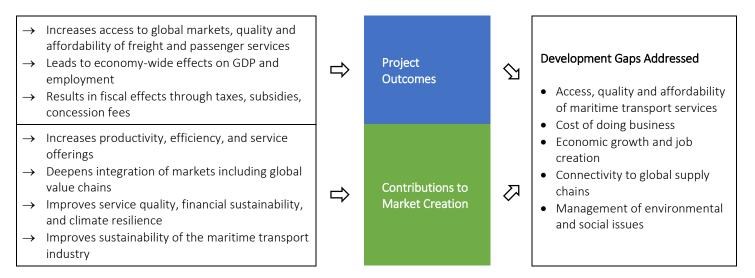


AIMM Sector Framework Brief Sector Economics and Development Impact Department International Finance Corporation

Development Impact Thesis – Port infrastructure supports the maritime transport sector, which is responsible for water movement of cargo and people. With most of global merchandise trade channeled through seaports, these assets constitute key nodes in global supply chains and are core to global production processes. IFC's engagement in the ports sector is designed to promote access to regional and global markets and support economic development. IFC provides financing and advisory services to firms in the ports sector which:



Rating Construct – All AIMM sector frameworks include detailed guidance notes that help define project outcomes and contributions to market creation, aggregating to an overall assessment of development impact.

- For project outcomes, stakeholder effects are the key components for which industry-specific benchmarks define the context in which an IFC operation seeks to drive changes. This gap analysis is combined with a separate set of impact intensity estimates that specify the expected results using predefined indicators.
- For contributions to market creation, industry-specific market typologies define stages of development for four market attributes (or objectives): competitiveness, resilience, integration, and sustainability. These market typologies, when combined with estimates of how much an intervention affects the development of a market attribute, provide the foundation for IFC's assessment of an intervention's market-level potential for delivering systemic changes.

PROJECT OUTCOME INDICATORS		CONTRIBUTION TO MARKET CREATION INDICATORS	
Stakeholders	Access Containers handled, TEUs/year Bulk cargo handles, tons/year Total passenger throughput, PAX/year Quality Berth productivity Berth moves per hour Tons per ship-hour Crane moves per hour Vessel turnaround time, Hours	Competitiveness	Market Structure • Change in competitive market structure Service Offering • Introduce new service/technology and/or new industry standards/practices <u>Efficiency</u> • Promote change in market efficiency through adoption and replication of efficient business models <u>Pricing and Price Regulation</u> • Change in market prices through improvements in pricing structures and price regulation
	 Average waiting time for berth, Hours Yard productivity Daily gate moves, TEUs/day Truck in and out time, Hours Average container (cargo) dwell time, Hours 	Resilience	Service Quality Promote greater resilience of service provision to external shocks <u>Regulatory Framework</u> • Change in sectoral regulatory framework
	Affordability Revenue per unit, \$ per unit (real) Terminal handling charges per unit, \$/unit (real) All-in cost, \$/unit (real) (route-specific metric) 	Integration	Spatial Integration • Improve international connectivity/connectivity of ports sector with domestic logistics infrastructure Deepening Economic Linkages
Economy-wide	 Value added multiplier; Employment multiplier Direct jobs created (Operation and Maintenance, #; Construction, #) 		Lead to changes in development of local port supply chain <u>Financial Integration</u> Change in capital mobilization from new investors and/or new asset classes
Environment	 Climate change resilience and management of E&S effects of climate change Effects on biodiversity and coastal community livelihoods Reduction in emissions and pollutants 	Sustainability	 Adoption of sustainability practices, including climate mitigation tech/products Conducive ESG legal/regulatory framework Broad institutional capacity for supporting ESG practices

IFC's Environmental and Social Performance Standards define IFC clients' responsibilities for managing their environmental and social risks. While for most IFC investments, meeting Performance Standards reflects improved environmental and social performance, effects from implementation of the standards are only claimed in the AIMM framework where a clear counterfactual can be established and where the investment intent is to improve environmental or social outcomes.

Sector Specific Principles or Issues – The following principles will be applied for projects rated under this framework:

Principle or Issue	Treatment Under Framework			
Scope of assessment	Both project and market creation effects are measured annually over the monitoring period of the investment. These effects typically outlive the project's monitoring period. Effects that can be measured and monitored during the project's monitoring period are emphasized.			
Normalization and benchmarking	Impact assessments are based primarily on the size of the deficit being addressed. This methodology gives greater weight to projects addressing large deficits and those creating missing markets. A secondary consideration is normalization to avoid disadvantaging small projects, e.g. impact per million dollars invested or percentage improvement.			
Standardized indicators and data quality	The assessment of development impact in ports is complicated by the absence of universally homogenous reporting requirements, which partly explains the limited standardization of performance indicators and nomenclature for measuring performance. Port performance indicators are defined and measured in multiple ways with differences in the level of detail. Facilities could also have different benchmarks for optimal capacity and asset specifications depending on the type of cargo handled and service needs. This presents practical challenges to standardizing measurement of market gaps, across the emerging markets group. Performance indicators for project level impact are also not easily comparable across projects in abstract, given the large variability in type of cargo handled, the size of vessels calling on the port, and types of operations.			
Treatment of negative effects	Negative externalities are taken into consideration in the assessment and highlighted when they are significant and not manageable and thus mitigate the overall rating. Potential negative effects at the project level include: (i) high tariffs and/or large fiscal outlays from investments that are not justified by medium-term demand projections (over-capacity) (ii) large environmental and social issues, often associated with a significant project footprint and area of influence. At the market level, an investment could reduce competition when solidifying the monopoly position of a client (this does not apply to ports or port services that are natural monopolies, where the absence of competition is justified by a small market size and large capital outlay). Port sector competitiveness could also be reduced through abuse of a dominant market position, e.g. exclusion of third parties, discriminatory pricing detrimental to competition, price stickiness resulting in limited to no pass-through of cost benefits to users, among others. Competitiveness could also be negatively affected by conflict of interest, when the dominant customer is also port operator / shareholder of port facilities.			
Qualitative benchmarks	The analysis of context in which a project is taking place may be either quantitative (through benchmarking of quantitative indicators to the performance of other emerging markets) or qualitative. Qualitative benchmarks typically comprise of a check list of market features that define market stages, optimality of observable outcomes (e.g. tariffs), and feasibility of alternative solutions (e.g. those determined by energy resource endowments). In cases where comparison across markets on a purely quantitative basis is not meaningful, a qualitative assessment is used instead.			

Project Outcomes – The AIMM system considers the extent of the development gap and uses a gap analysis to classify project contexts according to the size of the deficit/gap being addressed. For each indicator, the size of the gap is measured in relation to development goals associated with the sector. Contexts are classified into very large, large, medium or low gap, for each performance dimension. Development gaps are defined using a combination of qualitative and quantitative benchmarks, which leaves room to consider context-specific attributes that drive investments in the sector.

COUNTRY CONTEXT	Low Gap	Medium Gap	Large Gap	Very Large Gap
Capacity	 Port capacity is high and there is no material capacity shortage identified in the short-to-medium term Existing infrastructure is adequate to handle new generation large vessels 	 Port capacity broadly meets market demand; ports may experience seasonal congestion, storage capacity constraints; ports may experience seasonal congestion, storage capacity constraints Berth design capacity enough to handle mid-sized vessels when there is a business case for larger vessels, or existing assets are aging/constrained Capacity gap may be eminent 	 Port capacity falls below marker demand Berths design capacity supports small-size vessels when there is a business case for larger vessels, or existing assets face large capacity constraints Ship-to-shore cargo handling relies on old generation cranes with limited productivity Existing infrastructure may also face yard or storage capacity constraints 	 Port capacity falls well below market demand Berth design supports small-size vessels when there is business case for larger vessels Ship-to-shore cargo handling relies on old generation cranes with limited productivity Existing infrastructure faces yard or storage capacity constraints

COUNTRY CONTEXT	Low Gap	Medium Gap	Large Gap	Very Large Gap
Access	 The market is adequately served with port infrastructure and there are no evident access gaps in the short to medium-term 	 Port capacity is consistent with the country's current needs; although ports may experience periodic access constraints Demand is mostly met by existing infrastructure with price/quality at par with comparable alternative ports There may be inadequate facilities to handle specialized cargo; and some scope to expand throughput by improving efficiency Additional port capacity may be required to meet medium-term demand projections 	 Ports capacity and quality constraints which limit traffic Limited scope of facilities (to handle specialized cargo, enable hinterland connectivity, enable logistics efficiency) which limits the volume of traffic handled There are inadequate facilities to handle passenger traffic Users have relied on alternative ports or other modes of transportation at a higher price, distance or transit times 	 Major ports capacity and quality constraints which limit traffic Highly limited scope of facilities (to handle specialized cargo, enable hinterland connectivity, enable logistics efficiency) which limits the volume of traffic handled Limited/no facilities to handle passenger traffic
Quality	 The country ranks high on port performance indicators. No material quality gaps are evident in the market 	 The country ranks at par with comparable markets on port performance indicators, but performance falls below that of best performing emerging markets 	 The country ranks low on port operational performance indicators relative to comparable markets/facilities 	 The country ranks very low on port operational performance indicators relative to comparable markets/facilities

"Core outcomes" for ports sector investments include impact of stakeholders including the access, quality and affordability improvements benefiting customers, and economy-wide impacts (value added and employment). Customer level impacts derive from the impact of port infrastructure on access to global and regional markets, which in turn generates value in the local economy (from demand for consumer goods, manufacturing value added, supply of export goods, tourism, and linkages to economic opportunities). This has indirect and induced effects on GDP and employment. Environmental impacts are considered "non-core" in ports projects, however, AIMM will evaluate and rate any large negative impacts per the guiding principles.

PROJECT INTENSITY	Below Average	Average	Above Average	Significantly Above Average
<u>Access</u> - Containers handled	 Yields positive customer impacts that are small relative to relative to portfolio of projects, industry benchmarks, and size of the investment 	 Leads to an average increase in containers handled relative to portfolio of projects and industry benchmarks Impact is delivered efficiently relative to comparable facilities 	 Leads to a substantial increase in containers handled relative to portfolio of projects and industry benchmarks Impact is delivered efficiently 	 Leads to a significant increase in containers handled relative to portfolio of projects and industry benchmarks Impact is delivered efficiently
Quality - Berth moves per hours - Tons/TEU per ship-hour - Daily gate moves - Truck in and out time	 Yields positive customer impacts that are small relative to industry benchmarks and size of the investment 	 The project is associated with an average improvement relative to industry benchmarks and size of investment 	 The project is associated with an above average improvement relative to industry benchmarks and size of investment 	 The project is associated with a significantly above average improvement relative to industry benchmarks and size of investment
Affordability - Revenue per unit - Terminal handling charge	 Yields positive but small price impacts 	 Yields an average impact on terminal handling charges 	 Yields an above average impact on terminal handling charges 	 Yields a significantly above average impact on unit costs and/or terminal handling charges
Economy-wide - Value added	 Multiplier per 1M USD of investment is low compared to similar projects 	 Multiplier per 1M USD of investment is average compared to similar projects 	 Multiplier per 1M USD of investment is above average compared to similar projects 	 Multiplier per 1M USD of investment is very high compared to similar projects

PROJECT INTENSITY	Below Average	Average	Above Average	Significantly Above Average
Economy-wide - Employment	 Multiplier per 1M USD of investment is low compared to similar projects 	 Multiplier per 1M USD of investment is average compared to similar projects 	 Multiplier per 1M USD of investment is above average compared to similar projects 	 Multiplier per 1M USD of investment is very high compared to similar projects

The AIMM methodology considers the uncertainty around the realization of the potential development impact being claimed, making a distinction between the potential outcomes that a project could deliver and what could be realistically achievable in the project's development context. The table below presents the key types of risk factors for port sector operations.

PROJECT LIKELIHOOD	Operational Factors	Sector Factors
Assessment Considerations	 Client track record of delivering impact in the proposed focus area and ability to mitigate E&S risks Client's market position and service offering Sponsor's technical strength and support to project Covenants assuring implementation of specific project components Collaboration track record of implementing entities Public partner track record in meeting contractual obligations Government track record in committing counterpart resources (e.g. financing for resettlement plan) in a timely manner Realism of magnitude of anticipated impact (measured against industry standards, client/EPC contractor's experience, public partner's capacity) Realism of traffic projections Negative factors affecting the project company, sponsor or the management team which detracts from likelihood Funding and sequencing of WBG/IFC AS complementary support 	 Definition and realism of development impact targets Extent of political support and social buy-in Financial viability in the absence of subsidies Affordability in the absence of subsidies Resilience to exogenous shocks Alignment of monetary policy with project development objectives Exposure of project development effects to exogenous shocks e.g. risks to growth projections, competition from new port developments Climate risk exposure (e.g., sea level rise, extreme weather, etc.) Coastal vulnerabilities, including coastal communities/fishing communities, coastal processes (erosion), biodiversity and ecosystem services (e.g., mangroves).

Contribution to Market Creation – For the market impact assessment, a market is defined as the industry/sub-sector in which the project is taking place (excluding markets affected by the project through economic linkages). In ports, "market" refers to the maritime transportation sector within the country in which the project. In case of projects with regional scope (e.g. projects development transshipment hubs) the regional catchment area is considered. Market typologies provide the building blocks in the AIMM system to construct a narrative for how much an IFC intervention is advancing a market objective. These typologies provide a description of the market gap based on various stages of development for a given sector from least developed to most advanced and enable the location of the market before and after IFC's intervention. The table below summarizes the characterizations of the market for the three most important market attributes.

MARKET	Highly	Moderately	Underdeveloped	Highly
TYPOLOGY	Developed	Developed		Underdeveloped
Competitiveness	 Port sector assets are fully privatized with limited public ownership or control of assets. Either the port authority has been privatized, or is an efficient public entity involved in port administration and regulation. Either there are several operators, or the market is a natural monopoly. There is effective regulation of the market including of natural monopolies. The port sector is advanced in terms of quality of infrastructure, specialized cargo handling facilities, scope of services provided, technologies adopted for cargo handling, screening and customs clearance. There is evidence that port operators compete on efficiency, by reforming business practices, eliminating redundancies including in the workforce, automation, and use of IT solutions. Most ports can handle the latest generation vessels. 	 Port infrastructure is operated mainly by private firms under different models of private sector engagement, including concessions, licenses, management contracts and leases. The role of the state is shifting from port services provider to landlord and regulator. There is reasonable regulatory autonomy, and at least a separation of operations regulation from tariff regulation. There is evidence of sector restructuring resulting in increased number of ports or port terminals as well as operators. Performance of assets is improving. The port sector has made progress to modernize assets, increase scope of services, and keep pace with industry trends. There is increased use of advanced technologies in cargo handling, cargo screening, cargo security and safety, or customs clearance; best industry practices in cargo flow management and workforce planning. The market is showing signs of increased focus on efficiency of port operations, including targeted infrastructure investments to address inefficiencies, and structural reorganization of the sector. 	 Port infrastructure is operated by legislated monopolies (public or private) with a high degree of vertical integration. Port authorities may be involved in operations. Sector comprises mostly dated assets with a limited scope of services. New investments have not been made to keep pace with industry trends, infrastructure is unable to accommodate the new generation of vessels. There is limited use of advanced technologies or innovative business practices in cargo handling, cargo screening, cargo security and safety, or customs clearance. There may be evidence of uncompetitive pricing due to a suboptimal tariff framework, limited competition, or poor sector regulation. 	 The ports sector is limited in scope (e.g. country is landlocked with no/limited inland ports infrastructure). The observed market structure could be due to legislation that gives monopoly rights to a public entity in the context of limited sector operations.

MARKET	Highly	Moderately	Underdeveloped	Highly
TYPOLOGY	Developed	Developed		Underdeveloped
Resilience	 The sector may be exposed to external shocks but has robust systems in place to effectively manage these risk, e.g. application of advanced IT solutions for port safety and climate resilience; updated port design technical specifications to improve climate resilience, insurance against climate risks, application of advanced weather forecasting tools, compliance with international security codes and adoption of BAT for security. The market is served by multiple ports or port terminals and there is optimal redundant capacity to minimize service disruptions. The port sector has strong diverse linkages to local and global logistics chains, and highly specialized assets serve stable demand. There may be several hinterland connectivity options (road, rail, river). Key players in the sector (e.g. port authorities, port operators) are financially sustainable. A comprehensive ports sector regulatory framework that meets best practice standards is in place and enforced. Regulatory entities are well-equipped to implement the regulation. There is adequate autonomy of regulatory bodies and limited/no state interference or conflict of interest. 	 The sector may be dominated by ports that face significant resilience risks, but some measures have been adopted to manage these risks. There is evidence of port infrastructure investments to mitigate risk of adverse weather conditions or natural disasters, e.g. enhanced port design criteria. Most major ports comply with industry best practice standards on port facility security; have fairly modern security systems and technologies. The sector is reasonably diversified in terms of revenue sources and connectivity to hinterland markets. Port infrastructure (CAPEX and OPEX) may be partly subsidized, however operations are commercially run, and the sector faces limited/no financial sustainability risk. Sector regulation is undertaken by quasi- autonomous entities with limited state interference. A fairly robust ports regulatory framework exists. 	 The sector is dominated by ports that face significant resilience risks (e.g. exposure to global developments, transient and localized events; exposure to climate-related risk; exposure to security threats, etc.); there are limited systems in place to manage these risks. Ports face important gaps in capacity to effectively assess climate risk and develop adaptation measures. Key players in the sector (e.g. port authorities, port operators) face financial sustainability risk as a result of failure to fully recover costs. There may be government subsidies in place or the state partly fund capital outlays. Port regulation is undertaken by a public entity that lack autonomy from the state. The regulatory framework is outdated and in need of reform. Sector regulator lacks capacity to fully and effectively enforce the existing regulation. The sector may have a track record of contract renegotiations or failed privatization attempts. 	 Port sector is poorly regulated, regulation is non- existent, weak or obsolete. The sector has high exposure to exogenous shocks with no mitigation mechanisms. Business case for climate resilience technologies or practices has not been made

MARKET	Highly	Moderately	Underdeveloped	Highly
TYPOLOGY	Developed	Developed		Underdeveloped
Integration	 The ports sector is advanced and well- integrated into global value chains. Deliberate investments have been made to develop the ports sector into transit hub, including both infrastructure investments and incentives for global carriers. The market is characterized by a high number of vessel calls, direct-service routes, and high volume of transshipment cargo. The sector has developed based on a comprehensive transport sector development framework reflecting adequate inter- modal linkages. Ports are connected to most parts of the hinterland markets through multiple modes of ground, marine or air transportation. National ports have developed as part of an integrated system (national or regional) transport network. There are strong synergies among existing ports sector assets. There is full integration of local firms in the ports supply chain. The ports sector is financed through diverse instruments and investors. There is no evidence of restricted global capital flows into port projects. 	 The ports sector has a large number of direct linkages to global routes. Local ports are increasingly acting as key nodes in global value chains. Deep-sea ports and ports strategically located along major maritime routes facilitate both direct linkages to global markets and transit or transshipment traffic. The sector may be developing into a major transshipment bub (evidenced by increasing volume of transit or transshipment cargo handled). The market has a transport infrastructure master plan reflecting adequate intermodal linkages. Ports are connected to most parts of the hinterland market through several modes of ground / marine transportation (road, rail, waterway). There is evidence of increasing investments that expand a port's hinterland presence, as well as those that improve logistics efficiency among existing assets. There is evidence of emerging local capabilities in EPC, operation and maintenance, basic and value-added logistics services, among others. Global capital flows into the ports sector are increasing, with increased participation of investors such as Infrastructure Funds or Funds. 	 Ports have a limited number of direct-service routes (trade mostly served through transshipment ports). There is weak integration of the sector into global value chains. The sector has no/limited capabilities to handle transit or transshipment traffic. There is limited connectivity between ports and other modes of transport which limits linkages between origin and destination markets for freight or passenger traffic. The ports sector has not developed as part of a comprehensive integrated system (national or regional) which limits logistics synergies. There is no/limited integration of local service providers into the ports sector supply chain. The sector has limited access to domestic or international capital markets. Port infrastructure development relies mostly on internal funding (state budget, project cashflows) and debt mobilized from traditional lenders (e.g. multilaterals, national development banks). 	 The ports sector is limited in scope (e.g. country is landlocked with no/limited inland ports infrastructure). Business case for local content in the ports supply chain has not been made. There is limited access to domestic and global capital markets by the port operators.

The market component rating is based on the current market stage and movement along the market typologies. For each relevant market outcome, the individual market creation assessment will identify where the magnitude of the movement falls in the movement spectrum and will support one of the following movement options: "Marginal", "Meaningful", "Significant" or "Highly Significant". In general, most individual projects are not expected to make a significant and immediate systemic market change, unless the project is a pioneer in a non-existent or nascent market. Instead, most projects are expected to have incremental effects on the market. In other words, it takes more than one intervention to move a market to the next stage. This means that integrated and concerted efforts are often needed to generate substantial market effects. Examples of market movements include:

MARKET MOVEMENT	Marginal	Meaningful	Significant	Highly Significant	
Competitiveness	An IFC investment in ports promotes competitiveness when it creates opportunities and incentives for market entry, increases service offering, improves efficiency, and positively affects price and price regulation. When state-run or private monopoly ports have a weak record on performance, IFC investments aimed at deepening the role of the private sector are expected to improve competitiveness. Projects that develop specialized terminals or handling facilities, introduce value-adding ancillary services, or introduce inland cargo handling facilities, also contribute to improving competitiveness. As logistics service providers, ports generate value from space and time management. Efficiency can be attained through structural reorganization of the sector to match traffic flows, reform of business processes, automation and technological innovation, increased use of advanced IT solutions, and optimizing first and last mile connectivity. IFC investments that move the market to optimal pricing or pricing structures also contribute positively to competitiveness.				
Resilience	Resilience in ports refers to business continuity in the face of exogenous and endogenous shocks. Business continuity in port operations is important given the sector's strong linkages to local and global supply chains, including in the trade of basic food commodities and core industrial inputs. IFC (and associated WBG) operations contribute to improving resilience when they improve the port sector's ability to diversify the customer base and minimize reliance on a few key customers, or global supply chains, for steady revenues. Projects also support resilience when they improve climate resilience of wet-side or dry-side operations; strengthen port security; add redundant capacity and options for traffic diversion in the event of loss of capacity in some facilities; and increase hinterland connectivity options. Resilience also entails cost recovery and financial sustainability of key players and for the sector overall, and a well-balanced sector regulatory framework aligned with market development objectives.				
Integration	Ports sector projects promote integration through physical integration, deepening economic linkages and improving financial integration. IFC projects in the ports sector contribute to market creation when strengthening a country's connectivity with global markets, through investments that enable ships from new routes to call, increase the number of direct service routes, and introduce new specialized infrastructure that facilitates trade with new trading partners. Regional integration can derive from investments that enable ports to better serve as transit or transshipment hubs; while domestic physical integration is driven by investments in inland marine transport infrastructure, and in assets that enable ports to better serve as trade gateways for origin/destination traffic.				

The market likelihood adjustment follows the principles for the likelihood adjustment for project outcome potential. In general, the likelihood assessment includes sector-specific, as well as broad country risks that may prevent potential catalytic effects from occurring, plus political economy or policy/regulatory risks that may constrain market systemic change. Due to the diversity of market creation attributes and channels, most of the likelihood factors are expected to be sector, or intervention specific.

MARKET LIKELIHOOD	Sector Factors	Political / Regulatory / Policy Factors
Assessment Considerations	 Market demand for services Sector regulation, including tariff regulation Public partner track record in meeting contractual obligations Coherence of specific policies that affect ports Availability WB support to improve sector frameworks and public institutional capacity Availability of AS technical assistance to improve build local capacities and uptake of opportunities created by the project 	 Presence of established and well-tested regulatory and legal framework Existence of a capable and independent regulator Government track record in upholding new policies (measuring risk of policy reversals) and contractual agreements Regulatory scope and capacity Availability of WB technical assistance to improve policies and regulatory capacity

