayanan Kesehatan*
District Hospital	Referral hospital that serves population in a district / *Rumah Sakit Umum Kecamatan (RSUK)*. This term also means referral hospital that serves population in a greater city area / *Rumah Sakit Umum Daerah (RSUD)*
DNI	Negative Investment List / *Daftar Negatif Investasi*
DPRD	Regional House of Representatives / *Dewan Perwakilan Rakyat Daerah*
DSLGA	Director of Synchronization of Local Government Affairs
ENT	Ear, Nose, and Throat
FBC	Final Business Case
GCA	Government Contracting Agency / *Penanggung Jawab Proyek Kerjasama (PJPK)*
GDP	Gross Domestic Products
GoI	Government of Indonesia
HIV	Human Immunodeficiency Virus
ICU	Intensive Care Unit
IDC	Indirect Costs
IDHS	Indonesian Demographic and Health Survey
IIGF	Indonesia Infrastructure Guarantee Fund / *PT Penjaminan Infrastruktur Indonesia (PT PII)*
INA-CBGs	Indonesia Case Base Groups
InfraSAP	Indonesia Infrastructure Sector Assessment Program
InfraSAP	Indonesia Infrastructure Sector Assessment Program

IPO	Initial Public Offering
JKN	Universal Health Coverage / National Health Insurance / *Jaminan Kesehatan Nasional*
Juknis	Technical Instruction / *Petunjuk Teknis*
KARS	Hospital Accreditation Committee / *Komite Akreditasi Rumah Sakit*
Kemenkes	Ministry of Health / *Kementerian Kesehatan*
Kemenkeu	Ministry of Finance / *Kementerian Keuangan*
Kemenristekdikti	Ministry of Research, Technology, and Higher Education / *Kementerian Riset, Teknologi, dan Pendidikan Tinggi*
Kepmenkes	Ministry of Health Decision / *Keputusan Menteri Kesehatan*
KPPIP	Committee for Acceleration of Priority Infrastructure Delivery / *Komite Percepatan Penyediaan Infrastruktur Prioritas*
KSO	Operational Collaboration / *Kerjasama Operasi*
LKPP	Government Goods and Services Policy Agency / *Lembaga Kebijakan Pengadaan Barang Jasa Pemerintah*
LKPP	Lembaga Kebijakan Pengadaan Barang Jasa Pemerintah National Public Procurement Agency
LKPP	Lembaga Kebijakan Pengadaan Barang Jasa Pemerintah National Public Procurement Agency
LRT	Light Rapid Transit
M/E	Mechanical/Engineering
MGGS	PT Mega Guna Ganda Semesta
MoF	Ministry of Finance / *Kementerian Keuangan*
MoH	Ministry of Health / *Kementerian Kesehatan*
MoHA	Ministry of Home Affairs / *Kementerian Dalam Negeri*
MoT	Ministry of Transportation / *Kementerian Perhubungan*
MP3EI	Masterplan Percepatan dan Perluasan Pembangunan Ekonomi Indonesia
MPWH	MInistry of Public Work and Housing
NZTA	NZTA
O&M	Operational & Maintenance
OBC	Outline Business Case
OJK	Otoritas Jasa Keuangan

OPEX	Operational Expenditure
PDF	Project Development Facility
Pemda	Local Government / *Pemerintah Daerah*
Pemkab	Government of the Regency / *Pemerintah Kabupaten*
Pemkot	Government of the City / *Pemerintah Kota*
Pemprov	Government of the Province / *Pemerintah Provinsi*
Pergub	Governor's Regulation / *Peraturan Gubernur*
Permen PPN	Regulation of Minister of Development Planning / *Peraturan Menteri Perencanaan Pembangunan Nasional*
Permendagri	Ministry of Home Affairs Regulation / *Peraturan Menteri Dalam Negeri*
Permenkes	Ministry of Health Regulation / *Peraturan Menteri Kesehatan*
Permenkeu	Ministry of Finance Regulation / *Peraturan Menteri Keuangan*
Perpres	Presidential Regulation / *Peraturan Presiden*
PNS	Civil Servants / *Pegawai Negeri Sipil*
Polri	Indonesian National Police / *Kepolisian Republik Indonesia*
PP	Presidential Regulation / *Peraturan Presiden*
PPIP	Public Private Integrated Partnership
PPP	Public Private Partnership / *Kerjasama Pemerintah dan Badan Usaha (KPBU)*
Primary Health Services	Basic health services that are provided at the Public Health Facility (Puskesmas), which is the first tier in the Universal Health Coverage referral system.
Puskesmas	Public Health Facility / *Pusat Kesehatan Masyarakat*
Rakontek	Technical Consultation Meeting / *Rapat Konsultasi Teknik*
RAPBN	Indonesian Proposed Budget / *Rancangan Anggaran Pendapatan dan Belanja Negara*
Regional	Related to a geographic region or a group of provinces in Indonesia that have relatively close proximity with each other. The grouping is based on Ministry of Health Regulation No. 27 Year 2014, which mentions about Region I to V.
Regional Hospital	Referral hospital that is located in a certain region, providing secondary/tertiary care to patients in that region.
Renja	Rencana Kerja
ROI	Return of Investment

RPJMD	Regional Medium-Term Development Plan / *Rencana Pembangunan Jangka Menengah Daerah*
RPJMN	National Medium-Term Development Plan / *Rencana Pembangunan Jangka Menengah Nasional*
RPJPN	Long Term Development Plan National / *Rencana Pembangunan Jangka Panjang Nasional*
RSUP	Central Public Hospital / *Rumah Sakit Umum Pusat*
SDGs	Sustainable Development Goals
Secondary Health Services	Specialty health services that are provided at the secondary referral hospital, which acts as the second tier in the Universal Health Coverage referral system. The hospital can be district hospital or provincial hospital.
SLA	Service Level Agreement
SMI	*PT Sarana Multi Infrastruktur* is an infrastructure financing company which was established as a State-Owned-Enterprise (SOE) with 100% shares owned by the Government of Indonesia through the Minister of Finance, Republic of Indonesia.
SOE	State-Owned-Enterprise
SPV/C	Special Purpose Vehicle / Company
TB	Tuberculosis
TDD	Fund Transfer to Provinces & Villages / *Transfer Dana ke Daerah dan Desa*
Teaching Hospital	A hospital that is owned by the Ministry of Research, Technology, and Higher Education. It is affiliated with a medical school and provides the means for medical education to students, interns, residents, and sometimes postgraduates.
Tertiary Health Services	Specialty and subspecialty health services that are provided at the tertiary referral hospital, which acts as the third and highest tier in the Universal Health Care Coverage referral system. The hospital can be provincial hospital, regional hospital, or national hospital.
THSRC	THSRC
TNI	Indonesian National Armed Forces / *Tentara Nasional Indonesia*
TOD	Transit Oriented Development
UCLH	University College London Hospital
UNICEF	United Nations International Children's Emergency Fund
UU	Law / *Undang-undang*
Vertical Hospital	A hospital that is owned by the Ministry of Health
VfM	Value for Money

WHO	World Health Organization
Yankes	Health Services / *Pelayanan Kesehatan*

1 Introduction

This is the Final Sector Review Report on the Transport Sector. The report provides sector specific analysis and recommendations using international best practice and project benchmark comparators and these recommendations are outlined for the purposes of strategy and policy development by DGSIFM to enhance its role as the central PPP Unit at the Ministry of Finance in delivery government support for PPP Infrastructure Projects.

At the same time, the report also annexes rule of thumb measures that can be used at the technical level to guide the project identification, planning, and preparation of projects in the sector pipeline that is considering to be developed as PPP projects. Furthermore, detailed iterative working papers are also annexed to guide technical staff on sector specific considerations that were taken into account in formulating this report. The working papers are the result of consultations and deliberations in May-June 2019 between MoF technical level practitioners and PDF administrators, and a consolidation of advisory inputs from national sector advisors, legal regulatory advisors, environmental and social, financial advisory, and international advisors from Canada. The rule of thumb measures are annexed as **Annexes I**. The Working Papers for the Transport Sector can be found as **Annex II**.

1.1 Transport Sector Overview

In the latest report, the World Bank estimated that Indonesia suffers from a USD 1.5 trillion infrastructure deficit including in the transport sector. Underinvestment in transport infrastructure contributes to greater disparity among regions, inefficient and ineffective transport service delivery, and high cost to the economy that reduces its potential to fully develop1. According to the ADB, the situation has deteriorated since the 1997-98 Asian financial crisis, with current investment levels standing at about 3.5% of GDP, versus pre-1997 levels of 8% of GDP.

Since 2015, the Government of Indonesia has attempted to reverse this condition by issuing a medium-term plan to develop transport infrastructure across the nation up to 2019. The plan targets 2,650 km national roads, 1,000 km toll roads, 24 new seaports, 15 new airports, 60 ferries, 29 BRT, and 6 plus 17 mass transit for metropolitan and big cities (beyond and up to 1 million inhabitants)2.

Table 1-1. 2015-2019 RPJMN Transport Infrastructure Targets

No	Sub Sector	Target
1	National roads	2,650 km
2	Toll roads	1,000 km
3	Airports	15
4	Seaports	24
5	Rail	3,258 km
6	Ferries	60
7	BRT	29
8	Mass rapid transit rail systems	6 metropolitan centers, 17 big cities

Source: Bappenas, 2015

Such an ambitious plans require a tremendous amount of financing , totaling approximately IDR 1,827 billion for transport infrastructure which equals 38% of total IDR 4,796.2 investment planning of which public budget will never cover fully. Government spending is expected to cover only 30% of the total investment, while the rest is expected to come from SOEs and private sectors with local government also contributing a small portion.

Table 1-2. Indonesia Infrastructure Investment Plan by Sector, 2015-2019

Sector	IDR (Billion)	%
Transport	1,827	38%
Power	1,507.3	31%
Telecom	280.3	6%

[1] InfraSAP, The World Bank, 2018
[2] Bappenas, 2015

Water	853.9	18%
Housing	327.5	7%
Total	4,796	100%

Source: Bappenas, 2015

Table 1-3. Transport Infrastructure Financing by Source

Transport Sector	National Budget	Local Budget	SOEs	Private Sector	IDR Trillion
Roads +Toll roads	37%	27%	9%	27%	733
Ports	44%	0%	40%	16%	591
Railways	41%	0%	5%	54%	226
Airports	44%	3%	35%	17%	144
Urban Transport	71%	17%	6%	6%	86
Ferries	79%	0%	21%	0%	47

Source: Ministry of Finance, Bappenas, RPJMN 2015-2029

One of the schemes for the private sector to invest in transport infrastructure is through PPP projects. The portion of private sector funding anticipated by the government varies based on the subsector. The government plans to utilizeprivate investment in the transport sector in varying portions according to each sub-sector. Roads and toll roads as the sub-sector with the highest quantum of public investment planned, will require 27% of its investment funding from the private sector. The subsector with the highest anticipated portion of private sector investment is railroad, at 54%.

The objective of this report is to analyze the state of PPP projects in the transport sector by focusing on 1) regulation and policy, 2) technical and planning and 3) financial and economic, and propose recommendations out of the aforementioned analysis.

In 2017, the transport sector contributed to approximately 24% of Indonesia's GDP in 2015. As a report from Oxford Business Group put it:

"According to Statistics Indonesia (BPS), the transport sector's contribution to GDP has grown significantly in the years since 2011. In its 2016 Statistical Yearbook, BPS reported that the total value of the transportation and storage industry at current market prices rose by 13.4%, from Rp276.1trn ($20.8bn) in 2011 to Rp313.2trn ($23.6bn) in 2012, increasing by a further 19.8% in 2013 to hit Rp375.3trn ($28.3bn). Transport industry growth was 24.4% in 2014, with the sector's GDP contribution reaching Rp467trn ($35.2bn). The share rose by a further 24% in 2015, the most recent year for which statistics are available, to Rp579trn ($43.6bn)3."

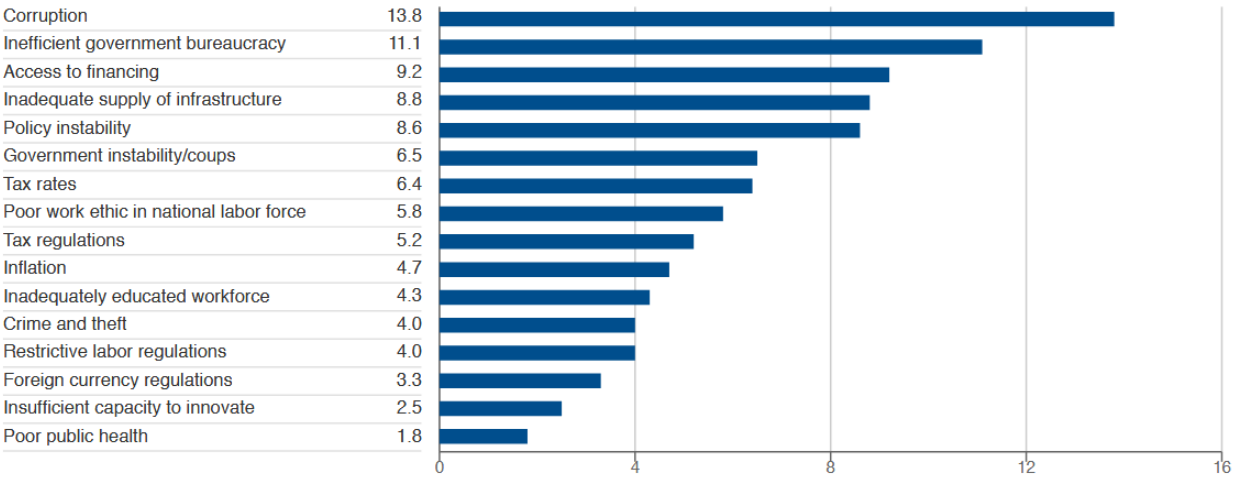
Despite several actions to improve transport sector performance, the contribution of the transport sector to national GDP is still much higher compared to Indonesia in other countries in Southeast Asia with an average less than 10%.

According to Global Competitiveness Report 2017-2018, infrastructure quality and supply was ranked the third most problematic factor for doing business in Indonesia4. This position improved from the previous report by one place from third to second with score reduced from 9.6 in 2015 up to 8.8 in 2017. This indicates that a massive government project could not reverse the infrastructure deficit. Policy to prioritize infrastructure development, including transport, should continue with more private sector participation to complement constraints in the government budget.

[3] OXG, 2018

[4] Global Competitiveness Report 2015-2016

Figure 1.1. Most Problematic Factors for Doing Business in Indonesia, 2017



Note: From the list of factors, respondents to the World Economic Forum's Executive Opinion Survey were asked to select the five most problematic factors for doing business in their country and to rank them between 1 (most problematic) and 5. The score corresponds to the responses weighted according to their rankings.

Source: Global Competitiveness Report 2017-2018

The same report also ranks Indonesian infrastructure as one of the lowest among 140 countries assessed with seaports as the lowest rank among other transport infrastructure. Railroads that just recently got a greater commitment from the government got the highest rank at position number 30.

Table 1-4. Indonesia Infrastructure Performance, 2017-2018

Infrastructure	Rank out of 140	Index
Overall infrastructure	68	4.1
Roads	64	4.1
Railroads	30	4.2
Seaports	72	4.0
Airports	51	4.8

Source: Global Competitiveness Report 2017-2018

2 Basic Theory and International Best Practice

2.1 Planning

2.1.1 Planning Overview

A central goal of governments across the world is to effectively plan, deliver and manage major long-term infrastructure projects which in turn deliver essential services for the economy and society to function. The challenge faced in many jurisdictions, is that important decisions around infrastructure planning (i.e. which projects to be delivered, which sectors to be prioritized, etc.) are typically made through an incremental, reactive process that is often driven by political considerations, budget limitations and numerous other factors rather than being based on a more holistic, long-term approach.

The guidance stated in this section - sourced from international good practices and guidance - is not sector-specific. Upon a robust foundation of centralized, enabling frameworks and policies central governments should layer on an appropriate division of functions and responsibilities between other levels of government. The sections that follow respectively posit sector-specific factors, as well as institutional planning considerations for public sector decision-makers.

An evolving challenge - as detailed in the proceeding section - is the effective division of roles and responsibilities between different public sector actors. Generally, this report refers to the following levels of government:

- **Central government:** situated at the national / federal level.
- **Regional government:** situated at the provincial / state level.
- **Local government:** situated at the municipal / township level.

As noted by the World Bank, globally "the past 20 years have witnessed a shift towards decentralized infrastructure planning and implementation … (with) subnational governments, regional entities and sector agencies delegated responsibility for planning and project selection."[5] While numerous infrastructure projects are identified through decentralized planning, governments often lack the financial and technical capacity to implement the full suite of such projects, thereby contributing to a growing infrastructure gap. This capacity limitation drives a screening and preparation process that forces government to prioritize the funding of projects - instead of planning in a way which is holistic, rigorous and responsive to the needs of the country's socioeconomic landscape.

Some approaches commonly used, despite their limitations, in infrastructure project prioritization include the following:

- **Cost-Benefit Analysis:** this approach focuses on comparing costs and benefits of a project over its lifetime (future values adjusted to present value for comparative purposes), to select projects that maximize value to society overall. This approach allows decision-makers to compare and rank all contemplated projects based on a single indicator, and using one that maximizes value for society overall. However this approach can be limited by the fact that it requires "extensive information about the projects and their projected impacts"[6]. Since such extensive information is often limited and the associated analysis costly, a rigorous cost-benefit approach can be difficult to implement.
- **Multi-Criteria Decision Analysis:** this approach is reflective of the time, information and capacity limitations that governments typically face when undertaking project selection. This approach includes qualitative factors, alongside quantitative factors, into a weighted (with weighting of categories and criteria determined and calibrated by government decision-makers) decision analysis - and is beneficial "when information or analytical resources are limited".[7] Weaknesses to this approach include subjectivity in the manipulation of weights and criteria, in order to prioritize certain projects over others.

In the context of developing countries supported by international donor organizations, further scrutiny on project prioritization may be required, with the World Bank reporting "recent attention to infrastructure prioritization is grounded on demonstrated government and multilateral organization demand for evidence, comprehensiveness, value and legitimacy in infrastructure decision-making … (which is) also a proposed precursor to identifying opportunities for private sector involvement."[8] Research undertaken by the World Bank also suggests that a lack

[5] World Bank Group. "Prioritizing Infrastructure Investment: A Framework for Government Decision-Making." May 2016.
[6] World Bank Group. "Prioritizing Infrastructure Investment: A Framework for Government Decision-Making." May 2016.
[7] World Bank Group. "Prioritizing Infrastructure Investment: A Framework for Government Decision-Making." May 2016.
[8] World Bank Group. "Prioritizing Infrastructure Investment: A Framework for Government Decision-Making." May 2016.

of holistic planning in infrastructure development creates a number of issues, noting that "the unstructured path to project approval in many countries leaves room for corruption, inefficiency and particularist infrastructure policy that is unlikely to effectively serve development needs."[9]

As an alternative to the two common project prioritization approaches mentioned above, the World Bank has proposed the Infrastructure Prioritization Framework for government consideration. This framework incorporates policy goals, social and environmental sustainability considerations, and long-term development goals alongside traditional financial factors (i.e. the monetary considerations as referenced in Cost-Benefit Analysis).

The implementation of the Infrastructure Prioritization Framework, or any other internationally recognized best practice approach to infrastructure prioritization, is predicated on the following fundamental principles:

- Account for key goals stated in infrastructure policy, as well as sector strategies and mid-term development plans.
- Consider the tenets of 'value' and 'effectiveness'. The application of a defensible methodology implies due consideration of said methodology's effectiveness at delivering on goals (e.g. economic growth, human development, etc.), as well as in the value (i.e. creating public value at the least cost).
- Affirming legitimacy to decision-making. Legitimacy is founded on both inputs and outputs, and in order to fulfill the former - the project prioritization methodology should include a process that is transparent, fair and systematic.
- Opportunity to innovate. As the infrastructure investment gap grows and governments explore different ways to address it, more attention becomes focused on the enabling conditions that increase the potential for institutional investment and private sector participation. Inherently, a defensible and recognized methodology has the potential to contribute to a well-planned and legitimate project pipeline, which can in turn create the aforementioned enabling conditions.

Best practice guidance from the World Bank also suggests that "while projects may be proposed from different line agencies or subnational government units, prioritization should be managed at the same level ... by an administrative unit with authority over investment decisions to ensure that analysis is effectively utilized."[10] In other words, project planning and prioritization should be conducted at a level with administrative authority over investment, and ideally performed in conjunction with budgeting cycles and activities. This aligns with the discourse presented in the following section on institutional framework, regarding the allocation of decision-making responsibility to central governments who commonly possess the appropriate perspective and purview.

An important takeaway from practices in jurisdictions such as the UK, Australia and Canada is that improved coordination and planning should be initiated at a central or regional level of government. Central and regional government possess the perspective to evaluate the needs of the population, establish funding frameworks based on a view of the national budget, and can establish (central) or align (regional)priorities in public investment. Based on this holistic view, central government agencies can develop and disseminate these national objectives - with regional and local governments consequently aligning their respective infrastructure development priorities (particularly if funding from central government budgets is offered).

2.1.2 Transport Sector Planning Considerations

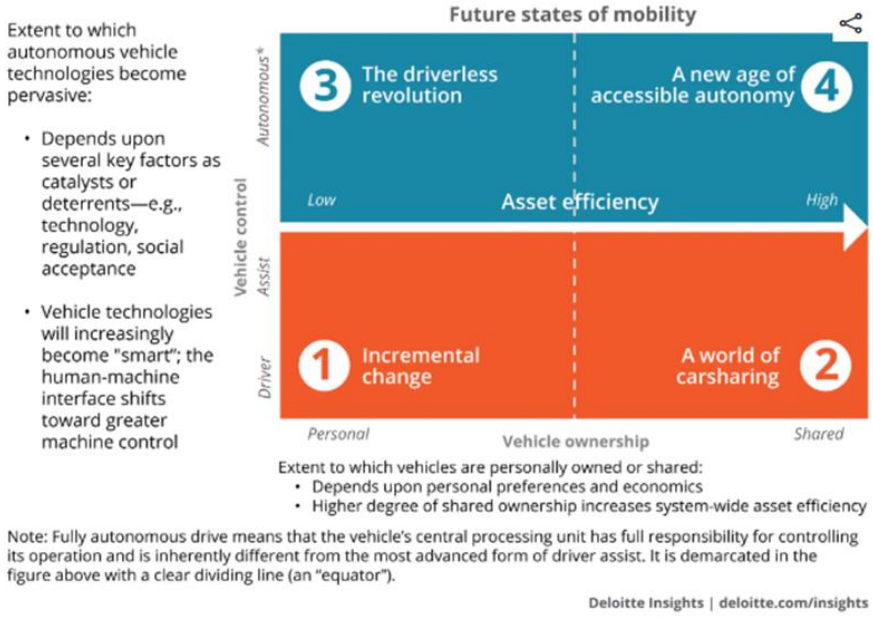
When appropriately planned, transportation solutions can simultaneously boost efficacy of an economy's regional and international trade routes, while improving the movement of human capital throughout urban centres and other populated areas. The growing challenge in the 21st century is for central planners to coordinate and procure affordable, environmentally friendly, and socially responsible transportation solutions that can support further development in its urban centres - the key centres of economic growth and sociopolitical activity in any country. With ~68% of the world's population slated to live in urban areas by 2050[11], the growing trend of urbanization supports the development of robust urban infrastructure planning practices. Enabling planning and investment policies must be present therefore, to drive effectiveness and efficiency in urban centres.

Additionally the growing convergence between technology and transportation have wide-reaching impacts. The growing socioeconomic desire for seamless, door-to-door mobility options across many jurisdictions, in combination with technological advancements, has introduced the **Future of Mobility** to the forefront of transport

[9] World Bank Group. "Prioritizing Infrastructure Investment: A Framework for Government Decision-Making." May 2016.
[10] World Bank Group. "Prioritizing Infrastructure Investment: A Framework for Government Decision-Making." May 2016.
[11] United Nations. "2018 Revision of World Urbanization Prospects." 2018.

infrastructure[12]. Entire subsects of the industry - including ridesharing, and mobility-as-a-service mobile applications[13] - have been created as a result of this fundamental shift in technological and social forces. Research on the envisioned future states of mobility is shown below - encompassing various states along the axes of vehicle control vs. ownership. The integration of these options into public sector planning for transport networks will be a defining challenge.

Figure 2-1 Future States of Mobility, per Deloitte.



While the approach may vary across sub-sectors, the considerations for government to properly plan transport systems are generally applicable across these common factors cited below[14]. Key issues to consider in policy, system design, and contractual forms of the overall plan (i.e. public delivery vs. PPPs), include the following.

- Complexity and size of requisite projects, reflecting the needs of the population. Prioritization of the right projects are crucial in this sector, given that the capital cost associated with transport projects is typically substantive.
- Route selection (for linear infrastructure projects such as highways and transit) to ensure that the significant capital costs diverted towards a transportation project achieve the envisaged economic activity by having a significant impact on the movement of people and/or goods.
- Integration, with both transport assets of the same sub-sector, or disparate sub-sectors (i.e. linking airports with light-rail-transit)
- Asset management planning (including selection of rolling stock, buses and other discrete types of assets)
- Desired levels of capacity and service reliability, specifically to anticipate and meet growing utilization of transport systems over time
- Conduciveness and/or necessity for cross-sectoral coordination with other uses of land. This is particularly valid for governments which are challenged with making scarce land uses multi-functional, and 'future-proofing' their transport infrastructure.
- Revenue collection - including ticketing.

The fundamental step to sound planning in the transport sector, is to select the appropriate mode or solution to meet the determined need. This requires detailed cost-benefit analysis, technical analysis, and generally a fulsome due diligence and consideration of the following factors:

[12] Deloitte. "Forces of change: the Future of Mobility." 2019.

[14] World Bank Group. "Private Sector Participation in Light-Rail Metro Transit Initiatives." 2010.

- Potential for land value capture. Funds for which the public sector can recycle into offsetting project costs. As a rule of thumb, transport projects demonstrate evidence of appreciating the value of surrounding land and property. Whereas the value is typically captured by private land owners and speculators, the public has the opportunity to capture some of that value using multiple tools (e.g. applying development charges).
- Available public budgets (from local, regional, and central sources), in both current and future. This is important given both the high capital cost in initial years to build the asset, as well as the ongoing costs in future years to cover gaps between costs vs. fare and non-fare revenue. Global lessons learned inform that it is very rare for example that urban transit projects achieve cost-recovery (i.e. where fare revenue offset operating costs, let alone recover capital costs).
- User volumes and demand price elasticity. Global lessons learned inform that this element is critical for transportation projects, particularly when considering delivery modalities that transfer ridership and revenue risk to the private sector. If usage projections are not accurate (lower than expected) and threaten the financial viability of Project Co in a PPP scheme, these projects will invariably require restructuring or ultimately fail altogether. Contrastingly, if projections are not accurate (higher than expected, and in instances where revenue-sharing mechanisms were not put into the contract), they lead to lost revenue potential for the public sector.
- Land acquisition. This is typically a significant issue for projects spanning a significant portion of land - as is the case for linear transport projects such as highways and transit. International lessons learned inform that many projects have stalled or been cancelled because of this major hurdle. The public sector should in particular consider whether the right legislative mechanisms are in place to secure land legally (i.e. legal expropriation and compensation to land owners). International best practices call for instituting a fair and transparent process when it comes to managing social issues around land acquisition.
- Environmental and social impacts of various solutions. From emissions, to noise levels, to land appropriation, the environmental and social implications of transport projects are substantive. In some cases the economic case to reduce urban congestion can be aligned with the objective of reducing emissions and noise. However this is not always the case, and public sector planners should strive to incorporate environmentally-conscious factors into transport policy.

Once policymakers and other government stakeholders have determined the optimal transport solution based on the above, the next step is to determine the delivery mode - and consequently whether or not private sector participation is desired and will be anticipated to generate value to the public.

Preserving private sector incentives for innovation and performance, while linked to contributions of substantial public funds toward new services requires delicate management[15]. Generally, achieving the benefits in a PPP arrangement for a transport project requires the following elements to be prevalent:

- The private sector retains the ability and incentives to make good operating and investment decisions. This means the project structure should allocate the risk of operational and investment decisions to the private sector, while ensuring that the PPP contract has rigorous service and performance requirements to deter bad behaviour.
- To capitalize on the private sector's expertise and experiences, project owners should encourage proposals containing appropriate technology and equipment. For instance, bidders may be asked to include technical plans for the design and operations of equipment and rolling stock.
- The private sector is shielded from government change in regulations. In the transport sector, this means the PPP contract should protect them from cuts to user charges (e.g. fares) which would undermine the financial viability of Project Co (assuming revenue risk is allocated to or shared with the private sector).

On a related note, it will be important for both public and private sectors to understand how major capital investments (i.e. new build or significant lifecycle expenditures) will be funded.

[15] World Bank Group. "Private Sector Participation in Light-Rail Metro Transit Initiatives." 2010.

2.2 Institutional Framework

A number of overarching factors impact the institutional framework underpinning responsibility for delivering infrastructure projects between different levels of government. The five main factors - when looking at jurisdictions such as Australia, Canada, the UK, New Zealand and Singapore - can be summarized as follows[16].

- Sector Pipeline: evidence of a robust pipeline of infrastructure (including PPP) projects, tends to converge with government decision to centralize responsibility for procurement in a given sector. In some instances, the government enables the formation of purposely-formed statutory authorities to execute on the planning and procurement of projects in sectors with a strong pipeline.
- Model Complexity: evidence of a sector requiring more complex procurement models (including alternative delivery models such as PPP), tends to involve centralization of procurement functions. Based on the need for greater levels of technical capacity to be successful with such projects, oftentimes specialized teams are formed within the ministry / central government. In instances where local entities and other would-be project owners lack the experience (particularly with more complex transactions involving private sector investment, such as PPPs) and capability to deliver the capital project(s), responsibility is centralized. Where less experienced agencies are charged with complex procurements, best practice encourages them to engage external advisors and/or seek to acquire expertise from other parts of government.
- Project Volume & Value: in sectors where project volume is high but individual project value is low, responsibility for procurements fall to the responsible ministry[17]. In cases where a sector has large-scale procurements, particularly greenfield developments, in the pipeline - responsibility is typically assigned to central government or deferred to a purposely-formed statutory authority.
- Processes: where there exists a strong network of standardized processes and guidance, central government is often relied upon less for delivery of these major capital projects.

Beyond the general factors cited above, the roles and responsibilities between central, regional, and local governments when it comes to infrastructure planning, procurement and delivery varies based on context and sector.

The Role of PPP Units

As governments contemplate shifting from traditional to alternative models such as PPP to procure capital projects, they require new and specialized types of capacity - namely "to design projects with a package of incentives and risks that makes them attractive to the private sector."[18] Other aspects of technical expertise required from governments for PPP delivery include:

- Assess cost to taxpayers: this is distinct from and can be more challenging than traditional delivery, due to the long-term nature of government commitments.
- Oversee contracts over the stipulated duration: public sector needs to be deft and proactive contract management is required, delivered in conjunction with government regulators, third-party inspectors, as well as the dedicated team of the contracted private sector entity.
- Consensus-building: project owners need to canvass stakeholders, and engage in advocacy and outreach to build broad-based support on (i) the role of PPPs; and (ii) support for specific projects.

As discussed in the prior section, technical capacity for governments in this regard is essential for successful PPP delivery. A global scan of PPP markets informs of an increasingly common avenue to produce this capacity - by establishing dedicated PPP units. These units are either new central agencies, or dedicated units within a central (e.g. situated within the national Ministry of Finance) ministry.

International practices suggest that the exact role of PPP units will vary widely, and that commonly these agencies exist to 'fill the gaps' left by the existing institutional framework of public sector actors. The figure below illustrates

[16] For the Ontario Ministry of Infrastructure, Deloitte performed a global jurisdictional of the infrastructure procurement institutional frameworks. This was undertaken by primary data collection using interviews from the Deloitte global network of experts as well as with representatives from agencies in said jurisdictions (i.e. Australia, Canada, the UK, New Zealand, and Singapore.

[17] It should be noted that in some cases - in particular to deliver healthcare and education projects - governments have 'bundled' multiple assets into a single procurement to increase competitive pressure and increase scale to attract private sector financing. Given the multitude of assets (and possible dispersal of assets over multiple local or regional governments), central governments tend to be responsible for these procurements.

[18] World Bank Group. "Financial and Private Sector Development Vice Presidency: PPP Units." 2006.

the tasks performed by PPP units from around the world, ranging from upstream capacity-building to government approval of the eventual PPP contract.

In Canada's PPP landscape, PPP units exist at both the central level (i.e. the national entity known as the Canadian Infrastructure Bank[19] as well as the regional level (i.e. provinces committed to building PPP programs and pipelines had their own capital projects teams with PPP-specific capacity, such as Infrastructure Ontario). The central PPP unit in its early days stayed upstream and focused on acting as a resource center to project owners, which included the provision of funding to undertake rigorous project preparation activities as well undertaking nation-wide capacity building with the aim of raising awareness and capacity across all levels of government with regards to PPP models. By comparison, in Ontario, the province with the largest population and PPP program, the PPP unit from inception played a more active role in providing hands-on support and approval of specific PPP proposals and projects.

Figure 2-2 Typical functions of a PPP Unit based on global scan, per World Bank.

	Information and guidance		Advisory support and funding				Approval
	Resource center (dissemination)	PPP guidance material	Intensive project-specific advice	Funding for PPP preparation[a]	Role as project developer[b]	Role in contract monitoring	De jure or de facto approval power over PPPs
Andhra Pradesh, India: AP Infrastructure Authority	✓	✓	✓				✓[c]
British Columbia, Canada: Partnerships BC	✓	✓	✓		✓	✓[d]	
Gujarat, India: Gujarat Infrastructure Development Board	✓	✓	✓	✓	✓	✓[d]	✓
Ireland: National Development Finance Agency	—[e]	—[e]	✓		✓[f]		
Italy: Project Finance Unit	✓	✓	✓				
Netherlands: PPP Knowledge Center	✓	✓	✓			✓	
Philippines: BOT Center	✓	✓	✓	✓		✓	✓[g]
South Africa: PPP Unit, National Treasury	✓	✓	✓	✓			✓
United Kingdom: Partnerships UK	✓	✓	✓	✓	✓	✓[d]	✓[h]
Victoria, Australia: Partnerships Victoria	✓	✓	✓			✓[i]	

a. Funding for consultants working with the line department or local government.
b. Involves greater responsibility than for an adviser and fees based on some measure of performance (such as closing of a deal).
c. All PPPs must be referred to the state's Infrastructure and Investment Department, which may then refer them to the AP Infrastructure Authority for clearance.
d. Contract management role can be requested by clients (line departments and local governments).
e. The central PPP unit provides general guidance and policy material.
f. Gives project-specific advice and carries out the procurement of PPPs in health, justice, and education. Line agencies are responsible for procurement in other sectors.
g. Plays a role in approval through membership in the Investment Coordination Committee.
h. Prepares a report for each local government Private Finance Initiative project that goes to an interdepartmental committee for approval.
i. Monitors contract management by line agencies and gets involved where major issues arise.

An overview of the functions provided by PPP units is summarized below.

- Information & Guidance: PPP units can provide information and guidance to governments, on the preparation of PPPs - ranging from provision of international resources to standardized PPP contracts and clauses for streamlined use in procuring PPPs.
- Advisory Support & Funding: PPP units can provide hands-on technical support to public sector project owners, to supplement the limited resources of a regional or local entity who lack PPP experience. International best practice suggests that PPP units should play a hands-on role in starting up a regional or local entity's PPP program in order to build capacity. On the other hand with departments who have experience and capacity, the advisory support role of the PPP unit can be light-touch in nature. PPP units can also - on behalf of a central entity such as the Ministry of Finance - provide funding to help project owners acquire the expertise necessary to perform appropriate and rigorous project planning (e.g. provision of funding to hire independent transaction advisors).
- Approval: PPP units can play a role in assessing whether the proposed PPP aligns with the quality, affordability and expected fiscal cost that is within the budgetary threshold of the central government.

To reiterate, international best practices recommend the establishment of PPP units in a prominent and influential position (i.e. dedicated unit located in the national Ministry of Finance) - with the specific functions of each unit to be customized depending on the relative technical capacity and experiences of existing government actors in the landscape of capital projects procurement.

Transport Sector Considerations

[19] The Canadian Infrastructure Bank has succeeded PPP Canada, a crown corporation that through 8 years promoted and supported the adoption of PPPs across Canada.

The transport sector in most countries is organized such that each sub-sector is planned and managed independently (i.e. civil aviation authority, railway authority, highways authority). These agencies are typically central or regional in level. The urban transit sub-sector is typically the exception in this regard. Local governments are typically in charge of planning and delivering transit projects - meaning that their technical expertise can be lacking when it comes to executing a complex PPP transaction. As aforementioned, local governments can seek external help - in Canada for instance the municipalities of Ottawa and Waterloo respectively sought out Infrastructure Ontario[20] to deliver their first transit PPPs. When Ottawa proceeded with a second transit PPP, it had already developed internal knowledge and expertise and therefore decided not to engage with this central PPP agency and contract with external private sectors advisors directly.

The design of properly integrated, well-planned, and well-operated transport networks therefore require the dedicated efforts of a central authority; or a regional / local agency with prior experience. The purview of this authority may stretch across all modes of transport in said urban center, and should possess financial capacity as well as legal authority to implement new, capital-intensive transport initiatives. The responsibilities of this authority, in context of managing urban transport, could be detailed as follows:

- Route layout
- Service schedules
- Fare levels across different services
- Regulation of competing and/or complementary transport developers (e.g. private bus companies)
- Ticketing, and ticket integration across different modes
- Incorporation of non-motorized transport (e.g. bicycles)
- Parking costs and related policies
- Congestion pricing and other tolls on private transport
- Access for transport users with special needs

The prevalent practice in many jurisdictions therefore, is for dedicated agencies to manage a system of multiple modes of urban transport in one metropolis. There are of course, other roles played by different levels of government.

- Central level of government will be involved with the implementation or amendment of legislative acts to empower dedicated agencies to champion particular projects or systems of urban transport.
- Regional and local levels of government may be charged with engaging in meaningful stakeholder consultation, and ensuring that feedback from citizens, businesses, labor organizations and others are incorporated into the planning and development of transport infrastructure.
- All levels of government may share the role of drafting and enabling a long-term vision for transportation and quality of life, at (i) the national level; and (ii) at the urban centre level.
- PPP units at the central or regional level, may also perform supervisory and technical assistance functions. Regardless of the existence of the former, it is recognized that the dedicated agency would require an abundance of technical expertise and resourcing to ensure quality and consistent procurement.

Regulations and/or guidance on quality, safety and environmental standards from international agencies (e.g. IATA for air transport assets) are a crucial stakeholder in the institutional framework of transport infrastructure. Compliance, consultation and coordination with these agencies cannot be overlooked in the planning and management of transport assets.

2.3 International Project Model

2.3.1 Project Models & Case Studies

The fundamental role of the public sector - regardless of the type of infrastructure - revolves around defining scope, specifying objectives and outputs of the asset/service, and holistically establish tools for successful PPPs. There

[20] Infrastructure Ontario is a regional agency, dedicated to the procurement and financing of major capital projects in the province of Ontario. This PPP agency has played a hands-on role in supporting regional and local project owners, by providing technical and financial support to prepare and procure PPP projects.

are a number of internationally-recognized PPP models for transportation projects, each with different implications in the ways and extent to which they involve private sector participation.

- **Management Contract:** public sector retains ownership of and control of all major assets (e.g. depots, vehicles), assumes all revenues, and is responsible for financing the project. Responsibility is allotted to the private sector for the professional management of operations - typically for a fixed price. This is typically the contract with the least amount of risk transfer, and requires only a short contract duration to realize the minimal private sector efficiencies.
    - A case study of the management contract - Docklands Light Railway O&M, UK[21] - is provided directly below.

Management Contract Case Study: Docklands Light Railway O&M Franchise, UK

Initially a publically-procured feeder service project for the London docklands area, the government decided to implement a network extension and upgrades via PPP to capitalize on land value capture experienced as a result of the Canary Wharf high rise development. The project is therefore an Operations & Maintenance contract, executed in 1997, with a duration of 7 years. The successful bidder for this contract was British firm Serco plc.

Project Owner: Docklands Light Railway Limited, an entity delegated responsibility for the central authority known as Transport for London.

Scope: Project Co is responsible for serving as the project owner's operations & maintenance contractor, for both the existing network as well as any new extensions. The contract stipulates that the project owner and Project Co are to mutually agree on a plan for annual capital projects - projects that maintain service quality and keeping the system operational. The PPP contract stipulates the proportion of these costs that Project Co is consequently expected to cover.

Funding & Repayment: The PPP contract allowed for payment adjustments depending on system usage. As the network continued to expand - through additional lines of the transit system - Project Co's contractual operations responsibilities would expand accordingly. This was facilitated by the fact that the contract provides mechanisms for these extensions, and includes costs established with the bid for the operation of additional services on a marginal cost basis.

Specific performance obligations include achieving greater than 97% farebox collection; service reliability; facilities availability, and customer satisfaction. The regime also allows for financial incentives upon out-performance of the targets.

Contract Management: Contract monitoring and enforcement is undertaken by the project owner. Engineers from the project owner team inspect the condition of physical assets, as well as service quality.

- **Design-Build-Finance-Maintain / Design-Build-Finance-Operate-Maintain based on a Availability Payments Structure (Gross-Cost Contract):** whereas ownership typically remains with the public sector, control and delivery of the hard assets (e.g. vehicles, rolling stock and other infrastructures) under this model is assumed by the private sector. Typically then, the private sector provides and operates the required rolling stock to specified quality-of-service standards for an agreed price. The risk assumption for revenue collection usually remains with the public sector, with the private sector only assuming risk for the cost of operations.
    - A case study of the Gross-Cost Contract - Ottawa Light-Rail Transit Stage 1, Canada[22] - is provided directly below.

[21] World Bank Group. "Private Sector Participation in Light-Rail Metro Transit Initiatives." 2010.
[22] Deloitte, Boxfish Group. "Ottawa Light Rail Transit System: Lessons Learned from Confederation Line & Stage Implementation Implications." 2015.

Case Study: Ottawa Light-Rail Transit Stage 1, Canada

The project involved a Design-Build-Finance-Maintain PPP, for the design, construction and financing of a light-rail transit system (inclusive of 13 stations and a 2.5 kilometre tunnel) plus connecting highway, as well as maintenance services over the life of the 30-year term.

Project Owner: Local government - City of Ottawa

Scope: Project Co was responsible for the design, construction and maintenance of the light-rail transit system and connecting highway, which included carrying out these activities without disruption to the city and any connecting phases of the system. Project Co was responsible for the provision of vehicles. The unique geotechnical risk associated with the design and construction of a tunnel in the central area of downtown Ottawa, was a risk the project owner was keen to have transferred in this procurement.

Funding & Repayment: Project Co is responsible for at minimum 15% of the capital costs, with the repayment of both the capital costs as well as maintenance contingent on the delivery of the specified delivery and performance requirements stipulated in the PPP contract. Public sector funding committed to this PPP included matched funding from local, regional and central levels of government in Canada.

Contract Management: A challenge specific to this project was the combination of landowners - both government as well as private - whose lands needed to be acquired to deliver the asset. Not all of these government stakeholders were subject to the laws of expropriation. Resolution of this land acquisition issue required early outreach by the project owner to the relevant government stakeholders.

The bundling of the neighbouring highway in this PPP was seen as an innovative solution, but delivery of this component was reliant on the actions of another government stakeholder (i.e. the Ministry of Transportation in Ontario). The resolutions to some of these consequent delays were swift, but were more driven by goodwill and reputation management, as opposed to following effective resolution mechanisms in the Project Agreement.

- **Design-Build-Finance-Maintain / Design-Build-Finance-Operate-Maintain based on a User-Charges Structure (Net-Cost Contract):** similar to the above arrangement, the private sector assumes responsibility for the delivery and operations of the hard assets (e.g. vehicles, rolling stock and other infrastructures). In addition, the private sector will assume demand risk by collecting revenues. As required, private sector may also rent facilities from the public sector in order to operate the asset.
    - A case study of the Net-Cost Contract - Queen Alia International Expansion, Jordan[23] - is provided directly below.

[23] Global Infrastructure Hub. "Managing PPP Contracts After Financial Close." 2018.

Case Study: Queen Alia International Airport Expansion, Jordan

The project involved Build-Operate-Transfer concession for the renovation and expansion of an airport 30 km south of Amman in Jordan. The project was executed in 2007, with a duration of 25 years - awarded to a French consortium.

Project Owner: National government - Ministry of Transport's 'Project Management Unit'

Scope: Project Co was wholly responsible for the cost and timely delivery of the project's construction. During the construction phase, Project Co was responsible for a (i) first phase of delivering the main terminal and nine gates; and then (ii) a second phase of delivering the entire terminal footprint plus additional gates. In the operations phase, Project Co was responsible for operating and maintaining the asset, which included managing relationships with airlines, ground handlers and retailers.

Funding & Repayment: The PPP Contract set the investment fees, to be 54% of gross revenue earned by the airport, paid to the project owner each quarter. Streams of revenue the government collects on behalf of the airport - including departure taxes - are transferred to Project Co.

The payment mechanism stipulated Project Co performance levels during operations - with many performance indicators adapted from IATA standards. To facilitate reporting and consequent payment adjustments - Project Co performed quarterly reporting on customer satisfaction, operational and financial performance.

Contract Management: Due to initial design as well as higher-than-anticipated demand, the project required extension through renegotiation of Project Co's scope. Another challenge faced by Project Co was the overlapping with existing operational assets, making construction difficult and forcing construction works to be adapted to mitigate safety and security risks. Three years after reaching financial close, the PPP contract was renegotiated to accommodate the scope changes and to accelerate completion of the two-phased construction process.

- A case study of the Finance-Operate-Maintain contract for an initial ten-year concession – Transmillenio Bogota Bus Rapid Transit (BRT), is also provided to illustrate land transportation mode for mass transit.

Case Study: BRT System TransMilenio in Bogota, Colombia

TransMilenio is a 82-km bus rapid transit system in Bogotá, Colombia with an average weekday ridership of 1.5M passengers. It was designed as a PPP project involving public sector responsible for the implementation of the infrastructure and also for the planning, control and monitoring of the system operation, while the private sector is in charge of operating and maintaining the buses.

The private sector was engaged through multiple concession agreements to provide feeder and trunk bus operations, as well as fare collections. Concessions were awarded on a Finance-Operate-Maintain basis for a 10-year period based on eight criteria with the two most important being least price per kilometer and previous operating experience in Bogotá. Other criteria included environmental performance, bus fleet manufacturer, and bid team composition. The procurement process incentivized older disorganized and inefficient bus companies and operators to restructure and form partnerships in order to bid.

Project Owner: National Government of Colombia and the District of Bogota.

Scope: The implementation has four phases. The first phase of 42km was completed in 2000. Phase II provides additional busways completed in 2015. Phase II and Phase III contracts commenced on June 17, 2008. The system consists of dedicated bus routes, large-capacity buses and elevated bus stations. TransMilenio developed an integrated fare system that allows free transfers.

Funding & Repayment: The national government has provided 64% of the total investment costs and the District of Bogotá has contributed the remaining 36%. Total costs are estimated at US $2.2 billion. The total cost of Phase 1 was US $240 million, funded by a local 46% fuel surcharge, general local revenues, grants from the National Government (20%), and a loan from the World Bank (6%). The total cost of Phase 2 was US $545 million, with 66% financed by the national government. The higher cost of phase 2 was primarily due to increased investment in public spaces (bridges, interchanges, etc.) and associated transportation infrastructure improvements.

In order to ensure continual funding to monitor and maintain the control system, TransMilenio S.A. receives 4% of the system's revenues from the collection trip selling and secondary activities, such as advertising at stations. Fares collected by the private concession holder are deposited in a trust fund on a daily basis. It is designed to recover one hundred percent of its operational costs through passenger fares. Since it is privately operated, any increase in revenue from expanded ridership goes directly to the operators. Likewise, if costs increase while demand declines, the private operator is required to cover the risks and loses.

Contract Management: The contract assigns a non-exclusive concession to the Licensee for public automotive terrestrial mass transport service in the city of Bogota, Colombia and its suburbs, through the Transmilenio System roads and related services at the respective bus stations which make part or will eventually make part of the Transmilenio System. Through this contract, the Licensee receives a concession of an assigned zone of Transmilenio System infrastructure over which the Licensee commits a fleet of vehicles and the requisite technical support to operate the system.

For this, the Licensee must contribute to the system a fleet of vehicles of its own property, with particular characteristics, and commits to the operation and maintenance of such vehicles. The vehicles remain property of the Licensee and are not included in the category of goods that revert back to Transmilenio S.A. at the end of the contract. The contract ends when the fleet of vehicles of the Licensee has reached an average of 850,000 kilometers.

For sea transportation, sea ports are some of the most earliest example of PPP infrastructure projects in Indonesia. Hutchinson Whampoa was granted the concession in 1995 to rehabilitate the Koja Container Terminal for 20 years (ADB, 2013). Challenges both in terms of capacity and regulatory constraints to structure internationally bankable projects still persists for sea ports and presents a wealth of lessons learnt (See Section 3.2.3).

An illustrative depiction of the prevalent transport sector models involving private sector participation, is provided for in the figure below - as well as the typical risk transfer contemplated under each model[24].

[24] Global Infrastructure Hub. "Managing PPP Contracts After Financial Close." 2018.

Figure 2-3 Internationally recognized models for transport sector PPPs, per World Bank PPIAF.

Contract type	Who bears the risk?		
	Cost	Revenue	Investment
Management	Authority	Authority	Authority
Gross cost	Developer	Authority	Authority or Developer
Net cost (lease)	Developer	Developer	Authority or Developer

2.3.2 Lessons Learned

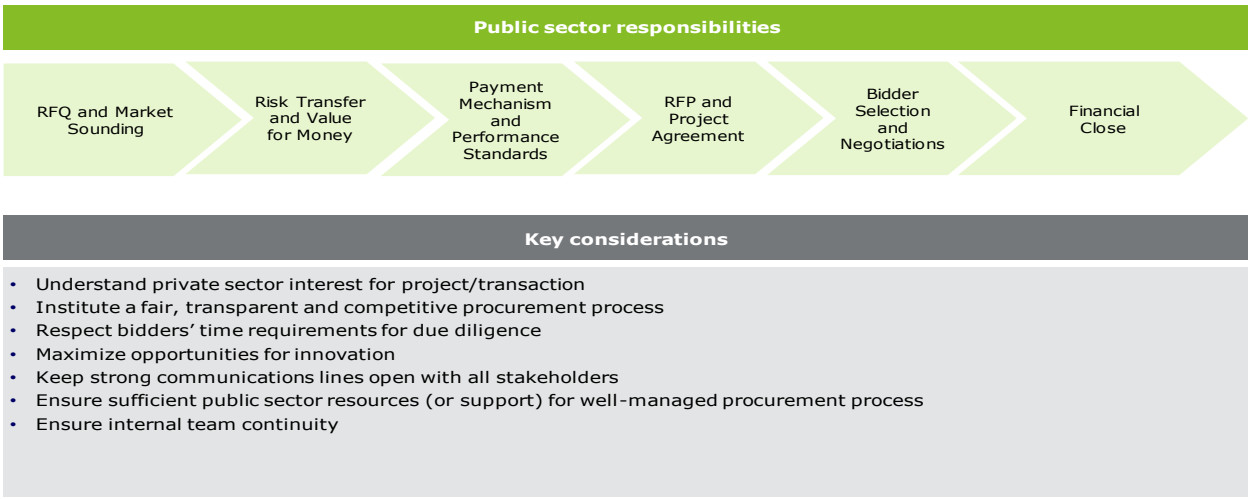
From the implementation and consequent monitoring of the above-mentioned PPP models in the transport sector - spanning case studies in the UK and Jordan - the following takeaways should be noted for good practice.

- Docklands Light Railway O&M PPP in the UK
    - Contract mechanisms to accommodate evolution and scope increase: this particular transit system has undergone four line extensions between 1999 and 2011. Retaining the same operations and maintenance entity during roughly the same period under largely the initial PPP framework during this period is no easy feat - and conveys the strength of its contractual mechanisms allowing for scope increases. Project Co would work with the project owner before, during and after the procurements of these separate BOT PPPs that delivered these line extensions - to ascertain the O&M requirements in terms of additional scope and potential interface requirements.
- Ottawa Light Rail Transit Stage 1 in Canada
    - Early and continuous involvement of the system operator, in the DBFM context: The operator's role in shaping the systems service levels, customer interface and experience, vehicles, operational specification and safety were critical to the success of the project. The operational presence of the government operator should be encouraged from the start of the process. This is specifically important for transport projects where extensions to the newly contracted system are possible, or the newly contracted system connects to an existing system.
- Queen Alia International Airport PPP in Jordan
    - Early involvement of the right stakeholders: as aforementioned this contract underwent significant renegotiations before construction was complete. This is particularly salient given that the Queen Alia International Airport was an already-operating airport - thus in theory the end users would not be difficult to identify and consult. The flaws in the initial design resulted in significant delays and added costs to the project, which could potentially have been avoided based on more fulsome and detailed consultation with airlines, retailers, and passengers.

2.4 Procurement Management

The public sector has a crucial role to play in the procurement process, with the project owner and its central agency stakeholders being responsible for selecting the private partner to enter into the PPP contract. A number of critical success factors for the public sector to consider during the procurement phase of the PPP lifecycle are provided in the figure below.

Figure 2-4 Critical Success Factor Consideration during the Procurement Phase of PPP Lifecycle



Using the Canadian PPP market as reference, there are a number of foundational principles for government project owners and policymakers to follow or consider in the design and implementation of a robust procurement process.

- Transparency: project objectives should be explicit, with evaluation criteria well-defined. Bidders and other stakeholders should understand the procurement process, and the basis for evaluations and project award.
- Robust & Fair: the procurement process should be resilient to problems encountered during procurement, and should allow for a level playing field with all bidders.
- Cost-effective and timely: the cost and duration of the bid should be commensurate with the potential rewards of winning. Best efforts should be made to follow the procurement schedule.
- Efficient financial close process: bidders are generally required to provide RFP submissions (against a final version of the Project Agreement) with committed financing. This in turn allows for an effective financial close period, of ~ three months in duration.

There are a number of mechanisms available for project owners to follow these principles, as provided below.

Independent Oversight

A competitive and transparent PPP procurement can benefit from the presence of a fairness monitor. The fairness monitor serves as an objective third party who observes, reports on, and where applicable advises in-situ on the impartiality of the procurement process. The involvement of this entity grants bidders and taxpayers confidence that the procurement is being conducted in a fair manner that serves public interest.

The fairness monitor remains active throughout the procurement process and focuses on ensuring project owner's communications are clear, unbiased and based on actual requirements; ensuring transparency and equal access to information while not breaching bounds of confidentiality; and overall ensuring the procurement and evaluation process is executed in a way that is consistent with the documented plan and generally adheres to best practices.

Information Sharing & Protection

A competitive and efficient PPP procurement process will involve the two-way conveyance of project and bidder-specific information and data. Communications between different members of the project owner - including parties such as the local government; funding and oversight agencies; legal, commercial and technical advisors - particularly when it comes to sharing documents that require multiple and sometimes concurrent layers of review and edits also require a confidential, centralized and expedient repository. The standard practice in Canada, is for the project owner team to establish an electronic data room. This data room is hosted on a secure website, with levels of access (i.e. there will be folders available to different stakeholders, be they on the public or private side) to be designed and determined by the project owner. This data room therefore represents the sole place where project documents can be accessed, and both (i) centralizes all formal communication throughout the process; and (ii) ensures confidentiality in the information being provided by all parties.

Public-Private Interactions (RFIs & CCMs)

In supplement to the electronic data room, it is standard practice in Canada to provide confidential and transparent avenues for bidders to interact with the project owner. These avenues inherently provide greater opportunity for bidders to develop optimal solutions for the project, and be as responsive to the project owner's requirements and needs.

A continuous way this is governed and promoted throughout the procurement process - is through the Request for Information ('RFI') channel. This allows bidders to ask clarification questions to the project owner. Canadian practice typically promotes the use of the electronic data room to host both the questions, as well as the responses - which are available for access by all bidders. The data room will stipulate a format within which bidders will pose their questions - one of which will ask the bidder to specify whether they consider a particular question to be confidential.

Competitive procurement processes also provide an opportunity for face-to-face, one-on-one interaction between each bidder and the project owner. Canadian best practice governs and promotes the use of **Commercially Confidential Meetings** ('CCMs') - during which the project owner can provide their position on the rationale behind the project requirements; bidders can seek detailed answers to questions on bid compliance and better understand requirements; and bidders can posit potential changes to the project requirements and rationale therein.

Typically the dates for Commercially Confidential Meetings (subject to updates) will be set out in the draft RFP. The RFP may further define that within a certain number of business days prior to, each bidder must provide to the project owner their desired and customized agenda and accompanying materials. Proponents typically will prepare a presentation - to be submitted via the electronic data room - prioritized topics for discussion as well as specific questions, and if applicable suggestions for changes to requirements. The project owner will likewise have prepared a presentation - uniform across all bidders - covering its prioritized topics for discussion. Beyond these presentations, no other information is allowed to be shared in this forum.

Evaluation of Bids

The culmination of the procurement process is the submission of bids in response to the final draft of the RFP and Project Agreement. Upon receipt, the project owner will undertake an evaluation process to determine the preferred proponent. The following elements support the rigour behind the evaluation process in a PPP procurement:

- The project owner develops an evaluation plan - including methodology, approach, and processes - for the receipt, evaluation and scoring of bidder submissions.
- Evaluators and supporting evaluation personnel must declare conflicts of interest, and must not hold any subordinate relationships to any entities or individuals belonging to any of the bidders.
- Submissions from bidders are separated into discrete packages containing technical content and financial content, with some jurisdictions practicing staggered evaluation (i.e. technical evaluations completed prior to opening of financial packages).

Efficient Path to Financial Close

What distinguishes the Canadian PPP procurement process from other jurisdictions such as the UK, is that of a short (typically three months in duration) financial close period.

From a procurement perspective project owners balance the requirement for bidders to return the RFP submission with committed financing, with relatively light design requirements[25]. It should be noted this is only possible with a robust design development protocol, as well as experienced practitioners on both the public and private sides of the agreement.

This shortened process in turn becomes more attractive to potential lenders, who consequently are potentially more prepared to offer a strong level of commitment in support of the RFP submission.

Transport Sector Considerations

Transport sector PPPs have a number of salient considerations with respect to managing the procurement phase. Given the significant scale (i.e. capital size) and duration of these PPP contracts, the corresponding procurement can be protracted and require significant commitment on the part of the private sector.

- Take for instance, the Gautrain Rapid Rail Link concession in South Africa - a substantive undertaking that cost ~2 billion USD and a 20 year contracted period[26]. Two consortiums were competing for this bid,

[25] The implication is that detailed design work takes place during the design and construction period, post-financial close.
[26] Global Infrastructure Hub. "Managing PPP Contracts After Financial Close." 2018.

and in order to keep them both committed throughout the extended bid / negotiation period, the project owner reimbursed bidders 50% of approved bid costs. While this created opportunity for private sector to drive up bid costs, retaining a competitive bid process was seen to create value for money for the public sector.

Another salient consideration is for the government owner to specify its objectives clearly and concisely during the procurement. For transport assets, a central topic will be to clarify for the private sector the revenue risk sharing regime.

- Taking for example again, the Gautrain Rapid Rail Link concession in South Africa. The project owner provided bidders with an estimate for system revenues throughout the 20-year contract life. Bidders were asked to specify two discrete things in their submissions:
    - Desired / bid system revenues
    - Minimum revenue required by each bidder to meet contractual obligations, and meet investor return requirements

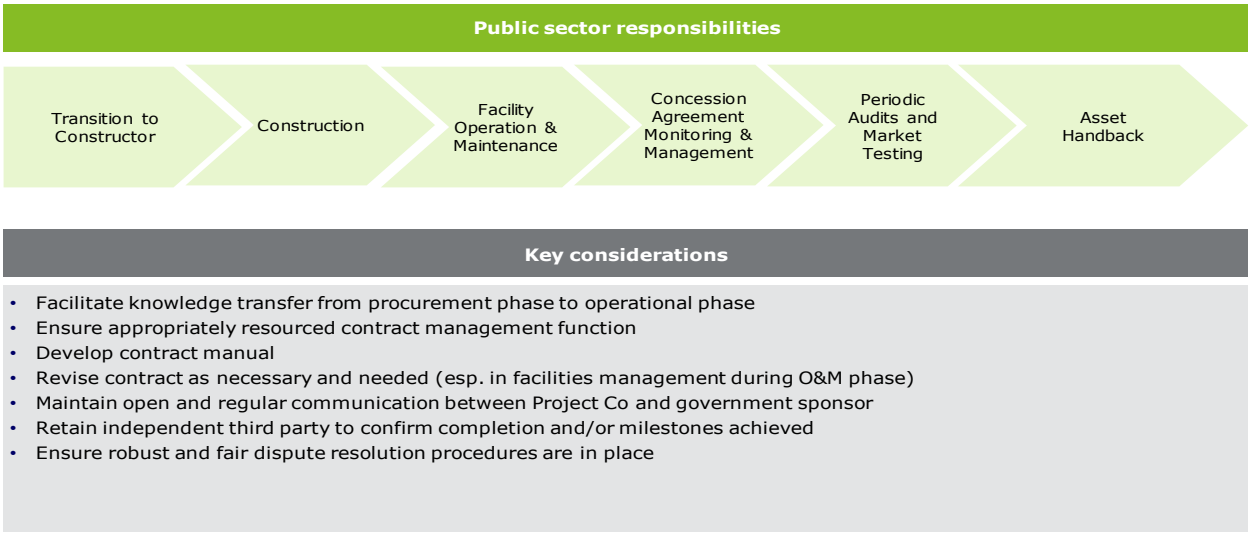
This allowed the project owner in turn to achieve its procurement objectives - namely to establish a minimum revenue level; and beyond that, to require a 50 / 50 revenue-sharing mechanism with Project Co. Project Co's required revenue levels also helped determine the basis for government operating subsidy needed by the project owner. As aforementioned for this transport sector, instituting a revenue-sharing mechanism requires rigorous analysis to ensure the demand and willingness-to-pay estimations are accurate, and that the project owners have confidence in the financial viability of the project.

Clearly setting objectives during procurement therefore helps bidders return submissions that closely adhere to public sector needs. In the case of the Gautrain project, the PPP scheme protected Project Co from any shortfalls in meeting operating costs, while still incentivizing them to maximize system ridership (and consequently the quantum of fare revenue collected).

2.5 Contract Management

Central to ensuring success of the PPP arrangement is for the public sector to maintain robust monitoring, reporting and management during the contract management phase. A number of critical success factors for public sector to consider during the contract management phase of the PPP lifecycle are provided in the figure below.

Figure 2-5 Critical Success Factor Consideration during the Contract Management Phase of PPP Lifecycle



Transport Sector Considerations

In a report providing practical guidance on managing contracts after financial close, the Global Infrastructure Hub unearths a number of salient findings using a global database of projects - with a not insignificant subset providing information around changes to the PPP post-financial close. From a database of 250 PPP projects from around the world, the transportation sector had the highest incidence of (a) renegotiation of the original PPP contract; and (b) encountering disputes based on the original PPP contract. This illustrates the practicality of ensuring proactive

contract management for PPP projects, and in particular the transportation sector. Provided below is a trio of transport PPP projects, from which best practices can be extracted with respect to prudent contract management.

- **Queen Alia International Airport Expansion, Jordan:** the central Ministry of Transport established a specialized 'Project Management Unit'. This unit played a key role in managing the risk of political and institutional changes, leveraging its central government-delegated authority and its specialized expertise to ultimately ensure continuity of knowledge and effective contract management. Another instance where this project was managed well, was that Project Co in close collaboration with the project owner established an 'Operational Readiness and Airport Transfer' team two years prior to service commencement - ultimately ensuring a smooth and successful handover.
    - *Best Practices:* an empowered, specialized unit dedicated to a complex project can mitigate potential negative financing and time-related impacts of challenges faced during contract management.
- **Gautrain Rapid Rail Link, South Africa:** in similar fashion to the Queen Alia International Airport Expansion project, this project also involved a dedicated management agency - set up to accept responsibilities originally assumed by the regional Department for Roads and Transport. This agency - along with external advisors - was able to focus wholly on this complex and large-scale project. While the project faced a number of challenges including land acquisition delays as well as disputes that went to arbitration, the project is currently operating successfully thanks to the concentrated efforts of this dedicated management agency.
    - *Best Practices:* a dedicated, focused management agency provides project knowledge continuity, and therefore has the expertise and concentrated effort to ensure project delivery stays on-track.
- **Intercity Express Programme, UK[27]:** with the central UK Department for Transport acting as the procuring authority, this project faced a number of key challenges throughout the life of the PPP contract. The designs of the trains had to be changed due to a delay in an external, interfacing infrastructure works - and this delay was somewhat mitigated by the close relationship the procuring authority had managed to build with Project Co.
    - *Best Practices:* a robust relationship using continuous communication with Project Co, allows the designated procuring authority to ameliorate major challenges during contract management, including interface risks.

2.6 International Best Practices on Risk Allocation

At the core of every PPP transaction is the identification, allocation and ongoing management of project risks. A sound understanding of the risk allocation arrangements is essential to the drafting of a successful PPP contract[28]. The robust application of risk allocation principles contributes to the PPP project fulfilling government objectives, achieving Value for Money, and becoming financially viable for the private sector.

Principles of Risk Allocation in PPPs

The fundamental principle of PPP risk allocation, is that a given risk should be allocated to the party best-suited (or best-incentivized) to bear said risk. This best-suited party is the party who is (i) best able to manage the likelihood of the risk occurring; and (ii) best able to manage the impacts if the risk does occur.

PPP project risks vary between sectors and projects. The individual characteristics of each project implicate that risk allocation should be a bespoke process (ideally building from a foundation of national, or international best practice), as opposed to using a 'one-size-fits-all' framework. From the project owner's perspective, timely inclusion of stakeholders in the risk identification, allocation and management process is important.

A typical risk analysis process will estimate the likelihood and potential impact of each risk, allowing the project owner to make an informed decision on whether the risk should be retained or transferred.

Risk allocation as an exercise, is also subject to the maturity of the PPP market in question. As a jurisdiction gains more successful experience[29] in procuring PPP projects, a greater number potential bidders will become involved creating a more competitive environment. This may allow project owners to transfer more risk to the private sector

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[27] Global Infrastructure Hub. "Managing PPP Contracts After Financial Close." 2018.
[28] Global Infrastructure Hub. "PPP Risk Allocation Tool 2019 Edition - Transport." 2019.
[29] It is worth noting that conditions to generating this success can include - a stable economic, legal and political environment.

Transport PPP Risk Allocation

In most jurisdictions, a light rail transit PPP are funded (in whole, or primarily) by availability payments directly from the government. Key considerations such as user willingness-to-pay usually result in the dilution of true demand risk transfer, which therefore involves government support via availability payments to the private operator. Beyond assuming revenue collection risk for passenger fare, other elements of commercial generation for the private operator include station retail, advertising and other facilities.

As aforementioned a specific project's individual characteristics and context must be integrated into the risk allocation exercise. What is provided are common risks for the design, build, finance, operation, maintenance and transfer of a new PPP light rail project[30]. A discussion of the key risks for transport (with a primary focus on light rail projects) PPPs is provided below[31].

- Land acquisition and site risk. Obtaining the (comparative to vertical infrastructures) substantive land and rights-of-way is a risk commonly assumed by the project owner. Site risk - to the extent accurate and fulsome due diligence can be undertaken - can be transferred to the private operator.
- Availability. While availability risk is typically borne by the private operator, the interconnectivity of transport asset class implies there may be shared elements (e.g. third-party damage to the light rail network).
- Demand / revenue. If allocated as such, the private operator will be responsible for fare collection and the underlying demand projections. As aforementioned, the project owner will typically be diluting this risk by providing minimum revenue or usage guarantees. The PPP contract may also include compensatory mechanisms if higher than anticipated usage causes increased maintenance costs.
- Construction and operation commencement. The private operatory typically bears the risk of construction cost and time overruns. Operations commencement is similarly a key risk (i.e. particularly given the difficult terrain that horizontal infrastructure must manage, and wherein design involves tunneling and bridges), and is typically managed by the private operator.
- Environmental and Social. The private operator bears risk of obtaining and complying with environmental consents, but there is shared risk from exogenous events as well as changes in approach from permitting authorities. The project owner bears the social risk of the project's impact to the local community, while the private operator bears the risk of failing to execute on planned social management measures.
- Staggered Operations. Although a single operation commencement regime is more common, in some contexts the project owner's priority may be to complete critical components and commence operations, prior to the entire project being completed. A multi-phased operations commencement process implicates milestone payments during construction (i.e. compensation to match a significant component being substantially completed). This process does increase complexity of the construction program, limit ability to mitigate construction delays - which raises the risk profile for the private operator.

A summary table containing the suggested risk allocations / risk sharing between project owner and the private operator, in context of a light rail network PPP, is provided below.[32][33]

Table 2-1 Suggested Risk Allocation

Risk Category	**Description**	**Suggested Risk Allocation**		
		Public	**Shared**	**Private**
1. Site risk	Risks associated with project land, as well as site conditions.	√	√	√
2. Design, construction and	Risks associated with project design, construction and commissioning.		√	√

[30] The scope notably excludes the provision of rolling stock, but may include the provision of associated infrastructure (including tunneling, interconnection with other transit nodes, and station / stops).
[31] Global Infrastructure Hub. "PPP Risk Allocation Tool 2019 Edition - Transport." 2019.
[32] Global Infrastructure Hub. "PPP Risk Allocation Tool 2019 Edition - Transport." 2019.
[33] Guidance from the Global Infrastructure Hub's international best practices, has been adapted (i.e. in terms of risk categorization) to align with the Indonesia Infrastructure Guarantee Fund's categories - for purposes of comparative analysis.

Risk Category	Description	Suggested Risk Allocation		
		Public	Shared	Private
commissioning risk				
3. Sponsor risk	Risks associated with the private operator and/or its sub-contractors' fulfilment of contractual obligations.		√	√
4. Financial risk	Risks associated with financial viability of the project.		√	
5. Operating risk	Risks associated with performance in the operations phase.		√	√
6. Revenue risk	Risks associated with demand and consequent implications to revenue available for the private operator.	√	√	√
7. Network connectivity risk	Risks associated with government-controlled elements interrupting private operator's ability to perform.	√		
8. Interface risk	Risks associated with delivery from either partner frustrating the delivery the other's ability to perform.			
9. Political risk	Risks associated with government action that materially and adversely impacting the project and the private operator.	√		
10. Force majeure risk	Risks associated with events wholly outside the control of either partner.		√	
11. Asset ownership risk	Risks associated with the economic value of the asset deteriorating during or at the end of the contracted term.		√	√

1. Site risk.

    a. Land availability, access, site. This sub-category refers to the selection and acquisition of the land, obtaining necessary approvals, as well as site access and condition.

    - Public Risks: Prevalent practice is for the project owner to select the transport corridor, and to bear land / site acquisition risk, based on the fact that government holds legal authority to acquire land from property owners (including indigenous groups). For parts of the site where detailed geotechnical due diligence has not been conducted prior to award, the risk is retained by the project owner - which can be a major risk given the length and nature of these horizontal transport projects. Another key risk specific to transport, is that of ensuring users can access the new transport link via the existing transport network. In all cases - and especially important in PPPs where the private operator assumes demand risk - the project owner bears this responsibility.
    - Private Risks: The private operator may have to rely on the project owner's provision of information relating to site acquisition and condition (e.g. right-of-way, covenants affecting use or disposal, encroachment issues) - to price in certain risks during the bidding (procurement) process. The private operator assumes risk - by way of indicating the suitability and sufficiency of the land / site in the design and construction plan. Site security during construction is a private operator risk. To the extent the accurate data on the condition of existing assets are shared with the private operator, they can usually bear the corresponding risk.

- Shared Risks: Responsibility for utility relocation / access is typically shared, mainly due to lack of data which makes it difficult for the private operator to credibly assess and price in.

b. Social. This sub-category refers to the affected peoples, impact on adjacent properties, resettlement, indigenous land rights, and industrial action.

- Public Risks: The project owner is responsible for carrying out social impact studies to mitigate adverse effects, and is furthermore responsible for carrying out active stakeholder engagement from project conception all the way through to construction and operations. Any resettlement activities which can be extensive given the geographic spread of the transport asset class, (i.e. removal of housing and/or businesses, paired with compensation as well as relocation of the same) is typically a project owner responsibility.
- Private Risks: The private operator is responsible for non-compliance with any contractual and legal social risk obligations.
- Shared Risks: Labour disputes and strike action may be a shared risk, depending on the political stability of the jurisdiction.

c. Environmental. This sub-category refers to environmental conditions, approvals, events, and climate change.

- Public Risks: The project owner is responsible for pre-existing environmental conditions on the site. If exogenous environmental events are caused by government, the project owner is responsible.
- Private Risks: In the execution of the project (i.e. construction and operations), the private operator is responsible for complying with all applicable environmental laws, and any environmental obligations set forth in the contract (likely via adoption of internationally recognized standards). While the project owner will review the robustness of the environmental plans, the private operator is ultimately responsible for environmental events caused by the project.
- Shared Risks: Given the long gestation of most approvals in this aspect, to the extent possible the project owner should strive to obtain or initiate environmental authorizations. At a specified point in time, the private operator can take over the risks related to obtaining more detailed environmental permits and licenses. Both partners share the risk of exogenous (non-government) environmental events. A growing challenge - and a shared risk - to integrate in planning for major capital projects is climate change, and how the same might be mitigated through resilience design, construction and rehabilitation.

2. Design, construction and commissioning risk.

a. Design. This sub-category refers to design suitability, approvals, and changes.

- Public Risks: The project owner should aim to transfer design risk, but the extent to which this is possible depends on how the design requirements are specified in the tender documentation. If a performance specification is too prescriptive (e.g. required route corridor or track gauge constrains design efficiency or range of compatible rolling stock), the extent to which the project owner can wholly transfer said risk is consequently constrained.
- Private Risks: Fundamentally the private operator should assume design suitability risk, but the degree to which depends on the specifications as requested by the project owner. Ideally the specifications are output driven, allowing the private operator room to innovate while meeting minimum standards.
- Shared Risks: The project owner should ideally steer project design using output specifications and engaging in iterative dialogue, but should ensure risk is assumed by the private operator. In instances where the project owner is wholly prescriptive in specifying design, this risk will be retained. Changes to the design after the PPP contract is executed as a risk item, is dependent on the origin of the change (e.g. a private operator risk if the design is deficient; and a project owner risk if changes are requested by the same).

b. Construction. This sub-category refers to cost overruns, delays project management, defects, and other items related to construction.

- Public Risks: n/a.
- Private Risks: The private operator is responsible for construction cost overruns, construction defects, construction delays, vandalism, intellectual property, project management risks, health and safety compliance, and interface with other works and facilities (with exception to works that are the responsibility of the project owner). Completion of the construction phase for this asset class is a key risk (i.e. light rail projects require complex commissioning and testing regimes to ensure power systems, signalling systems and the wider system will meet the necessary reliability and punctuality requirements). Following minimum insurance requirements set out in the PPP contract, the private operator will be liable for death, injury and property damage.
- Shared Risks: To the extent that regulatory standards on quality change after the PPP contract comes into effect, the risk may have to shared. The project owner could increase compensation to comply, or the private operator may be excused if the standard is not mandatory.

c. Variations. This sub-category refers to changes requested by either partner, impacting construction or operations.

- Public Risks: n/a.
- Private Risks: n/a.
- Shared Risks: The risk and cost of changes implemented following either partner's request is allocated according to the same. The project owner will need to consider how best to fund these variations (i.e. requiring private operator to procure committed but undrawn funding as a reserve account, at the expense of driving up the bid price).

3. Sponsor risk.

a. Sponsor risk. This category refers to private operator or subcontractor failure, change in private operator ownership, change in project owner's status, disputes, and permitted step-ins.

- Public Risks: Project owner bears the risk of change to its status which adversely affects the PPP (e.g. where its financial covenant and credit are adversely impacted).
- Private Risks: Failure to possess requisite financial or technical capacity, on the part of the operator as well as its subcontractors, to deliver the project is a private operator risk. The private operator's ownership composition / shareholding may be locked in for a period, and any change in ownership control will be restricted as well (a balance should be struck by project owner to retain involvement of key participants with private sector's desire to recycle their investment into other projects.
- Shared Risks: Step-in (primary concern is to provide continuity of service, or emergencies, or intervention to protect against social and environmental risks) is generally a shared risk, with allocation determined based on grounds and whether it was the private partner's fault or not.

4. Financial risk.

a. Financial risk. This category refers to changes in financial markets affecting private operator's performance.

- Public Risks: Inflation during operations is a project owner risk.
- Private Risks: Inflation during construction is a private operator risk. Refinancing risk - in terms of risk of failing to raise the required capital - is a private operator risk.

- Shared Risks: Exchange rate fluctuations are a shared risk. Between bid and financial close the private operator bears the risk. However in jurisdictions with a lot of volatility and the long-term currency swap markets are illiquid, the private operator may be ill-equipped - and instead ask for payments to be in a stable foreign currency such as USD. During project implementation the private operator will mitigate exchange risk via hedging arrangements to the extent possible. Interest rate fluctuations may be shared between the two partners if the jurisdiction has a long gestation period between bid and financial close. Insurances are typically a private operator responsibility, however there are instances where neither partner is better-suited to control risk of insurance coverage becoming expensive or unavailable. When refinancing creates additional project risks, both partners will be responsible. Potential refinancing gains should also be shared between the project owner and private operator.

5. Operating risk.
    a. Operating risk. This category refers to cost overruns, poor performance, and other events during the operations period.
        - Public Risks: The project owner has a responsibility to enforce the performance mechanism and ensure the indicators are attainable and tailored based on relevant market data.
        - Private Risks: The private operator broadly bears risk for events which inhibit performance and cause cost overruns. Uninterrupted supply of resources and performance is important to consider in the case of extreme weather conditions (e.g. winter railway clearance, monsoon flooding). Depending on the payment mechanism in the PPP contract, the private operator's poor performance and maintenance of the asset (e.g. availability of rail network and stations; as well as cleanliness of station facilities) may additionally lead to deductions in payments. The private operator generally assumes risk for ensuring a consistent and cost-effective flow of operational resources including utility provision. The private operator also assumes risk for obtaining intellectual property, health and safety compliance, and liability for death, injury and property damage.
        - Shared Risks: Certain contexts may require risks to be shared in relation to availability of utilities and local source materials - such as labour disputes, embargoes or other political risks.

6. Revenue risk.
    a. Revenue risk. This category refers to actual user levels deviating from projections, and the consequences for revenue and costs.
        - Public Risks: This sector requires significant capital expenditure with the associated operations revenue (generally the private operator will not be free to set ticket prices beyond certain levels) not being sufficient without some accompanying government subsidy. If there is high uncertainty over usage projections and uncertainty over revenues (e.g. fare limitations and/or currency volatility, the project owner may want to retain this risk.
        - Private Risks: Private operator may be asked to assume revenue risk, while also being granted some form of government subsidy. The risk assumed when demand is higher than anticipated, is an associated increase in maintenance costs. The risk assumed when demand is lower than anticipated, is financial problems for the financial operator.
        - Shared Risks: Support from the project owner may be in the form of an upfront subsidy (i.e. contributing toward capital expenditure), or a minimum revenue guarantee. Another mechanism may be to set upper and lower revenue limits, within which the private operator alone bears the risk and beyond which the risk is shared with the project owner.

7. Network connectivity risk.

    a. Network connectivity risk. This category is referenced in the discourse around demand risk in international guidance.

        - Public Risks: Demand risk in the context of transport infrastructure, will not be accepted by the private operator unless they are protected from adverse changes in conditions which impact user and revenue levels. These changes can include the construction of new, competing networks, failure by government to link to connecting infrastructure, changes to surrounding traffic and network conditions, or other macroeconomic and demographic changes.
        - Private Risks: n/a.
        - Shared Risks: n/a.

8. Interface risk.

    a. Interface connectivity risk. This category is not referenced as a major category or subcategory in global guidance.

        - Public Risks: n/a.
        - Private Risks: n/a.
        - Shared Risks: n/a.

9. Political risk.

    a. Material adverse government action. This sub-category refers to actions within public sector purview that create an adverse impact on the project or private operator.

        - Public Risks: The project owner bears the risk of government actions that impede private operator's ability to perform contractual obligations. These events include - deliberate acts such as nationalization or expropriation of the PPP, a moratorium on international payments and foreign exchange restrictions, not granting approvals or failing to ensure utility connections. The underlying principle of relief is to place the private operator into the position it had been in, prior to the adverse government action occurring. Typically in mature, politically stable markets bidders do not expect these types of actions to arise.
        - Private Risks: n/a.
        - Shared Risks: n/a.

    b. Change in law. This sub-category refers to the risk of compliance with applicable law, and changes in law affecting performance of the project.

        - Public Risks: The project owner is bears the risk for failure to enforce compliance onto third parties which cause adverse effect on the project. Generally the project owner bears the risk of unexpected changes in law which cause the private operator's performance to be restricted. In the event change in law benefits the private operator, the project owner may want to benefit from the positive financial consequences as well.
        - Private Risks: The private operator is responsible to comply with applicable laws and regulations. With a track record of a successful PPP program and an established, stable legal environment, in some cases private operators may be amenable to more risk transfer in this sub-category.
        - Shared Risks: There are ways in which the project owner can attempt to mitigate risk assumption or to share the risk. The PPP contract can allow for a monetary threshold up to which the private operator accepts change in law risk, and any amount above is borne by the project owner. Another alternative is for the private operator to assume consequences for changes in law except for laws which are discriminatory, specific (i.e. to the rail sector or to investors in railway businesses), require capital expenditure in operations.

10. Force majeure risk.

    a. Force majeure. This category refers to unexpected events beyond the control of either partner.

        - Public Risks: The project owner should consider ways to limit risk by carefully defining events that qualify for force majeure (e.g. only earthquakes above a certain magnitude). Provided the private operator made reasonable efforts to mitigate and to the extent it was not responsible, the project owner may have to provide relief to the private operator. PPP contracts may include a clause allowing for private operator to opt for termination following prolonged force majeure. The project owner may want to include an option to continue the PPP, provided the private operator is sufficiently compensated (i.e. compensation and extensions of time to reach substantial completion during construction; as well as compensation and relaxed performance standards during operations).
        - Private Risks: n/a.
        - Shared Risks: This is usually a shared risk given neither private operator nor project owner are better-suited to bear full responsibility. Typical events include armed conflict, nuclear or biological contamination, as well as discovery of species-at-risk or important artefacts. The fundamental principle is that each partner bears its own losses.

11. Asset ownership risk.

    a. Disruptive technology. This sub-category refers to new or emerging technologies that unexpectedly displaces established technology, as well as the equipment and other materials used becoming obsolescent.

        - Public Risks: The project owner risks being handed back an asset with outdated technology and materials, since it cannot require private operator in a PPP to replace technology simply because more efficient solutions are available. The project owner may want to consider contractual mechanisms to encourage the private operator to integrate new technologies or practices (i.e. new fare collection system and ticketless travel via smartphone technology).
        - Private Risks: If replacing outdated equipment or materials is not required to meet the specifications, then the private operator is not incentivized to replace the technology.
        - Shared Risks: A contractual mechanism by which to share the risk of disruptive technology, is a cost-sharing regime wherein the project owner or private operator can request technological upgrades.

    b. Early termination. This sub-category refers to the a project being terminated prior to its signed expiry.

        - Public Risks: The project owner will be concerned with a number of risks associated with early termination, including reputation, continuity of service delivery, reaching substantial completion and/or maintenance, as well as potentially retendering the project. In instances of project owner default termination, the private operator should be compensated as if the PPP had gone as planned. The project owner should ensure other mitigating mechanisms are applied to reduce the termination amount - including insurance proceeds, bank accounts, hedge break entitlements and surplus maintenance funds. Similarly in event of change in law, and other government actions proving adverse to the function of the project, the project owner will be responsible for compensating the private operator. PPP contracts typically also include an option for the project owner to terminate for convenience, for which the same compensation principles apply.
        - Private Risks: The private operator bears risk of termination for severe failures to deliver on performance - in either a technical or financial sense. Opportunities to rectify should be provided to the extent possible. The typical level of compensation expected for a private operator may be an amount equal to scheduled outstanding debt, minus applicable deductions (which are likely if default is related to performance failure).
        - Shared Risks: With the private operator losing its expected revenue stream and the project owner losing the delivery of the public service, this is a shared risk to mitigate and bear. The

fundamental legal principle in many jurisdictions is that the project owner should not be "unjustly enriched" by receiving an asset for which it has not paid the full contractual price. For instances of force majeure, the private operator will be compensated on the principles of it being neither party's fault and that the financial consequences should be shared. If the PPP was financed in a sharia-compliant manner, how ownership will be transferred following termination must also be considered.

c. Condition at handback. This sub-category refers to the project assets / land not being provided in the contractually stipulated condition at time of handback to the project owner.

- Public Risks: n/a.
- Private Risks: The private operator is contractually obligated to ensure the project asset and land are handed back to the project owner in the stipulated conditions. Typical contract mechanisms include an advanced survey of conditions and remediation as appropriate. A new light rail network would typically have an operating life beyond the PPP contract term.
- Shared Risks: n/a.

Alignment of National Guidelines[34] on PPP Risk Allocation to International Best Practice[35]

This matrix developed by the Global Infrastructure Hub is adapted to the Indonesian context by IIGF in their Risk Allocation Guidelines for PPP in Indonesia. There are only minor differences between both guidelines A comparison of the risk allocations is outlined below:

1. On Site risk, both the IIGF Risk Allocation and GI Hub agree to allocate this risk to the Public and Private sectors and allow for shared allocation.
2. On Design, construction and commissioning risk, the IIGF Risk Allocation only suggests risk be allocated to the Private sector whereas the GI HUB allocates the risk to the Private sector and allows for shared allocation only when output specifications are prescriptive.
3. On Sponsor risk, the IIGF Risk Allocation suggests risk be allocated to the Private sector whereas the GI HUB allocates the risk to the Private sector and allows for shared allocation.
4. On Financial risk, the IIGF Risk Allocation suggests risk be allocated to the Public and Private sectors whereas the GI HUB only allows for shared allocation.
5. On Operating risk, the IIGF Risk Allocation suggests risk be allocated to the Pubic and Private sectors whereas the GI HUB allocates the risk to the Private sector and allows for shared allocation.
6. On Revenue risk, the IIGF Risk Allocation suggests risk be allocated to the Pubic and Private sectors whereas the GI HUB allocates the risk to the Public and Private sectors and also allows for shared allocation.
7. On Network connectivity risk, both IIGF Risk Allocation and GI-Hub agree that risk be allocated to the Pubic sector.
8. On Interface risk, the IIGF Risk Allocation suggests risk be allocated to the Public and Private sectors whereas the GI HUB does not identify this risk category.
9. On Poitical risk, the IIGF Risk Allocation only suggests risk be allocated to the Public and Private sectors whereas the GI HUB allocates the risk to the Public sector.
10. On Force Majeure risk, the IIGF Risk Allocation only suggests risk be shared whereas the GI HUB allows for shared allocation.
11. On Asset ownership risk, the IIGF Risk Allocation only suggests risk be allocated to the Private sector whereas the GI HUB allows for shared allocation and allocation to the Private sector.

Irrespective of the guidenance provided by IIGF or GI Hub, it is essential that risk allocation is assessed and determined on a project by project basis.

[34] Indonesia Infrastructure Guarantee Fund. "Risk Allocation Guideline: PPP in Indonesia." 2019.
[35] Global Infrastructure Hub. "PPP Risk Allocation Tool 2019 Edition - Transport." 2019.

3 Regulatory and Legal Basis

3.1 Review of National Development Plan

Transport development strategy is directed by specific laws on roads, land transport, rail transport, sea transport and air transport. Under the law, each sub-sector must develop a master plan to direct development strategy. Usually, masterplans begin at the national level then local government will follow suit. This approach is inevitable given the decentralized nature of the government. At the moment, the MoT is developing regulation for the entire transportation system excluding road and highways sector, with the goal to improve integration and connectivity of all modes of transportation.

The masterplans are mostly silent on standards and performance indicators for the transport services it delivers and private sector participation. Masterplans vary from one sector to another. However, all masterplans seek to give clear guidance on development strategy, network systems, geographical spread of infrastructure, service hierarchy, and jurisdiction to plan, develop, operate and physical targets either in number or length. Service standards and performance indicators are regulated at the lower level to provideflexibility for the regulator. The highest regulation for performance indicators was introduced in RPJMN 2015-2019 only for urban transport sector that put measurable indicators for traffic speed and public transport modal share in the urban area.

Below is table 7, showing the gap of regulatory framework between the toll road and other transport sub-sectors. More detailed analysis of the regulatory challenges in each transport sub-sector will be given in the subsequent reports.

The target for transport infrastructure development stated in RPJMN 2015-1019 mainly focuses on physical achievement in number or length which derived from the master plan of each transport sub-sector. In 2014, MPWH issued masterplan setting out the goal that by 2025, it would have 6,220-kilometre toll roads across the nation with an estimated cost of IDR 723 trillion. In 2011, the railway sector masterplan stated a target of 12.000 km railroads nationwide by 2030, costing IDR 605 trillion. In 2016, the national ports masterplan prepared for 340 commercial public ports consisting of 30 hub ports, 185 feeder ports, 103 regional feeder ports, and 22 local feeder ports by 2030. In 2016, the national airports' master plan set out to develop 299 airports across the nation by 2030.

Table 3-1 Transport Infrastructure Targets, Estimated Costs, and Target Completion Year, By Sector

No	Sub Sector	Target	Estimated Cost (IDR trillion)	Target Completion Year
1	National roads	11,483 km	n.a.	2030
2	Toll roads	6,220 km	720*	2025
3	Airports	299	n.a.	2030
4	Seaports	340	n.a.	2030
5	Rail	12,000 km	605**	2030
6	Urban Transport	29 BRT and 6+17 transit	173*	2019

At the local level, this target is detailed in the local midterm development plan ,RPJMD. Though the plan refers to the one national government has, in most of the case the local government has their own aspiration and constraints to integrate planning with the one at the national level. Due to decentralization, there is a division of jurisdiction to regulate and govern all transport sub-sector among central and local government.

In term of private sector participation, some sector masterplans have explicitly provided guidance on a strategy to attract participation in infrastructure development, such as toll roads, sea transport, and railroads. Particularly for the railroad, the masterplan explicitly encourages private sector participation along with local government. However, this affirmative policy remains a high-level agenda and details of implementation are not yet available.

Table 3-2 Guidance for Private Sector Participation in Transport Sector Masterplans

No	Sub-Sector	Private Participation in the Development Strategy
1	Roads	National Road Masterplan The masterplan still silent about the private sector participation. However, the DGH is start preparing PPP project for national road under Availability Payment scheme,
2	Toll roads	National Toll road Masterplan The PPP book issued by BPTJ has indicate infrastructures offers for PPP project
3	Ports	National Ports Masterplan (year. 2016) Private company (perseroan) is eligible as port operator.
4	Railroads	National Railway Masterplan (year. 2011) The masterplan explicitly provide opportunity for private sector to participate in the rail infrastructure development "The implementation of an independent and competitive national railway, applies the principles of good governance and is supported by superior human resources, a strong industry, a conducive investment climate, strong funding by involving the private sector"
5	Airports	National Airports Masterplan (year. 2016) Private company (perseroan) is eligible as airport operator "An airport corporation owned by a state-owned enterprise, a regionally-owned business entity, or an Indonesian legal entity in the form of a limited liability company or cooperative whose main activities are operating airports for public services"
6	Urban Transport	There is no long term national masterplan for urban transport infrastructure development, only target in the RPJMN 2015-2019 for Urban Transport sector

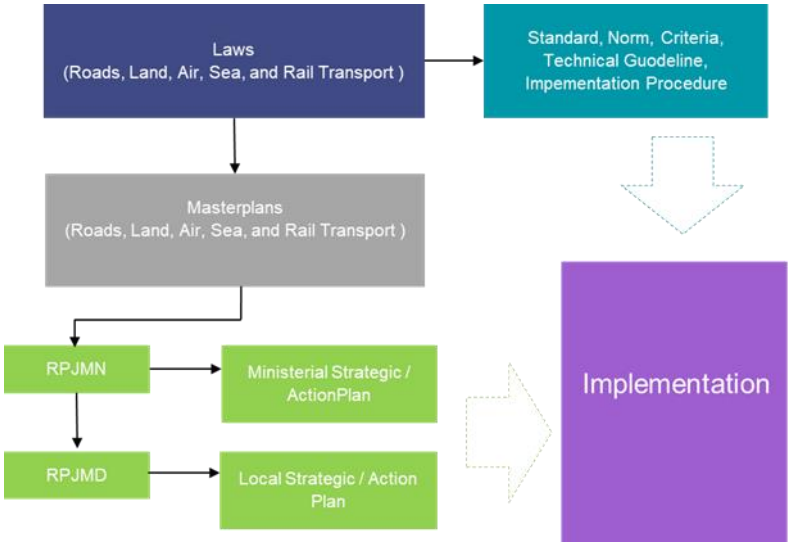
3.2 Policy and Sector Strategy

According to long-term and mid-term development planning for 2000-2025 written in RPJP and RPJMN, transport infrastructure development aims to improve national integration, enable regional economic growth, improve global connectivity, and reduce high economic cost.

The execution of the transport policy is guided by lower regulation in more detail. The relevant ministries develop specific regulations on standard, norm, criteria, technical guideline, and implementation procedure. For the purpose of budget allocation, the midterm development plan (RPJMN/RPJMD) and sector masterplan (Rencana Induk) are detailed in the strategic plan (Renstra) which become a guideline to develop annual work plan (Renja) for transport infrastructure development and budget allocation.

Policy in transport infrastructure development is mainly guided by RPJMN and a sector masterplan that puts physical target with service performance indicators that vary from sector to sector. One important notion for transport sector is that to be effective and efficient, transport service should be well integrated both with the economic activity its serves (industry, agriculture, service, tourism) and with each other. Though each transport policy and masterplan provides a statement on transport service integration within an inter mode, there is no clear guidance for successful implementation. Therefore, infrastructure developments are executed in a silo with little integration among modes of transport.

Figure 3-1 Regulatory Framework for Transport Infrastructure Development



Development strategy of transport infrastructures mainly follows direction written in the master plan. Attempts to improve national connectivity started in 2013 when the government issued The Acceleration and Expansion of Economic Development Masterplan (MP3EI), aiming to divide Indonesia into six economic corridors connected with developed transport infrastructure. The strategy was then adopted in the RPJMN 2015-2019 and the revision of sector masterplan after 2015. Hence, terms maritime highway, national air bridge, Trans Sumatera railway, Trans Kalimantan toll roads started to appear. As the strategy set a much higher target, government commitment to attract the private sector in the transport infrastructure has become stronger than ever before.

3.2.1 Airport Sector

1. Regulatory Framework

Table 3-3 List of Relevant Regulation in Airport Sector

Sector	Relevant Regulation
Airports	Law No. 1 of 2009 on Air Transportation Government Regulation No. 70 of 2001 on Airports Government Regulation No. 40 of 2012 on Airport Construction and Environment Preservation MoT Regulation 56/2015 on Airport Business Activity as amended by MoT Regulation 187/2015 MoT Regulation 193/2015 on Concession and Other Forms of Cooperation between Government and Business Entity on Airport Services

2. The Determination of GCA

The determination of GCA in airport sector must refers to the prevailing laws and regulation by analyzing authority of the key stakeholders. According to Law 1/2009, the Minister of Transport has the strategic role and authority in airport sector. The following are the roles and authorities of Minister of Transport in airport sector:

- Determine National Airport Order;
- Determine Airport Location;
- Determine Feasibility Certificate of Airport Facility;
- Issue Airport Personnel Certificate;
- Determine Airport Building Permit;

Specifically, Article Art 7(2) & 7(3) MOT Regulation 58/2018 clearly regulate that The Minister of Transport is the GCA for any project in transport sector. Further, The Minister of Transport may delegate the Authority to relevant Director General (i.e. Director General of Civil Aviation for airport project). Therefore, based on the authorities of Minister of Transport above under Law 1/2009 and current prevailing regulations, the Government Contracting Agency (GCA) is Minister of Transport or Director General of Civil Aviation.

3. Scope of Work of PPP Airport Business

According to Law 1/2009, the operation of the airport consist of two types, which are airport services and airport-related services. The airport services consist of:

- Facilities for landing service takeoff activities, maneuver, parking, and aircraft storage;
- Facilities for electronic, electricity, water, and waste disposal;
- Facilities for transportation services passengers, cargo, and post;
- Land for buildings, fields, and industries as well as buildings that are related to air transport;

Moreover, airport-related services consist of:

- Relevant services to support aircraft operation services at airports;
- Relevant services to support passenger and goods service activities;
- Relevant services to provide added value for airport operations.

Further, there are no regulations in Airport sector that limit the scopes of work that may be carried out with PPP scheme. Thus, all of the above scopes are eligible to be implemented through PPP scheme.

4. Foreign Investment

The transportation sector is strictly regulated for foreign investment as stipulated in PR No. 44/ 2016 on Negative Investment List (known for Daftar Negatif Investasi/ DNI). Many transport infrastructures are included in the negative investment register with maximum foreign ownership of 49%, including airport sector.

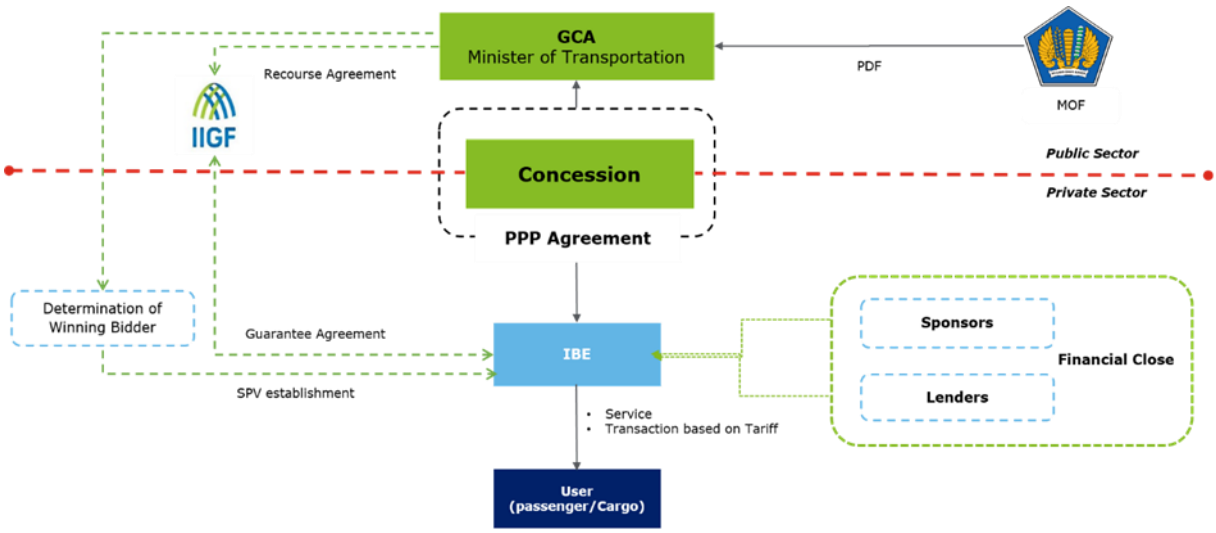
Table 3-4 List of Standard Business Field Classification in Airport Sector Limited by PR 44/2016

No	Business Field	Standard Classification of Indonesian Business Fields (KBLI)	Requirement
1	Airport Service	52230	Maximum Foreign Investment of 49 percent
2	Airport Service Related	52230	Maximum Foreign Investment of 67 percent
3	Other Building Construction	41019	No requirement for shares ownership

5. PPP Project Structure

The following is current practice of Airport PPP project structure:

Figure 3-2 Airport PPP Project Structure



Typically, the transaction will be implemented based on the following structure:

- Phase I: GCA will conduct procurement of IBE based on LKPP Regulation 29/2018 and determine the winning bidder. The participant may be in the form of foreign entity or Indonesian business entity.
- Phase II: The winning bidder shall establish IBE. The ownership modality structure of IBE shall comply with the provision of foreign shareholding limitation, as applicable.
- Phase III: IBE and GCA sign PPP and Guarantee agreement, while GCA and IIGF sign Recourse Agreement.
- Phase IV: IBE shall secure debt financing needed to finance the project (Financial Close).
- Phase V: IBE may sign EPC, Supply, O&M Contract with third party (if necessary)
- Phase VI: IBE shall implement the project based on the PPP Agreement.
- Phase VII: IBE shall return the asset and the project to GCA after the end of concession/cooperation period.

3.2.2 Railway Sector

1. Regulatory Framework

Table 3-5 List of Relevant Regulation in Railway Sector

Sector	Relevant Regulations
Railways	Law No. 23 of 2007 on Railways Government Regulation No. 56 of 2009 on Implementation of Railways as amended by Government Regulation No. 6 of 2017 Government Regulation 72 of 2009 on Railway Traffic and Transportation as amended by Government Regulation No. 61 of 2016 MoT Regulation No. 66 of 2013 on Railways Operation Infrastructure Permit as amended by MoT Regulation No. 21 of 2019 MoT Regulation No. 11 of 2012 on Procedure of Railway Alignment Determination

2. Determination of GCA

GCA in railway sector must be determined by analyzing authorities of the key stakeholders based on prevailing laws and regulations. Based on Law 23/2007, Minister of Transport has significant and strategic role in railway sector, as follows:

- Formulating and determining National Railway Masterplan
- Determining Railway Alignment. The Governor, Regent/Mayor may also determine railway alignment pursuant with their jurisdiction. They, however, must obtain approval from Minister of Transport beforehand
- Issuing Railway Business License
- Issuing Railway Development & Operation Licenses. The Governor, Regent/Mayor may also issue the licenses pursuant with their jurisdiction. They, however, must obtain approval from Minister of Transport beforehand

Specifically, MoT Regulation 58/2018 statesthat Minister of Transport is the GCA for any project in transportation sector. For railway projects, the said regulation gives room for Minister of Transport to delegates the authorities to act as GCA to Director General of Railways. Exclusive for Jabodetabek (Jakarta-Bogor-Depok-Tangerang-Bekasi) area, Minister of Transport through MoT Reg. 66/2016 has delegated the implementation of railway infrastructure in Jabodetabek area to Jabodetabek Transportation Management Agency (Badan Pengelola Transportasi Jabodetabek). In conclusion, based on Law 23/2007 and current applicable regulations, the GCA for railway project is Minister of Transport or Director General of Railways (if delegated). However, for railway infrastructure implementation project in Jabodetabek, the GCA role may also be held by Head of BPTJ.

3. Scope of Works

MoT Regulation 15/2016 as amended specifically

regulates what scopes of railway infrastructure and facilities implementation that may be delivered through a concession scheme or other cooperation forms, as follows:

- Construction, operation, maintenance, and/or business of new general railway infrastructure
- Operation, maintenance, and/or business of existing general railway infrastructure
- Procurement, operation, maintenance, and/or business of railway facilities
- Operation, maintenance, and/or business of train depot
- Utilization of general railway infrastructure by general/special railway implementers
- Operation, maintenance, and/or business of railway special equipment
- Management and business of train station that has been built/developed and/or operated (existing)
- Special railway that serves activities for public interest in certain circumstances
- Special railway changing status to general railway

4. Foreign Investment Limitation on Railway Sector

PR 44/2016 provides limitation on foreign shareholding in several sectors. In determining whether a sector is limited or not, it is necessary to refer to Standard Indonesian Business Field Classifications (KBLI) as regulated in BPS Regulation 95/2015 .

Table 3-6 List of Standard Business Field Classifications in Railway Sector

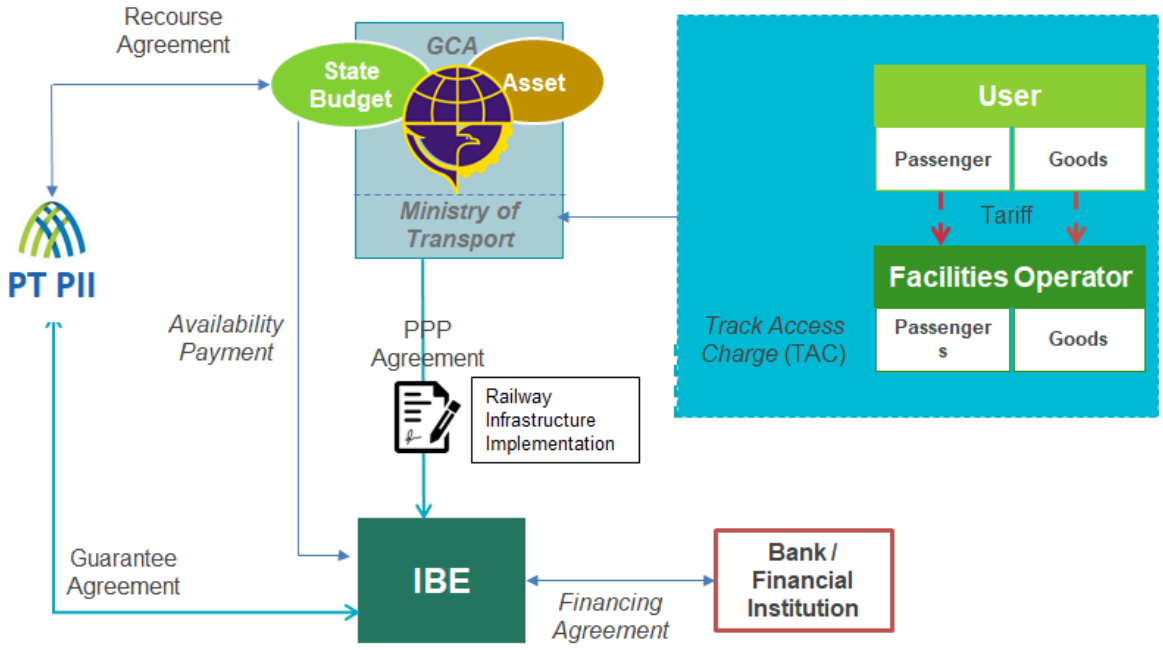
No	Business Field	Standard Classification of Indonesian Business Fields (KBLI)	Requirement
1	Development and Electrical Installation for high/extra high voltage electricity utilization	43211	Maximum 49% of foreign investment
2	Development and Electrical Installation for low/medium voltage electricity utilization	43211	Restricted for Foreign Investment
3	Operation and Maintenance of Electricity Installation	43211	Maximum 95% of foreign investment

4	Land Terminal Activity	52212	No requirement for foreign investment
5	Railway and Rail Bridge Construction	42114	No requirement for foreign investment
6	Electrical Building Construction	42213	No requirement for foreign investment

In relation with the implementation of railway services, PR 44/2016 does not specifically regulate the foreign shareholding limitation as indicated in the above table. Meaning that the above business lines may be delivered by a company fully-owned by foreign entities.

5. PPP Project Structure

Figure 3-3 Road Project Structure



Referring to the very first PPP Project in railway sector (Makassar-Parepare Railway Project), the transaction typically will be implemented based on the above structure:

- Phase I: GCA will conduct procurement of IBE based on LKPP Regulation 29/2018 and determine the winner based on the evaluation result. The winning bidder must then form a special purpose company to act as Implementing Business Entity (IBE) for the project.
- Phase II: IBE and GCA shall sign the PPP agreement and Guarantee Agreement. As for the GCA and the IIGF shall sign Recourse Agreement.
- Phase III: IBE shall secure a financing required to implement the project by entering into a financing agreement with bank or other financial institutions
- Phase IV: IBE implements the project based on the PPP Agreement
- Phase V: The railway facilities implementer must pay Track Access Charge to the railway infrastructure implementer for utilizing the railway. Please note that the current regulation only accommodates the TAC to be paid for railway that is owned by the state (not owned by private party).
- Phase VI: IBE hands over the project to the GCA after the cooperation/concession period ends.

3.2.3 Port Sector

1. Regulatory Framework

Table 3-7 List of Relevant Regulation to Any Project in the Port Sector

Sector	Relevant Regulation
Port	Law 17/2008 on Shipping GR 61/2009 on Ports as amended by Government Regulation 64/2015 GR 20/2010 Water Transportation as amended by Government Regulation 22/2011 MoT Regulation 51/2015 on Port Operation as amended by Government Regulation 146/2016 MoT Regulation 15/2015 on Concession and Any Other Cooperation between Government and Business Entity on Port Sector as amended by Government Regulation 166/2015

2. The Determination of GCA

The GCA in port sector can be determined by a analyzing the prevailing laws and regulation on the authority of the key stakeholders. Similar with port sub-sector, according to Law 17/2008, the Minister of Transport has strategic role and authority in port sub-sector. The following are the roles and authorities of Ministry of Transport:

- Determine National Port Primary Plan;
- Determine Port Location;
- Determine tariff proposal that submit to Port Authority;
- Issue Port Development Licenses (for primary port and hub port);
- Issue Port Operational Licenses (for primary port and hub port);

Similar with any transportation sub-sector, in relation with PPP aspect, Art. 7 (2) & 7(3) of MOT Reg. 58/2018 regulate that the Minister is the GCA for any project in transport sector. Further, the Minister may delegate the authority to relevant Director General (i.e. Director General of Sea Transportation for port project). Therefore, based on the authorities of Minister of Transportation above under Law 17/2008 and current prevailing regulations, the GCA in port sub-sector is Minister of Transportation or Director General of Sea Transportation.

3. Scope of Work of PPP Port Business

According to Art. 26 of MoT Regulation 51/2015, the operation of the Port consist of two types which are main of port services and the port-related services (supporting operation). The main port services consist of:

- Provision and/or services of dock ship;
- Provision and/or services of fuel refill and clean water supply;
- Provision and/or services of loading and unloading passengers and/or vehicle;
- Provision and/or services of dock on loading and unloading of goods and container;
- Provision and/or services of warehouse and landfill, loading-unloading and port equipment;
- Provision and/or terminal services of container, liquid bulk, dry bulk, and ro-ro;
- Provision and/or services of goods loading and unloading;
- Provision and/or services of distribution and goods combination;
- Provision and/or services of ship delays

Furthermore, the port-related services (supporting operation) are consisting of:

- Provision of waste shelter facilities;
- Provision of container depot;
- Provisions of warehousing;

- Service of office building cleaning and maintenance;
- Clean water and electricity installation;
- Service of raw water and oil water fulfillment;
- Provision of office for port customer use services;
- Provision of cooler warehouse facilities;
- Ship maintenance and refinement;
- Packaging and labelling;
- Container fumigation and cleaning/repair;
- Public transport from and to port;
- Waiting area for vehicle;
- Certain activity industry;
- Trade activities;
- Provisions of playground and recreation activities;
- Advertising services; and/or
- Hotel, restaurant, tourism, post and telecommunication.

In particular, MoT. Reg 15/2015 regulate the scope of port activities which can be implemented under PPP project

The scope of PPP Project in Port Activities are consist of:

- Maintenance of the existing port (has been built/developed/operated);
- Development of the new port;
- Development of the new terminal;
- TUKS which provide service for public interest;
- TUKS which change the status to public terminal;
- Special terminal which change to port;
- Maintenance of shipping line and port pool and
- Activities in the ship to ship transfer area in the waters.

Further, there are no regulations in port sub-sector that specifically regulates nor limit the scopes of work that may be carried out with PPP scheme. Thus, the abovementioned scopes of work may be implemented through PPP scheme.

4. Foreign Investment

The port sub-sector activities are limited for foreign investment based on the specific activities as stipulated in PR 44/2016. Most of port sub-sector activities are defined in various provisions, as below under PR 44/2016:

Table 3-8 List of Standard Business Field Classifications in Port Sector

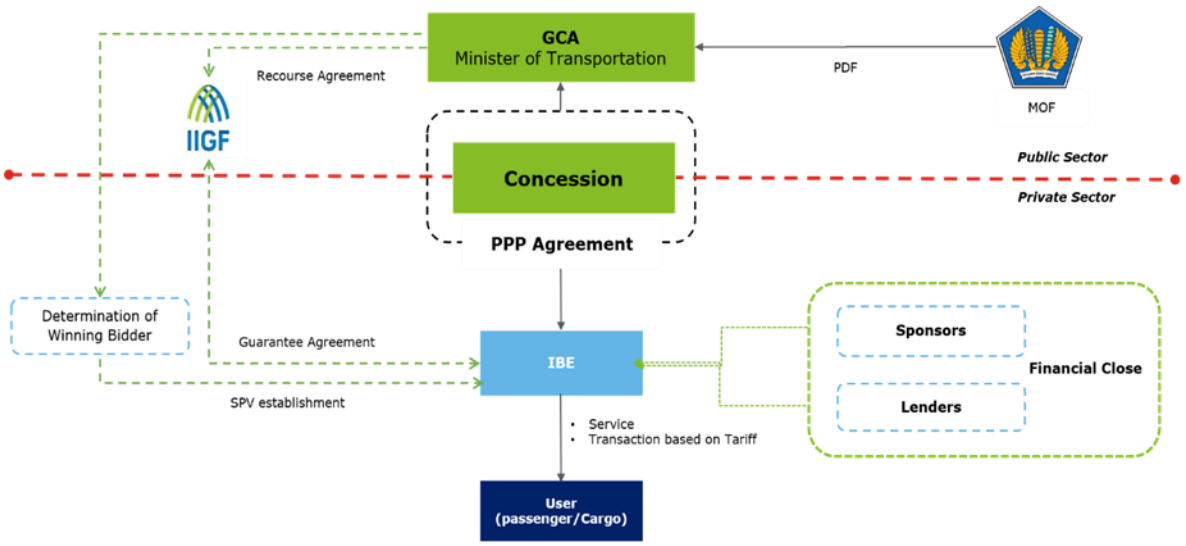
No	Business Field	Standard Classification of Indonesian Business Fields (KBLI)	Requirement
1	Sea and River Installation Navigation	43213	No requirement for Foreign Investment

No	Business Field	Standard Classification of Indonesian Business Fields (KBLI)	Requirement
2	Port Facilities Provision (Docks, Container Terminal Ships, Bulk Water Terminals, Dry Bulk Terminals, And Ro-Ro Terminals)	52221 52222 52223	Maximum Foreign Investment of 49 percent Special permission from The Ministry of Transportation related to minimum capital requirements
3	Telecommunication/Sailing Navigation and Vessel Information System	52221	Restricted for Domestic and Foreign Investment
4	Port Building Construction (Non Fishery)	42912	No requirement for Foreign Investment
5	Goods Loading and Unloading	52240	Maximum Foreign Investment of 67 percent Maximum Foreign Investment of 70 percent for ASEAN countries Only prevail on 4 (four) ports in East Indonesia that is Bitung Port, Ambon Port, Kupang Port, Sorong Port, specifically for ASEAN countries

5. Port Project Structure

The following is the common practice of Port PPP project structure:

Figure 3-4 Port PPP Project Structure



The transaction on port sub-sector will be implemented based on the following structure;

- Phase I: GCA will conduct procurement of IBE based on LKPP Regulation 29/2018 and determine the winning bidder. The participant may be in the form of foreign entity or Indonesian business entity.
- Phase II: The winning bidder shall establish IBE. The ownership modality structure of IBE shall comply with the law provision of share ownership of foreign entity (if the winning bidder or one of the members thereof is foreign entity).
- Phase III: IBE and GCA sign PPP and Guarantee agreement, while GCA and IIGF sign Recourse Agreement.

- Phase IV: IBE shal fulfill project financing needs by securing the financial close for the project.
- Phase V: IBE may sign EPC, Supply, O&M Contract with third party (if necessary)
- Phase VI: IBE shall implement the project based on the PPP Agreement.
- Phase VII: IBE shall return the asset and the project to GCA at the end of the concession/cooperation period.

3.2.4 Road & Toll Road Sector Sector

1. Regulatory Framework

Table 3-9 List of Relevant Regulation to Any Project in the Road and Toll Road Sector

Sector	Relevant Regulation
Road & Toll Road	Law 38/2014 on Road Government Regulation 34/2006 on Road Gvernment Regulation 15/2005 (as amended by Government Regulation 44/2009; Government Regulation 43/2013; Government Regulation 30/2017) on Toll Road Minister of Public Works and Housing Regulation 03/2012 on Guidelines For Determining Road Functions And Road Status Minister of Public Works and Housing Regulation 1/2012 on Community Role Guidelines In Road Management Minister of Public Works and Housing Regulation 43/2015 on Indonesia Toll Road Authority

2. Determination of GCA

a) Road

GCA in road sector must be determined by analyzing the authority of the key stakeholders based on prevailing laws and regulations. Based on Law 38/2014 and MPWH Regulation 1/2012, the authority to operate road based on status of Road (National Road, Provincial Road, District Road, City Road, and Valley Road).

Table 3-10 Road Operator Based on Road Status

Road Status	Road Operator
National Road	Ministry of Public Works and Housing
Provincial Road	Governor
District Road	Regent
City Road	Mayor
Valley Road	Regent

Based on Law 38/2014, MPWH Regulation 1/2012 and current applicable regulations, the GCA for road project is Minister of Public Works and Housing for National Road, the Governor for Provincial Road, the Regent for District Road, the Mayor for City Road, and the Regent for Valley Road.

b) Toll Road

GCA in toll road sector must be determined by analyzing the authority of the key stakeholders based on prevailing laws and regulations. Based on Law 38/2004, the operation of toll road is the authority of the Government. Scope of work of the Government to implement toll road is to regulate, develop, control, and operate/implement toll road business. Further, Law 38/2004 regulates that some of the Government's authority in the operation of toll roads is carried out by the Indonesia Toll Road Authority (“BPJT”), including the authority to implement toll road business.

Based on Law 38/2004 and current applicable regulations, the GCA for toll road project is Indonesia Toll Road Authority (“BPJT”).

Exclusive for Jabodetabek area, Minister of Transport through MoT Reg. 66/2016 has delegated, amongst others, the implementation of traffic and road transportation (including the facilities, infrastructure, and supporting facilities thereof) in Jabodetabek area to Jabodetabek Transportation Management Agency (Badan Pengelola Transportasi Jabodetabek). Meaning, for any project with the said scopes, the GCA role may also be held by Head of BPTJ.

3. Scope of Work

In terms of the implementation of PPP, Article 5 paragraph (2) (b) of PR 38/2015 regulates that one type of economic infrastructure and social infrastructure that can be cooperated with PPP schemes is road infrastructure. Road infrastructure is further elaborated based on Article 3 (b) of Bappenas Regulation 4/2015 which states that road infrastructure consists of:

- Road: Arterial Road, collector road and local road;
- Toll Road;
- Toll Bridge
- Specifically for toll road, Article 21 (3) GR 15/2005 regulates that the scope of work of toll road business are finance, technical planning, construction, operation, and maintain toll road. Further, the implementation of toll road business comprises:
- all toll road implementation which are economically and financially feasible
- operation and maintenance of toll roads built by the Government; and
- Continuing the toll road section built by the Government, and the operation and maintenance of the entire toll road

4. Foreign Investment Limitation on Road & Toll Road Sector

PR 44/2016 provides limitation on foreign shareholding in several sectors, including road and Toll Road sector. In determining whether a sector is limited or not, it is necessary to refer to Standard Indonesian Business Field Classifications (KBLI) as regulated in BPS Regulation 95/2015 as amended.

Table 3-11 List of Standard Business Field Classifications in Port Sector

No	Business Field	Standard Classification of Indonesian Business Fields (KBLI)	Requirement
1	Roadway Construction (Road &Toll Road)	42111	No requirement for Foreign Investment
2	Construction Services (Construction Implementing Services) Using Simple and Medium Technology and / or Small and Medium Risk and / or Employment Value Up to Rp 50,000,000,000	00000	Open with requirements (reserved for Micro, Small, Medium Enterprises and Cooperatives)
3	Construction Services (Construction Implementing Services) Using High Technology and / or High Risk and / or Value of Work More than IDR 50,000,000,000 (CPC 511, 512, 513, 514, 515, 516, 517 and 518)	00000	Maximum foreign investment of 67% A maximum of 70% for investors from ASEAN countries

5. Project Structure

Referring to the PPP Project in road and toll road sector, the transaction is typically implemented based on the following structure:

- Phase I: GCA will conduct procurement of IBE based on LKPP Regulation 29/2018 and determine the winner based on the evaluation result. The winning bidder then must form a special purpose company to act as Implementing Business Entity (IBE) for the project.

- Phase II: IBE and GCA shall sign the PPP agreement and Guarantee Agreement. As for the GCA and the IIGF shall sign Recourse Agreement
- Phase III: IBE shall secure a financing required to implement the project by entering into a financing agreement with bank or other financial institutions
- Phase IV: IBE implements the project based on the PPP Agreement
- Phase VI: IBE handovers the project to the GCA after the cooperation period ends.

Figure 3-5 Road Project Structure

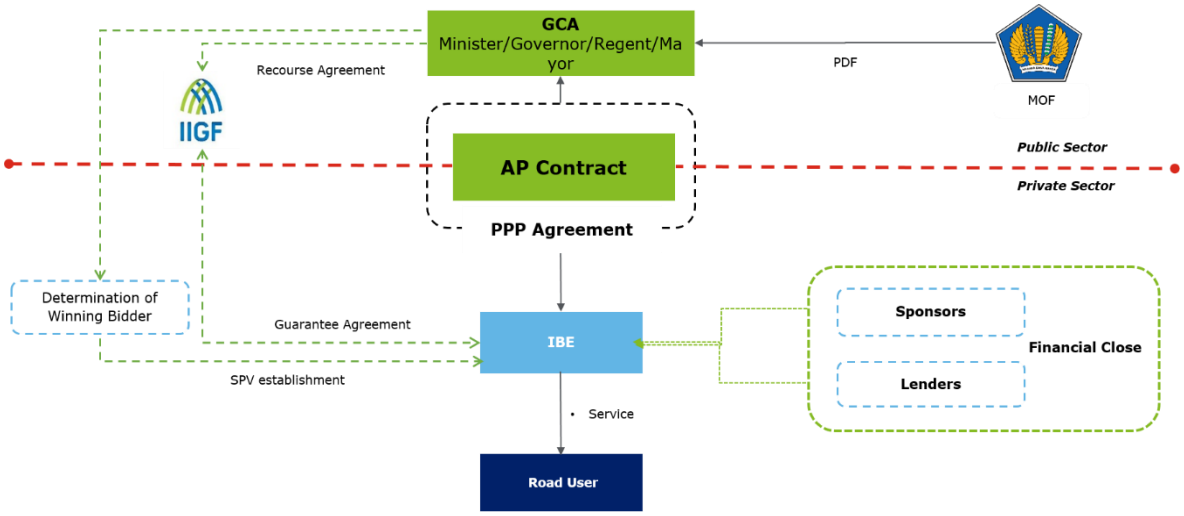
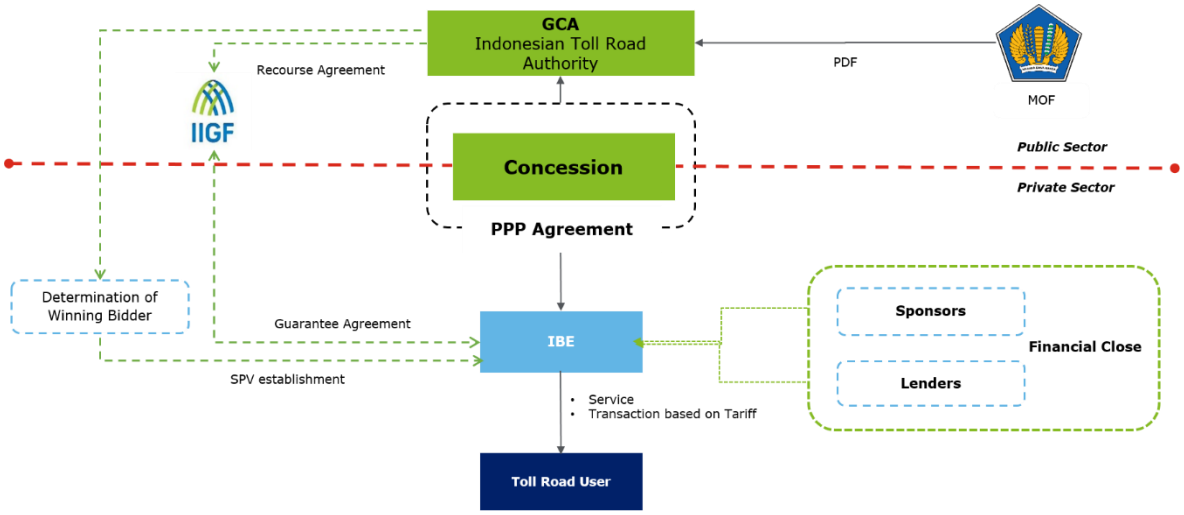


Figure 3-6 Toll Road Project Structure



3.3 Modalities

3.3.1 Modality of PPP Project in Airport Sub-Sector

Art. 235 of Law 1/2009, states that airport services can be conducted with airport services that implement based on concession and/or other forms as stated on MoT Regulation 193/2015. Furthermore, as stated on elucidation of Art. 235 of Law 1/2009, the other forms is defined such as Build Operate Own, Build Operate Transfer and contract management.

3.3.2 Modality of PPP Project in Railway Sub-Sector

There is no regulation that limits the implementation of specific modality for PPP project in railway sector. Current regulatory framework, however, might be unfavorable for the implementation of certain modality in a specific railway infrastructure project as explained below.

Based on Law 23/2007, Railway Facilities Implementer must pay track access charge to Railway Infrastructure Implementer for utilizing railway infrastructures managed by the Railway Infrastructure Implementer. MoT Reg. 62/2013 (as amended) and MoT Reg. 84/2016 (as amended), however, provide that the track access charge may only be imposed for railway infrastructures owned by the state as it will be regarded as Non-Tax State Income (PNBP). Until to date, there is no provision under prevailing regulations that enable track access charge to be imposed by private entities.

In light of the above, it is noteworthy that the only investment return for implementing business entities is Availability Payment (specifically when the private sector is required to construct new railway track) and such railway track must be registered as state assets first before it can be operated by the Railway Facilities Implementer, in order to enable the state to collect its PNBP accordingly. As a result, railway sub-sector can be foreseen to implement Build-Transfer-Operate modality until to date.

3.3.3 Modality of PPP Project in Port Sub-Sector

Based on Art. 6 of MoT Regulation 15/2015, it stated that each activities that can be cooperated between Government and Business Entity in Port sub-sector, are classified as business activities in relation to provision and/or port, passengers and goods services. However, there is no specific regulation regulates about the modality of the PPP project in Port PPP sector.

3.3.4 Modality of PPP Project in Road/Toll-Road Sub-Sector

Toll Road Sub-Sector

According to Art. 19 of GR 15/2005, toll road cultivation are consist of funding, technical planning, construction plan, operation, and/or maintenance that be conducted by Government and/or Business Entity. The toll road cultivation by Business Entity are consist of:

The scope of toll road cultivation that feasible in economically and financially (Build Operate Transfer)

According to this explanation, Business entity may implement toll road cultivation as stated in Art 19 of GR 15/2015 (funding, technical planning, construction plan, operation, and/or maintenance) (Design-Build-Operate-Maintenance)

The operation and maintenance of toll road that built by Government (Operating & Maintenance)

Operating & Maintenance (O&M) is one of the type of modalities that delegated some obligations to operate and maintain the project, while the government has a role on design, financing and construct the project. in this scheme the Government is 100% responsible for carrying out land acquisition and construction, whereas the private sector is only welcome to participate in the operation and maintenance sector.

Continue the segments of toll road that built by Government, which will operate and maintain the whole toll road segments (Supporting Design-Build-Operate-Maintenance).

Supporting-Build-Operate-Maintenance may be defined as the scheme where the Government delegates certain operation and maintenance duties to private sector to build, finance, operate and maintenance the project until a certain period of concession ends. For example, 50 kms toll road will be construct with PPP through SBOT. An assigned business entity will be in charged to construct 20 kms and Government will be in charged to construct 30 kms. However, the business entity not only in charge (operation and maintenance) for 20 km only, but also the 30 kms toll road that built by government. Then, even though the business entity only construct 20 kms of toll road, they will support the government on operation and maintenance of the whole toll road segments

Road Sub-Sector

Based on Art 1 (10) GR 34/2006, the scope of work of road operator are: regulation, development, cultivation, and controlling. Furthermore, Art 83 GR 34/2006, regulates that the scope of road cultivation included: programming and financing; technical planning; land procurement; construction implementation; operating and maintain the road. In relation with PPP in road sector, there is no specific regulation which explained about modality/scope of work of this project.

3.4 Return of Investment (Revenue Stream/Revenue Mechanism)

Article 11 of Presidential Regulation 38/2015 states that the GCA shall determine the form of investment return which covers the capital cost, operational cost and profit of the implementing business entity. Such return on investment of the Implementing Business Entity in the provision of infrastructure is sourced from Tariff, Availability Payment and other forms which are not contradictory with applicable laws and regulations.

3.4.1 Availability Payment

Availability Payment (AP) as one of types of Investment Return as stated on Art. 11 of GR 38/2015 and Art. 1 (16) of Bappenas Regulation 4/2015. Further, there are two kind of AP, which are Cetral AP (MoF Regulation 260/2016) and regional AP (MoHA 96/2016). Upon the completion of construction period and the start date of operation period. Further, Article 6 of MoF Regulation 260/2016 states that PPP agreement should consist at least:

- Output Specifications and Performance Indicator;
- Agreed formula of AP Payment; and
- The monitoring system that is effective on performance indicator.

Central Availabillity Payment (Central AP)

Central AP shall be provided to PPP projects based on the following criteria:

- Infrastructure projects which provide great economic and social benefits to the public as service user;
- The return of investment from the project does not come from the users (tariffs) or in the event the project receives revenue from user tariffs, the GCA is not allowed to use such revenue to be included in the AP for the IBE; and
- The procurement of IBE for the project shall be conducted by way of fair, open and transparent tender process, as well as by considering healthy business competition principles.

Prior to the preparation stage, in order to implement AP, MoF shall issue initial confirmation upon receiving Preliminary Study from GCA by concluding that GCA preparation to use AP in the PPP project is aligned with its objectives, criteria and principles that prevail under MoF Regulation 260/2016.

Prior to transaction preparation, MoF shall carry out final confirmation before the issuance of RfP from GCA. This final confirmation is not intended yet as an approval of GCA in order to implement AP. Simply put, final confirmation of MoF for AP Payment is intended to as GCA is ready to implement the IBE procurement. In the later stage, GCA shall attach the final confirmation in the RfP documents in order to enforce as potential lenders for bidding.

Regional Availabillity Payment (Regional AP)

Different with Central AP, Regional AP is regulated under 96/2016 that derives from Regional State Budget (APBD) as we understand that the type of return on investment for IBE in the implementation of Regional PPP may be in the form of Regional AP that is provided by respective local government.

Based on MoHA Regulation 96/2016, Regional Budget (APBD) is being allocated in each budgeting year by GCA (during cooperation period) for AP Payment upon the completion of construction period and the start date of operation period. Considering that Regional AP derives from APBD share equal nature in the agreement

Regional AP shall be provided PPP projects based on the following criteria:

- Infrastructure projects that provide great economic and social benefits to the public as service user.
- The return on investment from the project does not come from the users (tariffs).

Under MoHA Regulation 96/2016, it is noteworthy to undertake DPRD approval as the AP Payment shall burden regional budgeting. Pursuant to Art. 4 para. (3) MoHA Regulation 96/2016, DPRD shall be taken into account its approval in order to implement AP allocated by GCA.

In order to proceed, GCA shall also obtain recommendation from MoHA by submitting OBC or FBC as well as projected accounting for AP Payment.

3.4.2 User Charge

Airport User Charge

Based on Art. 243 of Law 1/2009, every airport service and related services with airports subject to tariffs according to services provided.The structure and class of airport service rates are determined by Minister of Transport. On the other hand, The tariff rates for related services at airports are determined by related service providers based on an agreement between service users and service providers

Art. 3 paragpraph (2) of MoT Regulation 36/2014 The airport service tariff consists of:

- Tariff for aircraft landing services;
- Tariff for aircraft placement services;
- Tariff for aircraft storage services;
- Tariff for aircraft passenger services ;
- Cargo and airplane postal service tariff;
- Tariff for usage check-in counter; and
- Tariff for garbarata (aviobridge) usage services.

Railway User Charge

Based on Art. 146 (1) of GR 72/2009, there are 2 types of tariff. Those types are Passenger Transport Tariff and Goods Transport Tariff:

1. **Passenger Transport Tariff**

   Passenger Transport Tariff is the service charge in certain service for public transportation railway service (Art 1.6 of MoT 17/2018). Rail Service Operator has the authorization to determine the Passenger Transport Tariff (Art. 147 of GR 72/2009).

2. **Goods Transport Tariff**

   Goods Transport Tariff is the amount of cost which stated in ton/km cost (Art 153 of GR 72/2009). For the certain Goods Transport Tariff, the determination will depend on the negotiation between the user and Rail Service Operator (Art 154 of GR 72/2009).

Ministry is the one who has the authority to established the guidelines of determination of both tariff. (Art. 146 (2) of GR 72/2009), but as of now, the guidelines who has been established is only for the Passenger Transport Tariff (on MoT 17/2018).

Table 3-12 Types of Passenger and Goods Transport Tariff

No	Passenger Transport Tariff (Art 2 (1) of MoT 17/2018)	Goods Transport Tariff (Art. 136(2) of GR 72/2009)
1.	Scheduled Rail Service	General Goods Transport
2.	Unscheduled Rail Service	Special Goods Transport
3.		Hazardous Substances Tranport
4.		Hazardous Waste Transport

Port User Charge

According to Art. 109 jo. Art 36 of Law 17/2008 and Art 2 of MoT 72 /2017 as amended by 121/2018, regulates that there are 2 types of tariff in port sector. Those types are Tariff of Port Services and Tariff of Port Related Services.

1. **Tariff of Port Service**

Tariff of Port Service is the charge for every port service held by Port Operator and Port Business Entity (BUP) (Art. 3 (1) MoT 72/2017).

Table 3-13 Regulation for Port Service Tariff

No	Law 17/2008	MoT 72/2017 (Art. 16)
1.	Tariff for Port Services which carried out by Port Authority will be determined by Port Authority	Tariff for Port Services which carried out by Port Authority will be determined through Government Regulation

No	Law 17/2008	MoT 72/2017 (Art. 16)
2.	Tariff for Port Services which carried out by Port Business Entity will be determined by Port Business Entity	Tariff for Port Services which carried out by Port Business Entity will be determined by Port Business Entity
3.	Tariff for Port Services which carried out for uncommercial purpose by Government will be determined through Government Regulation	Tariff for port service which operated by Port Operator Unit36 (formed by central government) will be determined by Government Regulation
4.	Tariff for Port Services which carried out by Provincial or District/City will be determined through Regional Regulation	Tariff for port service which operated by Port Operator Unit (formed by Provincial Government) will be determined through Provincial Regulation
5.		Tariff for port service which operated by Port Operator Unit (formed by District/City Government) will be determined through District/City Regulation

2. Tariff of Port Related Service

Tariff of Port Related Service is the charge for every service related to port held by people or business entity (Art. 5 MoT 72/2017).

Table 3-14 Types of Port and Port Related Service Tariff

No	Port Service Tariff (Art 3 (2) of MoT 72/2018)	Port Related Service Tariff (Art. 6 (1) of MoT 72/2018)
1.	Tariff For Ship Service	Provision of Waste Shelter Facilities
2.	Tariff For Goods Service	Provision of Depo Containers (Depo Peti Kemas)
3.	Tariff For Passenger Service	Provision of Stowage
4.		Building Cleaning and Management Service
5.		Water and Electric Distribution Service
6.		Water and Oil Filling Service
7.		Office Provision for User Port Service's Needs
8.		Provision of Cold Storage Facilities
9.		Ship Maintenance and Repairment
10.		Packaging and Labelling
11.		Containers Gross Weighing Services
12.		Fumigation and cleaning/repairing the Containers
13.		Public Transport from and for Port
14.		Certain Industrial Activities
15.		Trade Activities
16.		Provision of Playground and Recreation Activities

[36] Port Operator Unit is a government institution at the port as the authority who has a function to regulate, manage, and control the port activities and provide the port services for uncommercial port. (Art 1.9 of MoT 72/2017)

No	Port Service Tariff (Art 3 (2) of MoT 72/2018)	Port Related Service Tariff (Art. 6 (1) of MoT 72/2018)
17.		Hotel, Restaurant, Tourism, Post and Telecommunication
18.		Tool Services
19.		Entry Sign of Port
20.		Litter Waste of Ship Service
21.		Transport and Goods Service in Roll On-Roll Off
22.		Inter Terminal Service
23.		Hi-Co Scan
24.		Hi-Co Scan with Behandle
25.		Over Stock of Mooring Ship
26.		Trucking (From Stock File to Conveyor)
27.		The Cumulation Plus Extra Movement (Initial Stack)
28.		Cancellation of Transaction
29.		After Closing Time
30.		Administration of IT System for E-Payment
31.		Location Moce of Cumulation (PLP)
32.		Weighing Service

Toll Road User Charge

Toll road user will be charged of toll fee. Toll tariffs, both the initial and the adjustment will be determined by Minister of Public Works and Public Housing (Art 48 of Law 38/2004). Further, evaluation and adjustment of toll rates is carried out every 2 (two) years based on the influence of the inflation rate. The result of evaluation will become the recommendation for MoT by BPJT. (Art. 68 GR 15/2005). According to Art. 66 (GR 15/2005), Toll tariffs must be calculated based on 3 criterias as follow:

- The ability to pay for toll road users;
- The profitability of vehicle operating costs; and
- The feasibility of investment.

4 Institutional Framework

4.1 Institutional and Stakeholders Mapping

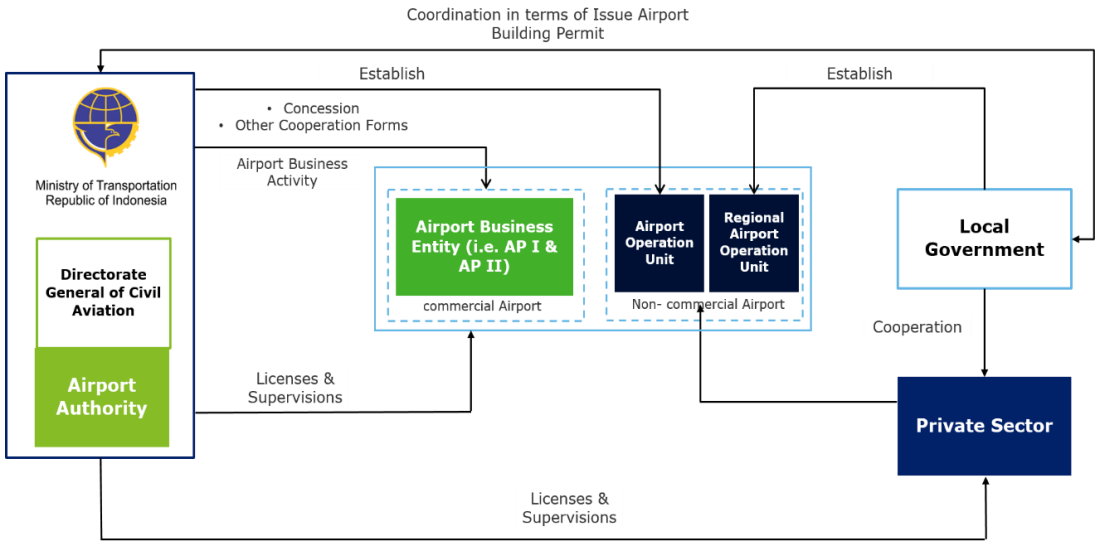
Like any other PPP project, government and private companies involved in the process. This section will list the institutional mapping and the relation between those stakeholders based on the process of PPP project in Airport, Railway, Port, and Road & Toll Road sector.

4.1.1 Airport Sector

Table 4-1 List of Key Stakeholders and Their Roles in the Airport Sector

No	Stakeholders	Role/Authority
1.	Ministry of Transport	Give concession or other form to Airport Business Entity to implement of the operation of Airport; Establish Airport Operation Unit; Coordinating with Local Government in terms of issue Airport Building Permit;
2.	Directorate General of Civil Aviation	Part of the Ministry of Transport, which supervises and issues licenses for airport operations.
3.	Airport Authority	Part of the Ministry of Transport, which periodically supervises the operation of airport.
4.	Airport Business Entity	Business Entity, which operate the commercial airport after previously the license from the Ministry of Transport.
5.	Airport Operation Unit	Government Institution in airport, which acts as airport operator, that provide services airport service for airports that has not operated commercially, formed and responsible to the Central Government.
6.	Regional Airport Operation Unit	Government Institution in airport, which acts as airport operator, that provide services airport service for airports that has not operated commercially, formed and responsible to the Local Government.
7.	Local Government	Establish Regional Airport Operation Unit Coordinating with Ministry of Transport in terms of issue Airport Building Permit

Figure 4-1 Institutional Arrangement in Airport Sector

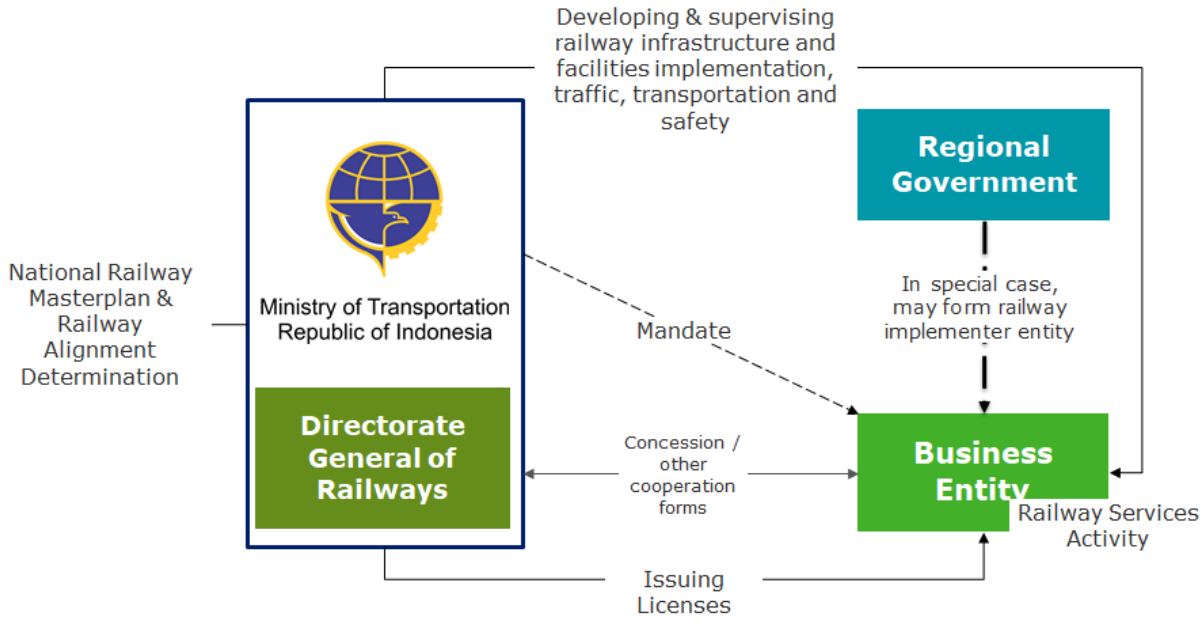


4.1.2 Railway Sector

Table 4-2 List of Key Stakeholders and Their Roles in the Railway Sector

No	Stakeholders	Role/Authority
1.	Ministry of Transport	Give concession or enter into other cooperation form with IBE to implement railway services; Formulating and determining National Railway Masterplan; Mandating State-owned Enterprises to implement Public Service Obligation (PSO) and Kereta Api Perintis; Issuing railway construction, operational, business licenses; Determining railway alignment (trase).
2.	Directorate General of Railways	Directorate General within the Ministry of Transport, which handles railways affairs.
3.	Balai Teknik Perkeretaapian	Unit within Ministry of Transport whose functions are to develop & supervise railway infrastructure and facilities implementation, traffic, transportation and safety.
4.	Railway Business Entity	Special Purpose Business Entity, which implements the railway services.
5.	Local Government	In special case (i.e. no business entity implementing railway services) may establish a business entity to implement such service

Figure 4-2 Institutional Arrangement in Railway Sector



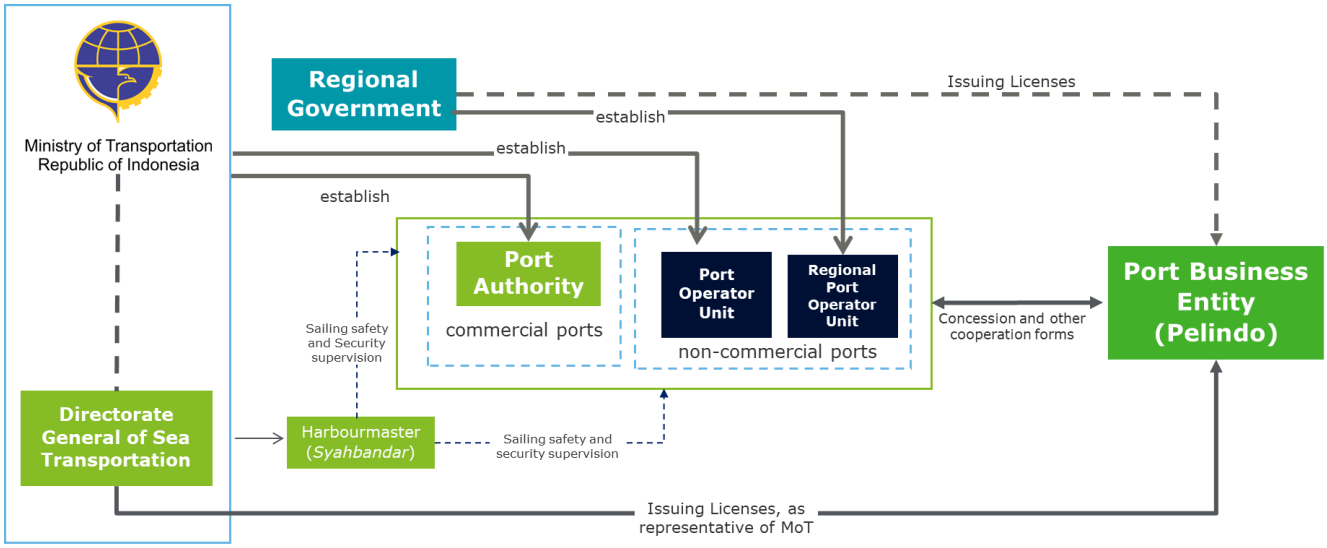
4.1.3 Port Sector

Government and private entities is involved in the process of PPP Project.

Table 4-3 List of Key Stakeholders and Their Roles in the Port Sector

No	Stakeholders	Role/Authority
1.	Ministry of Transport	Establish Port Authority, Port Operator Unit, and Regional Port Operator Unit. Issuing licenses through Directorate General of Sea Transportation Supervise the Sailing Safety and Security through Harbourmaster (Syahbandar) Coordinating with Local Government in terms of issue Port Licenses;
2.	Directorate General of Civil Aviation	Part of the Ministry of Transport, which supervises and issues licenses for port operations.
3.	Port Authority	Cooperate with Port Business Entity (Pelindo), for commercial ports.
4.	Port Business Entity	Operate the terminals and ports
5.	Port Operator Unit/ Regional Port Operator Unit	Cooperate with Port Business Entity (Pelindo), for non-commercial ports.
7.	Local Government	Establish Regional Airport Operation Unit Coordinating with Ministry of Transport in terms of issue Airport Building Permit

Figure 4-3 Institutional Arrangement in Port Sub-Sector



4.1.4 Road & Toll Road Sector

Table 4-4 List of Key Stakeholders and Their Roles in the Road & Toll Road Sector

Road		
No	**Stakeholders**	**Role/Authority**
1.	The Ministry of Public Works and Housing	Formulate and determine national road Policy
2.	Directorate General of Highway Construction and Maintenance	Directorate General under MOPWH to provide implementation policies in the field of national road administration
3.	Directorate General of Infrastructure Financing	Directorate General under MOPWH to provide policy formulation and Implementation of Infrastructure Financing
4.	National Road Implementation Center	carry out planning, procurement, development and road and bridge preservation, implementation of management systems quality and quality control of the implementation of work, provision and testing of materials and equipment and safety and proper functions of roads and bridges accordingly with the provisions of laws
5.	Road Implementation Unit Center	carry out planning, procurement, development and road and bridge preservation, implementation of management systems quality and quality control of the implementation of work, supply and testing of materials and equipment as well safety and proper function of roads and bridges according to the provisions laws
6.	Special Bridge and Tunnel Center	carry out technical evaluation and preparation of technical advice of special bridges and tunnels and behavior monitoring special bridges and tunnels
Toll Road		
No	**Stakeholders**	**Role/Authority**
1,	The Ministry of Public Works and Housing	Formulate and determine toll road Policy Determine General plan for toll road networks
2.	Directorate General of Highway Construction and Maintenance	Directorate General under MOPWH to provide implementation policies in the field of national road administration
3.	Indonesia Toll Road Authority	Institution formed by the Minister to regulate, operate, and supervise Indonesian Toll Road
4.	Directorate General of Infrastructure Financing	Directorate General under MOPWH to provide policy formulation and Implementation of Infrastructure Financing

Figure 4-4 Institutional Arrangement in Road Sector

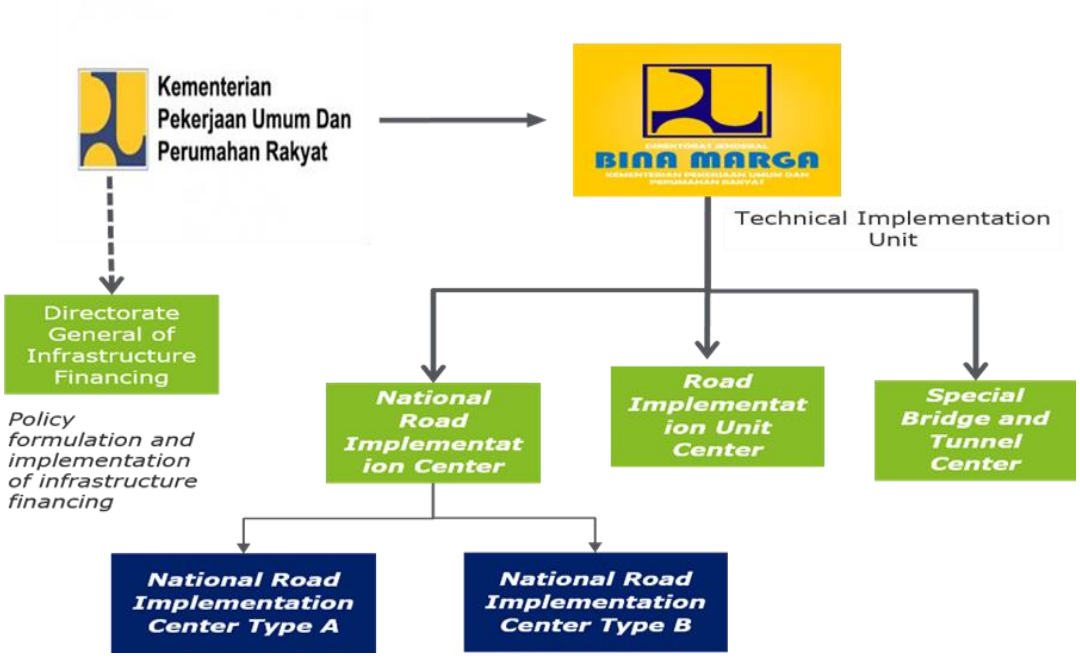
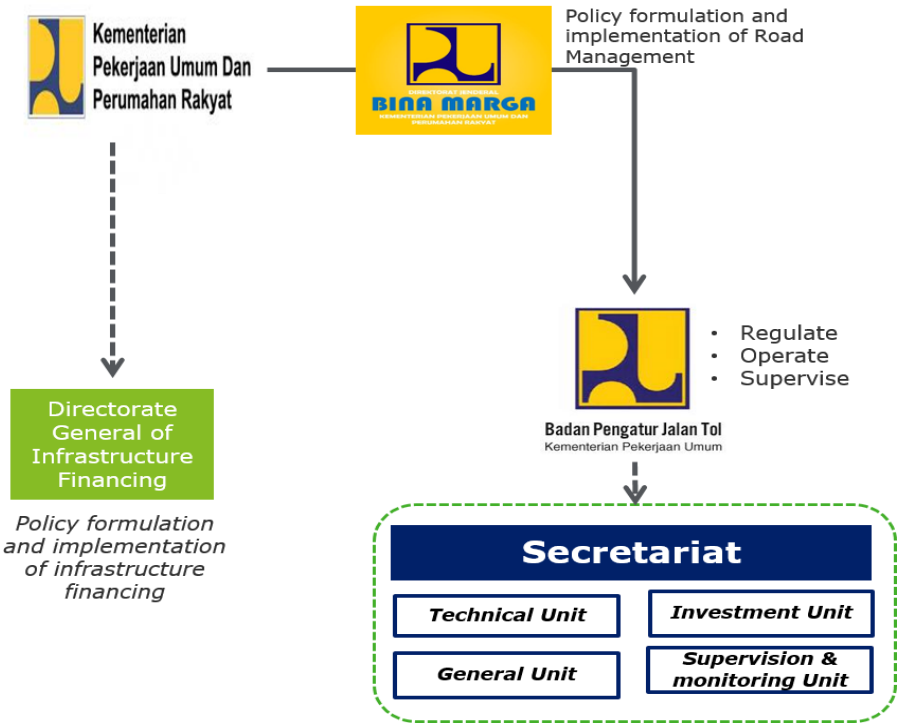


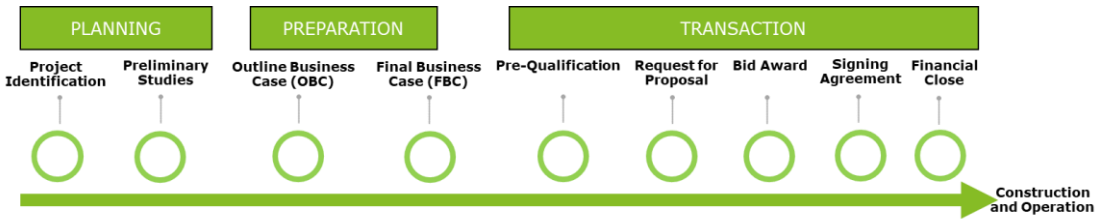
Figure 4-5 Institutional Arrangement in Toll Road Sector



4.2 Stakeholder Mapping in Solicited Transport PPP Project

Under the PP 38 of 2015 on PPP, the solicited project initiated by Government Contracting Agency (GCA) at their jurisdiction level consisting three phases of 1) planning, 2) preparation, and 3) transaction.

Figure 4-6. Process for Solicited PPP Project



Source; Bappenas 2018

In the early stage, GCA conducts a project preliminary study to determine whether a project is eligible as a PPP project. The government agency that acts as GCA varies depending on the jurisdiction that holds the public service delivery of the infrastructure. For transport infrastructure that belongs to national jurisdiction, the GCA will be a division in the Ministry of Transport (MoT). Each Directorate General (DG) under MOT has established a dedicated division for PPP. An exception applies to toll roads sector. National Toll Roads Authority (BPJT) prepare the preliminary study and decide which project will be implemented as a PPP project and go to the next phase. For transport PPP project that belongs to the local government, the GCA is the local leader whether Governor, Regent, or Mayor depending on the jurisdiction. In the day to day basis, the Head of Local Planning Agency will collaborate closely with Transport Agency to prepare the preliminary study. They usually contracting out the work to an independent consultant or in some cases, obtain technical support from Bappenas or International Donor Agency.

At the moment, BPJT and DG Bina Marga conduct a preliminary assessment for roads sector. For land, sea, air, and rail transport sector, each DG under the MoT conduct the preliminary assessment. As for urban transport, there are several institutional settings. The preliminary assessment of urban transport PPP project can be done by local government supported by Bappenas or International Donor Agency, or done by Directorate General of Rail-Transport (DG Rail) in the case of rail base transit development, or done by Jabodetabek Transport Management Body for the case for greater Jakarta area. In the case of Jakarta city toll road and Jakarta LRT project, the preliminary assessment and even up to the feasibility study were done by Local Government Owned Company (BUMD) PT. Pembangunan Jaya.

The preparation phase consists of two stages to develop the outline business case (OBC) and final business case (FBC). At the local level, the Planning Agency continue to prepare the OBC based on the preliminary study, whether by them self or by technical assistance from Bappenas or International Donor Agency and supervised by MPWH or MoT.

At the national level, the MoT prepares the OBC. Unlike in the road sector where Directorate General of Highway (DGH) can still oversee the role of BPJT in the project preparation, all other transport sub-sector do not have such institutional arrangement. Directorate General for each respected sub-sector will conduct the PPP preliminary assessment directly.

The second stage of PPP preparation process is preparing FBC. GCA for transport PPP project at both national and local level propose project development facility (PDF) to MoF to prepare FBC and to conduct project transaction. At the moment the MoF usually assigned SOE under it, namely PT. SMI and PT. PII to prepare FBC and to assist GCA in the project transaction process. Exception for toll road sector where BPJT prepare the FBC and assist transaction process under supervision from DGH.

In both stages, the private sector involves in the market sounding event when the technical, financial, and legal planning of the project is almost final. Feedback from the private sector during market sounding will become an input for finalizing project structure and determine government support and guarantee. Particularly government guarantee, IIGF as the guarantor for government support will involve before the project structure is finalized in the pre-qualification.

In the project transaction stage, GCA will hold an open tender to get the best bidder. Other government institutions involved during the process to give supervision or input such as Ministry of Home Affairs (MOHA), LKPP, BKPM, and OJK.

4.3 Stakeholder Mapping in Unsolicited Transport PPP Projects

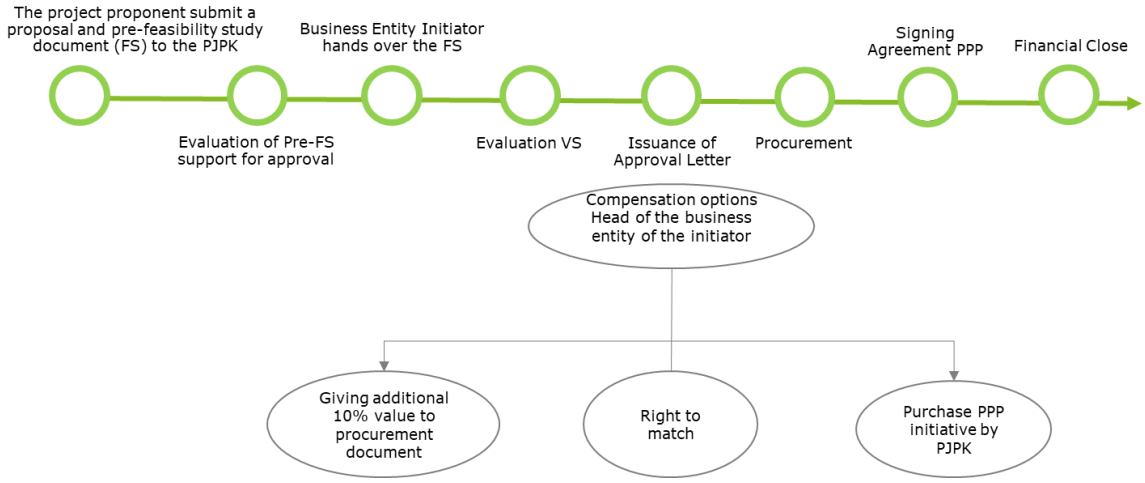
For the unsolicited project, the private sector can propose transport PPP project directly to the relevant GCA depending on the jurisdiction. Three main requirement for transport unsolicited PPP project is 1) compliance to the

existing planning of transport infrastructure, 2) project feasible in term of economic and financial thus require no financial support from the government, and 3) proven the financial capacity of the private initiator.

Many private sectors submit a proposal to local government particularly for urban transport project aiming that the proposal can be included in the formal planning document to address the first requirement of the unsolicited project. At the moment, both MoT and Local government do not have screening tool to assess economic and financial project feasibility. Let alone tools to screen technical aspect of project preparation such as demand, technology selection, infrastructure design, and operational planning. GCA has little comprehension on the commercial viability of PPP project in the transport sector that greatly depend on robust demand analysis, compatible technology selection, innovative infrastructure design, and efficient operational planning.

In the unsolicited project, the private company do not have to face layers of assessment and evaluation as much as that of the solicited project before awarded as project initiator by the GCA.

Figure 4-7. Process for Unsolicited PPP Projects



Source: Bappenas, 2018

Government Engagement in Project Structure

The government's relationships with private investors in the transport sector should be looked at on a case by case basis. As far as public roads and toll roads are concerned, the private sector has been involved in the development of toll roads since the mid-1980s and there are now more than 40 private companies which hold toll road concessions. The government's position with respect to private participation in toll roads is thus very mature compared to other transport sub-sectors. This has lead to more innovation and effectiveness in PPP project delivery. The government only needs to assume the role of project GCA conducting project planning, preparation, and transaction making. It may provide guarantees for demand risk, or facilitate project financing from PT SMI.

Because MPWH has had a lengthy exposure to PPP, this has encouraged MoT to provide stronger support for PPP as an alternative financing source for transport infrastructure development. The call from the Minister for more involvement from the private sector aims to expedite the achievement of RPJMN development targets. However, this positive attitude is not necessarily supplemented by a good understanding of the character and role of PPP at the implementation level. Many of MoT's PPP initiatives started simply because there is no public budget to implement a particular project, while in fact possible PPP projects require careful assessment of their commercial viability and profitability.

One case from the rail transport sector is the Medan Urban Transport PPP project. At the initial stage, Bappenas provided technical assistance to the Medan city government, as the project GCA, to develop an OBC. In this process, financial feasibility was achieved by selecting the cheapest transit technology regardless of compatibility between operational capacity and long-term demand projections. The initial selection of Aeromovel as the rail transit, resulted insufficient capacity to serve long-term demand. As a result, the line will face overcapacity before the concession period expires, thus limiting opportunities to maximize revenue and profit from increasing numbers of passengers. Subsequently, the MoF provided a PDF to develop a FBC as well as assistance in the project transaction process.

In the case of Surabaya, the MoT discouraged the local government to become the GCA on the basis that local governments do not have the authority to be rail infrastructure operators. Although this is partly true, as with the case of the Jakarta LRT, the Surabaya city government can still take the initiative to build a tramway by direct assignment to a local SOE or act as project sponsor by preparing an OBC to obtain PDF from MoF. Even though the Surabaya city government has already received technical assistance from Bappenas and the World Bank, the implementation of Surabaya tram has been postponed indefinitely.

In the case of rail sector PPP projects, the DG Rail is now preparing OBCs for 8 potential projects, DG Rail has been seeking potential PPP projects since 2016. There are three categories of railway projects:

Intercity - this mainly serves the demand for freight transport.

Urban - these primarily serve passenger transport demand.

Specialist/dedicated railway lines - these serve a dedicated purpose, such as a mining operation.

In the first category, there are rail project PPP opportunities in Bengkulu, South Sumatra, Lampung, West Java, East Kalimantan and South Sulawesi. The government would like to utilize PPP to construct and operate infrastructure, while for rolling stock, the government will offer to the private sector using multi-operator schemes.

For the urban rail projects, the government is preparing PPP projects in Bandung, Medan, Batam, Bogor and Jakarta. The Medan project should be highlighted. The proposal is to bundle an LRT and BRT system into one PPP project. This approach is unique and is a breakthrough for developing citywide public transport system rather than the conventional corridor by corridor urban mass rail systems.

As far as special purpose/dedicated rail lines are concerned, there are three rail projects in progress. In South Sumatra, PT Servo will build a 160-kilometer double track railway connecting Lahat, Muara Enim and Ogan Ilir at an estimated cost of IDR 37 trillion. PT Mega Guna Ganda Semesta (MGGS) will build a 370-kilometer double-track line from Tanjung Enim to Tanjung Api-Api at an estimated cost of 50 trillion. This is also a national strategic project under Presidential Regulation No 75 / 2017. In Central Kalimantan, a Chinese company has initiated the development of dedicated purpose rail project for transporting coal from mine site to port. This project is currently being reviewed by KPPIP.

There a number of maritime transportation PPP related developments in progress. The Patimban port is being constructed by using Japanese loans. Phase 1 construction started in May 2018 and is expected to finish by January 2019. There was a recent news item that the Transport Minister expects this port to be operational by end 2019] MoT plans to tender out port operator to the private sector by end of 2018 under PPP scheme. Beside Patimbang, DG Sea Transport (DGST) is ready to tender two more ports in Baubau, South Sulawesi and Anggrek, Gorontalo to complement ongoing concessions operating in 13 ports mostly by SOEs.

In 2018, DGST commenced a preliminary study for 12 ports in Belangbelang, Tahuna, Tobelo, Wanci, Serui, Kaimana, Pomako, Saumlaki, Dobo, Banggai, Labuan Bajo and Namlea. It is expected that the study finish by end of 2018, followed by the development of OBC and FBC. Other than PPP, the DGST also has ongoing operation agreements in 29 general ports.

The development of air transport PPP is very promising as passenger demand continues to grow. Aviation is perceived generally as a safe, fast, and reliable form transport which has successfully reduced travel times across the archipelago. Domestic passenger demand for air transportation has increased by 13.4% per annum from 2007 to 2016 with no sign of slowing down. International passenger demand has grown by 19.3% per annum over the same period.

The development of air transportation has been mainly driven by increases in passenger traffic which requires larger and faster aircraft. Thus, upgrading airports is the most feasible solution to address this issue. In addition the government is also constructing new airports in border or remote areas as part of its efforts to improve national integration and defence.

The massive demand in the aviation sector become a promising underlying for PPP projects. Increase demand in passenger and cargo traffic has been anticipated by airlines with a substantial expansion of new aircraft fleet. With the rapid growth in the tourism sector, many new destinations suffer from insufficient infrastructure to transport tourists from both domestic and international origins. As leisure is still mainly the dominant purpose in the tourism industry, the characteristic of air transport with its fast journey time fit perfectly with the demand characteristic in tourism transport. However, the selection of the PPP project in the air transport sector will always depend on how the infrastructure accelerates the growing demand for air transport. Otherwise, the project will require great financial support from the government.

Development of inland transport sector PPP projects started in 2018 with the preliminary studies and preparation of OBC for proving ground in Bekasi and vehicle inspection facilities in Java and Sumatra. The MoT's Directorate General for Land Transport (DGLT) also plans to use PPP for type A bus terminals, weighbridges on national roads and vehicle inspection facilities.

The provision and operation of these types of infrastructure are seen as being strong candidates for PPP schemens as the offer strong revenue streams. As with toll roads, demand for inspection services is expected to grow as the vehicle population increases, particularly when periodic inspection of private vehicles becomes mandatory. Almost ten years after the enactment of Law No 22 / 2009 on Traffic and Land Transport, the government has never fully enforced mandatory periodic inspection of private vehicles. Only public transport vehicles are subject to periodic inspection, although implementation of this requirement remains inconsistent and uneven.

A similar situation applies with regards to weighbridges. Under current market conditions, fierce competition has forced industry players to lower freight rates but this has often resulted in safety issues including overloading and oversizing. Weighbridges are therefore required to reduce the vehicle standards violations realated to load and size.

Existing type A bus terminals are usually located in suburban areas and occupy large land areas. Generally there is only one terminal in each city, which is usually poorly maintained. Operations are inefficient and not connected with other transport links.

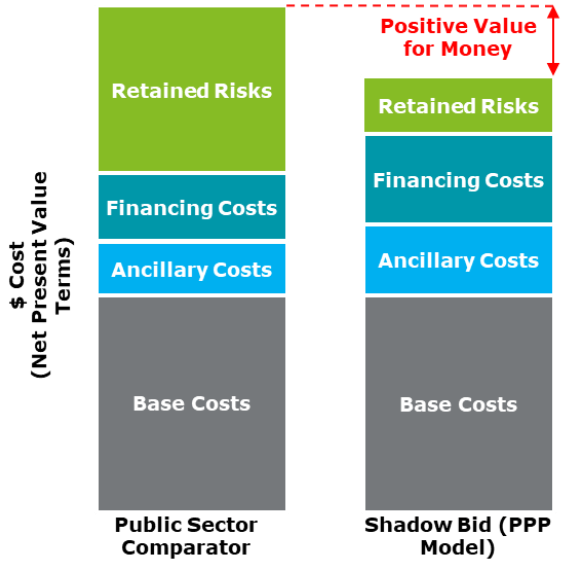
Beside urban rail projects in Batam, Bandung, Bogor, and Medan there is no initiative for PPP project for the urban transport sector, particularly bus system. Mostly overlooked by policymakers, publicly owned buses, which are often poorly maintained operate with deteriorating quality of service quality, nevertheless still carry significant numbers of passengers in many cities. The Medan Transport PPP OBC indicates that there are approximately 300,000 passengers using the system daily. Likewise, similar numbers of passengers use the bus networks in Surabaya, Bandung and Semarang. If the project can consolidate the service and payment, there will be a significant amount of revenue source to finance the PPP project in the urban transport sector. Let alone revenue from non-fare box and TOD.

5 Financial and Economic Assessment

Private financing is one of the key features of PPP transactions. Through it, the government is able to accelerate the development of infrastructure and anchor transfer of contractual risks to the private sector. The former in particular is one of the main drivers for governments in EMDE countries to pursue PPPs as private capital can bridge the gap between the infrastructure needs and the comparatively limited public financial resources available. The large-scale mobilization of private capital in EMDE countries remains a major challenge largely due to investors' risk appetite that is driven by a number of factors including political stability, economic volatility, transparency concerns, etc.

Compared to the public sector cost of borrowing, private capital typically comes at a premium. In the context of government having the financial resources to undertake an infrastructure project through traditional delivery models, this warrants important consideration. Understanding the value that comes with such relatively expensive private capital is a key consideration for the public sector during the decision-making process. This is where the risk transfer feature of PPP projects becomes very important. While quantifying the fiscal cost of a project may prove a PPP approach to be more expensive than traditional, government-funded procurement, quantifying the risk-adjusted cost may reveal a different picture. This is the basic premise of a typical quantitative Value for Money (VFM) assessment as is presented in the figure below.

Figure 5.1. Basic Elements of a Typical VFM Analysis, as per Deloitte



In order to balance the trade-off in a PPP between achieving risk transfer and increasing project costs through private capital premiums (i.e. to maintain project affordability), it may be beneficial in some cases for public sector funding to partially cover some of the project's capital costs. This may be referred to as Viability Gap Funding, in others words it is the amount of public capital required for the project to financially viable from a private capital perspective when faced with limitations around long-term revenues (either through an limited AP or due to limitations in user revenue).

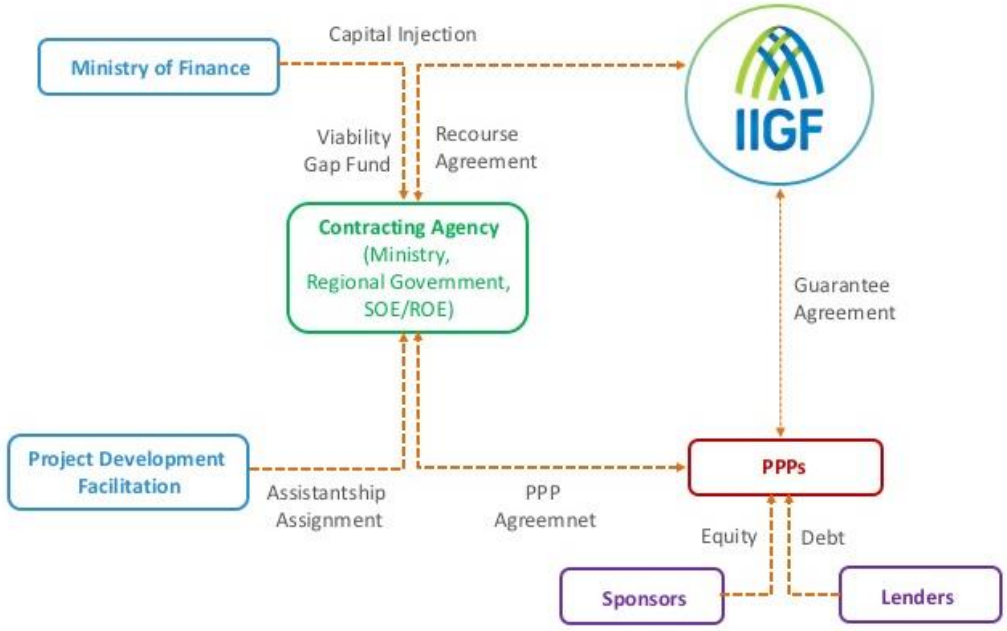
Private capital in a PPP project comes in the form of debt or equity with both being used on a typical project. Each of those broad categories has its own financial instruments, come with different cost implications and have different risk profiles. Key features of these forms of private capital are discussed below.

5.1 Debt

In simple terms, debt refers to financing that is obtained through third-party financial institutions, typically banks or bonds raised in the capital market. PPP projects are typically implemented under a project-finance structure whereby a Special Purpose Vehicle (SPV) is set-up by the private sector as a standalone entity with the sole purpose of delivering the project. Debt and equity are injected into the SPV to enable it to cover the capital costs of the project. Once the project is in operations, the SPV receives revenues from the project and these revenues are generally its only source of revenue which it uses to cover operating costs and repay the debt and equity investments. This is the basic structure of a project finance model where lenders only have recourse to the project's revenues (and whatever guarantees are put in place with respect to the SPV's obligations).

Out of the two forms of private capital, debt has a lower cost. However, the cost of debt (i.e. the interest rate) can vary due a number of reasons with a key one being the lenders' view of project risks. When it comes to lending into projects where the public sector sponsor / off-taker has a sovereign credit rating that is low or when the sponsor is a local government entity (e.g. municipality) with limited financial resources, the cost of debt increases. Guarantee facilities, such as those provided by IIGF can play an important role in de-risking a project to enable it to lower the cost of, or even attract, private debt. The figure below outlines the overall financial and contractual structure of a PPP transaction that includes Viability Gap Funding, a Guarantee facility and private capital (debt and equity) injected into the project.

Figure 5.2. Financial and Contractual Structure of PPP Transaction



It should be noted that the availability of debt with sufficiently long-term tenors that matches the duration of a PPP contract is a major issue facing many EMDE financial markets. In Indonesia this risk is present as most banks do not offer debt with tenors of 20-30 years. This introduces refinancing risks to the project. An alternative for investors would be to seek long-term debt externally, however that typically comes in hard currency and therefore introduces currency exchange risk. Practice in Indonesia has also been to secure debt based on corporate lending rather than limited-recourse project financing. Corporate lending is reliant on the strength of the borrower's balance sheet and the guarantees they can provide to secure the lending. This is not a sustainable approach due to standard debt limitations on borrowers and therefore access to capital to finance PPP projects at a large-scale may be significantly impacted.

5.2 Equity

Equity refers to the cash invested in a projected by investors making them shareholders of the SPV. In a non-recourse, project finance structure, the liability exposure of shareholders is limited to their shareholding in the SPV. Equity can be invested in a PPP project directly (e.g. cash injection from investors) or indirectly through funds or in some cases through subordinated debt instruments. From a cashflow perspective, equity is subordinated to debt meaning that in the event of shortfalls, debt lenders have higher rights to receive available funds. This additional risk that equity investors assume comes with a pricing premium. It is standard for equity invested in a project to target an Internal Rate of Return (IRR) that is higher than the interest rate payable to debt lenders.

The IRR on equity is typically estimated using the variant of Capital Asset Pricing Model ("CAPM"). CAPM computes the required rate of return on equity as a function of the rate of return on a risk-free investment, plus an equity risk premium (the return stockholders expect above the return on a risk-free investment), multiplied by the "beta" for the investment. A standard proxy for the risk-free rate is the sovereign cost of borrowing. The yields of such bonds (30-year Indonesian Sovereign Bond) as of 31 December 2018 for Indonesian Sovereign Bond yields in IDR was 9.09%, while Bond Yield in USD was 5.20% (data taken from Bloomberg Analysis 2019, refer to Annex I). Adding the necessary layers for risk premiums (country risks, project risks, etc.) an indicative cost of equity in IDR can be expected to be approx. 19.5%, meanwhile the corresponding cost of equity in USD can be assumed at 15.5%.

Alternatively, the estimated cost of debt in Indonesia, based on the Indonesian IDR and USD lending rates published by Bank Indonesia as of 31 December 2018, are approx. 10.37% and 5.52%, respectively. While it may appear more efficient to finance a project entirely based on debt (being the less costly form of private capital), lenders typically dictate a minimum level of equity to be invested in the project. This equity acts as a "buffer" that protects the project's ability to service the debt in case of cash shortfalls. The ratio of debt-to-equity (also referred to leverage) on a project is dependent on a number of factors, paramount among them being the lenders' view of the project's overall risk profile.

5.3 Sector-specific Considerations

5.3.1 Airports

Airport projects are massive undertakings that require high investment cost. Additionally, operational expenditures which cover personnel costs, basic consumption (electricity, gas, water), replacement cost and maintenance of equipment, systems and infrastructure can also be very cost-intensive. Additional operating costs include landside costs and airside costs. Landside costs are those incurred by processing passengers and cargo through terminals. Airside costs are those attributable to processing aircraft through aprons, taxiways and runways.

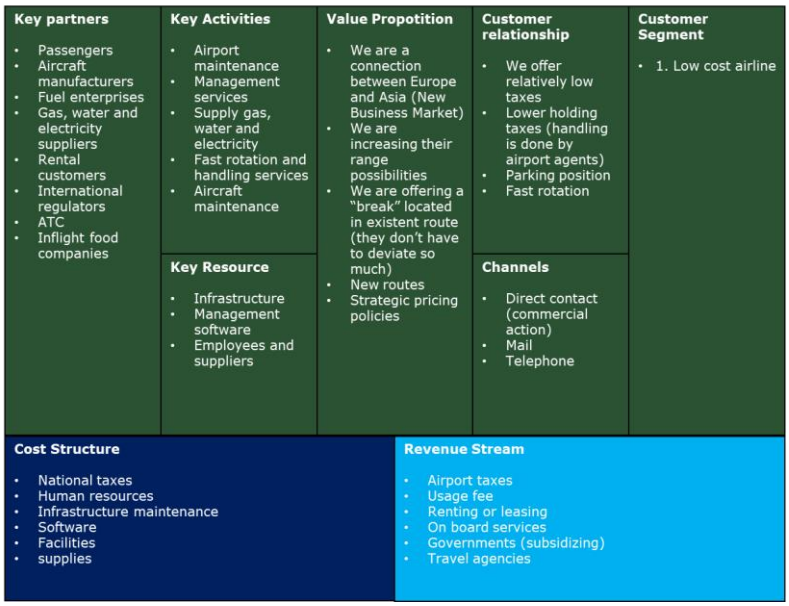
From a revenue-generation perspective, airports have the capacity to generate significant revenues from multiple sources. The basic revenue structure and streams in the airports sector are as follow:

Aeronautical revenue: Aeronautical revenue comprises the majority of airport income, and includes airline terminal space rentals, airline landing fees, and usage fees for terminals, gates, services and passenger counts.

Non-aeronautical revenue: This revenue stream from landside activities such as parking, ground transportation and can rentals, concessions and retail, commercial developments, advertising and others.

Unlike many other sectors were revenues can be very limited and heavily regulated, airports can generate significant commercial revenues which can make them a lucrative opportunity for experienced private investors. The figure below presents the overall business model summary as it relates to the airports sector in Indonesia.

Transport Sector – Airport



5.3.2 Seaports

Given the unique geography of Indonesia, seaports play an important role in increasing accessibility to remote parts of the country. Higher accessibility between cities adds to the economy of places that may be otherwise neglected due to their location. Port projects have the capacity to generate commercial revenues and may result in a decrease in shipping costs since there is no need to take on the handling fee of other companies e.g. Singapore as a transshipment.

There are however major fiscal and economic costs associated with port projects. First is capital expenditure, which depends on the size and location of the port but it is generally recognized that port projects are capital intensive.

Second is operational expenditure that includes maintenance costs e.g. machinery, cargo facilities, labor. There are other cost considerations associated with port projects such as landside transport cost which depends on the size of the port; dwell time – the time it takes for a container to be unloaded from a vessel to the time it takes to leave a port – which could increase because of overcapacity; etc.

The economic benefits of ports are usually measured at an aggregate level by indicators such as value added, employment, taxation revenue and return on investment. These indicators are primordial for the decision to invest in port development and must take into consideration the following factors:

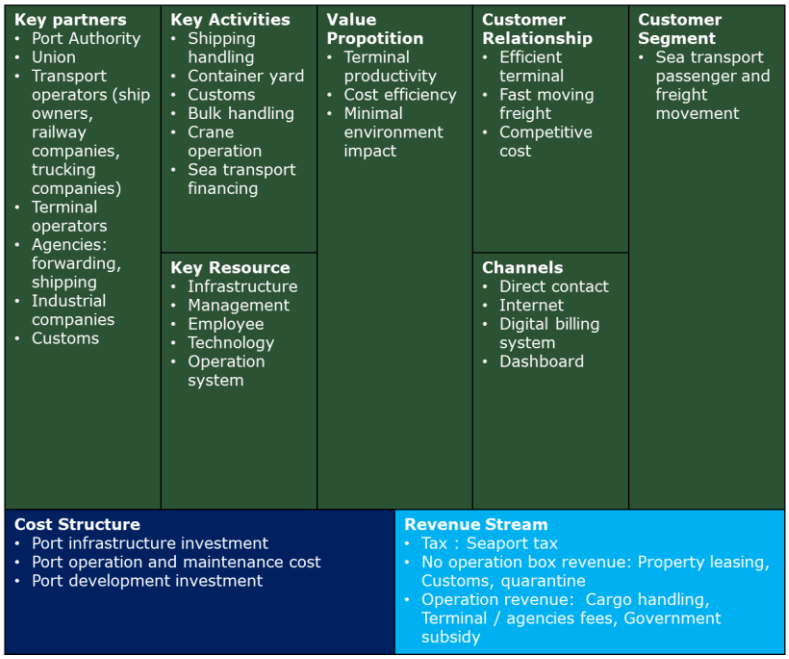
1. Demand forecasts trying to evaluate the expected traffic that the investment will support and facilitate;
2. Liner shipping strategies, particularly how they service markets and how the port fits within their service configuration in terms of ship capacity and frequency. While some ports act as load centers, others are transshipment hubs. The function of transshipment is often the outcome of the strategy of a shipping company to service specific regions;
3. Hinterland transport capacity and accessibility is contingent to the cargo that is bound to, and originating from, the port. It defines the existing and potential cargo base that could be handled by the port;
4. Competition between terminals, since there may be competing terminals within the same port facility. Terminals in a monopolistic situation usually have more pricing power and can be linked with higher returns; and
5. Financing of investment relates to the capital source and conditions. Large port infrastructure projects are usually financed by bonds issued by port authorities or by investments made by international financial institutions such as development banks, sovereign wealth funds or pension funds.

Similar to airport projects presented earlier, seaport projects can generate significant revenues, many of which are on a commercial basis, which could be used to offset costs and make the projects attractive to potential investors. The main revenue sources are as follows:

1. **Port of call revenue.** This type of revenue consists of 1) port dues: tonnage and mooring dues; 2) pilotage; sea, river, and dock, 3) towage: river, bay, port towage; 4) agency fees; 5) other costs: berthing / un-berthing, ship reporting fee; 6) port state retribution; 7) waste facilities fee; 8) bunkering fee; and 9) shipping supplier sales (water, electricity, cleaning, etc.);
2. **Handling revenue.** This revenue consist of cargo handling on quay fee, transport to and from storage, storage, delivery/receiving charges, customs, fees for handling and storing of empty boxes; and
3. **Concession fees.** This revenue source ties to multiple avenues for commercial services that may be provided on-site (e.g. food stalls, temporary accommodations, etc.).

The figure below presents the overall business model summary as it relates to the ports sector in Indonesia.

Transport Sector – Seaport



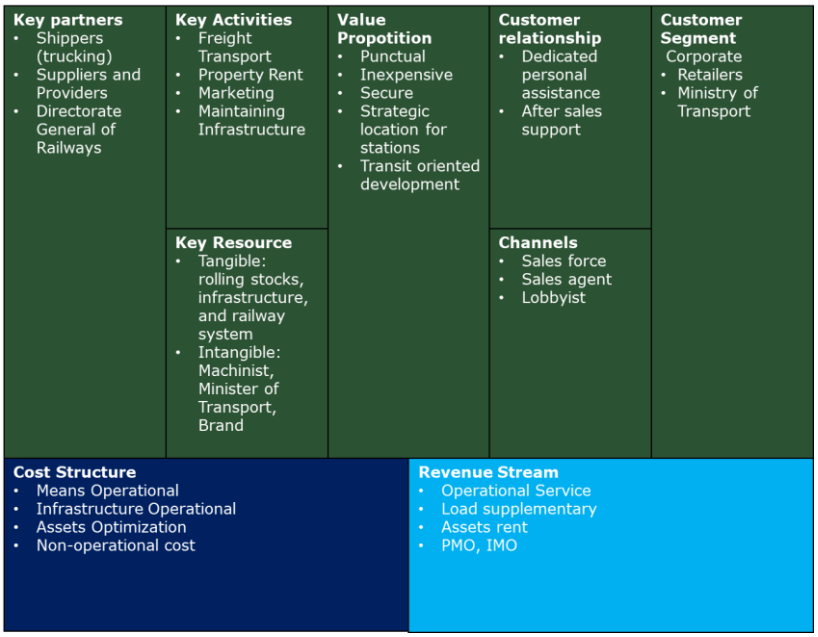
5.3.3 Rail-Based Transportation

The basic value proposition is that the rail freight options provides a punctual, inexpensive and secure transportation mode for its targeted customer segment. The cost structure for the rail freight in terms of its operational expenditure (OPEX) is composed of cost items to ensure operational readiness of infrastructure and other necessary means. It may also include other non-operational costs and asset optimization.

From a revenue-generation perspective, rail-based transportation projects can vary widely. Inter-city rail transit (e.g. LRT projects) often do not achieve cost recovery as ridership fares are typically subsidized to meet user affordability. Avenues exist to generate incremental revenue through ancillary uses (e.g. advertising, concessions, etc.) but it is typically still not sufficient to bridge the gap between direct revenues and operating costs. On the other hand, inter-city premium passenger services or freight rail operating on commercial basis may be able to generate significant financial revenues.

The figure below presents the overall business model summary as it relates to the rail freight sector in Indonesia and is largely representative in terms of its key elements of the rail-based transportation sub-sector.

Transport Sector – Rail Freight

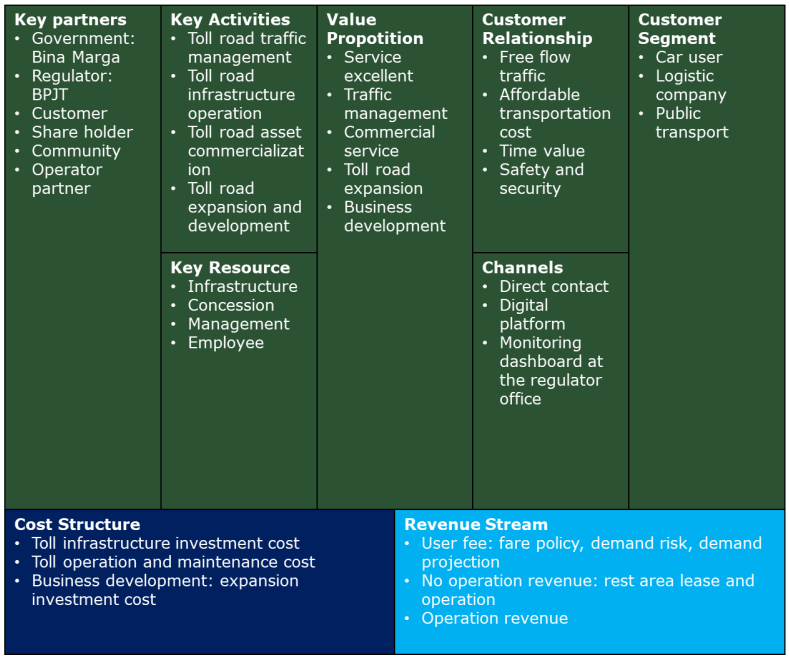


5.3.4 Highways

The toll roads sector is one that has had a long track-record in terms of PPP implementation in Indonesia and is fairly well-established. These projects typically increase accessibility and socio-economic integration between connected areas, generate significant employment during construction and have a direct impact on property prices thereby paving the way for Land Value Capture mechanisms. Additionally, there are identified revenues from toll road users or fare-based revenue and other potential non-fare based revenues such as from lease of land in rest area, commercial placement or advertising space.

The figure below presents the overall business model summary as it relates to the roads sector in Indonesia.

Transport Sector – Highways



6 Risk Analysis

The analysis and allocation of project risks in the PPP context is an important consideration for the Government of Indonesia. A robust understanding of the risk allocation arrangements is essential to ensuring government objectives are met and Value for Money is achieved. National guidelines containing suggested risk allocations across different sectors, is provided by the Indonesia Infrastructure Guarantee Fund and its updated version is available on their website[37]. The alignment of the IIGF Guidelines with International Best Practice can be referred to section 2.6.

[37] https://www.iigf.co.id/

7 Procurement, Transaction & Contract Management

The transaction stage comprises of the following activities:

1. **Market Interest Confirmation**

   With reference to LKPP Regulation 29/2018, market interest confirmation (commonly in the form of market sounding) is intended to receive input, response and market confirmation for a certain PPP project. The GCA conducts the market interest confirmation through conducting a re-review of the market sounding results conducted by the GCA in the preparation stage, or by way of conducting discussion in a forum with business entities. In practice, the market interest confirmation is not limited to the aforementioned methods, as a recent PPP project which refers to LKPP Regulation 29/2018, conduct the market interest confirmation by dispatching an official letter from the GCA to the relevant private sector, inquiring and confirming about their interest in such project, and requesting the submission of letter of intent to the GCA.

   Although it has a similar objective to market sounding, the key difference between market interest confirmation and market sounding (aside from the timing of the process (market sounding is conducted in the preparation stage, while market interest confirmation is conducted in the transaction stage)), is that market interest confirmation intends to re-review the results of market sounding and/or re-confirm the interests of the prospective participants, who attended the market sounding process(es) conducted in the prior stage. Further to the above, Bappenas Regulation 4/2015 specifically differentiates between the market sounding process conducted in the preparation stage and the transaction stage, whereby the former is conducted to obtain input and feedback from the relevant stakeholders, whereas the latter is conducted to obtain input, feedback, as well as to determine the interest on the relevant PPP project.

   It is to be noted, however, that market interest confirmation, while being one of the several steps of the transaction preparation (persiapan pengadaan), it is not mandatory. This is evident under Article 11 paragraph (2), and specifically Chapter II, Section A2 of the Appendix of LKPP Regulation 29/2018, stating that market interest confirmation can be conducted by the procurement team, as may be required (jika diperlukan). In conclusion, market interest confirmation is not mandatory for solicited projects (which refers to LKPP Regulation 29/2018).

2. **PPP Project Location Determination (*Penetapan Lokasi Proyek KPBU*)**

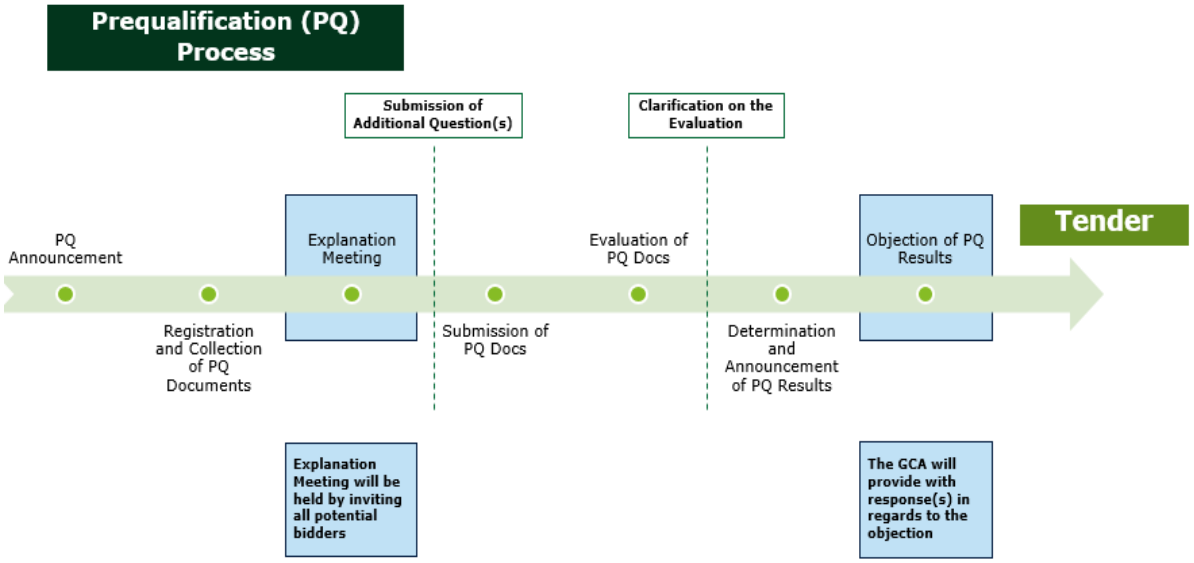
   According to Article 34 of Bappenas Regulation 4/2015, location determination shall be obtained prior to enter the qualification stage, unless it is governed otherwise under the sectoral regulation. In this respect, the Minister of Public Works and Housing ("MPWH") has issued MPWH Regulation Number 1 of 2017 on the IBE Procurement of Toll Road Project which stipulates the procurement of IBE for toll road projects may be conducted upon the submission of location determination proposal by the MPWH or Director General of Highways (Direktur Jendral Bina Marga) to the related stakeholder based on laws and regulations. For railway sector, MOT Regulation Number 15 of 2016 on the Concession and Other Cooperation Scheme between Government and Private Entity in Railways as amended by the MOT Regulation Number 54 of 2018 on the Amendment of MOT Regulation Number 15 of 2016 ("**MOT Regulation 15/2016**") provides that the procurement of IBE may be conducted upon the submission of the railway path determination proposal to the MOT, if the project is determined as a national strategic project.

3. **Procurement of IBE**

   One of the phases of the transaction stage is the procurement of IBE. Previously, IBE procurement is regulated under Head of LKPP Regulation 19 of 2015 on Mechanism of IBE Procurement for PPP Projects ("LKPP Regulation 19/2015"). However, with the enactment of LKPP Regulation No. 29 of 2018 on the Mechanism of Implementing Business Entity Procurement for Infrastructure Provision through Public Private Partnership Initiated by The Minister/ Head of Agency/ Head of Region ("LKPP Regulation 29/2018"), Article 1 to Article 35 of LKPP Regulation 19/2015, which contains provisions on the procurement of IBE for government solicited projects, has been revoked.

   Procurement of IBE consists of two main process, which are the prequalification process (PQ) and the tender process itself. The following diagram depicts the PQ process, prior to the RFP process:

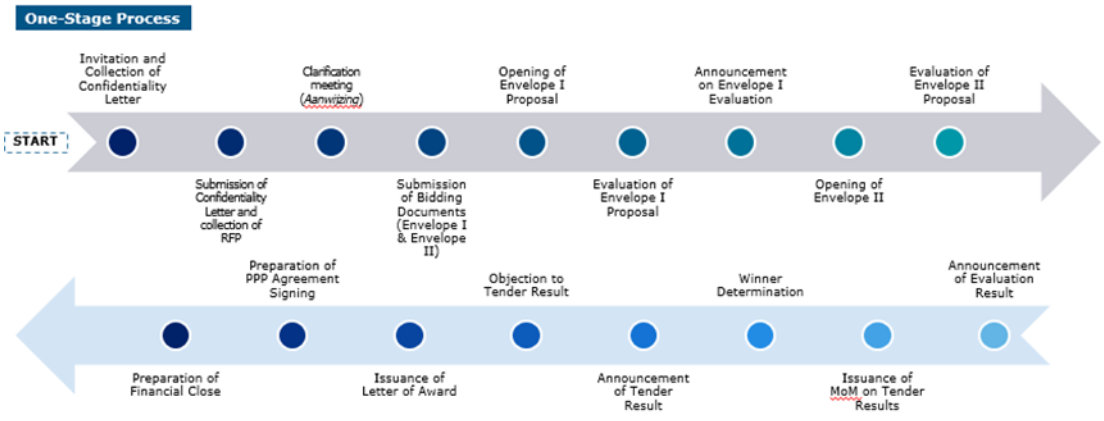
Figure 7-1 PQ Process

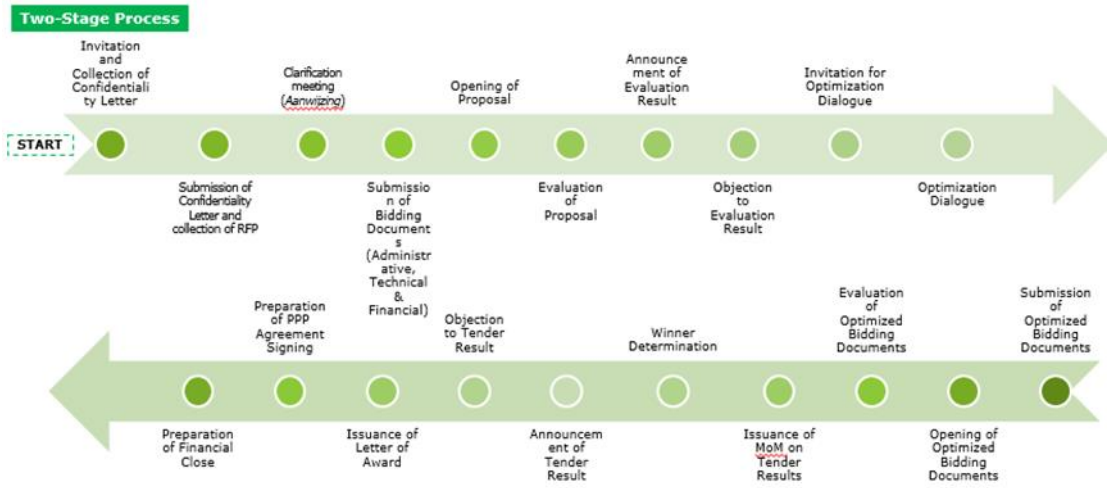


The PQ process commences upon the issuance of the RFQ documents, and ends with the announcement of the PQ results (in which bidders are given the opportunity to object on such results). During the PQ process, there are two clarification phases which allows potential bidder(s) and/or bidder(s) to inquire to the GCA in regards to the PQ process. These clarification phases are given upon post explanation meeting (should the potential bidder(s) have any additional question(s) and/or need further clarification on a certain matter in regards to the PQ process), and post evaluation of the PQ documents (objection period).

Upon completion PQ process, the tender process will continue with the issuance of RFP document as well as invitation and collection of confidentiality letter. The tender process differs, based on whether it is a one-stage or two-stage process. The following diagrams depicts the overall process of the one-stage and two-stage process, respectively.

Figure 7-2 One-Stage and Two-Stage Procurement Process

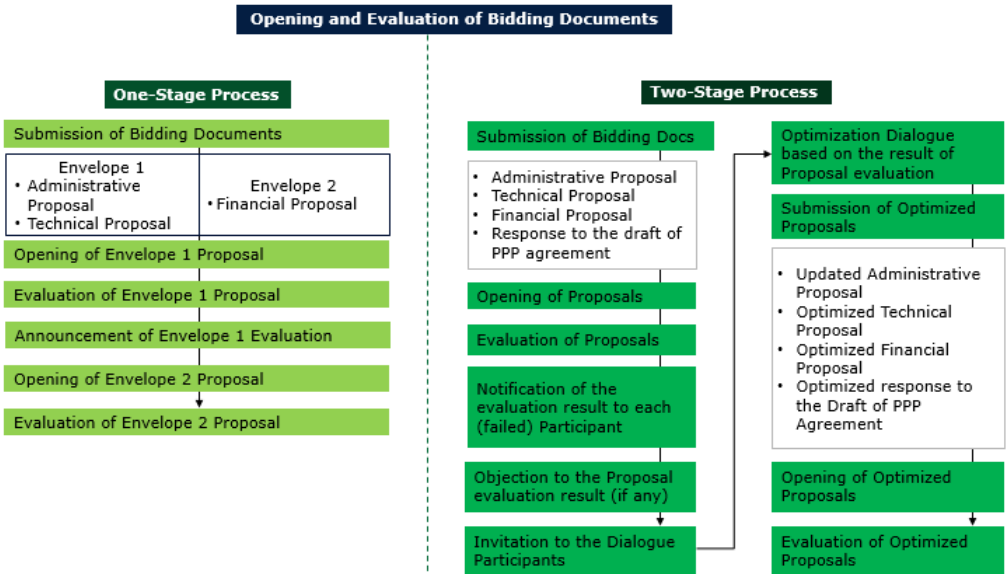




Up until the submission of proposal/bidding documents, the process is similar (submission of confidentiality letter and collection of RFP documents, clarification meeting, etc.) it is to be noted that, from submission of proposal onwards, the two stages are different in regards to the process.

The following diagram, summarizes the difference in regards to the opening and evaluation of proposal, between the one-stage process and the two-stage process.

Figure 7-3 Opening and Evaluation of Bidding Documents



Under the LKPP Regulation 29/2018 and as shown in the diagrams above, in the one-stage process, the proposal is divided into two different envelopes (sampul), in which envelope I shall contain administrative and technical proposal, and envelope II shall contain financial proposal. The two envelopes will be evaluated separately, and will each undergo the same process throughout the tender process, starting from opening of envelope, evaluation of envelope, and announcement of evaluation on each envelope.

The one-stage process as briefly explained above, differs with the two-stage process, LKPP Regulation 29/2018 does not specifically state that the proposal shall be submitted in two separate envelopes (as shown in the one-stage process) for the two-stage process.. Thus, the administrative, technical and financial proposal are merged into a single proposal. The major difference between the one-stage and two-stage process, is the possibility of having an optimization dialogue or a one-on-one meeting with the procurement team/GCA, to produce a more enhanced proposal, more-suited with the needs of the project and GCA. As per the diagram above, upon completion of the objection of the evaluation result process, the bidders are then shortlisted and invited by the procurement team/GCA to the optimization dialogue.

Optimization dialogue, aims to enhance bidder's proposal in order to obtain a better offer to the GCA, with regards to the value for money. Shortlisted bidders are referred to as dialogue participants. The procurement team may inquire to the dialogue participants to provide them with input, in regards to the dialogue topic discussion. Upon completion of such optimization dialogue, the dialogue participants shall submit the enhanced proposal, and it will undergo the same evaluation process as the initial proposal. Article 18 (6) of LKPP Regulation 29/2018 enables the procurement team (with prior approval of the GCA) to conduct the dialogue (starting from the invitation to the optimization dialogue until the evaluation of the optimized proposal) more than once, in the event the following condition(s) occurs:

a) the financial proposal (in the optimized proposal) of the highest-ranked bidder is not better than the initial proposal; or

b) the optimized proposal submitted by the highest-ranked bidder is not in line with the Minutes of Optimization Dialogue;

c) the optimized proposal of the highest-ranked bidder does not have the best value for money due to material factors which may adversely affect the procurement result, and is not in line with the purpose of the procurement as set forth in the RFP.

Upon completion of such optimization dialogue, the tender process will undergo similar steps with the one-stage process.

Another method of procurement under LKPP Regulation 29/2018 is the direct appointment of IBE. Direct appointment, under Article 20 of LKPP Regulation 29/2018, may be done in the event that there is a certain condition in regards to the PPP Project (further elaborated in the next paragraph, such certain conditions are: (i) the development of infrastructure which has been previously built and/or operated by the same IBE; (ii) only one service provider/potential IBE can provide and/or implement the use of new technology which is required for the project; or (iii) such IBE has acquired possession/control over the majority or all land which are going to be used for the PPP project), or the PQ process results in one qualified bidder.

4. Signing of PPP Agreement

Prior to the signing of PPP agreement, the winning bidder shall establish an IBE, at the latest 6 (six) months after the letter of award. The GCA and IBE shall sign the PPP agreement no later than 40 (forty) days after the IBE establishment.

5. Financial Close

At the maximum of 12 (twelve) months after IBE signed PPP Agreement, IBE shall have to obtain financing over PPP project. Based on GCA's consideration (of which is stated in relevant provision regarding financial close under the PPP agreement), this time can be extended with the maximum 6 (months) period. Financial close will be declared accomplished if the loan agreement is signed and the loan is able to be partially draw down. In the event that PPP is divided into several stages, the financial close shall be declared accomplished in the event of:

i. loan agreement to finance one of the PPP stages that has been signed; and

ii. the loan is able to be partially drawndown for the PPP stage as referred to in point (i).

In the event that the time period cannot be met by IBE, the PPP Agreement shall be terminated and the GCA reserves the rights to execute the performance bond.

Contract Management

Regulations that provide the guidelines in conducting contract management of transport infrastructure projects is not limited to only Bappenas Regulation 4/2015 as it is also regulated by the technical ministries depending on the project sub-sector. For road and toll road sub-sector, the projects must comply with the regulation issued by Minister of Public Works and Housing namely MPWH Regulation 21/2018. As for in the railway, airport, and port subsectors which fall under Ministry of Transport's authority is regulated under MoT Regulation 58/2018 and its derivative regulation. Both said ministerial-level regulations provide definitive guidelines for GCA and IBE in managing the PPP Agreement implementation by also referring to Bappenas Regulation 4/2015.

The following description highlights the key aspects of Contract Management of PPP Project in road and toll road sub-sectors under MPWH Regulation 21/2018.

The management of PPP Agreement implementation is conducted to ensure the availability of service, and the execution of each obligation of GCA and IBE is fulfilled in accordance with the PPP agreement. In managing the PPP Agreement implementation, GCA ensure the execution of guarantee agreement and recourse agreement is not deviate from respective agreement. PPP Management unit also assist GCA in overseeing and control the execution of PPP Agreement. The management itself is conducted throughout 4 phases, as follows:

a. Pre-construction

The management during the pre-construction phase is starting from the achievement of financial close by IBE until the commencement of construction. PPP management unit is task in supervising the implementation of PPP agreement in pre-construction to ensure the construction phase achieved.

b. Construction

The management during the construction phase is started from the commencement of construction phase until the PPP Project reach commercial operation date. The PPP management unit is tasked in conducting several implementation management such as the design of the new facility that have been made by IBE as the case may be or the integration of the new facility and existing facilities. Moreover, the PPP management also conduct the implementation management in regards with GCA' right to submit issue or concerns in connection with the failure or the inability of IBE to adhere to the PPP Areement.

During the construction phase, if there is a transfer of IBE's share before the commencement of commercial operation date, the PPP Node must coordinate with organization unit in carrying out the activities that includes the determination of transfer of shares criteria by GCA, conducting the qualification towards the potential shareholders of the IBE, requesting for GCA proposal if the potential shareholder has fulfilled all the criteria of IBE share transfer and qualification conditions, and preparing the approval of IBE shares transfer that will be signed by GCA.

c. Operation

Implementation of PPP management during operations is started from the time the PPP operates commercially until the expiration of the PPP agreement period. Beside supervising the implementation of PPP agreement, the PPP management unit also supervise the service performance standards in accordance with the PPP Agreement.

d. End of PPP Agreement

Towards the end of PPP agreement period PPP Node shall consider on re-transfer of assets to GCA, PPP agreement has to regulate specific conditions of the project that required on the period of PPP agreement is terminated, and the PPP is transferred to GCA. PPP Node also has roles in conducting the asset assesment to calculate the cost estimation that required operating and maintaining (routine and non-routine) during of the period, evaluate the availability of human resources that owned by GCA evaluate the availability of spare parts for the infrastructures and its syste and evaluate the management implementation efficiency during the period.

Moreover, if the asset is transferred back to GCA at the end of PPP agreement, the PPP management unit are also conducting an evaluation towards the readiness of GCA in operating the infrastructure post PPP Agreement. The evaluation itself is conducted at most 12 month before the end of PPP Agreement, and covers several aspects, namely technology transfer readiness, human resources competence and availability, budget availability to operate the infrastructure, IBE performance evaluation, and risk analysis if the operation of infrastructure is conducted by the government.

In different note, supervision and evaluation of infrastructure project in railway, airport, and port sub-sectors is mandated to be regulated under Minister of Transport regulation. That regulation, however, has not been issued yet to this day. The MPWH Regulation 58/2018 only provides explanation in general.

MPWH Regulation 58/2018 expressly requires the IBE to regularly submit financial and construction development report to the GCA every 6 months. Should the IBE fails to submit the report and/or the GCA judges that there is no significant development of the project, the GCA will give notice letter 3 (three) times within 3 months period. In the event of the IBE did not correct it, the project may be terminated and the performance bond shall be disbursed to the state.

8 Analysis and Recommendations for Indonesia

8.1 Recommendations for Planning

As previously emphasized above, transportation solutions can simultaneously boost efficacy of an economy's regional and international trade routes when appropriately planned. It will also improve the movement of human capital and other services throughout urban centres and other populated areas. Enabling planning and investment policies must be present therefore, to drive effectiveness and efficiency in urban centres.

For transport sector, it is very important to have an aligned planning in national and regional level as it has significant impact to the connectivity of transportation system. As explained, effective infrastructure planning typically requires perspectives from central government to evaluate holistic needs of the population.

In Indonesian context, the challenge being faced is to develop an effective, affordable, environment-friendly and sustainable national transportation system. Meaning that the each level (national and regional) planning documents must be integrated and aligned. In this regard, what can be implemented in Indonesia's practice is to intensify scoping study aimed to provide national and regional development roadmap. Importantly, the planning must also consider existing transportation assets and its connectivity potential with the newly-built or planned assets.

8.2 Recommendations for Regulatory Framework

It is important to have a supportive regulatory framework that promotes private sector participation in transportation infrastructure projets. This includes having regulatory environment that is open for the implementation of various project scheme/modalities. It is worth noting that there is no regulation expressly limits the implementation of specific modality for PPP project in transportation sector.

However, take for instance in railway sector, the regulatory framework might be unfavorable for the implementation of specific modality in a certain railway infrastructure project. Based on Law 23/2007, Railway Facilities Implementer must pay track access charge to Railway Infrastructure Implementer for utilizing railway infrastructures being managed by the Railway Infrastructure Implementer. MoT Regulation 62/2013 (as amended) and MoT Regulation 84/2016 (as amended), however, provide that the track access charge may only be imposed for railway infrastructures owned by the state as it will be regarded as Non-Tax State Income (PNBP). Meaning that in PPP projects using availability payment as the investment return source for the IBE and where the IBE is required to construct new railway infrastructure, once the infrastructure is fully constructed it must be registered as state assets first before it can be operated by the Railway Facilities Implementer. This scheme indirectly disfavors the implementation of Build-Operate-Transfer modality and requires the implementation of Build-Transfer-Operate modality instead.

Based on the above instance, it is necessary to amend certain regulations that may inhibit the implementation of specific modality to increase the appetite of private sector to parcitipate in the projects.

8.3 Recommendations for Project Benchmarks

As mentioned earlier, fundamental role of the public sector - regardless of the type of infrastructure - revolves around defining scope, specifying objectives and outputs of the asset/service, and holistically establish tools for successful PPPs. From the case study of Queen Alia International Airport Expansion project, it is learnt that the role of dedicated Project Management Unit was the key, providing for project continutity from the original procurement through to eventual renegotiation. This unit clearly acted on the authority of the government, helping to push through approvals for scope changes in a time-effective manner.

One of the challenges being faced in the transportation sector in Indonesia is suboptimal coordination among stakeholders in the preparation and transaction of PPP Project. It may be necessary to have a specific designated unit to act as management unit for the project, as it will help the project to be delivered smoothly and sustainably pursuant with the project goals by playing strategic role in the preparation to transaction process.

Projects in the ports sub-sectors (airports and seaports) have significant potential to leverage commercially-based PPP models were the private sector is given freedom to optimize and generate revenues through both operating revenues that are typically regulated in addition to commercial revenue sources that have market-based dynamics. This places greater emphasis on upfront planning and due diligence to understand the financial viability of these transactions. Additionally, the procurement processes should allow room for innovative solutions that can maximize revenues from operations and therefore minimizing cost to government.

For projects in the transit sector, an AP model is more likely the more viable alternative. This is due to two compounding factors, namely the high capital cost requirement of these projects and the low fares required to maintain ridership. It should also be considered that for some transit projects a VGF contribution capped at 49% of the projects capital cost might not be adequate. In other words, it may not be sufficient to lower the AP to the point where the local government agency can cover the gap between ridership revenues and the AP funding requirement. As noted from international examples, transit projects with upfront capital contributions in excess of 49% of the capital cost have been implemented.

8.4 Recommendations for Procurement & Transaction Management

In principle, the procurement process according to International Best Practice and Indonesian practice are similar to each other. As stated in International Best Practice section above, public sector has crucial role to play in the procurement process, with the project owner and its central agency stakeholders are responsible for selecting the private partner with whom they enter into PPP agreement.

Procurement process as one of the fundamental steps of PPP project must be carried out with the focus to get qualified and best partner to conduct the PPP project's determined scope that are required by GCA. In preparing the procurement process, there are several bid documents that must be prepared by Procurement Committee, such as Request for Qualification (RfQ) and Request for Proposal (RfP). Both of these documents must be prepared by the bidders, then submitted based on RfQ and RfP. After the submission of RfQ and RfP, the Procurement Committee will evaluate and then announce the bid winner after evaluating the administrative, technical, and financial proposal. The bid winner will be required to form a special purpose company who will sign the PPP agreement and achieve financial close as the last step of procurement & transaction process.

One of the mechanisms, as stated on International best practice, which is also applied in Indonesian practices is there is an information sharing & protection for communication between different entities within (or who assist) project owner – including parties such as the GCA; funding and monitoring agencies; legal, commercial and technical advisor.

Other than the above, the nature of PPP procurement steps in Indonesia and other country (for example in Canada) are similar in general, as follows:

1. Market Sounding;
2. RfQ;
3. RfP;
4. Bidder Selection & Negotiations; and
5. Financial Close.

The difference of procurement process in Canadian practice is they only have one-stage procurement process. It is different from Indonesian practice, which has two types of procurement process (one-stage and two-stages tender). The PPP procurement process in Canada, however, allows the bidders to submit the preliminary proposal that will be discussed after the submission. After that, the bidders may perfect their proposal and finalize it to be submitted. It is different from Indonesian practice, where in:

1. one-stage tender, there is only one period of proposal submission from the bidders. The bidders are not allowed to revise their bid afterwards;
2. two-stages tender, if necessary, there will be an Optimization Dialogue that are intended to enhance bidders' proposal to make better offer for the parties.

In retrospect, the implementation of tender in Canada and Indonesia's two stages tender might sound similar, however, what can be learnt from Canadian practice is they allow bidders to interact with the project owner to provide confidential and transparent avenues for in supplement to the electronic data room. These avenues inherently provide greater opportunity for bidders to develop optimal solutions for the project, and be as responsive to the project owner's requirements and needs.

8.5 Recommendations for Contract Management

After the signing of PPP agreement, the PPP project will commence and the contract management (management implementation) must be carried out to ensure the smoothness of the project execution. In Indonesian practice, PPP Node will assist GCA to supervise the implementation of PPP agreement on some of management implementation, such as:

1. new facility plan or explanation of services provided;
2. right to convey issues related to failure and inability of the IBE to fulfill PPP agreement;
3. delay or variation of construction schedule;
4. supervision over the conformity of technical planning with construction implementation; and
5. risk borne by GCA.

Specifically for infrastructure project in railway, airport, and port subsectors, the regulatory framework provide sanction for the IBE should any specific failure in relation with the project delivery occur. The IBE is expressly required to regularly submit financial and construction development report to the GCA every 6 months. Should the IBE fails to submit the report and/or the GCA judges that there is no significant development of the project, the GCA will give notice letter 3 (three) times within 3 months period. In the event of the IBE did not correct it, the project may be terminated and the performance bond shall be disbursed to the state.

It is different with Canadian practice on contract management issues that covers the following:

1. Financial challenges faced by IBE;
2. Default on obligations; and
3. Enforcement of user rights and obligations.

It is understood that contract management will be implemented to ensure the availability of services agreed by GCA and IBE on PPP agreement. What can be learnt from Canadian practice is that it also covers financial challenges faced by the IBE. Meaning that, the PPP Node or other designated functionary will also play roles in ensuring that the project is carried out smoothly by assisting the IBE to tackle its financial challenges.

8.6 Recommendations on Risk Analysis & Allocation

In a comparative analysis of the guidance on risk allocation and sharing for PPPs in the transport (specifically rail transport) sector, the following observations and recommendations can be made.

1. Site risk.
    - Transport access: international guidance posits the reminder that ensuring users can access the project via the existing transport network - particularly in instances where private operator assumes demand risk - is crucial to get right at the diligence stage. Given that selection of site is primarily a public sector responsibility, the project owner should take ownership of this risk.
    - Labour disputes and strike action: discussion in national risk guidelines suggests this is purely a private risk to bear, whereas international guidelines propose a more nuanced approach to the issue. The parsing of the issue will depend on the political stability of the jurisdiction, but ultimately it is suggested the PPP contract provide clear provisions for events of labour unrest.
    - Contamination and pollution of site: national risk guidelines suggest this is a private risk to bear. To the extent that the project owner's due diligence unearths the existence of known contamination; and it is consequently disclosed and priced in by the private bidder - this is true. However international guidance suggests that in cases of previously unknown contamination, there are contractual mechanisms that share responsibility between the partners.
2. Design, construction and commissioning risk.
    - Design specifications and changes therein: national risk guidelines appear to assume the project owner will be output based in design specifications, which would inherently transfer design risk to the private operator. However in practice this is not always the case based on regulation-based or project-specific needs. International guidance provides a more nuanced perspective, suggesting that to the specifications are output-driven the risk can be fulsomely transferred to the private sector. In instances where there are consequent changes to the design and construction requirements - whether it be project owner-dictated or as required by law - the risk may have to be shared.
3. Sponsor risk.
    - Step-in: while both national and international guidance supports the premise that private operator non-performance risk is borne by the private party, the latter supports a more nuanced approach to

the trigger of step-in rights. The project owner (and by extension the public sector) is primarily concerned with providing continued public services, and in some instances will want to step-in despite it not being the fault of the private operator (i.e. emergencies, intervention to protect against social and environmental risks).

4. Financial risk.
    - Refinancing: while national guidance does not provide detailed suggestion in this regard, international guidance suggests a proactive approach (i.e. by stipulating a mechanism in the PPP contract) from the project owner to share refinancing risks. Precedent mechanisms include a sharing of refinancing losses and gains between the two partners.
5. Operating risk.
    - Interface: while both national and international guidance supports the premise that private operator bears primary responsibility during the operations period, the latter notes some additional contexts for which sharing risk may be considered. Specific to the transport context, the project owner will need to plan for realities where extreme conditions (e.g. snow requiring track clearance, monsoon flooding) result in service interruptions (i.e. private operator may not be willing to accept this risk).
6. Revenue risk.
    - Demand: international guidance provides clarity in outlining considerations which affect the transfer of demand / revenue risk to the private operator (including limits on fare-setting, user willingness-to-pay, etc.), and in summarizing that private operators can credibly assume risk commonly when there is also some form of government subsidy.
7. Network connectivity risk.
    - Connectivity: as aforementioned, international guidance suggest that protection from adverse changes in user and revenue levels is closely related to government actions to link the project to connecting infrastructure, as well as planning surrounding traffic and network conditions.
8. Interface risk.
    - Interface: national guidance is not specific as to how the named risks would apply to a transport project. International guidance is silent on this risk category.
9. Political risk.
    - Change in law: national guidance and international guidance largely converge in perspective on this risk category. Importantly, both suggest the approach of having the private operator assume risk of changes in law beyond those that are sector-specific or otherwise discriminatory towards the project.
10. Force majeure risk.
    - Option to continue: national guidance and international guidance largely converge in perspective on this risk category. International guidance does provide some suggestions for instances wherein the private operator wishes to terminate the PPP following prolonged force majeure, but it is in the public sector interest to continue (i.e. contractual mechanisms to ensure private operator is sufficiently compensated and incentivized to continue the PPP).
11. Asset ownership risk.
    - Disruptive technology: while national guidance pinpoints this as a private operator risk, international guidance provides a more nuanced discussion on the topic. The project owner must carefully design contractual mechanisms (i.e. cost-sharing regime where either partner can request technological upgrades) to encourage the adoption of more efficient technologies or practices (i.e. ticketless travel via smartphone technology).
    - Early termination: while national guidance appears to be silent, international guidance provides best practices on determining cause and compensation for early termination.

Annexes

Annex I: Rule of Thumb Investment Parameters for the Indonesian Transport Sector

This Annex I is provided to equip personnel that are involved in identifying, planning, and preparing for PPP projects, in particular for the MoF PPP Unit to assist in executing its PDF role, with tools in the form of parameters that are based on rule of thumb general principles. The rule of thumb-based indicators are based on current data obtained and analyzed through the financial market data to obtain an understanding of market perceptions on indicators that the market considers bankable on a particular sector in the emerging market and Indonesian contexts

Use of a Rule of Thumbs as Comparative Tools

The rule of thumb principle is defined by Investopedia (2019) as a *'guideline that provides simplified advice regarding a particular subject. It is a general principle that gives practical instructions for accomplishing or approaching a certain task. Typically, rules of thumb develop as a result of practice and experience rather than from scientific research or theory.'*

Noting the variance of project proposals being identified and entering the sector PPP infrastructure project pipeline, the rule of thumb approach may be useful to identify potential statistical outliers as they are based on very broad general principles. Variance in projects entering the pipeline is due to the case-by-case basis as each project proposal shall have a unique approach in its project design to deliver its unique value proposition and this will be the main pillar of its business model that will in turn affect assumptions regarding the cost structure, the expected revenue stream, and the value chain partnerships that need to be established.

Rule of Thumb Project Cost Based on Typical Transport Sector Business Model Canvas

The Investment Parameters that are given in this sector relate to the 'Other Cost' component, particularly on the financial costs related to project financing. It will answer questions such as: is the cost of debt and equity too large for this project? If yes, then is it justifiable?

This Annex is provided to equip personnel that are involved in identifying, planning, and preparing for PPP projects, in particular for the MoF PPP Unit to assist in executing its PDF role. Sector-wide investment parameter are obtained based on data as of 31st December 2018 through Deloitte Konsultan Indonesia's Financial Advisory Services based on benchmarks obtained in the health sector from comparable data in emerging markets.

These data are obtained from the Damodaran NYU database, which aggregates and analyzes data from various sources such as Bloomberg, Morningstar, and other sector-specific global financial markets databases. Furthermore, the data is then unlevered to adjust to the Indonesian valuation context (non-diversifiable or systemic financial risk coefficients) to produce an 'unlevered beta coefficient.'

This section will define the: (i) summary of parameters for investment decision; (ii) weighted average cost of capital; (iii) cost of equity; (iv) risk-free rate; (v) unlevered beta coefficient; (vi) market risk premium; (vii) country risk premium; (viii) cost of debt; (ix) tax rate; and (x) other pull factors that attract investors.

The above parameters can be used as comparator when analyzing the project financing assumptions made during the initial stages of project identification, planning and preparation as these are market-driven data that act as a barometer for what the markets consider as potentially bankable projects. These parameters relate to market perceptions on financial risk and the costs of debt and equity that should be used to test any project financing assumptions. These parameters need to be updated and its 'beta unlevered' on an annual basis utilizing professional financial advisory services with reach to global and local sector-specific financial markets data and research.

Cost Structure

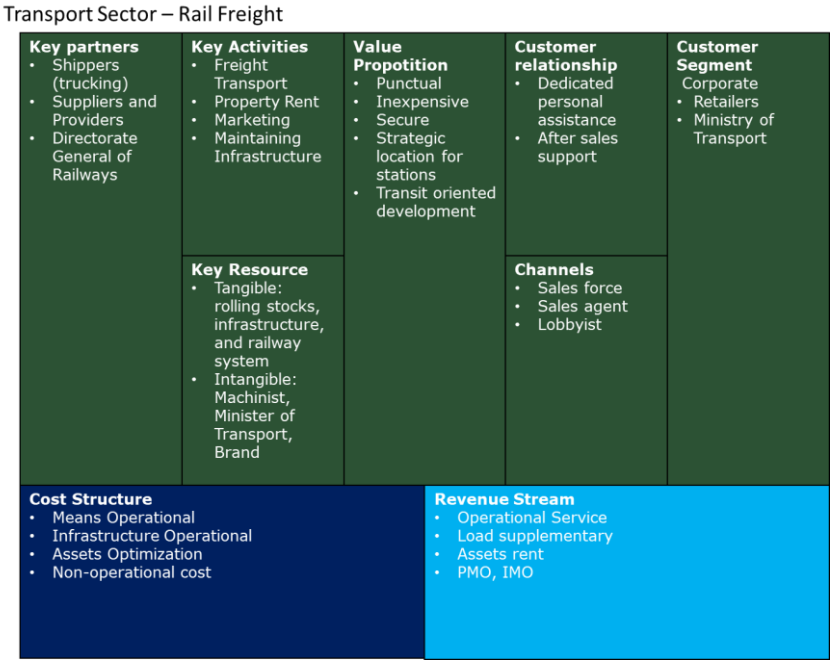


Figure 1-1 *Business Model Canvas - Rail Freight in Indonesia*

Figure 1-1 is a rule of thumb dashboard on how the rail freight sector in Indonesia delivers value. The minimum value proposition is that the rail freight option provides punctual, inexpensive and secure transportation mode for its targeted customer segment. Moreover, the key partners involved is a snapshot of the value chain relevant to ensure efficient and effective value delivery to the end user.

The cost structure for the rail freight in terms of its operational expenditure (OPEX) is composed of cost items to ensure operational readiness of infrastructure and other necessary means. It may also include other non-operational costs and asset optimization.

As figure 1.1 above illustrates, transport PPP is capital-intensive compare to other sector. In terms of capital expenditure (CAPEX), include selection of technology, structural design and land acquisition. As a result, the revenue stream should at least cover OPEX and financing cost (see section 1.3 and 1.4).

Investment Parameter

DISCOUNT RATE DECEMBER 31ST 2018

Weighted Average Cost of Capital				
	IDR		**USD**	
Indonesian Government Bond Rate (30 years)		9.09%		5.20%
Country Default Spread (CDS)		2.15%		2.15%
Risk free rate		**6.95%**		**3.05%**
Contry Risk Premium:				
Country Default Spread (CDS)	2.15%		2.15%	
Relative Volatility	1.23		1.23	
Contry Risk Premium:	**2.64%**		**2.64%**	
Mature Market Equity Risk Premium	5.96%		5.96%	
Indonesian Equity Risk Premium (ERP)	**8.60%**		**8.60%**	
Beta Unlevered	1.24		1.24	
Beta Levered	**1.45**		**1.45**	
Beta x ERP		12.50%		12.50%
Cost of Equity (CAPM)		**19.45%**		**15.55%**
Cost of Debt		**10.37%**		**5.52%**
Tax	25.0%		25.0%	
Weight of Equity	**81.3%**		**81.3%**	
Weight of Debt	18.7%		18.7%	
Weighted Average Cost of Captal (WACC)		**17.26%**		**13.41%**
WACC - Rounded		**17.30%**		**13.40%**

Figure 1-2 Components of the Weighted Average Cost of Capital for the Railway Transportation Sector in Emerging Market

Average Interest on Investment Loans (Data from Bank Indonesia)		
	IDR	**USD**
Bank Persero	10.06%	5.48%
Bank Umum Swasta Nasional	10.67%	5.79%
Bank Umum	10.38%	5.28%
Average without BPD	**10.37%**	**5.52%**
BPD	11.21%	
Average including BPD	**10.58%**	

Indo Government Bond Rate	**IDR**	**USD**	**Interest Rate Difference**
10 years	8.03%	4.50%	3.53%
20 Years	8.41%	5.40%	3.01%
30 Years	9.09%	5.20%	3.89%

Figure 0-3 *Average Interest Rates on Investment Loan and Bond Maturity in Indonesia*

Weighted average cost of capital

WACC represents an investor's expected return to fund the assets of an enterprise. WACC is computed by summing the cost of each capital component multiplied by its proportional weight.

Generally, an enterprise is funded by debt and equity. Hence, we can calculate WACC using he following formula:

WACC = [E / C] * Cost of equity + [D / C] * (1 - tax rate) * Cost of debt

where:

C = Debt + Equity

E = Equity

D = Debt

Cost of Equity

The required rate of return on equity is estimated using the variant of Capital Asset Pricing Model ("CAPM").

CAPM computes the required rate of return on equity as a function of the rate of return on a risk-free investment, plus an equity risk premium (the return stockholders expect above the return on a risk-free investment), multiplied by the "beta" for the investment.

Beta measures the relationship between the price movements of ownership participants for individual companies to price movement of a fully diversified stock portfolio.

The Cost of Equity formula is as follows:

$$K_e = R_f + ß * [E (R_m) - R_f] + SP$$

where:

K_e = Cost of equity

R_f = Risk free rate

ß = Measure of the sensitivity of the asset returns to market returns

E (R_m) = Expected market return

SP = Company specific risk premium

Risk-Free Rate (Rf)

The CAPM implicitly assumes the presence of a single risk-less asset, that is, an asset perceived by all investors as having no risk. Return on such assets is the risk-free rate of return.

We have used the 30-year Indonesian Sovereign Bond yields computed by Bloomberg as a proxy for the Indonesia risk-free rate. The yields of such bonds as of 31 December 2018 for Indonesian Sovereign Bond yields in IDR was 9.09%, while Bond Yield in USD was 5.20%.

Beta (ß)

Risk associated with the asset (non-diversifiable or systematic risk) is measured by the Beta coefficient. It can also be defined as the sensitivity of the asset returns to market returns. It is estimated by regressing assets excess return against the market portfolio's excess return. Slope of the regression equation is beta. As a proxy we have considered median unlevered beta of a listed peer group.

Such beta is then adjusted to reflect the difference between the effective tax rate and capital structure of the peer company. The result is called "unlevered beta".

The "unlevered beta" is readjusted for the capital structure and applicable tax rate. The following formula is used to adjust for the difference in the capital structure and the tax rate.

*Levered Beta = Unlevered Beta * [1 + (1 - tax rate) (D / E)]*

where:

D/E = Debt to equity ratio

Based on the Damodaran's data extracted as of 31 December 2018, the estimated unlevered beta for Railway sub-sector is 1.24. The estimated re-levered beta is 1.45.

Market Risk Premium ("MRP")

The equity market risk premium represents the additional return an investor expects to receive for investing in a risky asset i.e. stock market as compared to investing in risk-free assets.

According to Damodaran, the market risk premium as of 31 December 2018 was 5.96%.

Country Equity Risk Premium

The equity market risk premium represents the additional return an investor expects to receive for investing in a risky asset i.e. stock market as compared to investing in risk-free assets.

Country equity risk premium ("CERP") represents risk premium attributable to the risks specific to the country. It is designed to account for macroeconomic factors such as political instability, volatile exchange rates and economic turmoil which are possibly not reflected elsewhere.

CERP is estimated by multiplying country default spread ("CDS") with 1.23x being the global average of equity to bond market volatility (which is the country equity risk multiple ("CERM")).

Indonesia CDS is sourced from Damodaran, which is 2.15%. By multiplying that number by 1.23x, we obtained Indonesia Risk Premium of 2.64%.

Cost of Equity

From the above analysis, we obtain a cost of equity in IDR of 19.45%, meanwhile for cost of equity in USD is 15.55%

Target Capital Structure (Debt to Equity Ratio)

Theoretically, an "optimal" capital structure should be used to estimate a company's WACC in the case of an acquisition. Deciding on an "optimal" capital structure is a subjective exercise.

Based on this premise, the estimated capital structure range based on the capital structure of Railway sub-sector, is 18.7% debt and 81.3% equity

Assumptions Regarding Use of Damodaran-derived Investment Parameters

The ratios and or other investment parameters produced are based on international financial markets estimations.

Such estimations capture the appetite of international markets to a particular sector in emerging markets for project financing specifically unlevered for the Indonesian context.

Thus, there are only parameters, which may or may not reflect actual practice and most notably not indicative of the national banking sector appetite as these are varied based on the project and the unique value proposition and potential monetization it may bring.

Furthermore, variances between local market perceptions and international market perceptions may also occur. In some cases, it may even be a deliberate policy action to stimulate local industries into having a portfolio in particular sector in an attempt to create a domestic market.

Tax Rate

We have used the statutory corporate tax rate in Indonesia of 25.0%.

Cost of Debt

Cost of debt for Indonesia is estimated based on the Indonesian IDR and USD lending rate as of 31 December 2018, published by Bank Indonesia which is 10.37% and 5.52%, respectively. Hence, the cost of debt after tax is 7.78% for IDR and 4.14% for USD

WACC

Based on information presented previously, using Capital Asset Pricing Model (CAPM) the estimated WACC for Railway sub-sector in IDR is 17.26%, while WACC in USD will be 13.41%.

Airport Sector

Airport sector will based on this following assessment: 1) without a project, 2) with project.

Without a project, there will be loss of potential economic productivity; less job creation; and continued accident rates. In spite of this, there are environmental benefits such as less global warming; less noise pollution; more vegetation and more space.

With a project, there are many benefits. Firstly, direct benefit of the project is potential revenues from the airport. Secondly, an existence of airport would directly increase potential revenues from tourism activities. Further, being able to travel back and forth because of an airport increases socio-economic integration and social inclusion. After that property prices in the areas that surround the airport will increase, creates the area more attractive to various kind of land uses.

The main direct costs related to airport projects are its capital and operational expenditure. Airports are a massive project that requires high investment cost. Operational expenditures covers personnel costs, basic consumption (electricity, gas, water), replacement cost and maintenance of equipment, systems and infrastructure. There will also be higher vehicle operating costs because of fuel consumption, tire deterioration, administration, insurance, etc. The travel time costs will exist because of pre-existing traffic, generated/induced traffic.

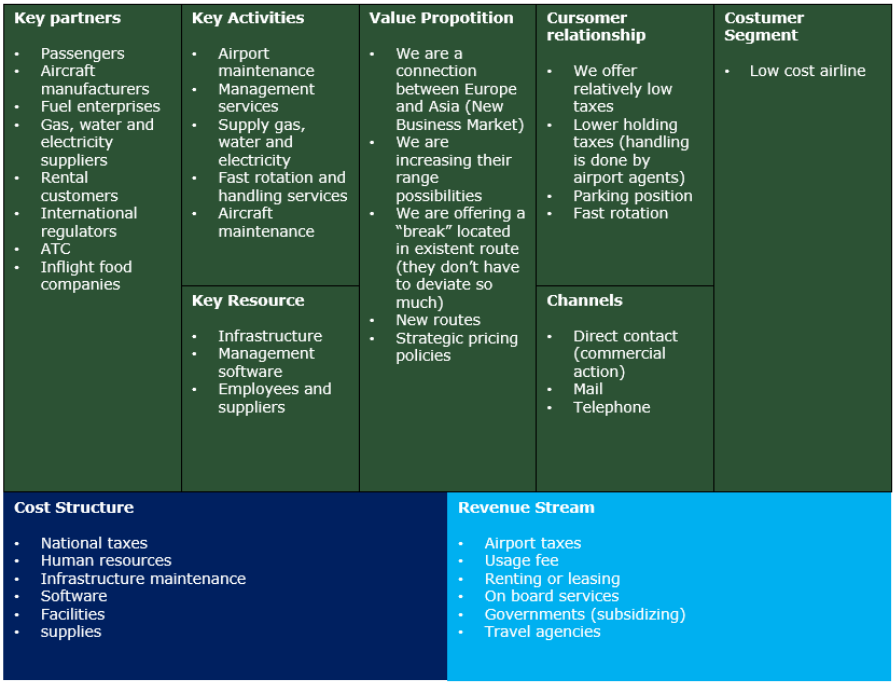
Potential indirect cost derives from land needs that creates potential loss of vegetation, land acquisition cost and population reallocation. It also creates air pollution, damaging people's respiratory system; more GHG emissions released due to uses of jet fuel and other supporting vehicle of airports; and noise pollution, which can also result in cardiovascular diseases if the noise level is above 50dB(A). Airport projects also result in higher air traffic flow because more flights mean less air space.

This table will summarize the information given above:

<table>
<tr><th colspan="2">CBA Summary: Airport Sector</th></tr>
<tr><td colspan="2">With Project</td></tr>
<tr><th>Costs</th><th>Benefits</th></tr>
<tr><td>1. Capex, include construction costs, land and property costs and compensation, preparation and administration costs, and on-site supervision and testing.
2. Opex:
1. traffic related costs and include costs for reconstruction, resurfacing, surface dressing, etc.
2. non-traffic related costs and include for example landside costs or airside costs. Landside costs are those incurred by processing passengers and cargo through terminals. Airside costs are those attributable to processing aircraft through aprons, taxiways and runways.
3. Higher air traffic flow
4. Travel time costs (from home to airport)
5. Vehicle operating costs
6. Social and Environmental Costs
• Pollution during construction
• Loss of vegetation
• Noise pollution</td><td>1. Air transportation safety
2. improvements in service reliability and predictability
3. Identified Revenue
4. Increase in Employment
5. Increase in Property Price
6. Increase in Tourism
7. Socio-economic integration
8. Social inclusion
9. Higher Capacity
10. reductions in travel, access and waiting time
11. Savings in operating costs due to increases in traffic</td></tr>
<tr><td colspan="2">Without Project</td></tr>
<tr><th>Costs</th><th>Benefits</th></tr>
<tr><td>1. Loss of potential economic productivity
2. Less job creation
3. Continued accident rates</td><td>1. Less global warming
2. Less noise pollution
3. More vegetation
4. More space</td></tr>
</table>

Cost Structure

Transport Sector – Airport



1. Investment costs(often referred to as capital costs) include construction costs, land and property costs and compensation, preparation and administration costs, and on-site supervision and testing.
2. Maintenance costs are traffic related costs and include costs for reconstruction, resurfacing, surface dressing, etc.

Operating costs are non-traffic related costs and include for example landside costs or airside costs. Landside costs are those incurred by processing passengers and cargo through terminals. Airside costs are those attributable to processing aircraft through aprons, taxiways and runways

Revenue Structure and Stream

Basic revenue structure and stream in airport sector are as follow

1. Aeronotical revenue

   Aeronautical revenue comprises the majority of airport income, and includes airline terminal space rentals, airline landing fees, and usage fees for terminals, gates, services and passenger counts,

2. Non aeronotical revenue

   This revenue stream from landside activities such as parking, Parking, Ground Transportation and Rental Cars, Concessions and Retail, Commercial Development, Advertising and More

Investment Parameter

DISCOUNT RATE DECEMBER 31ST 2018

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Risk free rate		**6.95%**		**3.05%**
Contry Risk Premium:				
Country Default Spread (CDS)	2.15%		2.15%	
Relative Volatility	1.23		1.23	
Contry Risk Premium:	**2.64%**		**2.64%**	
Mature Market Equity Risk Premium	5.96%		5.96%	
Indonesian Equity Risk Premium (ERP)	**8.60%**		**8.60%**	
Beta Unlevered	0.50		0.50	
Beta Levered	**0.93**		**0.93**	
Beta x ERP		7.96%		7.96%
Cost of Equity (CAPM)		**14.90%**		**11.01%**
Cost of Debt		**10.37%**		**5.52%**
Tax	25.0%		25.0%	
Weight of Equity	**46.3%**		**46.3%**	
Weight of Debt	53.7%		53.7%	
Weighted Average Cost of Captal (WACC)		**11.08%**		**7.32%**
WACC - Rounded		**11.10%**		**7.30%**

Average Interest on Investment Loans (Data from Bank Indonesia)	IDR	USD
Bank Persero	10.06%	5.48%
Bank Umum Swasta Nasional	10.67%	5.79%
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Weighted average cost of capital

WACC represents an investor's expected return to fund the assets of an enterprise. WACC is computed by summing the cost of each capital component multiplied by its proportional weight.

Generally, an enterprise is funded by debt and equity. Hence, we can calculate WACC using the following formula:

*WACC = [E / C] * Cost of equity + [D / C] * (1 - tax rate) * Cost of debt*
where:
C = Debt + Equity
E = Equity
D = Debt

Cost of Equity

The required rate of return on equity is estimated using the variant of Capital Asset Pricing Model ("CAPM").

CAPM computes the required rate of return on equity as a function of the rate of return on a risk-free investment, plus an equity risk premium (the return stockholders expect above the return on a risk-free investment), multiplied by the "beta" for the investment.

Beta measures the relationship between the price movements of ownership participants for individual companies to price movement of a fully diversified stock portfolio.

The Cost of Equity formula is as follows:

$$K_e = R_f + ß * [E(R_m) - R_f] + SP$$

where:
K_e *= Cost of equity*
R_f *= Risk free rate*
ß = Measure of the sensitivity of the asset returns to market returns
$E(R_m)$ *= Expected market return*
SP = Company specific risk premium

Risk-Free Rate (Rf)

The CAPM implicitly assumes the presence of a single risk-less asset, that is, an asset perceived by all investors as having no risk. Return on such assets is the risk-free rate of return.

We have used the 30-year Indonesian Sovereign Bond yields computed by Bloomberg as a proxy for the Indonesia risk-free rate. The yields of such bonds as of 31 December 2018 for Indonesian Sovereign Bond yields in IDR was 9.09%, while Bond Yield in USD was 5.20%.

Beta (ß)

Risk associated with the asset (non-diversifiable or systematic risk) is measured by the Beta coefficient. It can also be defined as the sensitivity of the asset returns to market returns. It is estimated by regressing assets excess return against the market portfolio's excess return. Slope of the regression equation is beta. As a proxy we have considered median unlevered beta of a listed peer group.

Such beta is then adjusted to reflect the difference between the effective tax rate and capital structure of the peer company. The result is called "unlevered beta".

The "unlevered beta" is readjusted for the capital structure and applicable tax rate. The following formula is used to adjust for the difference in the capital structure and the tax rate.

*Levered Beta = Unlevered Beta * [1 + (1 - tax rate) (D / E)]*
where:
D/E = Debt to equity ratio

Based on the Damodaran's data extracted as of 31 December 2018, the estimated unlevered beta for Airport sub-sector is 0.50. The estimated re-levered beta is 0.93.

Market Risk Premium ("MRP")

The equity market risk premium represents the additional return an investor expects to receive for investing in a risky asset i.e. stock market as compared to investing in risk-free assets.

According to Damodaran, the market risk premium as of 31 December 2018 was 5.96%.

Country Equity Risk Premium

The equity market risk premium represents the additional return an investor expects to receive for investing in a risky asset i.e. stock market as compared to investing in risk-free assets.

Country equity risk premium ("CERP") represents risk premium attributable to the risks specific to the country. It is designed to account for macroeconomic factors such as political instability, volatile exchange rates and economic turmoil which are possibly not reflected elsewhere.

CERP is estimated by multiplying country default spread ("CDS") with 1.23x being the global average of equity to bond market volatility (which is the country equity risk multiple ("CERM")).

Indonesia CDS is sourced from Damodaran, which is 2.15%. By multiplying that number by 1.23x, we obtained Indonesia Risk Premium of 2.64%.

Cost of Equity

From the above analysis, we obtain a cost of equity in IDR of 14.90%, meanwhile for cost of equity in USD is 11.01%.

Target Capital Structure (Debt to Equity Ratio)

Theoretically, an "optimal" capital structure should be used to estimate a company's WACC in the case of an acquisition. Deciding on an "optimal" capital structure is a subjective exercise.

Based on this premise, the estimated capital structure range based on the capital structure of Airport sub-sector, is 53.7% debt and 46.3% equity

Assumptions Regarding Use of Damodaran-derived Investment Parameters

The ratios and or other investment parameters produced are based on international financial markets estimations.

Such estimations capture the appetite of international markets to a particular sector in emerging markets for project financing specifically unlevered for the Indonesian context.

Thus, there are only parameters, which may or may not reflect actual practice and most notably not indicative of the national banking sector appetite as these are varied based on the project and the unique value proposition and potential monetization it may bring.

Furthermore, variances between local market perceptions and international market perceptions may also occur. In some cases, it may even be a deliberate policy action to stimulate local industries into having a portfolio in particular sector in an attempt to create a domestic market.

Tax Rate

We have used the statutory corporate tax rate in Indonesia of 25.0%.

Cost of Debt

Cost of debt for Indonesia is estimated based on the Indonesian IDR and USD lending rate as of 31 December 2018, published by Bank Indonesia which is 10.37% and 5.52%, respectively. Hence, the cost of debt after tax is 7.78% for IDR and 4.14% for USD

WACC

Based on information presented previously, using Capital Asset Pricing Model (CAPM) the estimated WACC for Airport sub-sector in IDR is 11.08%, while WACC in USD will be 7.32%.

Port Sector

Port sector will be based on this following assessment: 1) without a project, 2) with project.

Without having port projects, there will be a higher dwell time; loss of competition against foreign markets; and higher shipping operating costs.

With a project, accessibility to remote parts in Indonesia will increase. Higher accessibility between cities adds to the economy of the previously cut off places in Indonesia. Secondly, sea transport costs could be avoided where there is potential revenues from port business. Thirdly, there is the residual value of ports. Residual value of ports could be identified from comparing port lifetime with the project duration. Lastly, there will be a decrease in shipping costs since there is no need to take on the handling fee of other companies e.g. Singapore as a transshipment due to Indonesia having its own facilities.

There are also costs associated with the port projects. First is capital expenditure, which depends on the size and location of the port. Second is operational expenditure that includes pre-existing and new maintenance costs e.g. machinery, cargo facilities, labor. Third is landside transport cost, which depends on the size of the port. Fourth is dwell time – the time it takes for a container to be unloaded from a vessel to the time it takes to leave a port – which could increase because of overcapacity. Fifth, turnaround time could increase because some vessels have to wait instead of operating productively.

The other costs are indirectly occurs such as environmental cost; the construction of ports create air and noise pollution. It also creates water pollution because of the potential for oil spills. The operation of ports has the same negative environmental impacts; the noise pollution for operation depends on the time and the population density near the noise source.

For operating time, the direct benefits are an increase in import and export tax revenues and job creation. The increase in import and tax revenues lets the shipping costs go down, allowing more goods to be exported and imported. The indirect benefits include a decrease in shipping costs, increase in economic productivity and increased investment. Increasing investment could potentially decrease the dwell time if money is allocated towards improving the speed of cargo and the transmission of information about cargo flow and space availability. The decrease in dwell time would then increase supply chain efficiency.

This table will summarize the information given above:

<table>
<tr><th colspan="2">CBA Summary: Port Sector</th></tr>
<tr><td colspan="2">With Project</td></tr>
<tr><th>Costs</th><th>Benefits</th></tr>
<tr><td>1. Capex, includes Preliminery engineering, Right of way and utilities, Construction Cost
2. Opex:
3. cost of payment system operation cost, right of way operation cost, service management cost
4. includes routine and periodic maintenance and repairment and bettermen
5. Landside transport cost
6. Social and Environmental Costs
• Pollution during construction
• Adverse environmental impacts on key marine, land and coastal areas
• Noise pollution
• Vehicle operational cost change
• Dwell Time</td><td>1. Accessibility
2. Avoided sea transport costs
3. Identified Revenue
4. Residual value of assists
5. Property prices
6. Decrease in shipping costs</td></tr>
<tr><td colspan="2">Without Project</td></tr>
<tr><th>Costs</th><th>Benefits</th></tr>
<tr><td>1. Long Dwell Time
2. Loss of competition against foreign markets
3. Shipping operating cost</td><td>N/A</td></tr>
</table>

The economic benefits of ports are usually measured at an aggregate level by indicators such as value added, employment, taxation revenue and return on investment. These indicators are primordial for the decision to invest in port development and must take into consideration

1. Demand forecasts trying to evaluate the expected traffic that the investment will support and facilitate.
2. Liner shipping strategies, particularly how they service markets and how the port fits within their service configuration in terms of ship capacity and frequency. While some ports are acting as load centers, others are transshipment hubs. The function of transshipment is often the outcome of the strategy of a shipping company to service specific regions.
3. Hinterland transport capacity and accessibility is contingent to the cargo that is bound to and originating from the port. It defines the existing and potential cargo base that could be handled by the port.
4. Competition between terminals, since there may be competing terminals within the same port facility. Terminals in a monopolistic situation usually have more pricing power but can be linked with higher returns.
5. Financing of investment relates to the capital source and conditions. Large port infrastructure projects are usually financed by bonds issued by port authorities or by investments made by international financial institutions such as development banks, sovereign wealth funds or pension funds.

Cost Structure

Transport Sector – Seaport

<table>
<tr>
<td rowspan="2">Key partners
• Port Authority
• Union
• Transport operators (shipowners, railway companies, trucking companies)
• Terminal opertors
• Agencies: forwarding, shipping
• Industrial companies
• Custome</td>
<td>Key Activities
• Shipping handling
• Container yard
• Custome
• Bulk handling
• Crane operation
• Sea transport financing</td>
<td rowspan="2">Value Propotition
• Terminal productivity
• Cost efficiency
• Minimal environment impact</td>
<td>Cursomer relationship
• Efficient terminal
• Fast moving freight
• Competitive cost</td>
<td rowspan="2">Costumer Segment
• Sea transport passenger and freight movement</td>
</tr>
<tr>
<td>Key Resource
• Infrastructure
• Management
• Employee
• Technology
• Operation system</td>
<td>Channels
• Direct contact
• Internet
• Digital billing system
• Dashboard</td>
</tr>
<tr>
<td colspan="3">Cost Structure
• Port Infrastructure investment
• Port operation and mantenance cost
• Port development investment</td>
<td colspan="2">Revenue Stream
• Tax : Seaport tax
• No operation box revenue: Propoerty leasing, Custome, quarantine
• Operation revenue: Cargo handling, Terminal / agencies fees, Government subsidy</td>
</tr>
</table>

Cost structure of PPP project in port Port infrastructure investment

A. Port infrastructure investment costs

B. Port ooperation and maintenance costs

C. Port management costs

D. Port development investment costs

Revenue Structure and Stream

1. Port of call revenue

This type of revenue consists of 1) Port dues: tonage and mooring dues, 2) Pilotage: sea, river, and dock, 3) Towage: river, bay, port towage, 4) Agecy fee, 5) Other costs: berthing/unvberthing, ship reporting fee, 6) Port state retribution, 7) Waste facilities fee, 8) Bunkering fee, and 9) Shipping supplier sales (water, lectricity, cleaning, etc)

2. Handling revenue
3. This revenue consist of cargo handling on quay fee, transport to and from storage, storage, delivery/receiving, cargo moving inland, custom, bandling of empty boxes, storing of empty boxes
4. Concession fee

Investment Parameter

DISCOUNT RATE DECEMBER 31ST 2018

Weighted Average Cost of Capital				
	IDR		**USD**	
Indonesian Government Bond Rate (30 years)		9.09%		5.20%
Country Default Spread (CDS)		2.15%		2.15%
Risk free rate		**6.95%**		**3.05%**
Contry Risk Premium:				
Country Default Spread (CDS)	2.15%		2.15%	
Relative Volatility	1.23		1.23	
Contry Risk Premium:	**2.64%**		**2.64%**	
Mature Market Equity Risk Premium	5.96%		5.96%	
Indonesian Equity Risk Premium (ERP)	**8.60%**		**8.60%**	
Beta Unlevered	0.57		0.57	
Beta Levered	**1.00**		**1.00**	
Beta x ERP		8.59%		8.59%
Cost of Equity (CAPM)		**15.53%**		**11.64%**
Cost of Debt		**10.37%**		**5.52%**
Tax	25.0%		25.0%	
Weight of Equity	**49.8%**		**49.8%**	
Weight of Debt	50.2%		50.2%	
Weighted Average Cost of Captal (WACC)		**11.64%**		**7.87%**
WACC - Rounded		**11.60%**		**7.90%**

Average Interest on Investment Loans (Data from Bank Indonesia)		
	IDR	**USD**
Bank Persero	10.06%	5.48%
Bank Umum Swasta Nasional	10.67%	5.79%
Bank Umum	10.38%	5.28%
Average without BPD	**10.37%**	**5.52%**
BPD	11.21%	
Average including BPD	**10.58%**	

Indo Government Bond Rate			Interest Rate Difference
	IDR	**USD**	
10 years	8.03%	4.50%	3.53%
20 Years	8.41%	5.40%	3.01%
30 Years	9.09%	5.20%	3.89%

Weighted average cost of capital

WACC represents an investor's expected return to fund the assets of an enterprise. WACC is computed by summing the cost of each capital component multiplied by its proportional weight.

Generally, an enterprise is funded by debt and equity. Hence, we can calculate WACC using the following formula:

*WACC = [E / C] * Cost of equity + [D / C] * (1 - tax rate) * Cost of debt*

where:

C = Debt + Equity

E = Equity

D = Debt

Cost of Equity

The required rate of return on equity is estimated using the variant of Capital Asset Pricing Model ("CAPM").

CAPM computes the required rate of return on equity as a function of the rate of return on a risk-free investment, plus an equity risk premium (the return stockholders expect above the return on a risk-free investment), multiplied by the "beta" for the investment.

Beta measures the relationship between the price movements of ownership participants for individual companies to price movement of a fully diversified stock portfolio.

The Cost of Equity formula is as follows:

$$K_e = R_f + ß * [E(R_m) - R_f] + SP$$

where:

K_e *= Cost of equity*

R_f *= Risk free rate*

ß = Measure of the sensitivity of the asset returns to market returns

$E(R_m)$ *= Expected market return*

SP = Company specific risk premium

Risk-Free Rate (Rf)

The CAPM implicitly assumes the presence of a single risk-less asset, that is, an asset perceived by all investors as having no risk. Return on such assets is the risk-free rate of return.

We have used the 30-year Indonesian Sovereign Bond yields computed by Bloomberg as a proxy for the Indonesia risk-free rate. The yields of such bonds as of 31 December 2018 for Indonesian Sovereign Bond yields in IDR was 9.09%, while Bond Yield in USD was 5.20%.

Beta (ß)

Risk associated with the asset (non-diversifiable or systematic risk) is measured by the Beta coefficient. It can also be defined as the sensitivity of the asset returns to market returns. It is estimated by regressing assets excess return against the market portfolio's excess return. Slope of the regression equation is beta. As a proxy we have considered median unlevered beta of a listed peer group.

Such beta is then adjusted to reflect the difference between the effective tax rate and capital structure of the peer company. The result is called "unlevered beta".

The "unlevered beta" is readjusted for the capital structure and applicable tax rate. The following formula is used to adjust for the difference in the capital structure and the tax rate.

*Levered Beta = Unlevered Beta * [1 + (1 - tax rate) (D / E)]*
where:
D/E = Debt to equity ratio

Based on the Damodaran's data extracted as of 31 December 2018, the estimated unlevered beta for Seaport sub-sector is 0.57. The estimated re-levered beta is 1.00.

Market Risk Premium ("MRP")

The equity market risk premium represents the additional return an investor expects to receive for investing in a risky asset i.e. stock market as compared to investing in risk-free assets.

According to Damodaran, the market risk premium as of 31 December 2018 was 5.96%.

Country Equity Risk Premium

The equity market risk premium represents the additional return an investor expects to receive for investing in a risky asset i.e. stock market as compared to investing in risk-free assets.

Country equity risk premium ("CERP") represents risk premium attributable to the risks specific to the country. It is designed to account for macroeconomic factors such as political instability, volatile exchange rates and economic turmoil which are possibly not reflected elsewhere.

CERP is estimated by multiplying country default spread ("CDS") with 1.23x being the global average of equity to bond market volatility (which is the country equity risk multiple ("CERM")).

Indonesia CDS is sourced from Damodaran, which is 2.15%. By multiplying that number by 1.23x, we obtained Indonesia Risk Premium of 2.64%.

Cost of Equity

From the above analysis, we obtain a cost of equity in IDR of 15.53%, meanwhile for cost of equity in USD is 11.64%

Target Capital Structure (Debt to Equity Ratio)

Theoretically, an "optimal" capital structure should be used to estimate a company's WACC in the case of an acquisition. Deciding on an "optimal" capital structure is a subjective exercise.

Based on this premise, the estimated capital structure range based on the capital structure of Seaport sub-sector, is 50.2% debt and 49.8% equity

Assumptions Regarding Use of Damodaran-derived Investment Parameters

The ratios and or other investment parameters produced are based on international financial markets estimations.

Such estimations capture the appetite of international markets to a particular sector in emerging markets for project financing specifically unlevered for the Indonesian context.

Thus, there are only parameters, which may or may not reflect actual practice and most notably not indicative of the national banking sector appetite as these are varied based on the project and the unique value proposition and potential monetization it may bring.

Furthermore, variances between local market perceptions and international market perceptions may also occur. In some cases, it may even be a deliberate policy action to stimulate local industries into having a portfolio in particular sector in an attempt to create a domestic market.

Tax Rate

We have used the statutory corporate tax rate in Indonesia of 25.0%.

Cost of Debt

Cost of debt for Indonesia is estimated based on the Indonesian IDR and USD lending rate as of 31 December 2018, published by Bank Indonesia which is 10.37% and 5.52%, respectively. Hence, the cost of debt after tax is 7.78% for IDR and 4.14% for USD

WACC

Based on information presented previously, using Capital Asset Pricing Model (CAPM) the estimated WACC for Seaport sub-sector in IDR is 11.64%, while WACC in USD will be 7.87%.

Road & Toll Road Sector (Based on preliminary sector report: TBC)

The two categories that will be assed are: 1) without project, 2) with project.

Without a project, there are several costs. There is limited accessibility to different areas that creates high transportation cost of people, goods and services. The limited access normally impact to longer travel time that could be monetized as travel time costs. Other than that, there should further be assessed on existing accident rates due to existing road conditions and qualities.

With a project, many benefits arise. Firstly, project will increase accessibility and probably capacity of traffic that potentially increase socio-economic integration between connected areas. Secondly, employment will increase during construction and operation. Thirdly, travel-time savings will increase since there will be less congested traffic. Property prices along the areas that has the road will also increase in-line with accessibility of connected areas. Lastly, there is identified revenue from toll road users or fare-based revenue and other potential non-fare based revenues such as from lease of land in rest area, commercial placement or advertising space.

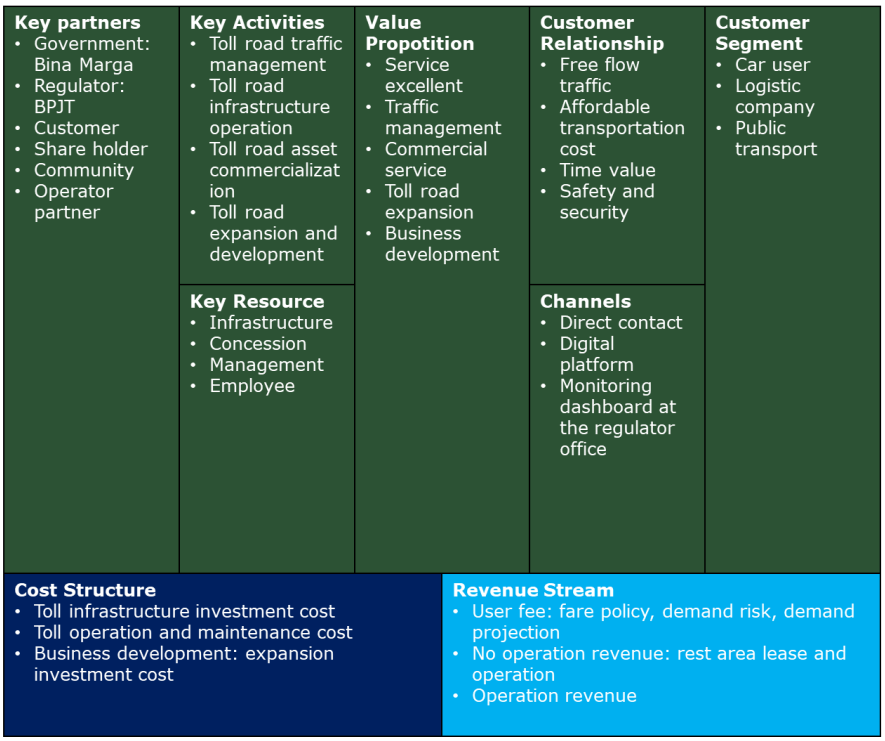
The costs associated with the project are capital and operational expenditures. There are also social and environmental costs. Firstly, during the construction process there will be noise pollution, air pollution and the release of GHG in the atmosphere (GHG emission). Secondly, during this process deforestation will also occur to develop the roads. Thirdly, vehicle operating costs will change depending on the type of vehicle and the vehicle's average travel speed.

This table will summarize the information given above:

CBA Summary: Road and Toll Road Sector	
With Project	
Costs	**Benefits**
1. Capex: land acquisition, resettlement costs, construction cost 2. Opex 3. Social and Environmental Costs • Pollution during construction • Deforestation • Noise pollution • Vehicle operational cost change	1. Accessibility 2. Increase in employment during construction and operation 3. Travel-time savings 4. Increase in property price 5. Identified revenue • Fare-box • Non-fare-box 1. Safety (Reduction of accident probability) 6. Socio-economic integration (i.e. connectivity with hinterland or between urban centers) 7. Savings in vehicle operating cost (VOC)
Without Project	
Costs	**Benefits**
1. No accessibility (isolation) 2. Travel time costs from existing usage of transportation modes 3. Continued accident rates	N/A

Cost Structure

Transport Sector – Highways



Revenue stream of toll

1. Operational revenue: ticket evenue, cashless payment operator fee
2. Non operational revenue: reast area leasing or busines
3. Asset utilization revenue: Concession and lease of toll aset or propoerty

Investment Parameter

DISCOUNT RATE DECEMBER 31ST 2018

Weighted Average Cost of Capital	IDR		USD	
Indonesian Government Bond Rate (30 years)		9.09%		5.20%
Country Default Spread (CDS)		2.15%		2.15%
Risk free rate		**6.95%**		**3.05%**
Contry Risk Premium:				
Country Default Spread (CDS)	2.15%		2.15%	
Relative Volatility	1.23		1.23	
Contry Risk Premium:	**2.64%**		**2.64%**	
Mature Market Equity Risk Premium	5.96%		5.96%	
Indonesian Equity Risk Premium (ERP)	**8.60%**		**8.60%**	
Beta Unlevered	0.76		0.76	
Beta Levered	**1.09**		**1.09**	
Beta x ERP		9.35%		9.35%
Cost of Equity (CAPM)		**16.29%**		**12.40%**
Cost of Debt		**10.37%**		**5.52%**
Tax	25.0%		25.0%	
Weight of Equity	**63.9%**		**63.9%**	
Weight of Debt	36.1%		36.1%	
Weighted Average Cost of Captal (WACC)		**13.22%**		**9.42%**
WACC - Rounded		**13.20%**		**9.40%**

Average Interest on Investment Loans (Data from Bank Indonesia)	IDR	USD
Bank Persero	10.06%	5.48%
Bank Umum Swasta Nasional	10.67%	5.79%
Bank Umum	10.38%	5.28%
Average without BPD	**10.37%**	**5.52%**
BPD	11.21%	
Average including BPD	**10.58%**	

Indo Government Bond Rate	IDR	USD	Interest Rate Difference
10 years	8.03%	4.50%	3.53%
20 Years	8.41%	5.40%	3.01%
30 Years	9.09%	5.20%	3.89%

Weighted average cost of capital

WACC represents an investor's expected return to fund the assets of an enterprise. WACC is computed by summing the cost of each capital component multiplied by its proportional weight.

Generally, an enterprise is funded by debt and equity. Hence, we can calculate WACC using he following formula:

*WACC = [E / C] * Cost of equity + [D / C] * (1 - tax rate) * Cost of debt*
where:
C = Debt + Equity
E = Equity
D = Debt

Cost of Equity

The required rate of return on equity is estimated using the variant of Capital Asset Pricing Model ("CAPM").

CAPM computes the required rate of return on equity as a function of the rate of return on a risk-free investment, plus an equity risk premium (the return stockholders expect above the return on a risk-free investment), multiplied by the "beta" for the investment.

Beta measures the relationship between the price movements of ownership participants for individual companies to price movement of a fully diversified stock portfolio.

The Cost of Equity formula is as follows:

$K_e = R_f + ß * [E (R_m) - R_f] + SP$

where:
K_e *= Cost of equity*
R_f *= Risk free rate*
ß = Measure of the sensitivity of the asset returns to market returns
E (R_m) *= Expected market return*
SP = Company specific risk premium

Risk-Free Rate (Rf)

The CAPM implicitly assumes the presence of a single risk-less asset, that is, an asset perceived by all investors as having no risk. Return on such assets is the risk-free rate of return.

We have used the 30-year Indonesian Sovereign Bond yields computed by Bloomberg as a proxy for the Indonesia risk-free rate. The yields of such bonds as of 31 December 2018 for Indonesian Sovereign Bond yields in IDR was 9.09%, while Bond Yield in USD was 5.20%.

Beta (ß)

Risk associated with the asset (non-diversifiable or systematic risk) is measured by the Beta coefficient. It can also be defined as the sensitivity of the asset returns to market returns. It is estimated by regressing assets excess return against the market portfolio's excess return. Slope of the regression equation is beta. As a proxy we have considered median unlevered beta of a listed peer group.

Such beta is then adjusted to reflect the difference between the effective tax rate and capital structure of the peer company. The result is called "unlevered beta".

The "unlevered beta" is readjusted for the capital structure and applicable tax rate. The following formula is used to adjust for the difference in the capital structure and the tax rate.

*Levered Beta = Unlevered Beta * [1 + (1 - tax rate) (D / E)]*
where:
D/E = Debt to equity ratio

Based on the Damodaran's data extracted as of 31 December 2018, the estimated unlevered beta for Road and Toll-Road sub-sector is 0.76. The estimated re-levered beta is 1.09.

Market Risk Premium ("MRP")

The equity market risk premium represents the additional return an investor expects to receive for investing in a risky asset i.e. stock market as compared to investing in risk-free assets.

According to Damodaran, the market risk premium as of 31 December 2018 was 5.96%.

Country Equity Risk Premium

The equity market risk premium represents the additional return an investor expects to receive for investing in a risky asset i.e. stock market as compared to investing in risk-free assets.

Country equity risk premium ("CERP") represents risk premium attributable to the risks specific to the country. It is designed to account for macroeconomic factors such as political instability, volatile exchange rates and economic turmoil which are possibly not reflected elsewhere.

CERP is estimated by multiplying country default spread ("CDS") with 1.23x being the global average of equity to bond market volatility (which is the country equity risk multiple ("CERM")).

Indonesia CDS is sourced from Damodaran, which is 2.15%. By multiplying that number by 1.23x, we obtained Indonesia Risk Premium of 2.64%.

Cost of Equity

From the above analysis, we obtain a cost of equity in IDR of 16.29%, meanwhile for cost of equity in USD is 12.40%,

Target Capital Structure (Debt to Equity Ratio)

Theoretically, an "optimal" capital structure should be used to estimate a company's WACC in the case of an acquisition. Deciding on an "optimal" capital structure is a subjective exercise.

Based on this premise, the estimated capital structure range based on the capital structure of Road and Toll-Road sub-sector, is 36.1% debt and 63.9% equity

Assumptions Regarding Use of Damodaran-derived Investment Parameters

The ratios and or other investment parameters produced are based on international financial markets estimations.

Such estimations capture the appetite of international markets to a particular sector in emerging markets for project financing specifically unlevered for the Indonesian context.

Thus, there are only parameters, which may or may not reflect actual practice and most notably not indicative of the national banking sector appetite as these are varied based on the project and the unique value proposition and potential monetization it may bring.

Furthermore, variances between local market perceptions and international market perceptions may also occur. In some cases, it may even be a deliberate policy action to stimulate local industries into having a portfolio in particular sector in an attempt to create a domestic market

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We have used the statutory corporate tax rate in Indonesia of 25.0%.

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Cost of debt for Indonesia is estimated based on the Indonesian IDR and USD lending rate as of 31 December 2018, published by Bank Indonesia which is 10.37% and 5.52%, respectively. Hence, the cost of debt after tax is 7.78% for IDR and 4.14% for USD

WACC

Based on information presented previously, using Capital Asset Pricing Model (CAPM) the estimated WACC for Road and Toll-Road sub-sector in IDR is 13.22%, while WACC in USD will be 9.42%.

						BEA	EDR	TTI		FHWA												UT			
	AASHTO MANUAL	CDSS	EMME3	IMPLAN	REMI	RIMS II	TREDIS	HEEM-III	MicroBENCOST	HERS-ST	TELUS	TELUM	FHWA HWY 1	SCRITS	SMITE	SPASM	STEAM	REMHS	REMS	MEPLAN	PECAS	RUBMRIO	HEAT	TEIM	LEAP
TYPE OF PROJECT USED FOR:																									
Upgrade Existing	X						X	X	X	X	X	X			X						X				
Maintain Existing							X	X	X								X	X			X	X			
New Construction	X						X	X	X		X	X				X	X	X		X	X	X	X		
SCALE:																									
Specific Site				X								X				X				X					
Specific Corridor	X							X	X	X	X	X			X	X	X	X							
Region						X		X		X	X	X	X				X				X	X	X		
USER IMPACTS:																									
Money cost of travel	X							X	X	X	X				X			X			X		X		
Travel time	X	X	X				X		X	X	X					X	X						X		
Safety	X						X		X	X				X			X								
Comfort																									
Traffic volumes and average speed			X				X			X				X			X								
Calculation of delay savings							X										X				X		X		
Accident reduction savings	X							X	X	X															
Calculation of motorist benefits over the analysis period							X	X													X				
Highway improvement cost	X									X					X	X		X			X		X		
Summary of benefits and costs	X						X	X		X				X	X	X					X		X		
ECONOMIC IMPACTS:																									
Employment					X		X				X	X	X							X	X	X	X		
Wages		X			X		X				X	X	X							X	X	X	X		
Property values, prices or rents	X											X								X	X	X	X		
Business sales volume						X	X															X	X		
Value added						X	X				X									X					
Business profit						X															X	X	X		
Improved efficiency in public and private services															X	X	X			X		X	X		
Health and safety improvements														X											
Tourism spending			X																				X		
Number of establishments (new, existing, dislocated)												X										X			
Population/growth rate																									
Capital investment						X									X		X			X	X		X		
Building permits, construction activity																							X		
Value of oil and gas production																									
Usable parking spaces																									
Number of customers per day																									
Parking capacity influences on gross sales impacts																									
GOVERNMENT FISCAL IMPACTS																									
Public revenue/ taxes					X	X	X				X						X	X			X	X			
Public expenditures					X											X				X	X	X			
OTHER IMPACTS:																									
Air quality	X				X										X	X									
Social conditions	X				X		X							X	X					X	X	X			