

Concept and Roadmap for an Infrastructure Investment Programme for Rail Connections to Javanese ports

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On behalf of:



Federal Ministry
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of the Federal Republic of Germany



MINISTRY OF TRANSPORTATION
REPUBLIC OF INDONESIA

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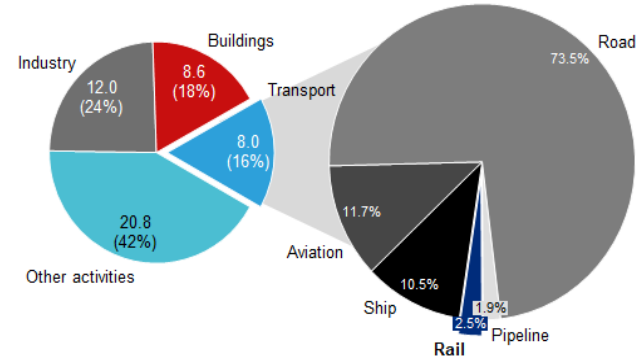
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1. Background: Road and Rail Freight Transport in Java, Indonesia

The Java Island in Indonesia provides a showcase of how connecting seaports to the railway network will bring vast benefits

- In Java Island, Indonesia, **seaports function as the main gateway for imports and exports**, helping local businesses connect with markets globally.
- The Java Island with its **major export-oriented industries, extensive railway network, and array of seaports** can showcase how connecting seaports with the railway network benefits the nation.
- Lessons from developed economies show that seaports **need a strong distribution support network inland**.
- **Railways are identified as the lowest carbon emission contributor** compared to other mode of transport, accounting for only 2.5% of total transportation sector emissions (contributing 8 tonnes CO₂eq (16.2%) of total global emission in 2016).
- Currently **freight transport in Indonesia is dominated by road modes at 91.3%**, while sea and rail transport only account for 7.6% and 1.1% respectively according to Supply Chain Indonesia (SCI).
- Java is home to more than **50% of the nation's population, accounts for more than 50% of the regional GDP, and is increasingly urbanized**; the Government is planning to reduce pressure on the road network by shifting some freight traffic onto the railway network.

The following figure shows the **Global Greenhouse Gas (GHG) Emissions by Sector in 2016**^[1] in billion tonnes CO₂eq



Source: [1]Climate Watch, the World Resource Institute (2020), Our World in Data (Accessed on 11 November 2021)

- The connections are expected to increase freight rail mode share in alignment with the national railway masterplan, and also **support meeting the CO₂ mitigation goals of Indonesia's Nationally Determined Contribution**.
- There is a compelling argument to consider connecting the railway network into the seaports, however, this initiative is not without challenges, which will be elaborated in the following sections.

The first key issue is: integrating a railway line into an existing seaport infrastructure is a challenging task

The following list presents some of the **barriers currently hindering rail-port connection projects in Indonesia**, as identified in the Previous GIZ TRANSfer III, updated with recent developments:

Technical

- Connecting the railway network to existing, and especially operational ports that were not originally designed and built to be integrated with the railway network will require immense physical work to be planned and implemented. This potentially disrupts the established activities at the ports.
- At busy seaports where there is a need for uninterrupted services the government need to work with port operators in planning and managing the execution of the physical works, and operation once integrated.
- This will also require very strong technical capabilities across the parties involved.

Finance

- Whilst connecting the railway network to the ports will benefit the economy as a whole, the costs for implementation are considerable and require commitment from the relevant parties, including governments and business entities.
- There is a potential loss of revenue due to disruption to the operation of busy seaports (if the seaport is already in operation), as well as to the railway network that is being connected.

Governance & Stakeholders

- Connecting the railway network to ports requires robust governance structure, supported by intensive coordination between the Ministry of Transport, the seaport authorities, seaport operator, railway operator, as well as other relevant stakeholders such as local government agencies e.g. for land use, environment, transportation, etc
- External stakeholders with communities and interest groups may also potentially be adversely affected by the proposal. The individual project approach exacerbates this problem since the system-wide benefits may not be presented as the supporting rationale for the inconvenience faced by the affected stakeholders.

The second key issue is strong competition from the already more established and market-based road-based freight transport services

- **Currently the market of freight transport to ports in Java comprises companies of different scales and needs:**
 - Large scale corporate users with large volume of goods that need to be transported in regular basis. This segment of the market may in fact be captive to rail, e.g., the mining industry, but they usually use private dedicated infrastructures.
 - Smaller scale users needing a lot of flexibility in terms of volume and schedule, as well as other technical requirements. This segment of the market usually has the opportunity to choose between road and rail, and up until recently, road has been prevailing.
- **Some perceived direct advantages of road-based freight transport over rail-based one in connecting to the seaports may include:**

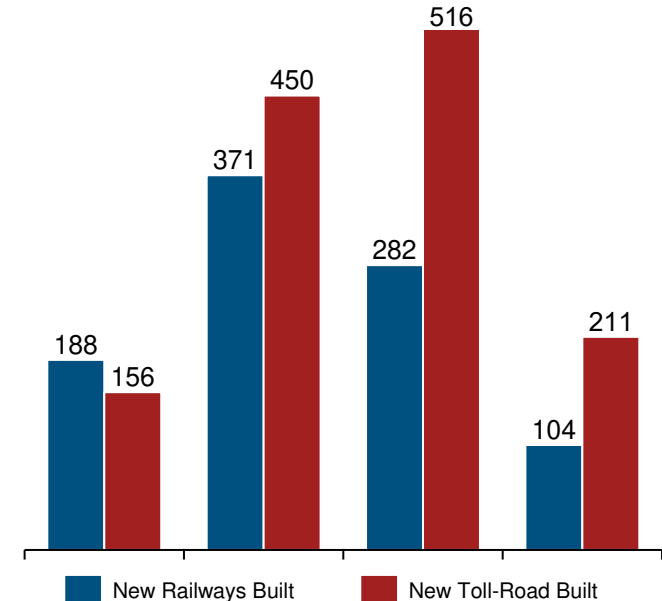
Aspects	Road-based freight	Rail-based freight
Complexity	The unmatched benefit of direct door-to-door services reducing the complexity of managing multiple transport stages	Rail freight could not provide a door-to-door service as it is limited to a particular route and tracks.
Flexibility	Flexibility that road-based transport provides allowing user to alter the routes and timing of their logistic activities quickly according to one's own needs.	Its fixed routes and timings are not adjustable to individual requirements, thus deemed inflexible compared to road-based freights counterparts.
Suiability	Road-based freight transport is best suited for transporting goods from and to remote locations that are not sufficiently connected by other means of transport like rail, air, or water transport.	Due to its nature of huge capital requirement and traffic, railways let alone rail-freights might not be operated economically in rural and remote areas.
Reliability	Multimodal transport poses a risk of damaging the goods during loading and unloading, which are not the case in door-to-door road-based transport. Hence road transport is best suited for transporting delicate goods that prone to be damaged during numerous transits stages.	Railways involves several loading and unloading stages especially when integrated to other modes of transports. This multimodal mechanism creates more wear and tear and potential additional time.
Affordability	Overall cost of transport might be lower than multimodal transport when taking into account all the costs of multiple last-mile loading and unloading, packaging, and other additional inherent activities.	Rail-based freight is uneconomical for short distance and small traffic of goods, but less costly when transporting on longer distances.

The third key issue is how the government provision of infrastructure has so far “favoured” road-based freight transport to the seaports

- The prominence of road-based transport has influenced the provision of the relevant infrastructure in Indonesia. **Road infrastructure have been developing significantly compared to rail**, as can be seen in the graphic.
- The lack of progress in infrastructure development throws railway transport in a downward spiral where it loses its competitiveness to road transport, which could lead to further decrease in demand, and so on.
- Road-based transport, on the other hand, enjoys the benefits of fast infrastructure provision resulting in increasingly higher flexibility, shorter travel time, and lower overall costs, which in turn entices users to invest more on this option.
- **Road based freight transport is more market-oriented and less regulated compared to railway:**

Aspects	Road-based freight	Rail-based freight
Tariff	Road freight tariff is more market-oriented, with service providers competing to provide the best services as price levels friendly to the users.	In contrast, the tariff of railway transport is strictly regulated as it requires government support (subsidy) to operate and maintain the services.
Load Limitation	Regulation is in place to prevent overloading in road-based freight transport. However, the service providers tends to exceed the allowable limits	The weight of the load is regulated by Ministry of Transport Regulation, preventing overloading.

Length of Indonesia New Railways^[2] & Toll-Road^[3] Network from 2017 to 2020, in kilometres



Source: ^[2]Statistik Perhubungan Jilid I (2020), Pusat Teknologi Informasi Komunikasi, Kementerian Perhubungan; ^[3]Kementerian PUPR (2021)

Further issues identified in Focus Group Discussion on March 2022

In a discussion held on 22 March 2022, MoT – as represented by Director of Railways Transport and Traffic – indicated that some projects have been initiated, namely: Jakarta International Container Terminal (JICT), Tanjung Perak, Kalibaru, and Tanjung Emas. However, several challenges have been identified as the key obstacles for this agenda to be realized:

Identified issues	Response
<p>Low market share for freight rail transport creates reluctance to expand the business</p> <ul style="list-style-type: none"> The low market share of rail freight makes the operator focus more on passenger services. However, as the pandemic severely affected the passenger market, the freight market is becoming the safety net for the operator to keep their businesses afloat and could be explored further. One way to explore this is by considering expanding rail business for connection to seaport. (In alignment with the findings on pages 6-7 of this report) 	<ul style="list-style-type: none"> MoT needs to consistently enforce technical regulation on road freight transport (e.g. ODOL prohibition) MoT and KAI/Pelindo need to identify niche market that will benefit most from the potential connection as target market.
<p>Unclear regulatory basis for determining ideal tariff</p> <ul style="list-style-type: none"> A thorough study needs to be carried out to understand customers' willingness to pay in order to shift their operation to rail freight instead of trucking Current trucking rate is cheap and considered more market-based instead of regulatory based. (In alignment with the findings on pages 5, 6, 7 of this report) 	<ul style="list-style-type: none"> MoT needs to consider measures that can be implemented to manage freight transport tariffs that considers systemwide transport requirements and characteristics across all modes to incentivise rail freight transport thus creating a more sustainable freight transport ecosystem
<p>Challenge in integrating rail and port infrastructure</p> <ul style="list-style-type: none"> Double handling is still the main reason why rail connection to port has yet to be implemented. Current Business to Business (B2B) regulation is unclear to support the agenda, creating a reluctance for collaboration between parties, including between SOEs/government institutions. Capacity of current infrastructure might not be sufficient to cater for new rail freight movements (In alignment with the findings on pages 5 of this report) 	<ul style="list-style-type: none"> MoT needs to facilitate a collaboration between KAI and Pelindo to agree on a mutually beneficial arrangement e.g. regarding split of technical activities and cost in establishing the connection(s). KAI and Pelindo will also need to agree on a marketing approach involving road base freight operators if necessary to explore options for end to end service offering.

A clear and convincing concept is essential to mobilise the necessary political and financial support for rail-port connection projects and promote strong economic growth

This report hypothesizes that a "**Programme**" approach, which will comprise a number of connection projects between the railway network with the ports in Java island, will have better potential of delivering the overall benefit, compared to managing the delivery of the connections through individual "projects".

The Indonesian Ministry of Transport should take a leading role in coordinating the planning and delivery, as well as the monitoring and evaluation of these Projects under a unified Programme approach. It is envisaged that ultimately the railway and ports in Java will form a strong distribution support network inland.

1

A previous TRANSfer III study has indicated the importance of seaport-railway connection, as it will create a more robust and efficient logistics system, which will help with the economy as a whole. As both systems are more sustainable options (compared to road transport as the current trend), this will contribute towards the country's Nationally Determined Contribution (NDC). However, **the same study also identified some challenges**, and its implementation will need strong political and financial support.

2

A clear concept is needed to mobilize the necessary political and financial support for rail-port connection projects in Java; which will need to be discussed between the stakeholders e.g. the Ministry of Transportation, other government agencies, railway operator, port operators, and potential investors.

3

Following the end of the technical assistance of the TRANSfer III project after 2021, **a clear roadmap is also crucial for programme development beyond 2021**, to allow the Government of Indonesia (GoI), especially the Ministry of Transportation (MoT) and all other relevant stakeholders to be ready for investment and implement the programme sustainably.

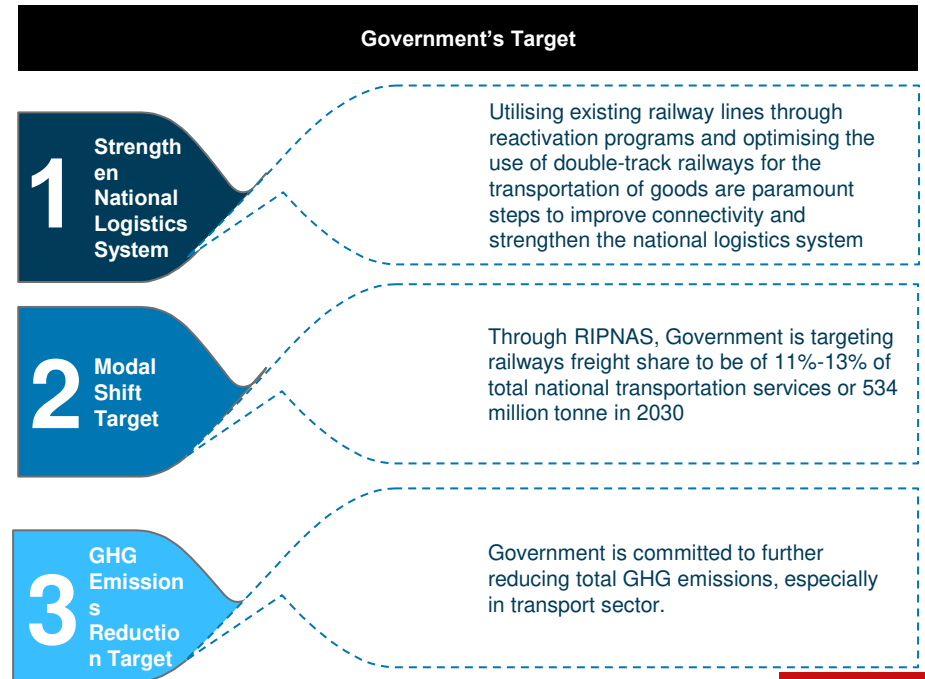
This document provides a brief Concept and the Roadmap for its implementation.

2. Policy Objectives related to the Programme

The program will support current GoI policies and plans especially with regards to boosting economic growth in sustainable ways (1 of 3)

The key objective of this initiative is to support current GoI policies and plans especially with regards to boosting economic growth in sustainable ways. Furthermore, this initiative aligns with current GoI's plans, e.g.:

Strategic Documents	
1	Indonesian Mid-term National Development Plan (RPJMN) 2020-2024
2	Directorate General of Railways Strategic Plan/ <i>Rencana Strategis Direktorat Jenderal Kereta Api</i> ("Renstra DJKA") 2020-2024
3	Directorate General of Sea Transportation Strategic Plan/ <i>Rencana Strategis Direktorat Jenderal Perhubungan Laut</i> ("Renstra DJL") 2020-2024
4	RIPNAS 2030
5	PM 75/2021, Regulation by Ministry of Transport ("MoT")
6	Indonesia's Nationally Determined Contribution (NDC)
7	Low Carbon Development Initiative



The program will support current GoI policies and plans especially with regards to boosting economic growth in sustainable ways (2 of 3)

Reference	Findings
RPJMN 2020-2024	<p>One of the strategic visions of RPJMN 2020-2024 is to increase rail transportation connectivity, in order to maximise logistics distribution. The document claimed that current rail-based logistics market share is less than 2%, meaning there is much room for growth. Utilising existing railway lines through reactivation programs and optimising the use of double-track railways for the transportation of goods are paramount steps to improve connectivity and strengthen the national logistics system. Furthermore, the main transportation nodes, such as ports need to be supported by railways network in order to encourage the flow of goods and people, and eventually boost economic activity.</p>
Renstra DJKA 2020-2024	<p>The document shows that DJKA is committed to support two out of five National Development Priorities/<i>Prioritas Nasional</i> ("PN") listed in Government Work Plan/<i>Rencana Kerja Pemerintah</i> ("RKP") 2019. One of which is directly linked to promote railways to port connection, by reducing gaps between regions through strengthening the connectivity and maritime affairs through the development of multimodal and urban transportation (urban railways and access/port trains) and then providing rail safety facilities.</p>
Directorate General of Sea Transportation Strategic Plan/ <i>Rencana Strategis Direktorat Jenderal Perhubungan Laut</i> ("Renstra DJL") 2020-2024	<p>It recognised the importance of intermodality with its ports, especially with regards to freight transport, to ensure that seaports in Indonesia can realise their full potential benefits to the nation's economy by facilitating smooth flow of goods in and out of the country. One of the government's visions is to strive for major ports to be accessible by rail network thus making it easier to reach production, tourism, and other important region. However, there are obstacles in realising this aspiration, one of which is the lack of support for integration between transportation modes at the port. Upon the issuance of this Renstra DJL, there were only less than ten commercial ports directly accessible to rail operational infrastructure (Belawan, Teluk Bayur, Panjang, Merak, Tanjung Emas, Tanjung Perak, Makassar)</p>

The program will support current GoI policies and plans especially with regards to boosting economic growth in sustainable ways (3 of 3)

(continued from previous page)

Reference	Findings
RIPNAS 2030	The Indonesian Railway Master Plan (RIPNAS) 2030 recognises that rail transport, especially with its technological advances, will continue to be most sustainable in terms of the CO ₂ emissions, especially compared to road-based transportation. Targeting the share of 11%-13% of total national transportation services or 534 million tonne in 2030 to be carried by railways would be crucial to reduce GHG Emissions.
PM 75/2021, Regulation by Ministry of Transport ("MoT")	The MoT continues to strengthen its policy in improving road transportation safety management system, which includes the share of ODOL (over-dimension over-loaded truck) by 2023; this will reduce the perceived short-term advantages or road-based freight transport as many trucks currently fall under the ODOL category.
Indonesia's Nationally Determined Contribution ("NDC")	Indonesia's Nationally Determined Contribution 2020 pledges to reduce domestic GHG emissions by at least 10.95% (192.7 Mtonne) by 2030 compared to the baseline scenario. In this NDC, transport sector will have to reduce its GHG emissions by 38 Mtonne by 2030 ^[4] . The interventions to promote rail freight transport are critical to reducing CO ₂ emissions from domestic freight transport especially in Java that have been estimated at 11.53 Mtonne in 2015. Without such measures, these emissions might increase by 51.56% amounting to 17.36 Mtonne by 2030 ^[4] . Following the 26 th Conference of the Parties ("COP26") which was recently held in Glasgow on 31 October until 14 November 2021, Indonesia is committed to be Net-Zero by 2060.
Low Carbon Development Initiative ("LCDI")	The GHG mitigation target of the Energy and Transportation Sector by 2030 is 38 million tonne of CO ₂ at own expense or 56 million tonne with international assistance.

^[4] Emission reduction target for transport sector is incorporated in the NDC road map issued by Directorate of GHG mitigation, MoEF (GIZ: Impact Assessment Study - Action Programmed on intermodal Freight Transport in Java, Indonesia)

3. Opportunities to Enhance Road-Rail Freight Transport Connectivity in Java

Several projects in the government pipeline have been identified, and can potentially be delivered under a unified programme structure



Based on the previous study conducted by GIZ, the government has planned several infrastructure projects to build rail connections to ports. Furthermore, it has identified several dry ports and freight stations that could serve as intermodal integration between seaports and the railway network.

Potential Rail Connections to/from Ports Projects in Java	
1	Extension of the rail line from JICT Station to the Dockyard/seaway - DKI Jakarta
2	New Rail Connection to Patimban Port, West Java
3	Reactivation and construction of the rail line from Ronggowarsito station to the port of Tanjung Emas (Dockyard or Seaway Area), Semarang, Central Java
4	New rail connection to the Port of Teluk Lamong - Surabaya, East Java
5	Rail connection to industrial areas in Gresik – East Java

Potential Rail Connection to Dry Ports Projects in Java*	
1	Optimisation of connection to Cikarang Dry Port
2	Optimisation of connection to Klari Station
3	Optimisation of connection to Gedebage Station
4	Reactivation of the rail line to Solo Jebres Station
5	Reactivation of the rail line to Rambipuji Station

⁵Financial Design Study for Intermodal Freight Transport in Java, Indonesia, GIZ 2020

*Currently only Cikarang, Klari and Gedebage are active for container transport, further optimization could be explored. However, further detail technical study is needed to establish the feasibility of activating connection to Solo Jebres and Rambipuji Station

Experience shows that railway to seaport connections can be established and the merger of port operators will be an enabler

Indonesia's diverse landscape and communities provide a challenge, meaning that some projects may require different emphasis in terms of project planning and management. However, collaboration and inclusiveness do emerge as the common winning themes in ensuring successful implementation of large-scale programmes such as this.

Case study 1: The Long Journey to Connect Railway to Tanjung Priok

Referring to Minister of Transportation Regulation No. 38/2012 there is plan to develop a rail line in the Tanjung Priok Port Master Plan. Furthermore, this plan was supported by the Ministerial Decree that is currently being drafted to follow up on the progress of the railway extension project involving three directorates (land, rail and port transport). With this plan moving forwards, it is perceived that direct connection to the port will have a great impact upon reducing double handling which currently represents a significant proportion (40-60%) of the total tariff to the end customer.

Case study 2: Reactivation of Freight Railway to Surabaya Container Terminal^[6]

In November 2020, KAI and Pelindo III (parent company of Terminal Petikemas Surabaya) signed an MoU to reactivate railway access to the Surabaya container terminal. As a result, the Container Terminal has two railway lines, with a total loading capacity of 20 GDs (40 TEUs). In this case the physical infrastructure has already been constructed and was active up until 2016, making the reactivation process relatively smooth.



The merger of the Pelindo 1 and Pelindo 2 under a single holding company may become the enabler for this programme

In October 2021, state-owned port operators PT Pelabuhan Indonesia (Pelindo) I, II, III and IV merged into one company, to enable better port integration and business standardization, as well as optimize capital expenditure for developing the ports. This could be the key enabler for the proposed programme management structure as projects in the different ports can be managed in a unified manner, allowing better control and monitoring, as well as decision making.

^[6] PT Kereta Api Indonesia (Persero) Press Release, Posted on March 3, 2021

The issuance of the supporting Presidential Decree to support the connection of railway to the ports presents an opportunity

The MoT has mentioned that the National Government has issued Presidential Regulations to support the connection of railway to ports in West Java, Central Java, and East Java provinces. There is an opportunity to implement best practice approaches (e.g. the 5 Case Model) to develop a Programme Business Case for the Programme of connecting the railway to the ports. Key notes from the issues Presidential Regulations are provided below:

Reference	Key points	Opportunity
Presidential Decree 79/2022 concerning Acceleration of Economic Development in Central Java ^[10]	<ul style="list-style-type: none"> Central Java connectivity is still very dependent on road connectivity. Current high-cost logistics in Tanjung Emas port highlights the need for shifting to non-road-based transport. The Plan to connect railways to Tanjung Emas Port aims to develop intermodal integration within the port which is estimated to cut the logistic cost as well. 	<p>The MoT can develop an Early Business Case for the Programme to:</p> <ul style="list-style-type: none"> Establish the case for change for the programme and socialize it to the relevant stakeholders Perform an economic assessment of the costs and benefits that can be expected from a successful connection, and identify options for the implementation of the potential projects Confirm availability of project funding and financing, and explore options of sources to close any potential funding/financing gap Consider options on how to deliver the proposed programme, and confirm market readiness to deliver the proposed project Assess its institutional capacity and develop options to strengthen its capacity to ensure that the programme is aligned for success
Presidential Decree 80/2019 concerning Acceleration of Economic Development in East Java ^[11]	<ul style="list-style-type: none"> The plan aims to strengthen inter-regional connectivity by establishing an integrated system between national and regional logistic systems. The plan aims to lighten the heavily load burden by road by shifting to non-road transportation. The governments will identify transportation nodes and distribution centres within the region to facilitate the demand for reliable logistic services for main and supporting commodities. Railways connection to Telok Lamong port is mentioned in the decree as part of strengthening logistics connectivity in the region. 	
Presidential Decree 87/2021 concerning Development of Rebana ^[12] Region and Southern Part of West Java	<ul style="list-style-type: none"> West Java is planning to develop industrial zones both the northern part (Rebana) and southern part of the province. The decree identifies that a reliable logistic connectivity is imperative to support the economic activities of the region, especially to cater the demand generated by the operation of Patimban port, as well as serving the newly developed industrial area. 	

Note:

^[9] Kendal, Semarang, Salatiga, Demak, Grobogan Area ; Purworejo, Wonosobo, Magelang, Temanggung Area, and Brebes, Tegal, Pemalang Area

^[10] Gresik, Bangkalan, Mojokerto, Surabaya; Sidoarjo Lamongan, Bromo – Tengger – Semeru Area; Selingkar Willis and Southern Line Area

^[11] Subang, Sumedang, Indramayu, Majalengka, Cirebon Distrct, Cirebon City, Kuningan District.

The EU's CEF (*Connecting Europe Facility*) provides insights into managing the programme successfully

The Connecting Europe Facility (CEF) for Transport was established as an instrument of funding to realise the European transport infrastructure policy. It supports investments in developing new transport infrastructure in the region or improving existing ones. CEF Transport aims to remove potential bottlenecks and ensure connection between the various sections of Europe's Core as well as Comprehensive railway network. The project governance is set under EU Regulation 1315/2013, where each Core corridor would be lead by a Europe Coordinator, who will collaborate with relevant Member States, regions, local authorities, etc., especially to complete the cross-border sections and therefore promote intermodality and interoperability. The Europe Coordinator for example, leads the development of the Corridor work plan in agreement with relevant Member States and in consultation with the Corridor Forum (which consists representatives from all stakeholders).



Case study 1: Slovenia

Programme

Slovenia is doubling the rail tracks between Divača and the Port of Koper.

Value
EUR 1.2 Bn

Funding Source
CEF, EIB

Result

Optimized railway network by eliminating congestion between Port of Koper and the Mediterranean and Baltic-Adriatic Core Network Corridors



Case study 2: Italy

Programme

Railway network modernization program by Italy's Trieste port.

Value
EUR 65 Mn

Funding Source
CEF, EIB

Result

Improved last mile connection to National Railway Network, optimized hinterland accessibility and multimodal connections

Drawing some lessons learned from the European experience, projects under the CEF are treated as part of a comprehensive network, however, it is also apparent that each project maintains some degree of independence, as each may serve different catchment areas. What is unified is the approach in project planning and preparation, and also funding and financing.

A similar approach may be applicable to the Java situation, where a unified approach in project planning and preparation, and especially funding and financing, can be implemented, while still recognising the individuality of each project. Unlike the CEF experience where the rail to port connections are located in different countries, with multiple railway and seaport operators, in the Indonesia case, there is only **one national SOE operator for the railway network, and also one for the seaports**; this should provide a better opportunity for integration and coordination across projects.

4. Proposed Common Principle for Project Planning and Preparation

The Five Case Model provides a unified approach in applying common principles, standards and logic for each project under the programme

In implementing each of the projects, government might refer to the Five Case Model (5CM) approach, which is an internationally recognized best practice model for project development. 5CM can bring common principles, standards and logic to all the projects and throughout the project development stages. The 5CM approach assesses the following questions, or cases in 5CM terms:

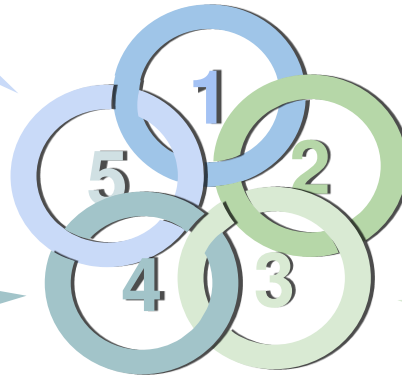
5. The management case: Can the project be practically delivered? Are governance structures, plans and resources in place for successful implementation and post evaluation? Have plans for stakeholder engagement, risk management and benefits realisation been integrated into the governance structure?

4. The financial case: Is the project affordable? are capital and operating costs affordable? Has allowance been made for risk management? Have allowances for E&S sustainability been taken seriously and integrated into the budget? Has a source for funding been identified?

1. The strategic case: *Is the project strategically necessary? Is the rail-port connection responding to a real need? How urgently is it needed? Is it in alignment with the wider railway development policies and plans?*

2. The economic case: *Is the project economically and socially desirable? Have all of the options been considered? Does the preferred option represent the best balance between costs, benefits and risks?*

3. The commercial case: *Is the project commercially viable? Can the supply chain deliver the project requirements? What will be the procurement strategy? Can it fit within the wider government procurement cycles?*



The 5CM methodology have been mentioned/included in the attachment of Presidential Regulation No. 86 year 2020 regarding the Government Action Plan for 2021 as best practice to be referred to during project planning and preparation. This approach was also endorsed by Bappenas with regards to developing infrastructure business case and it is inline with G20 principles.

A common set of principles in reference to 5CM need to be applied to support programme level project development and management (1/2)

We propose that the principles from 5CM approach be applied in managing the planning and delivery of each rail to port connection project; each phase of the project development should follow the set of principles described in the following table to reduce and or mitigate the potential risks that may arise from the current approach of managing each project separately.

Phase	Current Approach	Potential Risks	Proposed Common Principle
Project Identification/ planning	<ul style="list-style-type: none"> The MoT identify each potential project by considering the national strategic objectives 	<ul style="list-style-type: none"> The identified project may not be strategically necessary from industry players / business entities point of view 	<ul style="list-style-type: none"> Improving coordination with the industry players (e.g. rail and port operators) in order to identify a list of projects which have good potential to be developed and bring mutual benefits to all stakeholders
Project Preparation	<ul style="list-style-type: none"> Project preparation (e.g. feasibility study) is done by MoT for each individual project 	<ul style="list-style-type: none"> Each study may have different principles, logic, and/or standards The studies carried out may not have involved key stakeholders so that they are difficult to implement 	<ul style="list-style-type: none"> Each project must satisfy that it will close a gap between the existing arrangements and the vision. It also needs to assess that the proposed project must demonstrate alignment with the broader policies and plans Each project must have considered a wide range of options for the project to deliver the intended results, and aim to select one that will represent the best balance between costs, benefits, and risks, and deliver value for money.

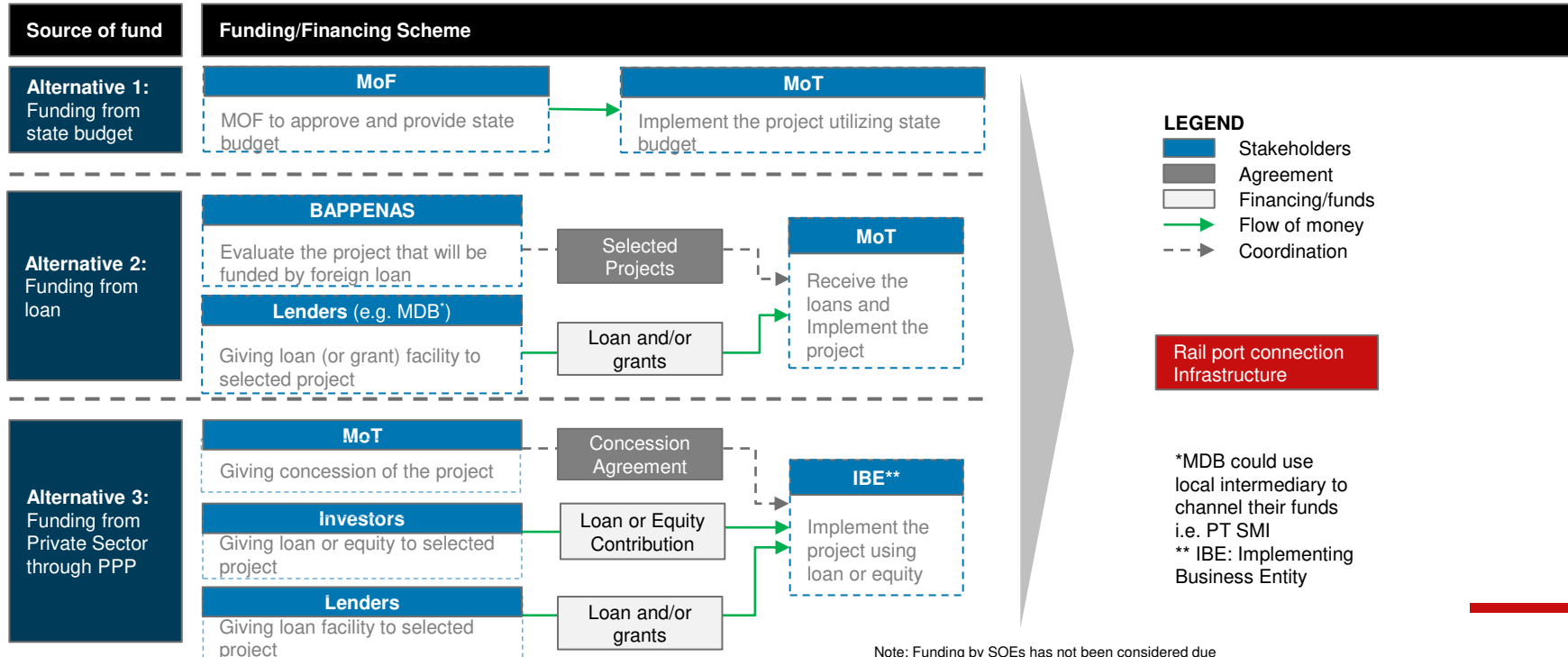
A common set of principles in reference to 5CM need to be applied to support programme level project development and management (2/2)

Phase	Current Approach	Potential Risks	Proposed Common Principle
Project Funding/ Financing	<ul style="list-style-type: none"> ● Project funding scheme will depend on the Government's available budget ● Some projects may be funded by business entity (e.g. rail operator) 	<ul style="list-style-type: none"> ● Project implementation may be delayed due to budget limitation ● Only some projects with minimum cost that can be implemented so that the resulting benefits are not significant 	<ul style="list-style-type: none"> ● Each project must assess whether the capital and operating costs will be affordable based on the available options for funding and financing sources, and develop options of how to cover any potential funding gap.
Project Implementation	<ul style="list-style-type: none"> ● Some projects are implemented by MoT, while others are assigned to State-owned Enterprises 	<ul style="list-style-type: none"> ● Progress may vary significantly between projects, mismatch in project timelines ● Realisation of benefits may be delayed due to unclear governance structure 	<ul style="list-style-type: none"> ● Each project must think about how it can best be packaged based on an understanding of what the supply chain can deliver, and develop a plan to carry out the procurement process. ● Each project must identify a suitable governance structure (in reference to the overall programme governance structure), prepare plans (including e.g. stakeholder engagement plan and risk management plan) and propose allocation of resources to ensure successful implementation of the project, and allow post-implementation evaluation and benefit realization monitoring

5. Funding Volume, Socio-Economic Benefits and Steering Structure

There are several potential funding mechanisms that can be implemented in the project or the programme

The MoT needs to consider the requirements of each project and their preferred approach for the programme to determine the most suitable funding mechanism. In all cases below it is assumed that all infrastructure will be operated by KAI and train services could be operated by KAI or another operator. Detailed arrangement for operation and maintenance are outside of scope of this report.



Note: Funding by SOEs has not been considered due to there is policy not to inject equity to SOEs.

A quantification of the domestic and international sources of funding that feed into the programme

A previous study conducted by GIZ identified several potential projects and their estimate required investments. Some of these projects might not be suitable for PPP due to small project value individually. Bundling them together into a programme might be considered a better approach, which would achieve synergies and consistency and potentially facilitate PPP procurement. It is also important to note that support from the public sector who will be responsible for raising financing for the programme is paramount, especially in convincing various potential investors.

No	Potential Railways Connection to/from Port Projects	Construction*	Estimated CAPEX ^[7] (IDR)	Type of Potential Investors		
1	Extension of the rail line from JICT Station to the Dockyard/seaway - DKI Jakarta	2022-2023	10 Billion	Lenders	Local Banks	International Banks
2	Rail connection to industrial areas in Gresik – East Java	2023-2024	400 Billion		MDBs	SMI/IIF
3	New Rail Connection to Patimban Port, West Java	2023-2024	1,100 Billion			
4	Reactivation and construction of the rail line from Ronggowarsito station to the port of Tanjung Emas (Dockyard or Seaway Area), Semarang, Central Java	2022-2023	7.49 Billion	Equity Investors	Infrastructure funds	Sovereign Wealth Fund
5	New rail connection to the Port of Teluk Lamong - Surabaya, East Java	2023-2024	180 Billion		SOEs	Strategic Partner/Private Investors

Preliminary, non-exhaustive list

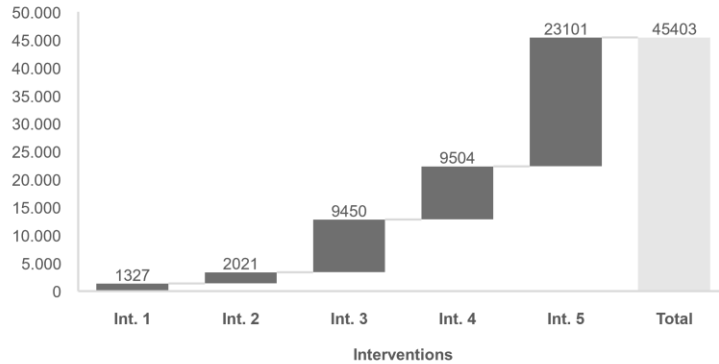
^[7] Financial Design Study for Intermodal Freight Transport in Java, Indonesia, GIZ (2021)*
All information mentioned above are still rough initial estimation that need further study for validation.

A separate study conducted by GIZ has identified socio-economic benefit from the 5 potential rail-port connection projects

*) Please refer to page 14 and 23 for the full list of the potential rail-port connection projects

Estimated economic benefits by intervention, base scenario^[8]

IDR Million, Present Value, 2022-2072/73

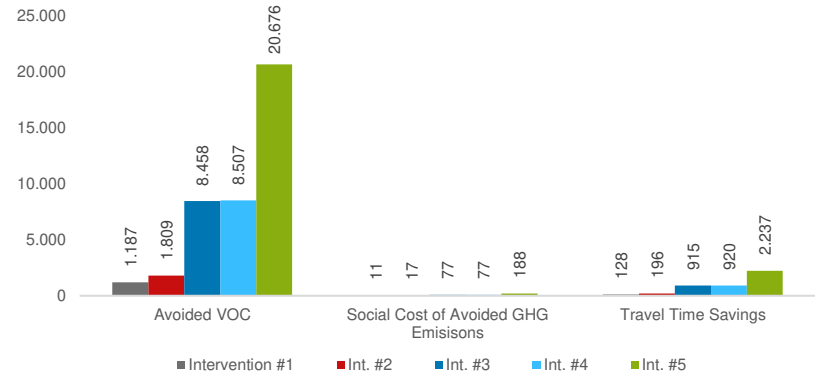


Intervention: Potential Rail Connections to/from Ports Projects in Java

- 1 Extension of rail line from JICT to dockyard/seaway (DKI Jakarta)
- 2 Reactivation and construction of rail line from Ronggowarsito Station to Tanjung Mas Port dockyard/seaway (Central Java)
- 3 New rail connection to Teluk Lamong Port (East Java)
- 4 New rail connection to Patimban Port (West Java)
- 5 New rail connection to industrial areas in Gresik (East Java)

Economic benefits by type, base scenario^[8]

IDR Million, Present Value, 2022-2055



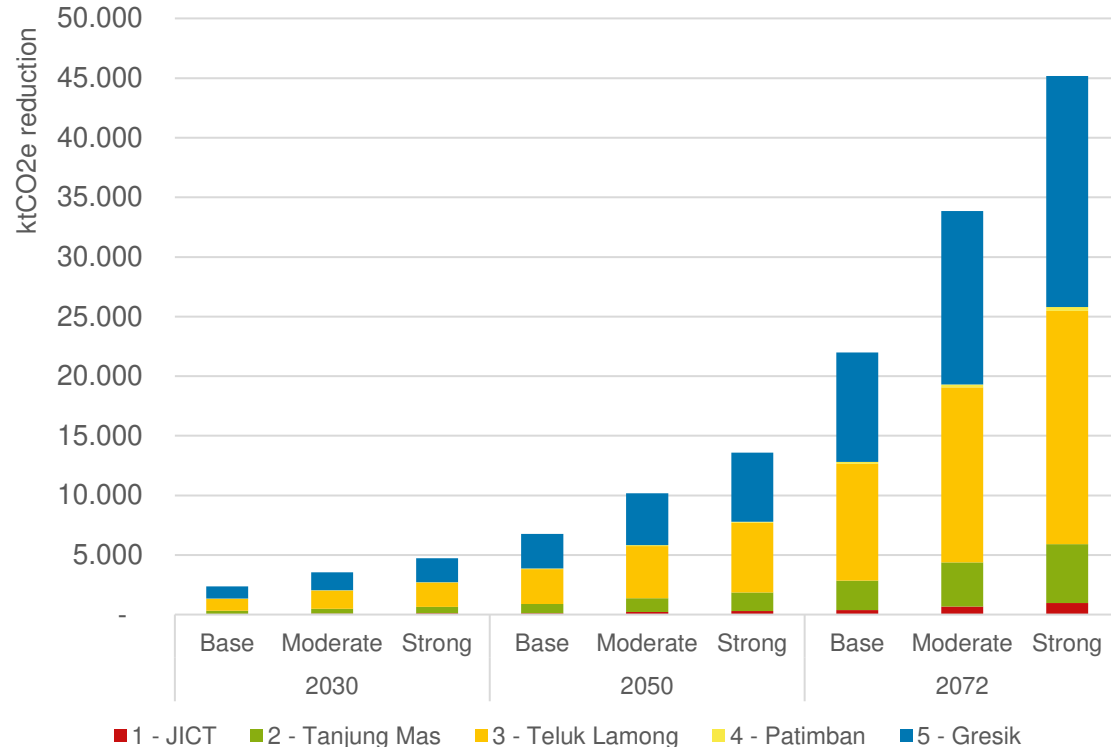
The GIZ led financial design study sets out an estimation of the socio-economic benefit of each interventions which results in the figure on the left, accounting of total 45 billion IDR of economic benefit (present value) over the course of 50 years.

Each interventions' benefit are calculated by considering mainly three aspects, consisting of avoided of Vehicle Operating Cost (VOC), avoided of GHG emissions, and saving of travel time.

Across the five interventions, VOC is expected to be the largest benefit, followed by travel time savings, and finally avoided CO2 emissions costs

Source: Financial Design Study for Intermodal Freight Transport in Java, Indonesia, GIZ (2021)

Ex-ante estimation of the CO2 savings potential of the five railway projects for ports and industrial areas in Java

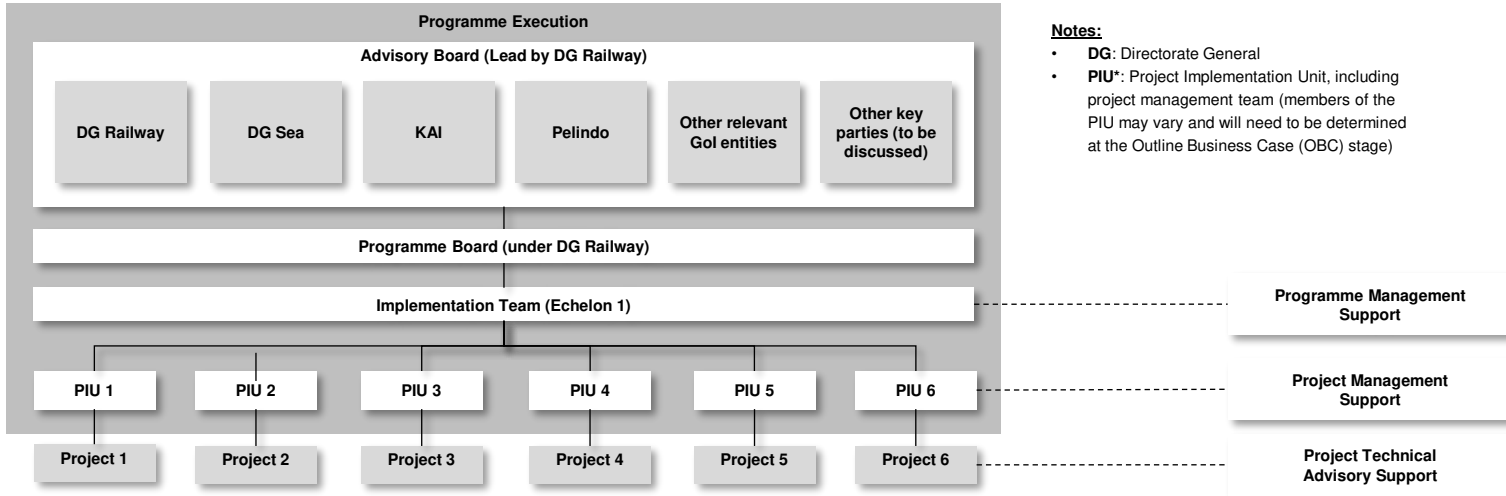


- Expected CO2 savings by 2030: 230-470 ktCO2e cumulative
- Calculation based on estimated avoided truck kilometers under different scenarios for intermodal road freight transport in Java

Source: Financial and economic impact assessment model for the "Financial Design Study for Intermodal Freight Transport in Java, Indonesia", GIZ (2021)

A robust programme management structure could ensure proper planning, smooth execution, and sustained delivery of benefits

The following diagram provides an example management structure for the programme, based on the assumption that the project will be funded through a loan:



Notes:

- **DG:** Directorate General
- **PIU*:** Project Implementation Unit, including project management team (members of the PIU may vary and will need to be determined at the Outline Business Case (OBC) stage)

- The MoT will be the overall program leader and manager; the Minister will direct the DG Railway to plan and manage the programme through an advisory board which will comprise all the relevant key stakeholders.
- A Programme Board will be appointed, comprising representatives from the key stakeholders within the advisory board, who will then establish an implementation team to ensure smooth coordination between the Programme Board and the PIUs and may be supported by a Project Management Support consultant.
- Each project will have its own Project Implementation Unit ("PIU"). The PIU will be mainly focused on making sure the technical aspects of the project delivery are implemented according to plan and may be supported by project technical advisory consultant.
- PIU might vary and be decided during the OBC stage. This party could be filled by PIC from MoT, SOEs, or a combination.

Support from the relevant key stakeholders are crucial towards implementing the programme, and should be managed properly

The journey towards implementing an innovative programme or project is complex, therefore it needs a clear identification of the potential parties involved, and careful allocation of responsibility and accountability. This section provides an illustration of an indicative preliminary RACI matrix that could be considered for planning and preparing the implementation of the programme.

ROLES	Planning				Preparation				Implementation									
	Identification of Projects	Programme Proposal	Blue Book Inclusion	Green Book Inclusion	Feasibility Study	Funding Structure	Loan/Grant Agreement	MoU to Proceed with Project Implementation	Project Procurement	Land Procurement	Project Delivery/Construction	Commissioning	Operation of Infrastructure	Operation of Railway Services	Maintenance of Infrastructure	Documentation	Evaluation	
R Responsible																		
A Accountable																		
C Consulted																		
I Informed																		
DG Rail of MoT	R	R	R	R	R	A	C	R	R	R	R	R	A	A	A	R	R	
DG Sea of MoT	C	C			C	I	I									I	C	
DG Land of MoT	I	I			I											I	C	
MSoE								I									I	
KAI	C	C	I	I	I	I	I		C	I	A	A	R	R	R	C	A	
Pelindo	C	C	I	I	I	I	I		C	I	A	A	R	A	I	C	A	
MoF					I	A	R										I	
Bappenas	R	R	R	R				R									C	
BPN/LMAN	I	I								R	A						I	
Local Government										R	I						I	
EPC Contractors											R	R				C	I	
MDBs/KfW	C	C	I	I	A	R	R	C	A		C	I	I	I	I	C	R	
GIZ(?)	C	C	C	C	C	C	I	I	I		I	I	I	I	I	C	R	
PT SMI/IF							I	I								C	I	
Cargo Owners									C				I	I	I	C	I	
Cargo Operators									C				I	I	I	C	I	

Indicative, depending on the actual structure

Notes:

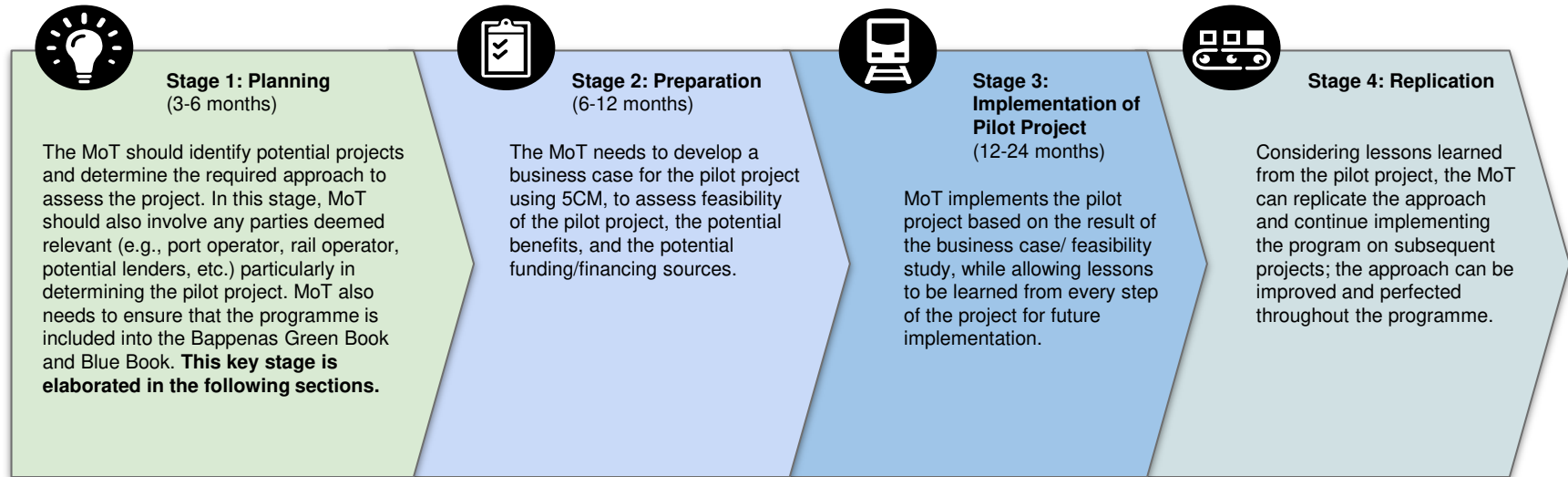
- The RACI matrix indicates a preliminary mapping of the roles and responsibilities of the potential key stakeholders to implement the programme. Note that the division of roles at the implementation stages are subject to change depending on the actual implementation structure.
- The DG Rail of the MoT will be the key responsible party throughout the process; they need to consult with various entities across the stages and would need to work closely together with the potential lender.
- The Loan/grant agreement is a key milestone; this agreement will be further translated into a number of derivative agreements that will set out the arrangements of key aspects of the programme's subsequent stages. The allocation in the RACI matrix following this step may need to be adjusted depending on the finalized derivative agreements.
- It is proposed that at the end of the implementation of the pilot project, there is an opportunity for evaluation, where the pilot implementation is reviewed, with areas of good practice and areas for improvement presented to the relevant stakeholders, to ensure that lessons learned can be drawn and the subsequent stages be better implemented.

5. Roadmap towards Programme Funding and Implementation

The proposed Roadmap aims to focus on a pilot project preparation and implementation, from which lessons learned are used to strengthen subsequent implementation of the programme

It is suggested that, based on past experience of implementing new approaches in the Indonesian infrastructure sector, work should start by planning and implementing a pilot project. The pilot project can start with one connection that is considered as the most ready for implementation; this will allow areas of good practice, as well as areas for improvement to be identified, and lessons can be drawn to strengthen the next implementation of the programme.

A multi-criteria analysis can be used to help the MoT to determine which project is most suitable for the pilot, and plan the implementation, accordingly, including how they will work together with the relevant stakeholders including potential funding provider to ensure successful implementation of the pilot project.



Notes: The above illustrative set of activities and timeline can be observed as an initial reference in preparing for the implementation of the programme. In any case the MoT may need to prepare a more detailed plan of activities and develop a more actionable timeline based on the actual progress of the programme.

The project proponent needs to ensure the readiness of its project proposal, in addition to alignment with achieving RPJMN's targets

From the MoT's perspective, to implement a project or a programme that would be funded through foreign loan/grant, there are several key documents and processes that need to be observed, to ensure that it can be aligned to the nation's development planning as described in the RPJMN. In doing so, the MoT needs to work closely with Bappenas.

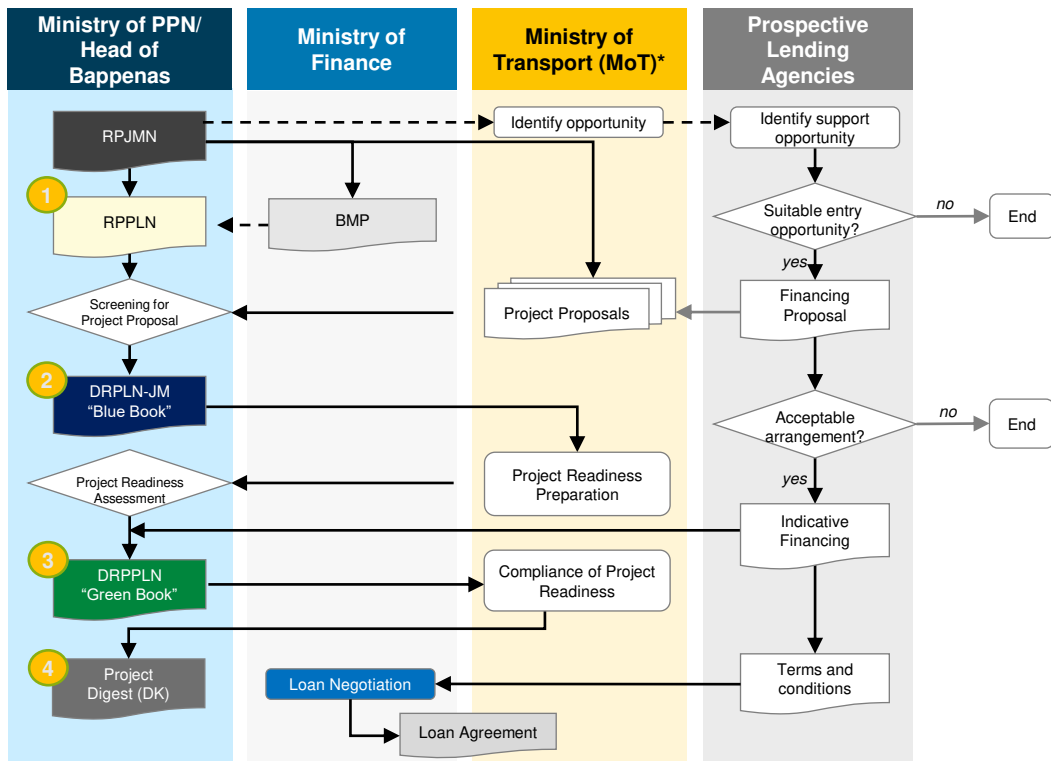
- 1** **Foreign Loan Utilization Plan (RPPLN)**
This document explains projects that are eligible to be funded by foreign loans should align with achieving RPJMN targets. In preparing this document, Bappenas also consider the Loan Ceiling or *Batas Maksimum Pinjaman* (BMP) document provided by MoF.
- 2** **Blue Book: C(DRPLN-JM)**
This document contains a list of activities proposed by project proponent or Executing Agency (EA). The EA could be Ministries, State-Owned Enterprises (BUMN), and/or Local Government.
- 3** **Green Book: List of Planned Priority External Loans (DRPPLN)**
In this stage, EA should formulate and prepare the detailed project scope and activities. Subsequently, the EA submits project readiness criteria to Bappenas for further assessment prior to listing in Project Digest (DK).
- 4** **Project Digest (DK)**
Consists of projects that already fulfils its readiness criteria. Bappenas shall convey this document to Minister of Finance to be followed-up with prospective lending agency for loan agreement.

Notes:

- 1. The EA** – could be Ministries, SOEs, or Local Government – to **propose the projects** to be funded by foreign loan into the Blue Book. **This means potential lenders should work with the relevant entity to develop the project or programme proposal.**
- 2.** To be included in the Green Book, the EA should **ensure the readiness of its project**
- 3. Compliance of project readiness criteria** will allow these projects to be assessed for listing in the Project Digest (DK)
- 4.** Being listed in the Project Digest signals project's eligibility to enter **loan negotiations** with the prospective lending agency

Source: Guidelines for Proposal and Readiness Criteria Enhancement of Foreign Loan Projects, Kementerian PPN/Bappenas 2018

MoT need to propose the programme to be funded by foreign loans to Bappenas for inclusion in the Blue Book and Green Book



Notes:

- The diagram provides a general view of how the lender's activities need to be aligned with the Gol's internal processes, to ensure that the support can be properly channelled and ultimately deliver its intended benefits.
- The Blue book is updated once in five years and functions as a preliminary list of projects that can potentially be funded through foreign funds. Furthermore, **the Blue Book is also updateable** based on the state of the economy and/or development of funding needs (PP no.4/2011).^[9]
- The Green Book provides a list of projects that have been assessed for readiness and is updated every year following Bappenas' working plan; it is important that the proposed project or programme be included in the Green Book.

BMP	Loan Ceiling
DRPLN-JM	List of Medium-Term External Loans
DRPPLN	List of Planned Priority External Loans
MoT	Ministry of Transport
PPN	National Development Planning
RPJMN	National Medium Term Development Plan
RPPLN	Foreign Loan Utilization Plan
SOE	State-Owned Enterprise
- - - - ->	Consideration
→	Subsequent Process
[]	Process
{ }	Decision
[]	Documents

^[9]Guidelines for Proposal and Readiness Criteria Enhancement of Foreign Loan Projects, Kementerian PPN/Bappenas 2018
 *As the Project Proponent or Executing Agency (EA)

Next Steps: MoT and the potential lender need to anticipate Bappenas' next update of the Green Book

The **next six months** will be crucial for both the MoT as well as the potential lender agency, especially to anticipate Bappenas' schedule for the **Green Book update**. The following course of action may be considered by both the MoT in collaboration with the lender agency:

1. The MoT and the lender agency to initiate discussions regarding potential future funding support for the proposed programme, and at conceptual level, how the programme will be implemented. The programme concept should comprise:
 - a) General information about the proposed programme or projects.
 - b) Indicative available support and the relevant terms and conditions.
 - c) Indicative plan of the programme and project timeline.
2. The MoT suggested that based on the technical feasibility to implement a rail-to-port connection, the following project can be considered for pilot project implementation, while focusing in creating synergy with the already established plan described in Presidential Decree 80/2019, 87/2021 and 79/2022:
 - First priority: Tanjung Priok Port (Jakarta) and Tanjung Perak Port (East Java)
 - Second Priority: Patimban Port (West Java)
3. The MoT and the lender agency to observe the RPJMN, RPPLN, and the Blue Book, to find the best way to develop the proposal.
4. The MoT and the lender to collaborate and develop the proposal (including ensuring alignment with the wider MoT policy and planning, as well as compliance with all MoT internal processes and procedures); this may be supported by a technical consultant if deemed required.
5. The MoT to discuss with Bappenas with regards to inclusion of the proposal into the Green Book, as well as updating the Blue Book (as this programme has not been recognized in the Blue Book)



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REPUBLIC OF INDONESIA