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REVIEW OF THE MOZAMBIQUE DRAFT PORT LAW

Supporting the Policy Environment for Economic
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Review of Mozambique's Proposed Draft Port Law

There is a classic episode of the old American show “I Love Lucy” in which Lucy and her best friend Ethel go to work [wrapping candies on an assembly line](#). The line keeps speeding up with the candies coming closer together and, as they keep getting farther and farther behind, Lucy and Ethel scramble harder and harder to keep up, finally eating the candies and placing them in their clothes so as to give the perception they are catching up. But in their ill-fated effort, Lucy says “I think we’re fighting a losing game”. And so this is where we will be if law fails to go beyond the status quo and anticipate the possibilities as future conditions change; drafters of legislation should promulgate draft law with a view towards the future, even a couple of generations. Anticipation makes it far easier to adjust to changing circumstances than continuously drafting new legislation or amendments for failing to anticipate the possibilities. Time is on your side with a reflection of anticipation in the law; time is not on your side for catching up.

Mozambique’s current port regulations trace their roots to Reglamento 18630 of 1965, two years *before* containerization arrived to the trans-oceanic trades, with refrigerated (reefer) containers following in the late 1970s. Gantry cranes, computerized terminal operation systems, gate appointment and vessel reservation systems, privatization, new sector institutional arrangements and security protocols, and now fully automated terminals have arrived to the global port industry in the intervening 55 years between Reglamento 18630 and the Draft Port Law’s preparation. So now is the opportunity for Mozambique to both catch up and be ahead of the game of modernized port legislation.

As we explain below, the Draft Port Law passes the “plain language” test as it is clear what it aims to do and reflects readability, simplicity, and conciseness. But where it gains in these characteristics, it loses out in specificity. The Draft Port Law aims in part to centralize many functions by creating a port sector regulator: ARSPM. We performed an assessment where we identified 28 functions “normally” performed in port sectors based on global experience and identified the entities in Mozambique to which these functions are assigned. Of the 28 functions normally performed, 26 of them appear to be appropriately assigned, but there are nine functions that are co-assigned to two or more entities and four are assigned to “government”. This is where specificity is needed, as the boundaries of responsibility for functions where multiple entities are assigned are not clear, and we do not know from reading the Law who “government” is. Without this specificity, Mozambique can expect inter-agency turf battles. Additionally, the assessment uncovered two functions not assigned to anyone; this would include the setting of port dues, presumably for ARSPM, and maintenance of port common use areas.

The Law aims in part to promote and safeguard competition and allows ARSPM to terminate concession contracts and licenses upon conviction of anticompetitive behavior, but Mozambique has no competition law framework, so one would question how a conviction can happen without the underpinning law. Mozambique can hope to safeguard competition by setting tariffs but, for reasons explained below, this is a complex undertaking as the regulator would never understand a terminal operator’s true cost structure. This can be mitigated in part by allowing potential operators to bid for a concession on a low tariff basis, which would become the regulated tariff upon concession award. Whatever economic regulation approach is used, however, it requires the ARSPM to carefully define in detail the regulated tariff items in order to avoid ambiguity in the interpretation of the tariff.

As ARSPM is given the responsibility to ensure port efficiency, the Draft Port Law does not authorize ARSPM to impose a port performance monitoring system. We provide guidance on what such indicators may include, limiting them to seven; the data for calculating them are normally

available from the terminal operator. As in prescribing tariff levels, the regulator needs to exercise diligence in precisely defining how the indicators are calculated to avoid giving the government or the operator wiggleroom in their performance reporting.

The Draft Port Law also identifies essential items (provisions) for concession contracts. Three important omissions are force majeure, terminal performance indicators, and dispute resolution. We also identify eleven other items that we believe to be essential, ranging from contract duration and reporting operational performance to government audit rights and terminal operator change-of-ownership notification and approval.

Our analysis of the Draft Port Law is based on a Google translation of the Law from Portuguese to English. We hope we have not lost the full subtlety of meaning or significance from the translation. Additionally, the work relied entirely on our understanding of port sector reform, operations, and regulation, but we did not benefit from industry, government, and lawmaker interviews. We had a lot of “what do you mean by this” or “who is doing what” type questions, but we hope we still got it right by drawing inferences from the Law’s language and what we know to be best practice. As American writer and humorist Mark Twain opined, “the difference between the *almost right* word and the *right* word is really a large matter—‘tis the difference between the lightning bug and the lightning.” But we hope we got the right words here.

Port Sector Institutional Reform and the Draft Port Law

The global trend towards port reform over the last 40 years is a reflection of a dynamic environment in policy shifts addressing port sector governance, port development financing, terminal operations and management, port performance improvements, and port sector regulation. Prior to the 1980s, a government’s considerable involvement in ports was the prevailing practice as country leaders believed a strong government stewardship and operational role was the key to ensuring economic success. Hence, many ports were administered by line agencies charged with port development, management, and operations. The World Bank and other multilateral financial institutions, however, promoted the establishment of port authorities to ensure their independence and isolation from bureaucratic influences; it was expected, then, that port authorities would achieve financial self-sufficiency and accountability, create skilled labor forces, provide for greater commercial flexibility, and rationalize capital investments, pricing practices, and operational decisions. In so doing, planning, management, operational, and regulatory responsibilities would be assigned to port authorities; effectively, port authorities would become “operating ports” where public port authority employees would be responsible for cargo and vessel handling operations.

The new port authority scheme, however, overestimated the ability of port authorities to become immune from bureaucratic influences. As ports were considered cash cows (and generators of foreign currency), governments aimed to capture port authority revenues, depriving them from the ability to invest in needed improvements and, given ports were a major revenue source for the national treasury, would also direct ports to increase their tariffs. Port authorities would also continue to be susceptible to political patronage. The result was high tariffs, low efficiencies, bureaucratic disregard for port user needs, excessive workforce levels, and insufficient investment. Ministries of transport and development also were reluctant to relinquish their long-held port planning and development responsibilities, while a host of other agencies with long-standing port sector ties would strive to continue to exercise their controls.¹ Thus, over time, operating port authorities evolved into the bureaucratic creatures they were designed to replace.

¹ In 1988, for example, Argentina alone had six ministries and 18 state agencies involved in its port sector activities; see Economic Commission for Latin America and the Caribbean, *The Restructuring of Public Sector Enterprises*, LC/G. 1691-P, Santiago, Chile, 1992, p. 25, citing Bolsa de Comercio de Buenos Aires, *Jornadas sobre puertos argentinos: problemática y soluciones*, Buenos Aires, August, 1989.

Once again at the urging of the World Bank and other multilateral financing institutions, a new paradigm for port governance would be proposed that would devolve port operational responsibility and at times port assets to the private sector with port authorities responsible for overseeing the development and maintenance of port common use areas as well as the performance of private service providers and their adherence to concession contracts.² This new “landlord authority” governance model would thus replace the operating authority model. Due to its positive impacts on port performance, the World Bank and the Asian Development Bank eventually promoted the landlord model as a global best practice. Today, the landlord model is acknowledged as the most prevalent form of port administration.³

The World Bank, while promoting the landlord model approach, would ultimately recognize the risk of monopolies as countries increasingly sought out privatization as a means for improving port performance. Based on the privatization experience at the time, the World Bank set forth a number of strategies, based on this author’s doctoral dissertation, that can be used to induce competition,⁴ and even suggested that the incorporation of a competitive environment can start with the port master plan⁵ where (sufficient volumes notwithstanding) new facilities can be introduced or existing ports can be subdivided to facilitate intra-port competition⁶. And as the World Bank points out, “. . . clearly, the preferred [competition enhancement] strategy is the one that results in more competition.”⁷ Indeed, today, the majority of the world’s top container ports have some form of private sector participation in terminal operations⁸, while 93 of the top 100 container ports face intra-port or inter-port competition⁹.

According to Mozambique’s proposed Draft Port Law, the country’s port regulations trace their roots to Reglamenteo 18630 of 1965. The Draft Port Law indicates the regulations were later amended in 1970 in part to clarify the jurisdictions of each of the ports, the authority of each of the port administrations, and the regulations governing licensing of construction and services within the port areas. While the Draft Port Law points out that in the 1990s the government’s economic rehabilitation program would liberalize port markets and permit the entry of the private sector in port activities, it seems liberalization occurred earlier as restrictions on private sector participation

² Concession contracts typically include investment requirements, fixed and variable payment obligations, minimal performance standards and, as appropriate, maximum tariffs for a basket of port services.

³ World Bank, *Port Reform Toolkit*, “Module 3: Alternative Port Management Structures and Ownership Models”, Washington, D.C., 2003, p. 18. The Asian Development Bank states the following: “The best institutional structure for promoting private sector involvement in public port operations and investment is the landlord port”, that “The landlord model is the best structure for promoting PSP (private sector participation) because it accommodates different forms of public-private partnership . . .”, and “Best Practice supports a policy of promoting the development of private cargo-handling terminals and allowing them to compete for third party cargo”. See Asian Development Bank, *Developing Best Practices for Promoting Private Sector Investment in Infrastructure – Ports*, Manila, Philippines, 2000, pp. ix, 15, and 62, respectively.

⁴ The World Bank’s *Port Reform Toolkit* presents a decision framework composed of strategies for a variety of port conditions and competitive environments that would promote competition. Kent, Paul E. and Richard Blankfeld, *Port Reform Toolkit*, “Module 6: Overseeing the Economic Public Interest in Ports”, 2007, p. 282. See also Kent, Paul E., “Monitoring for Port Antitrust Behavior: An Operational Model and Future Challenges”, peer-reviewed paper presented at the annual conference of the International Association of Maritime Economics and Logistics, Panama, 2002.

⁵ World Bank, *Port Reform Toolkit*, “Module 3: Alternative Port Management Structures and Ownership Models”, Washington, D.C., 2003, p. 20.

⁶ *Ibid.*, p. 13.

⁷ *Ibid.*, p. 12.

⁸ Benamara, Hassiba, Jan Hoffmann, and Vincent Valentine, “The maritime industry: key developments in seaborne trade, maritime business and markets”, *International handbook of maritime economics*, Kevin Cullinane, Editor, 2011, p. 43.

⁹ Compiled by author based on rankings of container ports reported in *Containerization Yearbook*, 2018, Informa Publications.

licenses in transportation may have actually been removed in 1987.¹⁰ Mozambique's privatization law would later establish the ground rules on which PPPs can be pursued under concession, operating, and management contract options¹¹; such options are in general accord with global port privatization experience.

Global experience has seen many changes in the port sector since Reglamenteo 18630 of 1965. In addition to the shifting paradigms in port governance models, there has been a revolution of sorts in port privatization in two waves, with the first wave in the 1980s induced by Great Britain's privatization program and the 1990s privatization wave encouraged by the successful experience of several countries in Latin America (e.g. Chile and Colombia). In fact, Latin America's experience overall set the standard for port concession programs elsewhere. Mozambique's experience to some degree reflects the features of the Latin America's reform, such as, for example, the fixed and variable payment approach reflected in the country's privatization law.

Given the obsolete nature of Reglamenteo 18630 and related subsequent decrees, Mozambique has proposed a new port law that aims to update its institutional and regulatory framework. Mozambique can thus now benefit by drawing upon international experience since the issuance of Reglamenteo 18630. As part of the process of modernizing its port sector law, USAID has requested a review of the Draft Port Law in the context of global best practice and related pitfalls to avoid.

A Review of the Law

Experts in the art of drafting legislation aim to reflect clarity, that is, that legislation should embrace the characteristics of readability, simplicity, specificity, and conciseness. In reflecting on European Community legislation, Martin Cutts, linguist and author of the *Oxford Guide to Plain English*, suggests that European law, though developed as a complexity of influences, ". . . should seem the shining product of a hundred brilliant minds, even when it is the result of late-night deals and backroom compromise."¹² As an example of violating his plain English rule, Cutts likened it to someone who "was conveyed to his place of residence in an intoxicated condition" to someone who "was carried home drunk".¹³ While Cutts' guide addressed "plain English", certainly his clarity rules apply to "plain language". Those who are expected to know, obey, apply, and advise on the law must be helped as much as is practicable to understand it.

As discussed below, the Draft Port Law addresses the wide range of functions normally found in the port sector. The vast majority of port sector functions have found a home in the one or more entities to which the Draft Port Law assigns them. So the Draft Law is sufficiently comprehensive in its scope. It is readable in that the text is easy to understand and given its scope of coverage, it is relatively concise. It also reflects simplicity as the Draft Law's objectives are quite clear and the subsequent language reasonably aligns well with the objectives. The Draft Law's shortcoming, however, is that it loses out on specificity as it lacks sufficient guidance as to the roles assigned to the entities; this is especially confusing in circumstances where the same function may be assigned to more than one entity, as the dividing line between "coordinate" and "implement" is blurred. It is possible that clarity of assignments will be worked out during the rulemaking (regulamentação) process. However, without specificity, jurisdictional disputes can be expected to arise as entities

¹⁰ Operational Evaluation Department, "Mozambique Economic Rehabilitation Programmes I and II: Project Performance Evaluation Report", African Development Bank, 8 October 1999, p. 17.

¹¹ Law n° 15 of 10 August 2011, Article 21 (1).

¹² Cutts, Martin, *Clarifying Eurolaw, How European Community directives could be written more clearly so that citizens of Member States, including lawyers, would understand them better*, prepared for the European Law Conference, Stockholm, June 2001.

¹³ *Ibid*, p. ix, citing Cambridge University professor Arthur Quiller-Couch.

jockey for positions to assume the lead role in their assigned functions -- there is a big difference between playing the lead role and being a participant.

In the following, we review the functional responsibilities in the Draft Law; we document the entities assigned port sector functions and provide annotations (in the form of footnotes) that identify the specific provisions in the Draft Law that address the functions and in some cases provide descriptions of the functions for clarity. We then address in detail the performance of certain functions, especially regarding economic and competition regulation, port performance indicators, and essential items in concession contracts. These are intended to provide some considerations for revising the Draft Port Law or as guidance for devising the associated regulations for these more complex port sector functions.

Port Sector Institutional Arrangements

The earlier reference to Argentina's port sector was made relative to the six ministries and 18 state agencies involved in their port sector activities. This was intended to draw attention to the extended and broad reaches of government in port sector affairs; this is not to say that governments should refrain from having multiple agencies involved in the port sector. Chile, which has a good reputation relative to port performance, particularly in the fiercely competitive container trades of San Antonio and Valparaiso, has five ministries that weigh in on port policy, planning and development, and regulation, including the Ministries of 1) Transport and Communication's Logistics Development Division, 2) Public Works, 3) Defense, 4) Finance, and 5) National Assets, according to an OECD report.¹⁴ Chile's Competition Tribunal is also involved in port sector antitrust (competition) matters.¹⁵ Additionally, Chile's ten public port authorities, all created as landlord models, are also established as public companies (state-owned enterprises) and hence fall under the supervision of the Public Companies Organization. The difference between Chile "now" and Argentina "then" is that the port sector functions well under the multi-entity approach in Chile, but did not perform well under the multi-entity governance arrangements in Argentina. The Chile port reform law precisely defined the roles of each of the entities such that there was clarity relative to jurisdiction and functional role.

While another objective in Mozambique aims to centralize the control of ports in a regulatory body, it is not entirely centralized as the law assigns responsibilities to a number of agencies while others are ascribed to "government". Article 6, for example, states the "government" is responsible for defining ARSPM's authority, composition, organization, and functional responsibilities. Article 12 assigns port sector policy and strategy responsibility to the Ministry of Sectoral Protection (Ministério de Tutela Sectorial -- MTS), though with inputs from ARSPM. Additionally, the MTS is also to submit proposals to the "government" where new ports are created outside of existing port jurisdictions or modifications are made to existing port jurisdictions (Article 17(1)). But government also has port sector responsibilities outside the spheres of these ministries. The Draft Port Law indicates that "government" will:

¹⁴ Chauliac, Perrine and Olaf Merk, *Ports Policy Review of Chile: Case-Specific Policy Analysis*, OECD/International Transport Forum, 2016, pp. 15-16.

¹⁵ As is the case in Australia, Mexico, Portugal, Spain, Colombia, and Germany, among others. Chile's Ports Act specifically mandates the involvement of the Competition Tribunal to safeguard port sector competition. The Act's Article 21 declares that Chile's Competition Act, which established the Competition Tribunal, applies to the port authorities that are established as state-owned enterprises. The Act's Article 22 indicates that the use of berth facilities should be done in a non-discriminatory manner while Article 31 mandates that among the functions of the state-owned enterprises is to promote competition and ensure non-discrimination behavior among port users. Article 51 calls for regulations in the design of concession tenders such that the tenders facilitate the creation of a competitive setting and ensure fairness among port concessionaires. See OECD, *Competition in Ports and Port Services*, Directorate for Financial and Enterprise Affairs Competition Committee, 19 December 2011, pp. 110-111.

1. approve ARSPM's tariff policy (Article 2(6)),
2. define ARSPM's functions, composition, and powers (Article 6(3)),
3. authorize ARSPM to provide the opportunities for the private sector to provide port services (Article 7(4)),
4. authorize ARSPM to conclude terminal use contracts and the issuance of licenses (Article 8(1)(j)),
5. authorize the renewal, revision, or termination of concession contracts and licenses (Article 8(1)(m)),
6. approve the creation of new ports or alterations to existing port (territorial) jurisdictions, and so on.

Hence, the law leaves vague as to precisely which government organization has these responsibilities, though in some countries this is presumed to be the office of the prime minister, the office of the president, or cabinet of ministers. As guidance to the entities that have to report to, seek approval from, or coordinate with the "government", the Draft Port Law should specify which entity in "government" is intended by the law.

Draft Port Law Functional Assessment

As we know from the Argentinian experience, legislation needs to clearly delineate the responsibilities among agencies engaged in the port sector. Not having done so can lead to jurisdictional disputes as agencies endeavor to stake claims over certain functions or attempt to preserve the incumbent roles they had prior to legislative reforms. Other pitfalls in legislation include functional gaps, where port sector functions are not assigned, or assignments of similar functions to multiple entities without defining the boundaries for each entity's role. Additionally, functions simply assigned to "government" adds confusion, though it may also suggest that the drafters of the legislation have not yet been able to sort through government assignments and may simply wait for the draft legislation to proceed through legislative deliberation.

In order to determine if all relevant functions are identified and clearly assigned, we conducted a functional assessment of the Draft Port Law to assess the extent of coverage relative to port functions

Table 1. Mozambique’s Port Sector Functional Responsibility as Provided in Draft Port Law¹⁶

Função	ARSPM	Ministério de Transportes e Comunicações	Ministério da Economia e Finanças	Ministry of Sectoral Protection (Ministério de Tutela Sectorial)	INAMAR (Instituto Nacional da Marinha / National Marine Institute)	Concessionária / Operadora de Terminal	“Governo”	Outros (identificar)
1. Planeamento e engenharia / Planning and Engineering								
1.1 Planeamento-director portuário a nível local / <i>Local Port Master Planning</i>	P ¹⁷					P		
1.2 Planeamento Nacional do Desenvolvimento Portuário / <i>National Port Development Planning</i> ¹⁸				P			P	
1.3 Gestão de Manutenção Portuária / <i>Port Maintenance Management</i>		P				P		
1.4 (Pública) Supervisão de Construção Portuária / <i>(Public) Port Construction Supervision</i> ¹⁹	P							
1.5 Manutenção Diária (áreas de uso comum) / <i>Day-to-Day Maintenance (common use areas)</i> ²⁰								
1.6 Manutenção Diária (áreas concessionadas ou arrendadas) / <i>Day-to-</i>						P		

¹⁶ Note the Draft Law designates the involvement of more than one agency in the performance of some functions. Based on our reading of the Draft Port Law, we have designated functional assignments in the table as “P” for primary responsibility and “S” for secondary responsibility. In some cases, there may be more than one entity having the designation of “P” or “S”.

¹⁷ Article 23(4) authorizes ARSPM to prepare plans for each port.

¹⁸ National Port Development Planning in the Draft Law involves the designation of areas outside existing port territorial jurisdictions as well as the revision of existing territorial jurisdictions for purposes of port development. The Draft Port Law’s Article 17(1) grants the Ministry of Sectoral Protection the authority to propose altering existing port jurisdictions or creating new ones outside existing port jurisdictions for the government’s consideration.

¹⁹ Article 8(c) specifies that ARSPM will supervise the construction of buildings or other facilities and the execution of any works on port lands.

²⁰ Terminal operators have maintenance responsibilities of facilities and infrastructure within their concession areas, but the Draft Port Law does not assign maintenance responsibility for common use areas. These areas are used by parties outside the concessioned terminal gates. For example, there may be a common gate that allows entry to access terminal operator gates. Public parking outside the terminals and internal traffic routes may also be common use areas.

Função	ARSPM	Ministério de Transportes e Comunicações	Ministério da Economia e Finanças	Ministry of Sectoral Protection (Ministério de Tutela Sectorial)	INAMAR (Instituto Nacional da Marinha / National Marine Institute)	Concessionária / Operadora de Terminal	“Governo”	Outros (identificar)
<i>Day Maintenance (concessioned or leased areas)</i>								
2. Operações Portuárias e de Terminais / Port and Terminal Operations								
2.1 Auxílio à Navegação (dentro do porto) / <i>Aids to Navigation (inside harbor)</i>	P					p ²¹		
2.2 Auxílio à Navegação (canal de acesso a porto) / <i>Aids to Navigation (approach channel to harbor)</i>	P					p ²²		
2.3 Pilotagem / <i>Pilotage</i>	P							
2.4 Rebocar / <i>Tug Assist</i>	P							
2.5 Terminal de Segurança e Proteção (perímetro e Áreas de uso Comum) / <i>Terminal Safety and Security (Perimeter and Common Use Areas)</i>	P							
2.6 Segurança da Navegação (ex: ISPS, IMO) / <i>Safety and Security (e.g. ISPS, IMO)</i>					P			
2.7 Atribuição da Âncora / <i>Berth Assignment</i>	P							
2.8 Tratamento de Carga / <i>Vessel Manuseamento / Cargo/Vessel Handling</i>						P		
3. Administração dos Portos / Public Port Administration								

²¹ The operator having this responsibility depends on its concession contract obligations. Article 32 indicates the possibility that navigation safety (in reference to signage, navigation lights, and buoys) can be concessioned as an individual port service and presumably could be included in a terminal operator concession as Article 32(c) identifies this as an essential element of a concession contract. Article 44 specifically identifies navigation safety as a port service.

²² Again, this depends on whether this is an obligation of the concessionaire under its concession contract.

Função	ARSPM	Ministério de Transportes e Comunicações	Ministério da Economia e Finanças	Ministry of Sectoral Protection (Ministério de Tutela Sectorial)	INAMAR (Instituto Nacional da Marinha / National Marine Institute)	Concessionária / Operadora de Terminal	“Governo”	Outros (identificar)
3.1 Políticas e Estratégia do Sector Portuário / <i>Port Sector Policy and Strategy</i> ²³	S						P	
3.2 Definir as responsabilidades funcionais da ARSPM / <i>Define ARSPM's functional responsibilities</i>							P	
3.3 Concessão de Licenças / Licença Supervisão / <i>Award of Licenses-Private Use Contracts / License Supervision</i> ²⁴	P		S	S				
3.4 Aquisições e adjudicação de concessões / <i>Procurement and Award of Concessions</i>		P						
3.5 Concessão Supervisão / <i>Concession Supervision</i>	P						p ²⁵	
3.6 Monitoria de desempenho / <i>Port Performance Monitoring</i> ²⁶	P							
3.7 Colecta / Relatório de dados (ex: estatísticas de carga por tipo de carga) /	p ²⁷							

²³ The Draft Law's Article 12 assigns responsibility for elaborating port policy and strategy for approval by the government, with ARSPM and other public and private organizations contributing suggestions for policy and strategy.

²⁴ The Draft Port Law's Article 36 authorizes ARSPM to grant private use licenses and contracts for use of public port facilities. Article 37 further allows ARSPM to impose fees for private use licenses or contracts, but the rules for granting such have to be approved by the minister of transport and minister of finance.

²⁵ ARSPM has concession supervision responsibilities, but Article 7(4) states the government shall authorize ARSPM to provide opportunities to the private sector to provide port services. Further, Article 8(l)(j) states the government shall authorize ARSPM to conclude terminal use contracts and licenses and Article 8(l)(m) says the government will authorize the renewal or termination of concession contracts and licenses.

²⁶ Article 7(f) assigns ARSPM the responsibility for evaluating the performance of port operators relative to the objectives set forth in the Draft Port Law. Article 2(1) identifies increasing effectiveness and operational efficiency as one of the Draft Port Law's objectives. Article 7(g) also authorizes ARSPM to propose measures to increase the competitiveness of ports.

²⁷ Article 7(3)(d) specifically assigns ARSPM the responsibility for collecting and analyzing statistical information to support its decisions on economic regulation matters, but there is nothing in the Draft Port Law that compels concessionaires to provide such data. Much of the data needed for economic regulation is proprietary to the concessionaire; accordingly, this should be listed in Article 32's essential elements of a concession contract.

Função	ARSPM	Ministério de Transportes e Comunicações	Ministério da Economia e Finanças	Ministry of Sectoral Protection (Ministério de Tutela Sectorial)	INAMAR (Instituto Nacional da Marinha / National Marine Institute)	Concessionária / Operadora de Terminal	“Governo”	Outros (identificar)
<i>Data Collection/Reporting (e.g. cargo statistics by cargo type)</i>								
4. Regulamento / Regulation								
4.1 Regulamento de Operacoes / Operational Regulation ²⁸	S				P	P		
4.2 Económico / Fixação de Tarifas (serviços portuários) / Economic Regulation/Tariff Setting (port services) ²⁹	S	P ³⁰	P	P		S ³¹	P	
4.3 Fixação e aprovação de taxas portuárias / Port dues setting and approval ³²								
4.4 Certificação para o exercício da actividade portuária / Port Activity Certification	P							

²⁸ Operational regulation refers to establishing and enforcing the operational rules governing the use of the port. These regulations address, for example, working hours of ports/terminals, navigation rules, advance arrival notification, berth assignment, national holidays on which the port is closed, hazardous cargo handling and responding to environmental spills, and so on. While terminal operators are responsible for adhering to the rules, and in some cases enforcing them, the port authority or maritime authority is normally responsible for formulating operational regulations which are frequently included in the port authority tariff book. The Draft Law’s Article 14 assigns regulatory responsibility relative to the entry and exit of vessels to INAMAR, but in “coordination” with ARSPM.

²⁹ The Draft Port Law assigns tariff setting responsibility to the Ministry of Sectoral Guardianship and to the Ministry of Finance, but in “coordination” with the ARSPM. Presumably, this means the ARSPM can propose a tariff for which approval is needed from either (or both) Ministries. See Article 13. Article 78(1) appears to be in conflict with Article 13 as tariff approval must be given by the ministers responsible for finance and transport.

³⁰ While the Ministries of Sectoral Guardianship and Finance have a tariff setting role, this appears to be distinct from setting the rules for setting tariffs or fees. Article 37 assigns that responsibility jointly to the Ministers who oversee transport and finance, today being the Minister of Transport and Communications and the Minister of Finance.

³¹ The concessionaire or operator is authorized to set its own tariffs, but must stay within the limits of its concession contract and/or the maximum limits established by the regulator. See Article 28(3)(a).

³² It is likely ARSPM will be providing certain services not assigned to the concessionaire or other private sector port service providers under licensing and other arrangements. These are normally referred to as port dues, and may include navigation fees and infrastructure use charges for maintaining common use areas. The Draft Port Law appears to be silent on the ability of ARSPM to charge port dues as well as the approval mechanism for determining what the port dues are.

Função	ARSPM	Ministério de Transportes e Comunicações	Ministério da Economia e Finanças	Ministry of Sectoral Protection (Ministério de Tutela Sectorial)	INAMAR (Instituto Nacional da Marinha / National Marine Institute)	Concessionária / Operadora de Terminal	“Governo”	Outros (identificar)
4.5 Regulamentos / <i>Competition Regulation</i> ³³	P							
4.6 Obrigações/Protocolos Internacionais (ex: OMI) / <i>International Protocols/Obligations (e.g. IMO)</i> ³⁴	P	P						

Source: Nathan SPEED+ Team and Author

³³ The Draft Law’s Article 61 and Article 74 allows ARSPM to revoke a port operator certificate or terminate a concession contract (and port service license), respectively, in the event the operator is found to have been convicted for anticompetitive behavior as well as corrupt practices. However, it is uncertain who in Mozambique has enforcement authority. Law No. 10/2013 authorized the establishment of the Competition Regulatory Authority, modeled after the Portuguese and ultimately European Union law, but the law has yet to be implemented.

³⁴ The Ministry of Transport and Communications today appears to be responsible for entering into international agreements with the International Maritime Organization and other agreements or treaties associated with maritime safety. ARSPM is given the responsibility to enforce Mozambique’s related obligations; Article 2(e) specifically assigns international treaty and convention compliance and enforcement responsibility to ARSPM.

that are normally performed based on the author's own research³⁵ and consulting experience and international practice.³⁶

Table 1's first column identifies the range of port sector functions typically conducted. These are presented in four categories, including 1) planning and engineering, 2) port and terminal operations, 3) public port administration, and 4) regulation. The table's first row identifies six entities, among them the terminal operator or concessionaire, to which functions are currently assigned or would be assigned in accord with the Draft Port Law. "Government" is included as an entity because, as earlier noted, the Draft Port Law specifically assigns some responsibilities to government, rather than specific entities or in addition to other entities to which the Draft Port Law assigns.

The table also identifies agencies that from the Draft Port Law appear to have primary (designated as "P") or secondary (designated as "S") responsibility for a specific function; in some cases, there may be more than one entity that has primary responsibility. We also provide explanatory notes in the tables addressing the specific provisions in the Draft Port Law for ease of reference.

Draft Port Law's Lack of Clarity

Altogether, 28 port sector functions are identified and listed among these four categories. The table shows that two functions, port dues setting and approval, and day-to-day maintenance of common use areas, are not assigned. It is likely ARSPM will be providing certain services not assigned to the concessionaire or other private sector port service providers under licensing and other arrangements. These services would be identified and associated fees would typically be specified in a port tariff schedule published by the regulatory authority. They may include navigation fees and infrastructure use charges for maintaining common use areas. The Draft Port Law appears to be silent on the ability of ARSPM to charge port dues along with the approval process for the types and level of dues charged.

Provision and maintenance of common use areas, for which port dues could be charged as an infrastructure use fee, are also not assigned. Terminal operators have maintenance responsibilities for their own concessioned areas, but most ports that have more than one terminal have areas that provide access to other port users, such as land and water-side accesses, internal roads outside the terminals, external port gates, and parking, which may be provided by the authority; the cost for maintaining these areas can be covered by infrastructure use and navigation fees charged by the authority.

Twenty-six of the 28 functions are assigned to specific entities. All functions appear to be appropriately assigned, but there are nine functions that are assigned to two or more entities and four are co-assigned to government, which is also assigned exclusive authority for defining the responsibilities of ARSPM. There are eight functions that are assigned solely to ARSPM; port construction supervision, pilotage, tug assist, port perimeter security, port operations regulation, berth assignment, port performance monitoring, and port data collection/reporting. The allocation of these functions confuses the role of ARSPM as a regulator and an operating entity given its responsibility over pilotage and tug assist. As these are maritime-oriented functions, it would seem

³⁵ See, for example, R. O. Goss, *Comparative study of seaport management and administration*, London : Government Economic Service, Dept. of Industry, Trade and Prices & Consumer Protection, 1979; World Bank, *Port Reform Toolkit*, Module 3: Alternative Management Structures and Ownership Models, 2007, pp. 73-89; and Brooks, M. R. and K. Cullinane, *Devolution, Port Governance and Port Performance*, edited by M. R. Brooks and K. Cullinane (London: Elsevier), pp. 631-660.

³⁶ See Paul E. Kent and Anatoly Hochstein, "Strategies for Improving Port System Performance: Worldwide Experience" in *Privatizing Transportation Systems*, edited by Simon Hakim, Paul Seidenstat, and Gary W. Bowman, (London: Praeger), 1996, pp. 143-161; P. E. Kent and A. Hochstein, "Port reform and privatization in conditions of limited competition: the experience in Colombia, Costa Rica, and Nicaragua", *Maritime Policy and Management*, 25 (4), pp. 313-333.

they should be assigned to INAMAR, although for purposes of this report we have not reviewed INAMAR's legislation. The implications of this operational role are important, as it may be difficult for ARSPM to have operational regulation responsibility over pilotage and tug assist services that are normally included in port operational regulations, which ARSPM is also assigned to do.

Fair Competition and Economic Regulation

One of the justifications for the Draft Port Law is the need to promote and safeguard competition, but it appears Mozambique expects to do this through the development of port infrastructure and by improving efficiency and reliability of port services.³⁷ Article 2 of the Draft Law also addresses the establishment of a tariff policy reflecting free competition rules, monitoring of pricing behavior, and preventing the creation of monopolies, all the while ensuring the exercise of safety and security measures in port areas.

While the Draft Law also allows ARSPM to terminate concession agreements and revoke licenses and operating certificates upon conviction for anticompetitive behavior³⁸, there appears to be no legal framework in place that would address anticompetitive practices. Mozambique has a competition law in place (Law 10/2013) and the Act's associated regulations have been issued (Decree No. 97/2014). But the Competition Authority has not yet been created. It is therefore difficult to imagine how a party can be convicted of anticompetitive behavior when there is no underlying competition law in effect. For example, Chile's Competition Tribunal is involved in port sector antitrust matters, as is the case in Mexico, Portugal, Spain, and Germany³⁹, among others.⁴⁰ This is potentially a crucial gap in Mozambique's port sector regulatory framework. Even in environments of fierce competition, many countries who have undertaken port sector reform included a competition regulatory framework in the reform process. It is conceivable that Mozambique would issue a port sector-specific competition regulatory framework following the example of its new aviation sector competition regulations under Decree No. 35/2018, but as of today, no competition framework that envelops the port sector is in place.

It could be the Draft Port Law is referring to unfair trade practices, as opposed to anticompetitive behavior; unfair trade practices include the use of various deceptive, fraudulent, or unethical methods to obtain business, such as misrepresentation, false advertising or representation of a good or service, tied selling, and deceptive pricing, though we could not confirm if Mozambique has a consumer protection law in place. Another possibility is that Mozambique intends to control for anticompetitive behavior through economic regulation, but these two regulatory approaches are distinct. Economic regulation seeks to control prices. Through economic regulation, governments

³⁷ See the "Reasons" ("Fundamentação") section of the Draft Port Law.

³⁸ See Articles 61 and 74 of Draft Port Law.

³⁹ Chile's Ports Act specifically mandates the involvement of the Competition Tribunal to safeguard port sector competition. The Act's Article 21 declares that Chile's Competition Act, which established the Competition Tribunal, applies to the port authorities that are established as state-owned enterprises. The Act's Article 22 indicates that the use of berth facilities should be done in a non-discriminatory manner while Article 31 mandates that among the functions of the state-owned enterprises is to promote competition and ensure non-discrimination behavior among port users. Article 51 calls for regulations in the design of concession tenders such that the tenders facilitate the creation of a competitive setting and ensure fairness among port concessionaires. See OECD, *Competition in Ports and Port Services*, Directorate for Financial and Enterprise Affairs Competition Committee, 19 December 2011, pp. 110-111.

⁴⁰ For example, Australia's Competition and Consumer Commission monitors pricing behavior, among its other activities, to ensure charges for ancillary services are not "unfairly" high relative to the charges for a specified basket of services that a terminal operator charges. See *Container Stevedoring Monitoring Report Number 10*, October 2013.

seek to prevent monopolies or even oligopolies from raising prices beyond what may be considered reasonable profits.

Competition law aims to allow market forces to influence pricing and service quality such that pricing regulation is unnecessary. The focus is on whether there is a sufficient number of players in the market to allow market forces to impose discipline such that businesses behave competitively. This implied relationship between market structure and firm behavior is often referred to as the *structure-conduct-performance paradigm*. The paradigm suggests there is a causal link between the elements of market structure (e.g. number of firms, the nature of their products or services, entry conditions, and extent of government regulation) and firm behavior (e.g. pricing of services, investment, and marketing decisions) and market performance (e.g. allocative efficiency and profitability).⁴¹ Generally, even in environments where competition exists in the port sector, global experience in port reform, while avoiding monopolies, has still resulted in oligopolies, where competition is limited to a very few players. Hence, under these environments, there is still a risk of anticompetitive behavior, particularly in the areas of market and pricing collusion.

In Mozambique's case, there appears to be very little inter-port or inter-terminal competition, particularly in the container trades. Perhaps it is for this reason that Mozambique has turned to economic regulation as a tool to safeguard competition. However, economic regulation functional responsibility in the Draft Port Law is confusing as it appears to split hairs between the function's main activities. Proposing tariffs, setting the rules for tariffs, and approving tariffs are the responsibility of six different entities. The function is assigned to six entities, including the terminal operator, which has the right to set its own tariffs within the confines of the concession contract. The Ministries of Sectoral Guardianship and Finance both have responsibility for setting tariffs, but in "coordination" with ARSPM. It would appear that ARSPM would propose tariff levels, but the Ministries would together approve them. However, the Ministry of Transport would apparently set the rules for setting tariffs and fees based on a proposal from ARSPM. Note "government" is also given tariff setting responsibility.

Economic regulation, where government authorities set pricing for a basket of services, is a difficult undertaking as regulators need to understand a company's cost structure; if companies have monopolies at all, it would be in the area of information they have that would be useful for the regulator to determine a "fair" price. Additionally, different companies have different cost structures due to different investment requirements, labor rules, terminal configurations, and so on. Hence, the cost structure of container Terminal Operator A may be quite different than the cost structure of Terminal Operator B, even if in the same port.

Adding to the challenge is precisely what prices the regulator will set. Countries, absent the possibility for inducing competition, will aim to either set a price for a limited number of services (the "basket" of services) or incorporate a maximum price term in a competitive tender issued for a concession contract where the bidder with the lowest maximum price is awarded the tender; the maximum price bid becomes the regulated tariff. The "basket" should consist of services that are held "captive" by the terminal operator, meaning that once the vessel operator commits to a terminal, the services rendered to importers and exporters cannot be offered by any other service provider, such as for hatch cover removal, re-stows, handling of hazardous or oversized goods, tally and data verification, and reefer connection, to name a few. Evidence of this monopoly power is when a terminal operator charges for a service normally not charged, or significantly higher rates

⁴¹ General criticism of this paradigm is that it has encouraged policy makers to place too much emphasis on the number and size of firms in their efforts to determine if the risk of monopoly exists, putting off more important considerations, such as degree of potential competition or ease of entry. Even so, this is still the standard paradigm in competition regulation today. See Brozen, Yale, *Concentration, Mergers, and Public Policy*, Macmillan, New York, 1982.

than other terminals.⁴² The ability to impose such charges is typically not anticipated in the tender's bid terms or understood by the regulator when approving a terminal operator's proposed tariff revisions to the regulator. These and other charges not included in an approved tariff are normally considered ancillary service charges.

Regulators are increasingly concerned about the growth of such practices as some view them as a way to get around the charges that are regulated. The Australian Competition and Consumer Commission, for example, which is charged with monitoring the pricing behavior and performance of terminal operators, monitors the proportion of ancillary charges to standard charges out of concern that terminal operators would engage in unfair pricing practices. In its 2013 report, the Commission reported the proportion of non-standard services revenues relative to standard services revenues as 18.5 percent.⁴³ A rough order rule-of-thumb is that ancillary charges fall within a range of 15-25% of standard (regulated) charges.

Figure 1 provides an example of the increase in the number of ancillary service fees that one terminal operator outside Mozambique provides; some of these are tied to the terminal operator offering non-captive services to port customers, while others are tied to unbundling of service charges and others imposed on captive customers. As the figure shows, the number of different charges nearly doubled over the 2.5 years following the concession award.

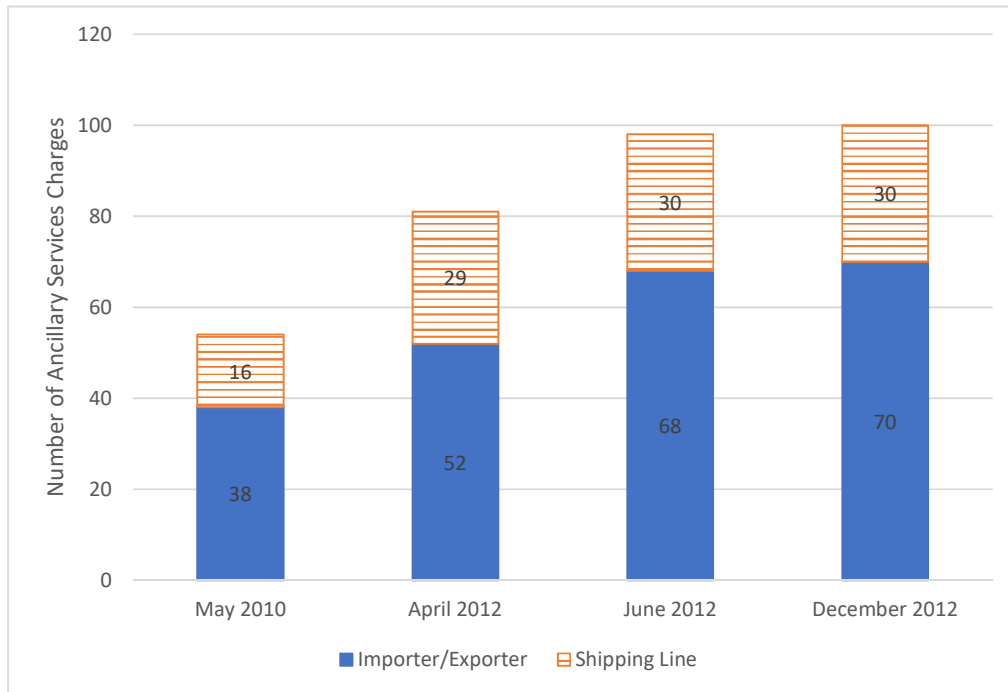
The above discussion demonstrates the potential pitfalls of regulation. While it is preferable to create an environment of competition for port services, with the regulator charged with monitoring pricing behavior, in many environments the domestic container volume may be too low to support competition. In such cases, the best alternative is to issue tenders where bidders can compete on the basis of a low-bid maximum tariff, among other criteria. Such an approach normally allows for periodic adjustments based on a consumer price index. The less preferable option is when the terminal operator submits a proposal for a tariff adjustment; while the operator's proposal can certainly be legitimate due to changing market conditions and higher operating and investment costs, it is up to the regulator to ensure that data sufficient to make a judgment about proposed tariff adjustments are provided by the terminal operator. Such a requirement can be incorporated into concession contracts.

Article 37(2) provides that ARSPM propose a set of rules governing the setting of fees, which in turn have to be approved by the ministers of transport and finance. The rules must be carefully specified to the extent that fees are defined in detail – that is, what the fees cover and the method on which they are calculated. Leaving any latitude for interpretation beyond the fee's purpose and basis for calculation means that both the regulator and the operator can change the meaning of the intended fee; it can lower the cost to the port user and hence reduce the fees to which the operator would have otherwise been entitled, or raise the cost to the user so that it breaches the standards of reasonableness.

⁴² One example is in the port of Callao, Peru, where DPW lists "berth reservation fee" in its tariff; DPW has yet to charge this fee, likely due to expected carrier opposition as well as the award of a concession to another container terminal operator that may not impose such a charge.

⁴³ Australian Competition and Consumer Commission, *Container Stevedoring Monitoring Report Number 10*, October 2013, <http://www.accc.gov.au/system/files/Container%20stevedoring%20monitoring%20report%20no.%2015%20-%20October%202013.pdf>.

Figure 1. Example of Post-Award Concession Increase in Number of Ancillary Service Fees



Source. Author. Derived from confidential data from Port Regulator

Performance Monitoring

There is an old management adage that declares “You cannot manage what you do not measure”. This suggests ARSPM cannot meet Article 2(1)’s mandate to increase effectiveness and operational efficiency of the national port system unless it monitors the performance of terminal operators. This requires the collection of data, mostly from terminal operators, that relate to terminal productivity and level of service; moreover, without having such data, ARSPM cannot justifiably propose measures to increase port sector competitiveness, as Article 7(g) compels ARSPM to do. Article 8(1)(k) also requires that ARSPM supervise port operations to ensure, among other things, that the services are provided efficiently.

Performance data can also serve other purposes. For port planning, another activity assigned in part to ARSPM, performance indicators can be used to trigger assessments relative to the need for port improvements or expansion, such as, for example, when container berth utilization rates reach 70 percent or if there is excessive berth waiting. Performance indicators can also be used as a basis for investigating complaints that port users and terminal operators may have relative to the quality of services they receive. Additionally, indicators can be used to identify issues associated with ARSPM’s performance in regards to the services it provides, such as pilotage or tug assist, where vessel waiting for the services or the turn time associated with the services may be longer than expected.

Performance indicators can also be used to gauge the impact of policy changes and pricing and other strategies on the competitiveness of their port system. When governments and regulators formulate policies and strategies, they need to know whether they had their intended impact or unintended (deleterious) consequences. For example, a change in customs procedures that allows expedient evacuation of an import container can alleviate yard congestion, which otherwise would

hinder berth productivity and truck turn time. The port authority would not know the impact of the policy unless it was able to measure pre- and post-policy performance. Finally, as discussed later, concession contracts usually incorporate minimum performance standards that the terminal operator must meet. Regardless of the circumstance, the same sort of indicators, all related to level of service and productivity, can be used for all of these stated purposes.

As ARSPM has the responsibility to ensure port efficiency, it would seem that it also should prescribe the set of indicators and/or data serving as the basis for their calculation. It is critical that in prescribing them, detailed definitions are provided to avoid any ambiguities or room for interpretation or re-interpretation of the indicator's intent, on the regulator's or terminal operator's side. For example, vessel productivity might be measured by the number of crane moves made during the elapsed time between the last line tied to the vessel and the last line untied from the vessel, which might be termed as gross productivity; this means the summation of all the moves done by each crane deployed to the vessel during the elapsed time as defined here. On the other hand, productivity may instead be measured as the elapsed time between "first pick" (when the crane's spreader bar is attached to the first container) and "last pick" (when the spreader bar releases the last container), representing net productivity, or the total moves made during the elapsed time between first pick and last pick.

In a hypothetical scenario, the regulator may claim the operator is failing to meet agreed-to productivity standards because it is not meeting the requisite vessel productivity of 60 moves per ship hour on the basis of net productivity. The terminal operator may state that it is even exceeding the standard, claiming 65 moves per ship hour on the basis of gross productivity. If the definition of the indicator is not clear, then both the terminal operator and the regulator are both right in their arguments (though typically vessel productivity is based on the net value). So the definition of vessel productivity needs to specify when the clock starts ticking and if the number of total moves are calculated on the basis of net productivity or gross productivity, with one or the other also defined.

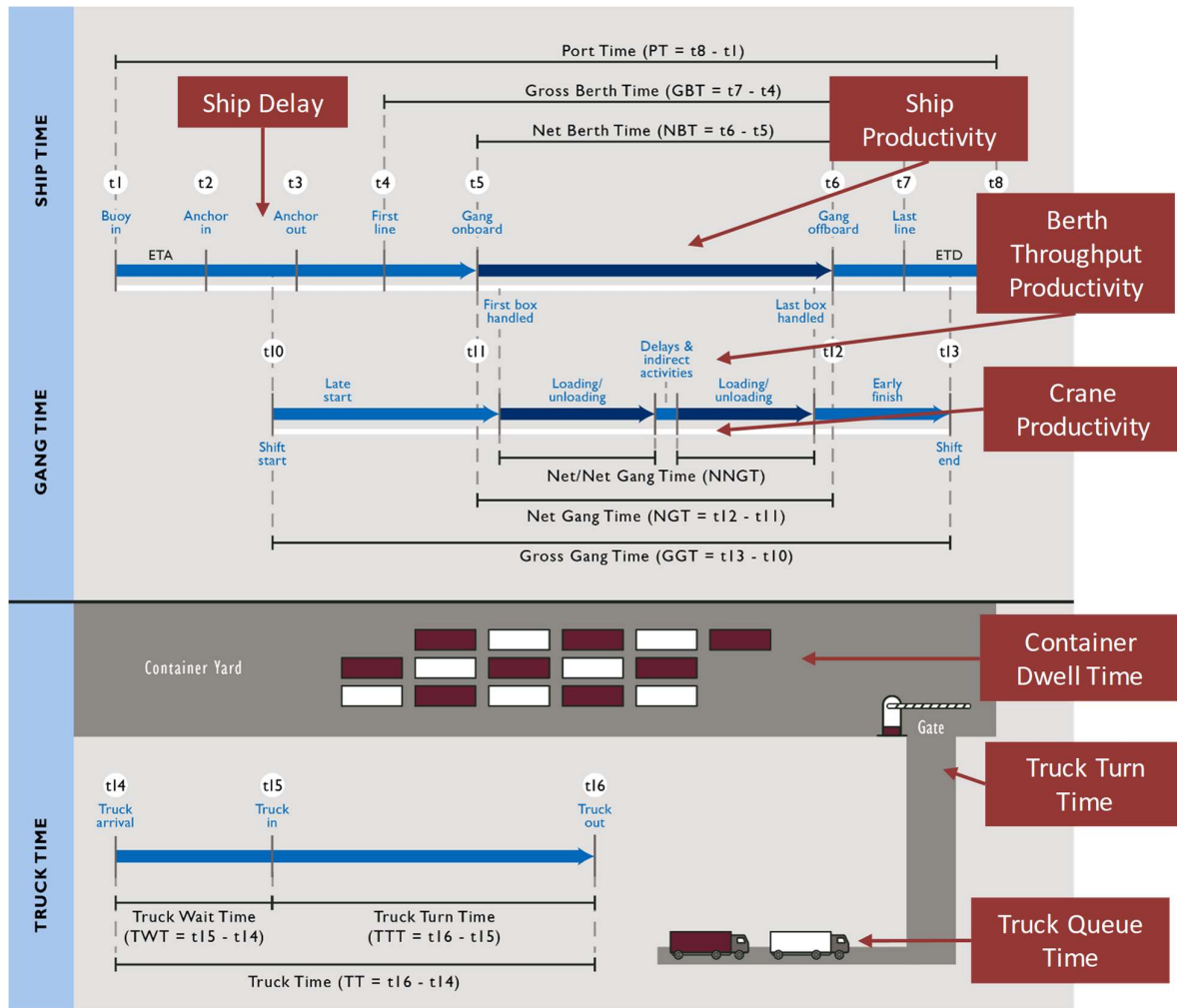
Suggested Port Performance Indicators

All measures of operational efficiency are related to time. Our system of "time accounting," presented in the World Bank *Port Reform Toolkit's* regulatory module⁴⁴ and in Figure 1, is based on the principles of industrial engineering. The system defines and records a series of events during the cargo and vessel handling process along with respective elapsed times between these events. Most terminal operators use this or a similar system as a basis for operational control and have made it an essential part of their terminal operations system reporting. We offer suggested performance indicators here given the likelihood that ARSPM will have to establish performance standards in view of its regulatory and planning roles.

Figure 1 illustrates the three main components of a terminal (berth, yard, and gate) and the events and elapsed times for each. The figure shows two parallel time lines. The upper one (ship time) applies to the ship (berth) operation and the lower one (gang time) to the gangs (cranes) involved in

⁴⁴ *Port Reform Toolkit*, Module 6, Port Regulation: Overseeing the Economic Public Interest in Ports, World Bank, Second Edition, 2007, available at: https://ppiaf.org/sites/ppiaf.org/files/documents/toolkits/Portoolkit/Toolkit/pdf/modules/06_TOOLKIT_Module6.pdf. The module was based in large part on the author's doctoral dissertation. The time accounting system was subsequently modified to include truck-related indicators in: Kent, Paul E., Asaf Ashar, and Gerardo Ayzanoa, "How Fit Are Central America's Ports? An Exercise in Measuring Port Performance", paper presented to the International Association of Maritime Economists, Norfolk, Virginia, July 2014.

Figure 2. Time Accounting System for Port Operations and Suggested Performance Indicators



Source: Time accounting system concept originally developed by Dr. Asaf Ashar for the Port of Seattle Productivity Indicator system in the 1980s. Later revised and presented in Asaf Ashar, Paul Kent, *et al*, *Port Reform Toolkit*, Module 6, Port Regulation: Overseeing the Economic Public Interest in Ports, World Bank, Second Edition, 2007; available at https://ppiaf.org/sites/ppiaf.org/files/documents/toolkits/Portoolkit/Toolkit/pdf/modules/06_TOOLKIT_Module6.pdf. Subsequently modified to include truck-related indicators in: Kent, Paul E., Asaf Ashar, and Gerardo Ayzanoa, "How Fit Are Central America's Ports? An Exercise in Measuring Port Performance", paper presented to the International Association of Maritime Economists, Norfolk, Virginia, July 2014.

this operation. The intent is to illustrate the functional relationships between the two. A similar depiction of time accounting is also included for the gate operation. A terminal operator will monitor its performance by employing indicators that are derived from these elapsed time components. Usually, the terminal operator uses a fully computerized system for collecting and processing operational data, referred to as TOS (terminal operating system). Most TOSs have built-in performance monitoring modules, including automated calculation of performance indicators. As each movement and storage of a container implies a charge to the carrier or shipper, TOS generated data are also used for invoicing purposes.

A port regulator does not require the full range of indicators that terminal operators generate. As the terminal operator's TOS automatically generates potentially hundreds if not thousands of indicators, it is a simple matter for them to share the limited few that the regulator needs to support

its regulatory, competitiveness enhancement, and planning roles. The indicators most germane to ARSPM are referred to in two categories: 1) level of service (LOS) indicators and 2) operational efficiency (OE) indicators. LOS pertains to the quality of service provided to users of the assets, mainly cargo and ship owners and their representatives. OE pertains to the actual use of assets. Figure 1 identifies the seven primary indicators that we would advise ARSPM use to support its functional roles. These are described below.

Level of Service Indicators

The LOS indicators that are suggested include the following:

- 1. Ship Delay Time.** Ship delay, a measure reflecting the availability of berth and gangs, is calculated by subtracting the original scheduled time for the vessel's arrival at the port from the time the vessel arrives at the berth (second line tied) and is ready to work. Zero delay is ideal but a delay of up to four hours can generally be absorbed in the vessel's itinerary. If a delay of four hours or more becomes a common occurrence, carriers are likely to impose congestion surcharges as such delays cannot be absorbed in their itineraries. The calculation assumes that the ship arrives on schedule and it incorporates a provision for sailing time between buoy and berth, mooring, and clearances. For example, ships are normally expected to arrive at the pilot station at least two hours before the planned ready to work time. Delayed arrival of ships should not be considered when calculating ship delay, as vessel arrival time is outside the control of the port authority and terminal operators.⁴⁵
- 2. Storage Dwell Time.** Storage dwell time should be monitored relative to its impact on congestion. Average dwell time should be related to the risk of congestion. Dwell time by itself is not a performance indicator, but monitoring the indicator can help ARSPM determine if storage prices should be revised based on congestion risk; the higher the risk, then the higher the storage charges should be to encourage quicker evacuation. The lower the risk, then the lower the storage charges should be to encourage shippers to keep their containers in storage so as to maximize revenue-making opportunities. Average dwell time is the average time per container spent in storage.
- 3. Truck Queue Time.** The difference between the time a truck arrives to the gate queue and the time that gate processing begins is calculated as truck delay. Truck delay is more readily calculated if there is a truck appointment system.⁴⁶ Otherwise, truck operators can indicate what the typical gate queuing time is.⁴⁷ For terminals that have truck appointment systems, the calculation of truck delay assumes the truck arrives (pre-gate) ideally 30 minutes before the appointment time.⁴⁸
- 4. Truck Turn Time.** This indicator refers to the time required for the truck to enter the terminal, pick up or discharge its load, and exit the terminal. As the measure involves gate

⁴⁵ Container terminal operators typically use vessel window systems where time slots for the vessel at berth are negotiated between the terminal operator and the carrier.

⁴⁶ Note that it is uncertain if the container terminal operators are currently running a truck appointment system. These systems can have a great effect on managing gate congestion while also reducing traffic congestion on access routes to the terminals.

⁴⁷ This can be done by periodically querying truckers while they are in queues approaching the gates or interviewing trucking companies.

⁴⁸ For example, a truck with an appointment time of 8:00–8:30 am will be accepted no later than 9:00 am if it arrived before 8:30 am.

processing, travelling to the stack in the storage area, waiting for yard equipment, loading/unloading, travelling back to the gate, and gate processing on the way out, it also serves as a proxy measure of the efficiency of the storage operation. Ideally, truck turn time would not exceed one hour, but exceeding this time is justified if the truck is engaged in both discharge and loading inside the terminal, requiring about 30 minutes more.

Operational Efficiency

The suggested OE indicators for ARSPM include:

1. **Ship Productivity.** Probably the most important measure of terminal performance, ship productivity is based on the number of moves per hour during a vessel’s *net berth time* (see Figure 2). Net berth time occurs between the period when the first gang appears on the vessel and the departure of the last gang from the vessel. Ship productivity is calculated by dividing the number of moves by net berth time measured in hours (moves/hour). The more cranes serving a vessel, then the higher number of gangs that are mobilized to work the vessel. So the calculation is the sum of the moves handled by all the cranes (or by all the gangs). Because of varying degrees of productivity (generally, the higher the loading/discharge volume and/or the larger the vessel, then the higher the vessel productivity will be), the calculation of ship productivity should distinguish larger volumes from smaller volumes moved, the types of cranes that are deployed to serve the vessel, and vessel size (capacity).
2. **Crane Productivity.** Because crane productivity differs by type of crane used, ARSPM should distinguish standards by crane type (e.g. gantry, mobile, and ship’s gear) used to load or discharge the containers when calculating a crane productivity standard. Alternatively, ARSPM can use an average crane productivity, proportionally reflecting crane type utilization. Crane productivity is calculated by dividing the number of crane moves by the period of time between the first “pick” (first box handled) and the point of rest of the last move (either on the vessel or onto a truck at the berth) for each crane used in the loading/discharge operation. Crane productivity is reported as number of moves/crane hour.
3. **Berth Throughput Productivity.** Berth utilization (the percent of time the berth is occupied) is represented by the time that the linear length of a berth is occupied by a vessel as a percent of the total time that the berth length is available.

Table 2 presents the indicators, defines the units of measure to be used when they are reported, and provides the frequency in which they should be reported. Desirable performance ranges should be confirmed as reasonable based on discussions ARSPM should have with carriers and terminal operators. The desirable performance ranges we provide here are intended to be illustrative only.

Table 1. Indicators for Level of Service and Operational Efficiency

Indicator	Category	Units of Measure	Reporting Frequency	Desirable Performance Ranges
<i>Level of Service</i>				
Ship Delay	--	Hours/Call	Monthly	0-4
Container Dwell Time	--	Average Days in Storage/Container	Weekly	--
Truck Queue Time	--	Hours/Call	Monthly	1-2
Truck Turn Time	--	Hours/Call	Monthly	0.5-1

Operational Efficiency				
Ship Productivity	> 1,000 moves/call			60-80
	500-1,000 moves/call	Moves/Hour	Monthly	35-50
	< 500 moves/call			10-15
Crane Productivity	Gantry Cranes			25-30
	Mobil Harbor Cranes	Moves/Hour	Monthly	15-20
	Ship's Gear			10-15
Berth Utilization	--	Total Berth Hours per Month with Ship at Berth/Total Available Hours per Month	Monthly	not to exceed 70%

Source: Adapted from Kent, Paul E. and Asaf Ashar, 2010, "Indicators for port concession contracts and regulation: the Colombian case". Paper presented at the Annual Conference of the International Association of Maritime Economists, Lisbon, Portugal.

The efficacy of a terminal performance monitoring system is better assured when industry is confident with the system's objectives and fairness. Standards should be set such that they are readily achievable while allowing the operator sufficient flexibility to adjust (improve) operations as market conditions require. Often, a terminal's throughput capacity is determined in large part by assuming certain berth utilization, storage, and productivity rates, with the weakest of these components being the most important criterion for determining the terminal's overall throughput capacity. It is important, therefore, that ARSPM engage with stakeholders during the process of setting performance standards.

While the above indicators are focused on container terminals, similar indicators are applicable to breakbulk and dry bulk handling. For bulk and breakbulk handling, vessel productivity is not appropriate given the array of handling systems deployed for bulk cargoes and the non-unitized nature of breakbulk cargoes that can be carried on the same vessel. However, ship delay, truck queue time, truck turn time, and berth utilization are appropriate for bulk and breakbulk handling terminals.

Concession Contracts

Article 2(3) cites that one of the Draft Port Law's objectives is to encourage private sector investment in port facilities and in their operation through concession contracts. There are many factors that can affect investor appetite for such an opportunity, including perception of risk, but an important one is that the contract arrangement will be equitable; that is, that the signatories on either side of the negotiation table have obligations to fulfil and that there are consequences for not fulfilling them. There are many concession examples where parties have failed to meet their obligations; in Ecuador, for example, a terminal operator abandoned a concession because of the government's failure to meet its investment commitment. In Honduras, the government could not meet its port investment obligation, which resulted in a re-negotiation of the concession contract where the terminal operator agreed to cover the entire cost of the government's investment requirement (in exchange for reduced concession payments to the government as well as an extension of the contract duration). The concession contract should be viewed as balanced, with a fair allocation of risk and measures to mitigate risk.

A review of the Draft Port Law's Article 32 identifies the essential elements for a concession contract. These appear to be not as complete as they should be and seem to weigh in more on protecting the government rather than the interest of the terminal operator. For example, Article 32(k) identifies financial and material obligations of the concessionaires, but there is no counterpart language as to the government's financial or material obligations. Additionally, Article 32(g) indicates

the rights and obligations of the concessionaire as one essential element, but there is no comparable language regarding the government's rights and obligations.

There are other items not listed that would be prudent to include. Some of these include:

- **Force Majeure.** While one item addresses causes for contract termination (Article 32(k)), it is uncertain if this includes force majeure, which generally suspends part or all of the obligations of both parties under certain conditions. These conditions are usually those outside the control of the concession holder or the government, which may include war, sabotage, riot, strikes by individuals not under the employment of the concessionaire, lockouts, or acts of God (such as typhoon, fire, flood, explosion, earthquake) or similar act, which today may also include pandemics.
- **Terminal or port performance indicators or standards.** As noted earlier, performance indicators should be incorporated into the terms of concession contracts to enable the port authority to ensure the terminal operator meets minimum performance standards. While tariff regulation is one way to control pricing in a monopoly or oligopolistic environment, incorporating operational performance ensures that port customers are reasonably being served. Normally, indicators would address level of service as well as productivity.
- **Dispute Resolution.** Both operators and government can benefit from having a neutral mechanism for resolving disputes far more cost effectively and efficiently than would otherwise be the case. The most important decision parties are faced with is what forum they wish to choose for dispute resolution. Concession contracts that contain a multi-tiered approach are becoming more common. This approach means that parties are required, or can elect, to first engage in alternative means of dispute resolution (such as negotiation, mediation or adjudication) before proceeding straight to arbitration or litigation.

We have identified a number of other items not indicated as essential elements in the Draft Port Law; some of these may fall within the rubric of the essential elements that are listed, so we provide the list below as guidance to avoid their omission in concession contracts. Other items we view as essential include:

1. Requirements for publishing tariff adjustments and all fees;
2. Contract duration and defined option periods;
3. Requirements for terminal operators to report certain operational performance information;
4. Payment and investment obligations by all parties to the agreement;
5. Penalty and interest payment clauses associated with breaching certain clauses and for making late payments;
6. A walk-through condition survey to ensure parties agree to prevailing infrastructure and installation conditions within the concession area;
7. A plat for the concession area;
8. Government and concessionaire maintenance responsibility;
9. Government audit rights and access to records;
10. Notification and approval requirements where
 - a. There are changes in concessionaire ownership structure or equity allocation changes;
 - b. Merger and acquisition notification
11. Restrictions or approval requirements on concessionaire's ownership in part or in whole of other companies that provide port services or operate other terminals in Mozambique and adjacent countries.