

POSITIVE LABOR RELATIONS AS A KEY COMPONENT OF SEAPORT COMPETITIVENESS

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Abstract

The competitive environment surrounding ports is changing dramatically. The expansion of the Panama Canal, port dredging projects around the world and a multitude of other investments and external factors suggest that port competition will increase exponentially in coming years. More than ever customers will judge a port by its reliability. Meanwhile, as seaports seek to meet 21st Century challenges their workplaces for the most part remain hobbled by 20th Century labor relations. When a port's reliability is undermined by labor disputation, its competitive position is jeopardized. Typically, labor-management port relations have yielded an unreliable system and recurring commercial interruption. This paper briefly examines recent and anticipated changes in the port industry and explains the importance of a different approach to port labor relations if massive investments in improving port infrastructure are to yield their intended return. Social dialogue and a more inclusive, productive relationship between employers and workers are essential for ports to remain competitive in the new age of global competition.

Keywords: Port Labor, Port Competition, Inter-port Competition, Intra-port Competition, Labor-Management Relations, Social Dialogue, Panama Canal Expansion, Container Terminal Labor, ILO, International Labor Organization, OECD, Organization for Economic Cooperation and Development

1. INTRODUCTION

The Panama Canal Expansion, scheduled for completion in January 2016, is such a significant event in seaport activity that it is anticipated to double the Canal's capacity and fundamentally alter the status quo in the intercontinental shipping industry worldwide. This increase in capacity, coupled with other anticipated changes around the globe, will fuel an increasingly competitive port marketplace. Moreover, regional free trade agreements diminish geographic monopolies that single-nation ports have historically enjoyed. The most attractive ports in this new era of competition will be those that are consistently reliable. Port reliability begins with attributes as port depth and logistics, but it can be maintained only through an available, trained and ready workforce. Stable labor relations are essential both to maintaining a reliable port and to maximizing efficiency gains from infrastructure improvements. Once management and labor recognize this need for labor reliability, they must work collaboratively to make it a strength in this increasingly competitive port environment.

2. COMPETITIVE ENVIRONMENT FOR PORTS AND INTERNATIONAL TRADE

A change in the status quo is creating a rush to secure a better position in the new competitive environment. Several significant changes are in process that will dramatically alter competition among the world's seaports, including the Panama Canal Expansion; Dry Canal projects in Central America, including the Colombia Dry

Canal; the New Suez Canal; El Salvador's new container port; increased dredging in the U.S. Gulf and East Coast ports; port expansion in Australia; deepening of the Antwerp, Belgium port; and expansion of the Cape Town Container Terminal in South Africa.

Each port expansion is detailed in this paper's annex. Cumulatively, they add up to massive financial investments and portend dramatically more capable seaports worldwide. Concomitantly, as never before, they will require high-performance workplaces with equally up-skilled workforces. Ironically, then, little to no thought seems to have been given as to how their 20th Century labor-management relations can be realigned with their expectations of 21st Century port efficiency.



Labor-Management Relations and Port Competition

The single-most important factor influencing shippers when choosing a seaport is reliability,¹ and the latter hinges upon sound labor-management relations. Therefore, without viewing labor as a strategic partner, a seaport cannot prosper in this new competitive arena.

The International Transport Workers' Federation (ITF) announced the development of a Global Network Terminal (GNT) operators' "campaign to achieve union rights and recognition in terminals, local collective bargaining and agreements, good health and safety standards and global framework agreements." The main objective for 2011-2014 is

to negotiate and ensure implementation of "global framework agreements with the GNT operators." The ITF estimates that achieving this with global operators Dubai Ports World (DPW) and AP Moller-Maersk (APM) alone would benefit around 100,000 dockworkers.²

Representatives from dockworker unions in 10 countries in the Caribbean and Latin America met recently and agreed to share information about the most successful models of publicly operated ports. The ITF Americas secretary also "highlighted two specific challenges for port workers in Latin America: union fragmentation and private sector organization. The system of occupational demarcation that was common in Latin America often made unions weak." In a single port, there could be as many as 15 unions, resulting in inter-union competition that "made it easy for employers to drive down conditions by playing unions off against each other." It was important to address "non-unionization in the



¹ OECD, note 29: 10.

² ITF, "Transport International," January - March 2011.

rapidly growing private sector” and casualization, union rights, safety and minimum working standards in GNT run ports.³ Of course, from an employer’s point of view, having to contend with a plethora of different and often competing unions greatly encumbers the functioning of increasingly complex and interconnected port operations.

Although port logistics are more mechanized every year, direct and indirect employment has been increasing. To load or unload an 18,000 TEU ship in a single day requires a number of crane operators, cargo handlers train and truck drivers. A labor dispute in a port that slows down or even stops some port operations provides pressure that may be used to extract concessions or corrections from port management. Tug service is an example: if tugs are not available to assist ships, the port may continue to function, but not at the normal level of efficiency. Sometimes dispute points can be personnel in the port; a stoppage in cargo handling or other strategic services that shut down port operations. A critical point can also be trucking to and from the port, warehousing operations, or other services where a slowdown or stoppage for whatever reason can quickly stall operations in a port. Importantly and all too often overlooked, service providers in these types of activities have considerable bargaining power in dealing with port management.

Automation as the main solution for speeding the loading/unloading the ships, decreasing the cost of container handling (mentioned above) and, finally, keeping the market share due to Panama Canal expansion, invariably raises huge labor issues. West Coast shippers and dockworkers are struggling to reach a labor agreement as terminal operators seek to replace up to half of their workforce with robots — the largest technological change in half a century (a proposed \$1.3 billion modernization project up to 2019). The two sides are discussing how to retrain and preserve jobs for dockworkers as automation reduces the number of positions at one Los Angeles terminal by 40% to 50% after changes are completed in 2016, according to a Harbor Department report released in April.⁴ The technology at TraPac’s terminal at the Port of Los Angeles is likely to reduce the number of workers needed per crane by about 53%, and at transtainers; the hoisting devices for loading and unloading cargo from rail cars or trucks; by 85%, according to the Los Angeles Harbor Department report. Although automation will reduce the number of lesser-skilled workers, it will bring new job opportunities for technicians and skilled workers who are operating and maintaining this equipment. Therefore, job training and re-skilling programs may reduce the number of layoffs. Finally, it has proven axiomatic in every industry that has moved to advanced automation that it is all the more important to create a high-performance workplace where highly trained and motivated workers are fully engaged. All this raises the importance of social dialogue in ports.



³ ITF “Transport International,” April - June 2011.

⁴ James Nash, “U.S. Port Labor Talks Turn on Automation Cutting Workers,” Bloomberg, Sep. 18, 2014.

3. A BRIEF GLOBAL SURVEY ON PORT LABOR STRIFE

Port labor strife is a global issue and it is beneficial to see how much this problem has spread around the world. Regardless of the region, country, economy, politics and locally governed labor rules and regulations; strikes are evident in all the continents. The following is a brief survey of labor disputes that have been reflected in press headlines in just the past two years.

- [LOS ANGELES & LONG BEACH TWO DAY TRUCKERS STRIKE, APRIL 2014⁵](#)
 - More than 100 truck drivers picketed at three trucking companies and followed trucks from those companies as they picked up cargo from the nation's largest port complex.
 - The strike was the third in the past year. In recent months, tensions have escalated between trucking companies and drivers. Thus far, port drivers in California have filed more than 500 complaints of alleged wage theft related to misclassification, according to the California Department of Industrial Relations. The agency said 32 drivers have won decisions against 13 trucking firms, securing \$3.8 million in wages and penalties.

- [HONG KONG DOCKWORKERS STRIKE THREAT, APRIL 2014⁶](#)
 - Hong Kong International Terminals (HIT) dockworkers representing the Union of Hong Kong Dockers would not accept a 12% wage hike offer, as they demanded a 20% hike.
 - They have been told they will receive a 12% pay increase, but after last year's successful 40-day strike, the threat of industrial action remains ever-present.
 - On March 2013, contracted dockworkers started the longest strike in Hong Kong history. It dragged on for over a month, with the dockers demanding a 20% pay increase, ending when they settled for a 9.8% pay rise. The disruption to HIT operations wreaked havoc on shipping schedules and limited the terminal's handling ability. Port Development Council figures for April last year revealed that container throughput at HIT fell by 10.7%.
 - With Shenzhen and Guangzhou siphoning off a greater share of containerized cargo from South China, and Hong Kong rapidly becoming a transshipment port, the container terminals know they cannot afford continued efficiency-sapping disruptions.
 - Notwithstanding recent terminal investments, Hong Kong slipped down to fourth among the world's busiest container ports last year as Shenzhen moved up. In 2013, Hong Kong traffic fell 3.3%, the largest decline among the world's Top 20 ports, to 22.35 million TEU, while neighboring Shenzhen handled 23.28 million boxes, up 1.5%.

⁵ Ricardo Lopez, "Port truck drivers launch strike to protest alleged labor violations," Los Angeles Times, Apr. 28, 2014.

⁶ Greg Knowler, "Hong Kong Dockworkers Strike Still Possible," The Journal of Commerce, Apr. 9, 2014.

- PANAMA CANAL EXPANSION WORK STRIKE, APRIL-MAY 2014⁷

- Construction workers in Panama ended a two-week nationwide strike, allowing the expansion of the Panama Canal to resume.
- Work stoppage affected construction on the third set of locks, at times costing the government \$1 million a day.
- The deadline for completing the \$5.25 billion expansion had already been delayed multiple times, with the original target date of October 2014 set back by a total of 16 months to early 2016.
- That two-week stoppage resulted in a three-month delay in the expansion.



- PORT METRO VANCOUVER TRUCKERS STRIKE, FEBRUARY-MARCH 2014^{8,9}

- The 3+ week strike by both non-unionized and unionized truckers blocked the container shipping terminals handling about \$885 million worth of cargo each week.
- The truckers struck, complaining that long waits to load and unload goods at terminals means they are losing money. As well, truckers complained that some companies are undercutting each other, to the drivers' disadvantage.
- A labor dispute is normally between an employer and its employees, but Port Metro Vancouver is not the employer of any of the truckers concerned and it consequently has no direct influence on how much they are paid. Eight different employers were involved in this dispute, and many of the truckers are independent, non-unionized members of the United Truckers Association of British Columbia.
- Though the Canadian Constitution places ports under federal jurisdiction and federal authorities issue licenses to the truckers to use the facility, port operations are a provincial matter. Thus the British Columbia Provincial government, and not Ottawa, was saddled with this issue.
- The lengthy strike caused some shippers and container shipping lines to unload cargo destined for Vancouver's port at the Port of Tacoma, Washington.

- COCHIN TERMINAL TRUCK DRIVERS CALL OFF STRIKE, FEBRUARY 2014¹⁰

- Harbor truck drivers returned to their jobs after a four-day strike at the Vallarpadam International Container Transshipment Terminal, a DP World facility in India's Port of Cochin.

⁷ Lavigna Grace, "Panama Canal Expansion Work Set to Resume Following Strike," The Journal of Commerce, May 9, 2014.

⁸ Vanessa Lu, "Port Metro Vancouver strike hurting retailers," Toronto Star, March 18, 2014.

⁹ John Gillie, "British Columbia port strike shifting cargo to Tacoma," The News Tribune, March 24, 2014.

¹⁰ "Cochin Terminal Truck Drivers Call Off Strike," The Journal of Commerce, Jan. 14, 2014.

- The truck crews, supported by local labor unions, were demanding wage improvements and job protection for some drivers who had been rendered jobless after one of the inter-terminal truck operators ended its contract with the terminal over hauling rate issues.
 - The Vallarpadam terminal, which is designed to compete with other hub ports in the region, has an annual throughput capacity of 1 million 20-foot-equivalent units, which will increase to 4 million TEUs when fully operational. As part of the project, the port authority has increased the harbor depth to around 48 feet with additional dredging to allow the private terminal to receive bigger ships.
- CHILE EXPORTS THREATENED BY PORT STRIKES, JANUARY 2014¹¹
 - Exports of copper, fruit and other commodities valued at about \$400 million were stymied as a result of multiple strikes. Chile's copper accounts for roughly one-third of the world's supply, according to Reuters, and 34% of Chile's exports, according to MIT. Shipments of Chilean copper leave from the country's northern and central ports, often destined for consumption in China, the top market. Chile's public ports, which dispatch roughly half of the country's copper, export about 9,500 metric tons of copper a day, according to the mining ministry. Chile produced 5.3 million metric tons of copper and exported around \$37 billion of the metal in the January to November period, according to central bank and government data.
 - In a separate dispute, a strike broke at the port of San Antonio in central Chile, where workers at eight out of nine berths claimed a retroactive payment for lunch allowances from 2005 to 2013.
 - Asoex, Chile's exporters association estimated that initial losses of \$50 million could increase to \$400 million if fresh blueberry exports to the U.S. did not take place on time.
 - Multiple Chilean ports went on extended strikes in the spring 2013.
 - BALTIMORE ILA LOCAL ORDERED TO PAY \$3.8 MILLION, OCTOBER 2013¹²
 - A federal arbitrator ordered an International Longshoremen's Association local in Baltimore to pay ocean carriers \$3.8 million for an October strike that violated a "no-strike" clause in the ILA's coastwise master contract.
 - Local 333 struck for three days in mid-October 2013 after a breakdown in local contract negotiations with the Steamship Trade Association of Baltimore. The local contract covered autos and break bulk cargoes, along with pensions and port-specific work rules.
 - The Arbitrator ruled that the walkout violated the "no-strike" clause in the ILA's coastwise master contract with United States Maritime Alliance. The master contract, signed in April 2013, covered container and roll-on/roll-off cargo.
 - At least one container ship, the CCNI Antofagasta, left port during the strike without discharging its cargo.

¹¹ "Chile Exports Threatened by Port Strikes," *The Journal of Commerce*, Jan. 21, 2014.

¹² David M. Vaughn, "Baltimore ILA local ordered to pay \$3.8 Million," *The Journal of Commerce*, Jan. 30, 2014.

- ROTTERDAM PORT STRIKE ENDS AFTER 3 WEEKS, FEBRUARY 2012¹³
 - 700 Dock workers suspended a three-week campaign of rolling wildcat strikes at APM Terminals container facility in Rotterdam that seriously disrupted shipping at Europe's largest container hub.
 - The labor action, which forced some ships to divert to the neighboring port of Antwerp, was called off after unions and APM Terminals reached agreement on a new wage contract.
 - APM Terminals compromised on union demands that it compensate older dockers affected by the Dutch government's pension reform that extends the national retirement age from 65 to 67.
 - The A.P. Moller-Maersk Group subsidiary, which handles around 2.4 million 20-foot equivalent units annually in Rotterdam, called on its workforce to increase productivity following the new 27-month wage contract.

4. FACTORS CONTRIBUTING TO POOR LABOR RELATIONS, WHICH DECREASE RELIABILITY AND PUT PORTS AT A COMPETITIVE DISADVANTAGE

This section examines the root causes of port labor strife, gives two examples of the disadvantages created by labor problems and offers a metaphor framing the issue for the remainder of the paper.

Labor-management relations in ports typically are adversarial and strife-ridden. In many areas of the world, each views the other as an opponent rather than as a strategic partner. For example, in the United States, aspects of current labor-relations strife can be traced back to the hiring halls in the 1930s.¹⁴ At that time, there were harsh, dirty, dangerous working conditions and no long-term job security. Employment was plagued by times of peak activity followed by periods of little or no activity; thus, no worker's job was secure. This same hiring practice, despite glaring inefficiencies, has continued at many ports. However, some ports have found success by abandoning this model and moving to the terminal concept, which employs a core of workers full time and is discussed more fully below.

Unproductive dialogue between labor and management typically results in strikes, lockouts and other productivity slowdowns. Customers of port services, as noted above, seek reliability above all else. Thus, when a port is experiencing labor problems, it becomes inherently unreliable and customers will seek alternative ports. The labor uncertainty of 2011 in Vancouver's ports is a prime example of the far-reaching implications of labor unrest in the port industry.

¹³ Bruce Barnard, "Rotterdam Port Strike Ends After Three Weeks," *The Journal of Commerce*, Feb. 22, 2012.

¹⁴ Michael C. Ircha, "Canadian Port Labor-Management: The Need for 'Revolutionary' Change," March 12, 2010 (revised June 1, 2010).



On February 2, 2011, news of a possible strike in Vancouver, British Columbia, Canada, by the International Longshore and Warehouse Union (ILWU) caused shippers to immediately divert shipments to U.S. West Coast ports, with some shippers diverting as much as 100% of the shipments that were bound for Vancouver ports.¹⁵ The mere uncertainty of the labor situation, without any sort of actual stoppage, harmed the port. Port Metro Vancouver's Chief Operating Officer Chris Badger stated that "any perception by customers that the reliability of the gateway is under threat will have an impact on the reputation of the gateway."¹⁶

Because labor and management were at loggerheads every stakeholder in the related supply chain and surrounding businesses lost out. It was only when the unions and employers began to use innovative techniques that they recognized the symbiotic nature of their relationship and that their respective futures were inextricably intertwined. Subsequently, the British Columbia Maritime Employers Association and the ILWU agreed to an unprecedented eight-year labor peace agreement.¹⁷

The lesson from Vancouver's situation is that labor and management in seaports today must engage each other collaboratively to sustain a competitive port. If they do not, their mutual future looks bleak.

¹⁵ Jeff Nagel, "Ports already feeling pain of possible strike," *BC Local News*, Feb. 2, 2011.

¹⁶ *Id.*

¹⁷ James Kwantes, "Ports agreement a 'great deal' for Canada," *The Vancouver Sun*, May 11 2011

<<http://www.vancouversun.com/news/Ports+agreement+great+deal+Canada+federal+labor+minister/4760598/story.htm>>

The metaphor alluded to earlier is the old fable of two mice that accidentally fall into a bucket of milk. The mice cannot swim. They could blame one another and argue about whose fault it was and who deserved to stand on top of whom to get the last few breaths, but it is clear that the mice will drown. One mouse suddenly gets a great idea—start running fast. If they run fast enough, the mouse cried to the other, the milk that would have drowned them will turn to butter beneath their feet. Then they can get on top of the butter and leap out of the bucket together. Only by working together will they survive. And there is no catalyst for action greater than decreased security and revenue for all as cargo is diverted due to combative labor-management relations.

Labor and management are those two mice in the milk. In this new era of port competition the milk level is rising. If labor and management do not start running together both will drown in today's competitive environment. So how do two groups that have frequently and routinely been at odds since their inception work together to secure a better future?

5. THE ILO AND THE OECD WEIGH IN ON PORTS

Among international organizations, the premier body dedicated to labor, the International Labor Organization (ILO), created in 1919, is a specialized agency of the United Nations. The ILO is unique in that its constituents are not only governments, but include representatives of employers' and workers' organizations as full partners to governments in its tripartite governing structure.

The ILO's 2006 Maritime Labor Convention (MLC 2006), as a component of International Labor Standards related to shipping, provides wide-ranging coverage for almost all aspects of working conditions involving seafarers. Many of its numerous provisions underscore the importance of consultations between ship owners and seafarers organizations. The MLC has been ratified by 51 member states and came into force in August 2013 with the required number of ratifications and percentage of the world's gross tonnage of ships.¹⁸

More specifically, the ILO's Convention #137, the Dock Work Convention of 1973, is in force, with 24 current ratifications (Afghanistan, Australia, Brazil, Costa Rica, Cuba, Egypt, Finland, France, Guyana, Iraq, Italy, Kenya, Mauritius, Nicaragua, Nigeria, Norway, Poland, Portugal, Romania, Russian Federation, Spain, Sweden, United Republic of Tanzania and Uruguay).

Article 1, subparagraph 2 of the Dock Work Convention provides that the "organizations of employers and workers concerned shall be consulted on or otherwise participate [regarding the definition of dockworkers and dock work] in the establishment and revision of such definitions. Account shall be taken in this connection of new methods of cargo handling and their effect on the various dockworker occupations." Article 5 states "In order to secure the greatest social advantage of new methods of cargo handling, it shall be national



¹⁸ ILO, "Information Document on Ratifications and Standards-Related Activities," June 2014.

policy to encourage cooperation between employers or their organizations, on the one hand, and workers' organizations, on the other hand, in improving the efficiency of work in ports, with the participation, as appropriate, of the competent authorities.”¹⁹

Over recent years, the ILO's constituents (governments and the “social partners” of management and labor) and the ILO office have developed and popularized a concept termed “Decent Work” as a means to identify the ILO's major priorities. “It is based on the understanding that work is a source of personal dignity, family stability, peace in the community, democracies that deliver for people and economic growth that expands opportunities for productive jobs and enterprise development.” The idea is recognized as forming a wide consensus involving governments, employers, workers and civil society that Decent Work must be a key element “in advancing a fair globalization, reducing poverty and achieving equitable, inclusive and sustainable development.”

“Putting Decent Work into practice involves the ILO's 'four strategic objectives' with gender equality as a cross-cutting objective:

- Creating Jobs - an economy that generates opportunities for involvement, entrepreneurship, skills development, job creation and sustainable livelihoods.
- Guaranteeing Rights at Work - to obtain recognition and respect for the rights of workers. All workers, and in particular disadvantaged or poor workers, need representation, participation and laws that work for their interests.
- Extending Social Protection - to promote both inclusion and productivity by ensuring that women and men enjoy working conditions that are safe, allow adequate free time and rest, take into account family and social values, provide for adequate compensation in case of loss or reduced income and permit access to adequate health care.
- Promoting Social Dialogue - involving strong and independent workers' and employers' organizations are central to increasing productivity, avoiding disputes at work and building cohesive societies.”²⁰

The OECD whose genesis dates back to the Marshall Plan in 1948 also differs from most other international organizations in that it provides for wide-ranging consultative status with workers (Trade Union Advisory Committee), employers (Business and Industry Advisory Committee) and civil society (OECD Watch) representatives.

The OECD and the ILO signed a new Memorandum of Understanding on May 2011.²¹ The previous MOU dated back to 1961; however, an “Agreement for Cooperation on the Measurement of Societal Progress (the Statistical Cooperation Agreement)” also was signed on September 28, 2009. The new Memorandum pledges “to strengthen their cooperation and coordination in fields of common interest and activity including, but not limited to:

¹⁹ ILO Convention # 137 (1973) “Concerning the Social Repercussions of New Methods of Cargo Handling in Docks.”

²⁰ ILO Decent Work Agenda <<http://www.ilo.org/global/about-the-ilo/decent-work-agenda/lang--en/index.htm>>.

²¹ OECD-ILO Memorandum (2011)

<http://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/documents/genericdocument/wcms_155848.pdf>.

- "employment and social protection, including decent work opportunities for all, especially through labor market and social policies and skills development strategies;"
- "multinational enterprises and investment policies, including the dissemination, promotion and implementation of their respective instruments concerning multinational enterprises;"
- "local and regional development, including support to sustainable enterprise development and to the role of local governance in facilitating economic growth, employment, skills development and social protection."

The OECD International Futures Program (IFP), through its "Infrastructure Needs to 2030/2050 Project" is looking to assess the long-term opportunities and challenges ahead for macro gateway and corridor infrastructure, including ports, airports, rail corridors, and oil and gas pipelines. The current Project follows up on the OECD's "Infrastructure to 2030 Report" and currently narrows in on gateways, hubs and corridors, which were not covered in the first report. The first of a number of reports, released in July 2011, were titled *North-West Europe Gateway Area – Port of Rotterdam case study Final Report*²² and *France's Gateway Ports and Inland Connections – Meeting with MEEDDEM (French Ministry for Ecology, Energy, Sustainable Development and the Sea) Officials, Final Report*²³ (focusing on Le Havre and Marseilles).

The reports in each case were produced by a Steering Group, including representatives from the OECD Ministries of transport, mobility and public works; environment and energy; sustainable development and the sea; other OECD departments/agencies; international organizations, such as the EC and EIB; private-sector enterprises; and a few non-OECD members.

In a notable omission there were no references to the workforce labor, human or industrial relations aspects in the Rotterdam Report, except to observe that there were "1,200 employees" and "over 70,000 direct employment jobs." The report on *France's Gateway Ports and Inland Connections* noted that, in Marseilles' East Harbor, growth in containers had "been relatively low and services had been disrupted by some major industrial relations disputes."

Regarding the (French) Port Reform Act of 2008 (which concerned the ports of Bordeaux, Dunkirk, Le Havre, La Rochelle, Rouen, Nantes-Saint Nazaire and Marseilles), a progress report of January 2010 noted that the newly created development boards involved "all the economic, social and collective actors (and) are consulted over strategy and structural projects regarding the major maritime ports."

It remains to be seen whether tangible cooperation and results between the OECD and ILO in economic sectors such as ports, will actually emerge.



²² OECD, "Port of Rotterdam Case Study," 2011: 8 <<http://www.oecd.org/dataoecd/12/54/48321781.pdf>>.

²³ OECD, "France's gateway ports and inland connections," 2011: 20-22 <<http://www.oecd.org/dataoecd/37/42/48368193.pdf>>.

6. EUROPEAN UNION PRACTICE ON SOCIAL DIALOGUE

EU Ports employ more than 3 million people (directly and indirectly). Economic research has directly linked growth in port throughput with the creation of jobs in surrounding regions. Based on a study by the EU in 2013, in 16 member states, as is the case in other sectors, port labor regimes departed from general labor law. In some cases, those regimes placed restrictions that have an effect on the creation of new jobs or undermine the working environment in the port. To succeed and adapt to the changing demands on the workforce, ports must offer good working conditions and improve the quality of the working environment to attract skilled personnel. Industrial disputes that affect relations may damage the image and competitiveness of ports and should be dealt with proactively. Good social climate and genuine social dialogue between the concerned parties is required.

More pragmatically, EU cross-border competition rules established by the European Commission effectively compel each nation's dockers, stevedoring companies, and port authorities to reevaluate their country's comparative advantage when foreign shippers can choose multiple EU-country ports to offload cargo destined for a single member state. For example, a Chinese vessel coming out of the Suez Canal can dock at an Italian or Slovenian port to unload cargo destined for Croatia. Thus, single-nation geographic monopolies, and the stranglehold that their port labor relations can exert, are greatly minimized.

In this context, the EC funded the ILO in 2009 to undertake an innovative program of social dialogue in ports for the new EU member states of Bulgaria, Croatia, and Romania, recognizing that their historic model of adversarial port labor relations were unsustainable within the broader EU competitive environment. Although the program proved singularly successful, the ILO chose to emphasize other EC-ILO priorities rather than pursue additional port work with the European Union.

Across the wider EU horizon, the European Commission adopted a Communication on 23 May 2013 that comprised of a set of initiatives for better connecting and developing the competitiveness and attractiveness of all TEN-T (Trans-European Transport Network) seaports.²⁴ The latter total 329 European ports. Three initiatives are particularly mentioned of which the second one is to promote an effective social dialogue between the employers and employees of the port communities, in particular dockworkers. The Commission offered its logistic and technical support; and created a Committee for this social dialogue in June 2013. It is now up to the social partners to take it forward. It was stressed that Social Dialogue at the omnibus EU level supplements but does not replace social dialogue at national, local and corporate levels.²⁵

The EC in coordination with all the EU social partners foresees a review in 2016 that will assess the functioning and progress of the European Social Dialogue for the ports sector and its impact on the provision of both cargo handling and passenger services.

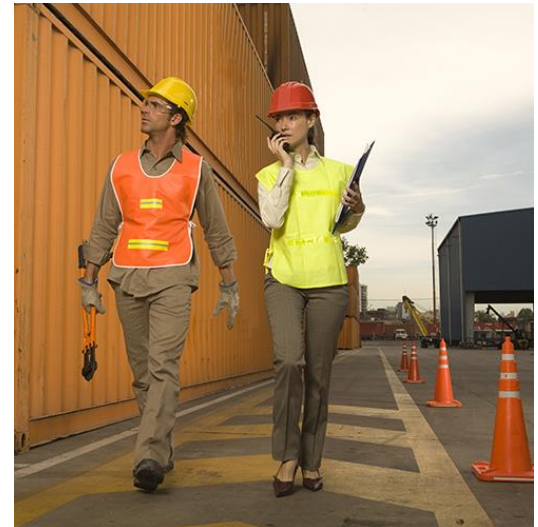
²⁴ European Commission Press Release, IP/13/562, Jun 19, 2013.

²⁵ European Commission, Slim Kallas Press Release, "Ports: Gateways of the TENT", Apr 28, 2014.

7. TO BE COMPETITIVE IN TODAY’S ENVIRONMENT AND THE FUTURE, PORTS MUST HAVE LABOR PEACE—A CHANGE IN METHODS

Einstein famously opined that “insanity is doing the same thing over and over again expecting different results.” If management and labor continue the same practices that have produced work stoppages and unreliability, then those problems will persist, and some ports will fail in the new competitive seascape. Labor relations lie at the heart of port performance and productivity.²⁶ The ultimate goal is labor reliability so that a particular port remains competitive. There must be a better way.

Engaging inspired, motivated, well-trained workers is key to productivity and reliability, but that level is difficult to attain when workers feel like they work for the union and not the employer.²⁷ There needs to be a fundamental change in how employers and employees view one another and interact.



A. Social Dialogue

A comprehensive approach aimed at resolving the labor-management dilemma is *Social Dialogue*, as written by Professor Peter Turnbull of Cardiff University and promulgated by the ILO. *Social Dialogue* encompasses all types of negotiation and consultation, and can include a simple exchange of information between and among representatives of governments, employers and workers on issues of common interest relating to economic and social policy.²⁸ The model relies on tripartite cooperation between governments, workers and employers with the main goal of promoting consensus-building and democratic involvement among the main stakeholders in the world of work.²⁹

The overarching purpose of *Social Dialogue* is to go beyond one-sided demands that characterize traditional labor negotiations and move toward an integrative approach that exchanges mutual concessions rather than demands rights. *Social Dialogue* happens in four stages: planning, initiating and implementing, followed by evaluating. This builds on, but goes beyond, better-known interest-based (win-win) bargaining.

Planning requires that all parties become aware of each other’s needs and interdependencies. There is also an internal review at this stage to make sure there is a commitment to compromise within negotiations. Education of union members is essential to ensure their participation within inclusive union structures to ensure transparency and to enhance understanding.

²⁶ Ircha, note 37.

²⁷ L.P. Robinson, “Marine Container Terminal Productivity,” *National Research Council Improving Productivity in U.S. Marine Container Terminals* (Washington: National Academy Press 1986).

²⁸ Peter Turnbull, “Social dialogue in the process of structural adjustment and private sector participation in ports,” International Labor Organization, 2006.

²⁹ *Id.*

Initiating *Social Dialogue* comes next. The main objective at this stage is for all parties to recognize the value of an integrative, fostering approach that builds trust and broad consensus. Once there is a level of trust and realization that everyone is actually on the same team, then the parties can move to the implementation stage. At the implementation stage, the balance between the employees' desired job and benefit security and the employer's need for flexibility must be resolved. Trust and goodwill engineered through Social Dialogue will help the parties arrive at a solution. In the EU, port employers and employees have agreed to "Social Pacts" or "pacts for employment and competitiveness" that reflect the recognized symbiotic relationship between labor and management. In these pacts, items such as work redistribution, cost cutting, productivity and employability are agreed to on a wide scale so that there is flexibility and security across the EU labor force.

Finally, *Social Dialogue* must be monitored and evaluated by the parties so that the process continues to benefit them after the initial problems are solved. This requires a process of feedback, remedial action and conflict resolution.

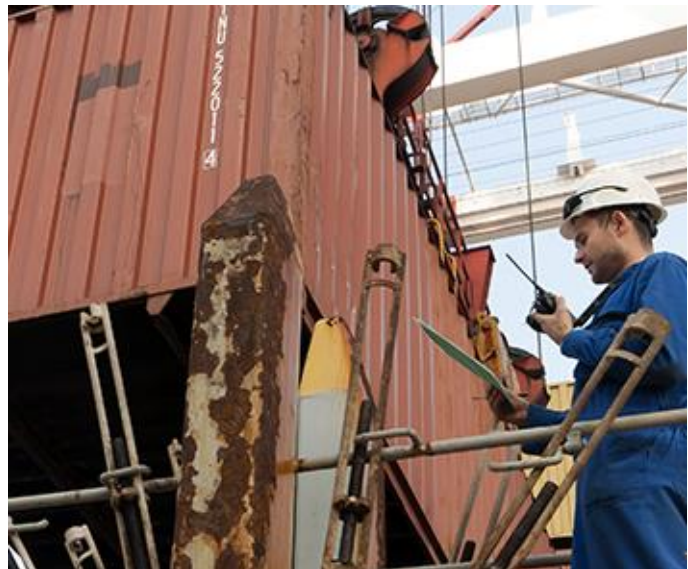
The process of *Social Dialogue* is not natural to human nature, and, thus, training for employees, management and government is necessary. This training can be generalized and provided by a national program, or even an international program. This process is theoretically supported by the ILO through standard-setting, technical assistance and policy advice.³⁰ Unfortunately, the ILO has not been able to provide sufficient resources to support follow through efforts or build on its 2009 EC-funded Social Dialogue in Ports project.

B. Terminal Concept

Even if ports do not want to implement the entirety of the *Social Dialogue* model, the main thrust of trust and willingness to compromise from both sides is essential to any sort of plan to bring labor and management together. L.P. Robinson succinctly stated the port labor problem and his solution in 1986, which has become the Terminal Concept for staffing ports:

The primary key to productivity is an inspired, motivated, well-trained work force. However, it's difficult to reach people who don't work for you consistently. What most terminal operators and stevedoring companies need is a steady work force, a nucleus of people who work for the same company every day and who are capable and willing to perform a multiplicity of tasks. This basic work force must be supplemented by skilled people for peak periods.³¹

Employment at Eurogate follows this Terminal model. Eurogate is Europe's largest container terminal and logistics group, with 11 locations handling 14 million TEUs in 2013. Eurogate now uses a team-working



³⁰ Id.

³¹ Robinson, note 48.

system, as opposed to the old gang-working system that had been in place since the 1930s. All team members are multi-skilled, with 90% of the team able to perform every task on site. Shifts overlap to ensure continuous operation. Management agreed to meet workers' need for stability by establishing shift schedules two weeks in advance. All permanent workers are hired from an external job market that is under the same employment laws as other workers; under peak demand, workers are hired from the local labor pool. Because the workers are flexible, there is less likely to be either a shortage of workers or significant idle time, a major improvement over the previous system. For instance, in 1996, there were 1,000 idle shifts per week. After implementing this system in the year 2000, there were only 1,000 idle hours for the year.³²

C. Ircha Plan for Labor-Management Relations

Another five-step plan to improve port labor-management relations conceived by World Maritime University Prof. Michael Ircha similarly is based on understanding, trust and willingness to compromise between labor and management.³³

Employment continuity is the first step. Without continuity to build rapport and trust, there is no way to overcome the historically imbedded adversarial nature of the management-to-labor relationship. Second is communication. Once continuity is established, there must be real communication and interest displayed by both sides. Third is motivating port workers. The communication step should reveal how those individual workers and management can be best motivated.

Fourth is team-building. This is the stage that brings the reality of the situation to bear. When labor and management are able to work together and recognize that they are on the same team, the transformative process for labor moving from being "a worry" to "strength" begins.³⁴ In terms of the mice-in-the-milk metaphor, at the team-building stage, the mice are running together and churning the milk into butter.

The last stage of Ircha's model is training and career development. This stage is essential to maintain an enduring labor peace. Once both employees and managers perceive that the organization is investing in their personal development, they will become more invested in the organization's goals.³⁵

When the models and proposed solutions are boiled down to their essentials, creating a work environment that values dignity, respect and self-esteem is what is most important. Armed with dignity, respect and self-esteem, workers and management recognize their symbiotic relationship and can work to achieve a reliable labor structure so that the port has every advantage possible in this rapidly increasing competitive environment.

8. ROLE MODEL FOR POSITIVE LABOR RELATIONS

The terminal operators and union representatives in Portland, Oregon, offer an example of how good labor-management relations serve to make a port highly attractive to business. At a *Journal of Commerce's Trans-Pacific Maritime* conference held in 2011, the president of the container terminal in Portland called for an immediate increase in productivity in the Portland terminal. In the old days of port labor negotiating, the union

³² Turnbull, note 49.

³³ Ircha, note 37.

³⁴ Id.

³⁵ Id.

representative likely would have immediately fought back; but instead, the ILWU president said to the audience, “rest assured, we will give you the productivity levels you need to do your business in Portland.”³⁶ The Pacific Maritime Association president added, “The more efficient we are with cargo, the more cargo we’re going to see.”³⁷ This sentiment was echoed in Antwerp, Belgium, where the port is undergoing an ambitious expansion project. The operations manager framed the importance of labor peace in this way: “Social peace is fundamental to the success of the stevedoring companies and the port of Antwerp. The price of social peace is high wages and benefits in the port are very good, but it’s a price worth paying. Social peace is priceless.”³⁸

THE BOTTOM LINE

Labor peace — from crane and equipment operators to stevedores, to harbor pilots and truck drivers to drayage — is a key to success or failure in today’s competitive port and international trade environment. The days of open and public conflict between labor unions and management must yield, in an ever globalizing economy, to a collaborative situation in which both parties realize that their very survival, let alone prosperity, depends on cooperation. As the Panama Canal widens, and ports across the world dredge deeper to accommodate even larger ships, the stakes for future success are enormously high. Labor and management must work together to maintain reliable seaports, and only then will those ports be able to compete in the increasingly competitive intercontinental shipping industry.



³⁶ Bill Mongelluzo and Joseph Bonney, “Competition Spawns Cooperation,” *The Journal of Commerce*, Mar. 21, 2011: 10-13.

³⁷ *Id.*

³⁸ Turnbull, note 49.

APPENDIX

GLOBAL PORT EXPANSION

A. Panama Canal Expansion

The Panama Canal Expansion will double the amount of cargo that can pass through the isthmus by 2016.³⁹ The \$5.25 billion project is excavating more earth than the original Panama Canal project, completed in 1914.⁴⁰ The project is creating another set of locks in addition to those already in use. The new locks in the Canal are going to be wider, longer and deeper, thus allowing passage for significantly larger vessels and more of them.⁴¹ The lock structure will be shorter in length, meaning that the actual throughput will take less time, further increasing the efficiency of the Canal. Demand at the Canal has steadily increased, and the prediction is that the current level of demand will triple by 2025.⁴²



Financing for the project has been broken into packages, with a \$2.3 billion package provided by a group of international institutional investors from Japan Bank for International Cooperation, European Investment Bank, Inter-American Development Bank, Corporacion Andina de Fomento, and the International Finance Corporation.⁴³ The citizens of Panama approved the expansion in a national referendum by 76.8% of the vote in 2006. According to the Panama Canal Authority's projections, all loans will be repaid and the expanded Canal will be profitable by 2024, with a total revenue in 2025 of \$6.2 billion.⁴⁴

The third set of locks will dramatically increase capacity by allowing access to larger vessels, as well as increasing the number of vessels that can use the facility. The current Panamax vessel has a maximum underwater draft of 12 meters and can carry 4,500 twenty-foot equivalent units ("TEUs").⁴⁵ In contrast, New Panamax vessel specifications have a maximum underwater draft of 15.2 meters and can carry 12,000 TEUs, representing a 166% increase in capacity for each container vessel. See Table 1 for a comparison of various vessel specifications.

³⁹ Russ Bynum, "US ports race to keep up with bigger Panama Canal," *Business Week*, Feb. 7, 2011 <<http://www.businessweek.com/ap/financialnews/D9L7SKFO0.htm?>>.

⁴⁰ "Panama begins 5.25 billion dollar canal expansion," *Agence France-Presse*, Sept. 3, 2011.

⁴¹ Peter Leach, "Rebuilding the Canal," *The Journal of Commerce*, Mar. 21, 2011: 35-37.

⁴² Mercer Management Consulting, "Panama Canal Market Demand Forecast Appendix," 2004: 3 <<http://www.pancanal.com/esp/plan/estudios/0221-01.pdf>>.

⁴³ "Financing Deal for Panama Canal expansion signed," *Dredging News Online*, Dec. 19, 2008 <<http://www.sandandgravel.com/news/article.asp?v1=11537>>.

⁴⁴ Autoridad del Canal de Panama, "Proposal for the Expansion of the Panama Canal: Third Set of Locks Project," Apr. 24, 2006 <<http://www.acp.gob.pa/eng/plan/documentos/propuesta/acp-expansion-proposal.pdf>>.

⁴⁵ Alfredo Mejia, "Panama: A New Special Relation with the Mississippi Coast," Presentation by GPT International Airport, 2008.

This major increase in both capacity and underwater draft of vessels able to access to the canal represents a dramatic change in the container shipping environment. The increase in capacity likely means there will be fewer ships transporting more goods, and fewer ports of call able to handle the larger vessels, thus making each ship's port choice more competitive and consequential. The increase in draft means that shallower ports will be left out. To avoid this loss of business, shallower ports have initiated dredging campaigns up and down the U.S. Gulf and East Coast to prepare for the required increase in draft beginning in 2016.

The ports on the Pacific Coast of the United States and Canada have the most to lose from the expansion of the Panama Canal. Compared to the current Panama Canal, the U.S. Intermodal System provides quicker access to the East Coast at 18.3 days, compared to between 20 and 24 days for the Canal.⁴⁶ However, the expansion of the Panama Canal is putting that time savings at issue, because the Canal will be able to handle larger vessels that move more cargo more efficiently, and will be able to do so at a faster rate. See Figure 1 for a comparison of the market share between the Panama Canal and the U.S. Intermodal System.

According to a USDA study completed in 2010, with the improvements to the Panama Canal, many more ships will go directly to the Gulf or East Coast ports through this expanded waterway. U.S. Port container traffic in the Gulf and on the East Coast of the United States is expected to double or triple by 2030. The expanded Panama Canal will alleviate congestion at West ports.⁴⁷ It will also significantly increase competition for seaport traffic between the U.S. East and West Coast ports.

The anticipated increase in competition has U.S. West Coast ports looking to collaborate with each other.⁴⁸ West Coast stakeholders have a campaign initiative called "Beat the Canal" to find a way to become more efficient and thus more attractive in the face of the expanded Canal.

Studies have been performed on import and export on East coasts and West coasts.⁴⁹ Exhibit 1 shows that Pacific Coast ports (Southern California, Northern California and the Pacific Northwest) historically have handled half of the U.S. import container volume. In 2002, the West Coast ports handled about 50% of the total U.S. imported containerized cargo. By 2013, the West Coast ports share had fallen to 43.5%. It is important to note that the decline in market share at the West Coast ports was driven by the loss in market share at the Southern California ports. The exhibit shows that Southern California ports' market share peaked in 2002 at about 40%, and has been declining since, reaching a 33% share in 2013. The exhibit also shows South Atlantic ports have maintained share in the last several years; with the Gulf and North Atlantic ports actually increasing their share over the last several years.

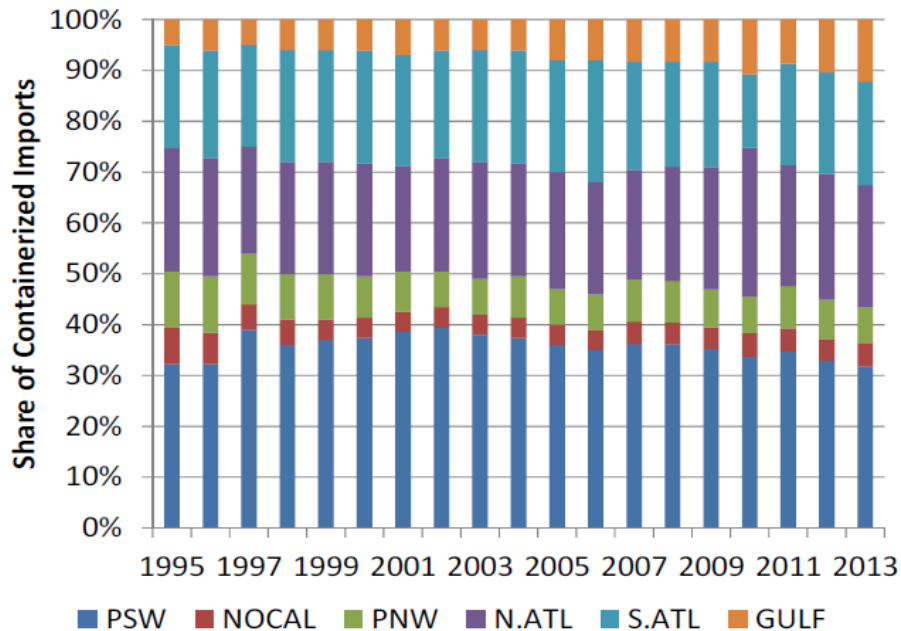
⁴⁶ United States Department of Agriculture, "Impact of Panama Canal Expansion on the U.S. Intermodal System," Jan. 2010.

⁴⁷ Bill Mongelluzzo, "Ports Eye Coastal Collaboration," *The Journal of Commerce*, Mar. 21, 2011: 43.

⁴⁸ *Id.*

⁴⁹ "Economic Impact and Competitiveness of the West Coast Ports and Factors that Could Threaten Growth", Martin Associates, Apr. 30, 2014.

Exhibit 1 - Historical Port Range Share in the U.S. Import Container Market (Ton)

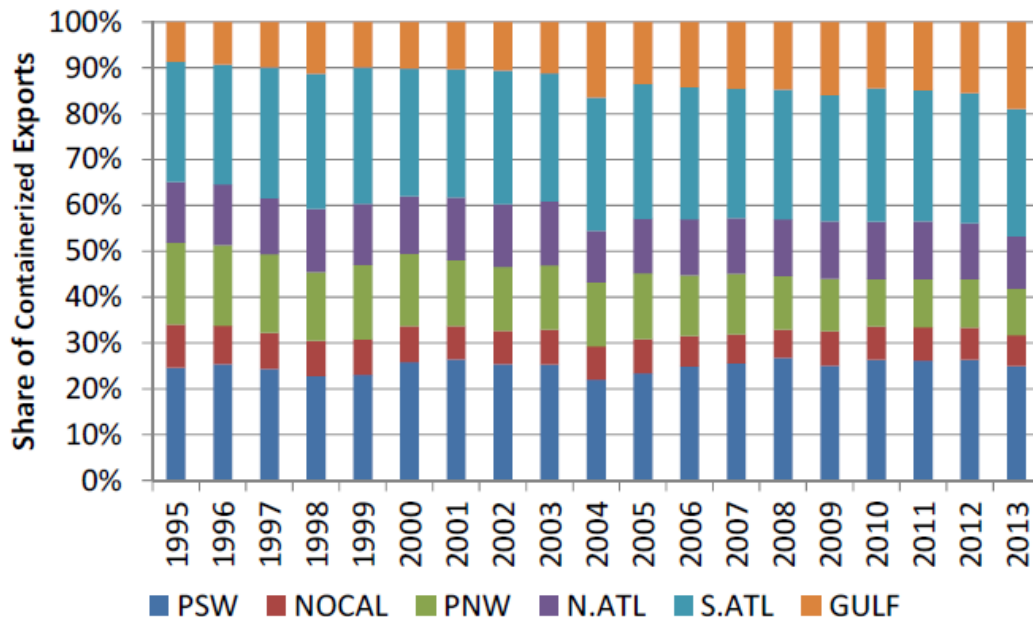


Source: U.S.A Trade On-Line

A similar decline in market share for the West Coast ports also has occurred in the container export market. The West Coast ports' share of containerized exports fell from about 50% in 1995 to 40% in 2012. However, unlike the loss of import market share driven by the Southern California ports (shown above as Pacific Southwest), the loss of market share of West Coast ports exports was driven by the loss in export market share in the Pacific Northwest ports. Exhibit 2 illustrates the loss in West Coast market share; the South Atlantic and Gulf Coast ports increased their share of the container export market overtime, which is most likely the result of the increased vessel capacity and equipment associated with the growing import markets from Asia on the Atlantic and Gulf Coasts after 2002.



Exhibit 2- Historical Port Range Share in the U.S. Export Container Market (Ton)



Source: U.S.A Trade On-Line

The counterpoint to the fear of change on the North American West Coast is the bustle to get ready for the Panama Canal expansion on the U.S. Gulf and East Coast. Ports on the Gulf and East Coast are scrambling to complete their own improvement projects to meet the “deadline for a new era of competition.”⁵⁰ The Port of Houston Authority reports that it has renewed its strategic alliance with the Panama Canal Authority and it plans extensive port infrastructure improvements, including dredging of the Houston Ship Channel, anticipating a 150% increase in containerized cargo by 2030.⁵¹ Ports in Virginia, New York, New Jersey, Georgia, South Carolina and Florida are engaged in multimillion-dollar port deepening projects to meet the 50-foot (15.2-meter) draft requirement for New Panamax ships. Each port is attempting to make itself more attractive for the increase in number and capacity of ships that will be coming through the Panama Canal beginning in 2016. The Port of Virginia at Norfolk claims it is the biggest, deepest, newest and best of the East Coast ports, with its 50-foot-deep channels, no bridge obstructions and a double-stack rail to Chicago.⁵²

The Panama Canal expansion is now 82% complete (31 October 2014).⁵³ It has been plagued recently with problems concerning cost overruns and delays in the delivery of new gates for the canal’s locks, as well as labor strikes of its own. Originally expected to cost about \$5.25 billion, the project could top \$7 billion. Failed talks in January between the Panama Canal Authority and the consortium doing the work led to a two-week work stoppage in February. A partial agreement eventually allowed construction to resume with its

⁵⁰ Leach, note 3.

⁵¹ Port of Houston Authority, “Port of Houston Authority Renews Strategic Alliance With Panama Canal Authority,” , Port Report June/July 2011 <<http://www.portofhouston.com/pdf/pubaffairs/PortReport-JuneJuly11.pdf>>.

⁵² “The Canal Gets Bigger, and U.S. Ports are Ready,” *Business Facilities*, Apr. 1, 2011.

⁵³ Canal De Panama official site: <http://micanaldepanama.com/expansion/>.

Spanish and Italian construction companies. A strike, which ended on 8 May 2014, halted the project for more than two weeks. Planned for a late 2014 completion, the canal now faces at least a year's delay and predicts to be fully operational by January 2016.⁵⁴

The Panama Canal project is causing global economic ripples, particularly in the eastern United States, where states are spending billions to dredge harbors, construct rail terminals, and build up infrastructure in expectation of serving more big ships. Some ports have already matched themselves with the pre-set Panama Canal timing. As an example, Miami had timed construction to open its new port tunnel and deepened harbor simultaneously with the canal's re-launch, seeing the latter as a cargo rebirth for a port that had been reduced to only servicing Caribbean cruise ships. But ports like Jacksonville, FL; Savannah, GA; and Charleston, SC are breathing a sigh of relief, hoping their current port improvements — also delayed — might enable them to catch up to the delayed Panama Canal project schedule, especially for exporting liquid natural gas in ships that likely will have to pass through Panama.⁵⁵

The Panama Canal expansion will certainly challenge the current U.S. Intermodal System. Trade could be diverted to the East Coast ports for faster or cheaper delivery. Transportation costs might decline in destination countries that have deeper access channels and the capacity to handle Post-Panamax vessels. For the U.S. Intermodal System to remain competitive in the face of the Panama Canal expansion, further investment in U.S. infrastructure and a more integrated approach will be needed to reduce bottlenecks in the intermodal systems. The future will show how the Panama Canal expansion may redistribute trade volumes across the U.S. Intermodal System, including ports, railroads and trucks.

B. Dry Canal Projects in Central America

The Panama Canal expansion will put Panama and Central America foremost. Investor interest in the region will likely continue to increase. The canal is expected to bring large numbers of post-Panamax-size vessels through the region. This expected increase in large container ships is to an extent influencing even the decisions that seaports on the eastern and Gulf coasts of the United States are making with respect to their expansion and capacity increase plans. Their enthusiasm has spread to neighboring countries of the Central American isthmus, where a race for a dry canal connecting the Pacific to Atlantic Ocean has intensified in recent years. Thus far, Chinese companies have committed themselves to over \$70 billion for the three main canals in Honduras, Nicaragua and Guatemala.⁵⁶ This shows that having alternatives to the Panama Canal is a strategic issue for China. Besides, uncertainty in all the three projects compels China to back parallel alternative projects. Exhibit 3 shows the map of dry canals (Colombia Dry Canal is not shown).

⁵⁴ Lavigne, Grace, M, "Panama Canal Expansion Work Set to Resume Following Strike" *The Journal of Commerce*, May. 9, 2014.

⁵⁵ Molinski, Dan, "The Wall Street Journal", Feb. 17, 2014.

⁵⁶ Fernando Mendez, "Two, Three, Many Canals in Central America" *Trending Central*, July 28, 2013: P1.

Exhibit 3- The Dry Canals in Central America



1. GUATEMALA

Recent feasibility studies for a dry canal in Guatemala envision a canal complete with “a natural gas and oil pipeline, a high-speed highway, and a 244 miles railway line.” The proposed project will cost approximately \$10 billion and Chinese investors “have a special interest in the oil pipeline to transport Venezuelan petroleum,” from the Caribbean to the Pacific. According to one study by ODEPAL (Latin American Business Links Office), a group promoting the Guatemala canal, a Panamax category cargo ship travelling at 13 knots with a carrying capacity of 55 to 80 thousand DWT (dead weight tons), takes 35 days and \$1,846 per 20-foot container to cross through the Panama Canal. That is three days and \$169 per container more than it would cost to go through Guatemala’s dry canal.⁵⁷

2. HONDURAS-EL SALVADOR

This is a Honduras plan jointly undertaken with El Salvador and is a set of 10 rail lines linking two coasts 375 miles apart, including a refinery and oil pipeline. This canal is a bit more modest coming in at \$20 billion, but it would be equipped with a high-speed rail system powered by a hydro-generated plant in the Gulf of Fonseca. China Harbor Engineering Company has designed and has begun construction on the project. Construction of La Union was completed, but it has taken the Government of El Salvador more than three years to name a concessionary, a process which has been mired in corruption, labor disputation, and finger-pointing on several fronts. Meanwhile, Honduras already has tendered and awarded the highway to a consortium of multiple construction companies, and has since then suggested that if El Salvador fails to proceed apace, it will build its own deep-water port on the Pacific coast of Honduras.⁵⁸

3. NICARAGUA

Nicaragua, during the 1990s, was the first to advocate the concept of dry canal, but made no progress due to lack of finance. Recently, Chinese interests are planning to invest in excess of \$40 billion on a new canal project. The amount is five times Nicaragua’s annual GDP and leaves little to chance. The canal will welcome ships of every size and tonnage, with a transoceanic railway system, highways and oil pipelines, shipping ports on coasts, airports, and free trade zones along the way. All of this contracted by HK Nicaragua Canal Development, a Hong Kong-based company, owned by businessman Wang Jing. The project is expected to generate at least one million jobs in an economy

⁵⁷ Fernando Mendez, “Two, Three, Many Canals in Central America” Trending Central, July 28, 2013: P2.

⁵⁸ Estuardo Robles, “The Great Dry Canal Race,” Site Selection Magazine, March 2013: P1.

whose current labor force is over two million. As a result of the project, Nicaragua's GDP is estimated to grow at a 15% annual rate. The Government of Nicaragua and the HKND Group anticipate that construction work on the Nicaragua Grand Canal will commence on the scheduled date. Groundbreaking is scheduled for December 2014.⁵⁹

The integrated Nicaragua Grand Canal project will include the following six sub projects: canal (including locks), two ports, a free trade zone, holiday resorts, an international airport, and several roads. In addition, there will be construction of a power station, cement factory, steel factory and other related facilities to ensure the successful completion of the canal within five years.⁶⁰

4. COSTA RICA

Costa Rica, with robust diplomatic relations with China, is planning an inter-coastal super highway. The Americas Gateway Development Corporation (ADC) is developing a major transshipment terminal (the Mega Terminal Atlantic or MTA) at Moin, as the first stage in a longer-term plan to construct a "dry canal" comprising Atlantic and Pacific ports linked by a high-capacity container railway. Although the project has progressed slowly for the past two years, noted Container Management in a recent Latin American edition, this is the first major public infrastructure project to be implemented under Costa Rica's recently enacted private-concession legislation. As such, it is a trailblazer.⁶¹

5. PANAMA CANAL RAILWAY

The Panama Canal Railway runs parallel to the Panama Canal, linking the Atlantic Ocean to the Pacific Ocean in Central America. The route stretches 47.6 miles (76.6 km) across the Isthmus of Panama from Colón (Atlantic) to Balboa (Pacific, near Panama City). It is operated by Panama Canal Railway Company (PCRC), which is jointly owned by Kansas City Southern and Mi-Jack Products. With a recent investment of \$80 million, the revitalized railroad provides an efficient intermodal link between the Pacific and Atlantic ports and complements the existing hub transportation infrastructure provided by the Canal, the Colon Free Trade Zone, the Port terminals, highways and airports. The handling capacity of the railway in Phase I is estimated to be around 500,000 container transits a year. The PCRC plans to increase this in stages of around 250,000 transits a year, to reach a maximum of 2 million TEU annually.⁶²

6. COLOMBIA DRY CANAL

Chinese and Colombian officials aver that talks are very far along concerning a 791km railway and expansion of the Pacific port of Buenaventura. The \$7.6 billion project, funded by the Chinese Development Bank and operated by China Railway Group, would move up to 40 million tons of cargo a year from Colombia's economic heartland to the Pacific. Priority would be given to coal destined for China.

Colombia is the world's fifth-largest coal producer, but most is exported via Atlantic ports even as demand is growing faster across the Pacific. The Panama Canal expansion alone would be enough to

⁵⁹ Fernando Mendez, "Two, Three, Many Canals in Central America" Trending Central, Jul. 28, 2013: P3.

⁶⁰ <http://hknd-group.com/portal.php?mod=list&catid=35>.

⁶¹ Estuardo Robles, "The Great Dry Canal Race," Site Selection Magazine, Mar. 2013: P2.

⁶² <http://www.panarail.com/en/cargo/index.html>.

create an increasingly competitive port environment, but there are other changes to the industry worldwide that add to the competitive mix. Colombia's proposed "Dry Canal" is one such potential change that adds uncertainty to the international port industry. Colombia and China announced a 140-mile, \$7.6 billion railway connecting the Pacific and Atlantic coasts of Colombia.⁶³ Within Colombia, there has been mixed reactions to this announcement.⁶⁴ The Panama Canal Authority stated it is not concerned about competition from a Dry Canal because it believes shipping by sea will remain the most efficient means of coast to coast transport, in that there is no need to unload and load at each port.⁶⁵ The feasibility of the Dry Canal has been called into question. Some believe it may have simply been a (successful) ploy to get the U.S. Congress to approve the United States-Colombia Free Trade Agreement.⁶⁶ Economically, there are questions of efficiency for a backhaul, especially because the rail will be used primarily to facilitate sending coal to China from Colombia. Moreover, there are many formidable barriers, including climate, political instability and local violence. Regardless of questions of feasibility, the possibility of a "Dry Canal" is yet another piece in the increasingly complex web of international port competition.

C. Suez Canal Expansion

Arguably, the Suez Canal is the most important international and intercontinental trade waterway in the world. It is located in between of three continents — Europe, Asia and Africa. More than 10% of world trade now passes through the Suez Canal. Around 18,000 ships pass through this canal every year.⁶⁷ As manufacturing capacity shifts from China to South Asia and South East Asia (e.g., India, Bangladesh, Myanmar, Thailand, and Indonesia), this shift is increasing the volume of cargo from that region to Europe and North America through Suez Canal. New gigantic development projects are now underway and planned for the next decade. Exhibit 4 shows the Canal cross section in time sequence.



⁶³ Alan M. Field, "Colombia Plays the China Card," *The Journal of Commerce*, Mar. 21, 2011: 15.

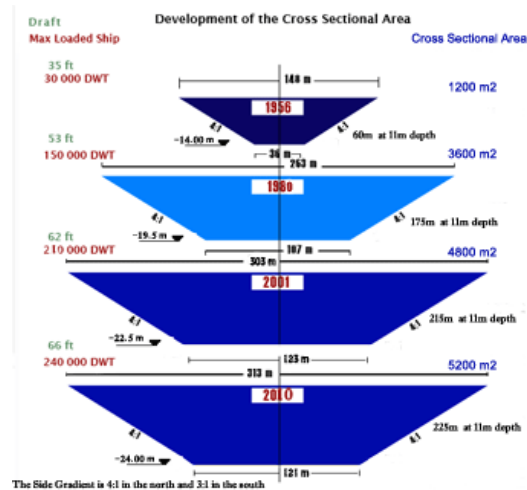
⁶⁴ China Digital Times, "Reactions to China's 'Dry Canal', Across Colombia," Feb. 22, 2011 <<http://chinadigitaltimes.net/2011/02/reactions-to-chinas-dry-canal-across-colombia/>>.

⁶⁵ Id.

⁶⁶ Field, note 15.

⁶⁷ <http://www.suezcanal.gov.eg>.

Exhibit 4- The cross section of Suez Canal in time



The Suez Canal is a sea level channel with no locks or dams. It is a 193 Km narrow single lane corridor with 6 bypasses; totally 80.5 Km; to implement bidirectional transportation. Ships sail in convoys from each direction, anchor in bypasses (notably, the Great Bitter Lake) to let convoys from other side pass through. This passage takes about 12 hours besides the waiting time of plus 18 hours in queue to assemble a convoy. The Suez Canal was significantly widened after the Egyptian-Israeli peace agreement in 1977, and then deepened in 2009, increasing the passing ship draft from 18 meters to 20 meters. With this increase, the Suez Canal can handle all but the largest of fully laden supertankers, and it even can handle some fully laden Cape-size ships.

The further development of this channel named "New Suez Canal" is planned in two phases. The development project is estimated to cost \$8.4 billion and last three years. The first phase targets increased trade alongside the canal. The enlarged canal will allow ships to sail in both directions concurrently over much of the canal length. This project covers 35 Km dry digging and 37 Km of widening and deepening (to 24m) of the current waterway. Waiting hours will decrease from 18 to 11 hours for most vessels. Moreover, capacity of the Suez Canal will double from 50 to 100 ships a day. In August 2014, the first part of the first phase; dredging to 24m; was launched. A further phase envisions six new tunnels under the enlarged canal, facilitating the rapid development of the vast, underdeveloped Sinai Peninsula east of the canal. At least two of these will be railway tunnels, linking Eurasia and Africa although a resolution of the Arab-Israeli imbroglio would be necessary to restore rail links severed by the First World War, or to connect with eventual port operations in Gaza. Beside improvement of the canal itself, multibillion-dollar development projects are planned around the canal.

D. Global Port Expansion Efforts

Despite the global economy recession many governments, port authorities public and private are now continuing their developments projects. Economic strength, port capabilities and capacity, ability to moor and service Panamax and even larger ships, geographical location and local-global competitions are the crucial facts for investment and improvements to keep them in the global race. Below are some examples of port expansion categorized in different regions of the world.

- AFRICA

Cape Town, South Africa is expanding its main container terminal. The multimillion-dollar expansion is set to be completed before the deadline and under budget.⁶⁸ Dredging has taken place to a depth of 15.5 meters at all four berths. The CEO of the group heading the expansion stated that “the investment will not only increase capacity but go a long way towards improving productivity and efficiency at our ports.”⁶⁹ State-owned port operator Transnet, which operates eight container terminals in the country, has spent \$4.3-billion over the seven year plan on upgrading and expanding South Africa's ports as part of a massive state-led infrastructure drive aimed at boosting the country's economic growth. The expenditure will form part of \$39.1-billion expenditure on port and rail capital projects until 2018-2019. Durban Container Terminal's Pier 1 will see its capacity grow from 700,000 to 1.2 million TEUs by 2016-2017, while its Pier 2 capacity will expand from 2.1-million to 3.3-million TEUs by 2017-2018. The Ngqura Container Terminal, which has been earmarked as a transshipment hub, will be expanded from 800,000 to 2 million TEUs by 2018-2019.⁷⁰

West Africa, which has some of the fastest-growing economies in the world, also has the most limited port infrastructure and difficult (often non-existent) inland connections. Spotting an opportunity for long-term growth, several big terminal operating companies are investing in new terminals. APM Terminals, which operates a container terminal at Apapa, Nigeria, plans to build a new terminal by 2016 in Badagry. Both terminals are near Lagos, Nigeria's former capital. The operational port is also the largest container terminal operation in West Africa, having doubled container traffic began in 2006, with dramatically improved productivity, handling nearly 90% of Nigeria's inbound containers. A \$135 million investment and expansion program was announced for APM Terminals Apapa in 2011. Regular rail service to two major interior cities was restored in August 2013. Container throughput in 2012 was 618,000 TEUs. On the other hand, CMA Terminals, 100% subsidiary of the CMA CGM Group, acquired a 25% stake in Nigeria's Lekki container terminal from ICTSI of the Philippines. TIL, the MSC sister company, has started a development project. New port; 60Km away of Lagos; with a straight-line quay of 1200m and a yard area of 66 hectares, expected to be fully operational in 2017, provides the local and regional market with an annual capacity of 2.5 million TEU.⁷¹

East Africa's biggest port at Mombasa in Kenya is fighting off competition from neighboring Tanzania by expanding railways and building new berths to tackle congestion. The plan has started for constructing a \$13 billion railway project that will link Mombasa to the capitals of landlocked Uganda and Rwanda. The Kenya Ports Authority already accomplished 19th docking station investing \$320 million to add three more at a new container terminal that will more than double capacity to 2.3 million TEUs, the biggest upgrade to the port since 1980.⁷² Mozambique is in the process of expanding its container port at Maputo. The chief executive of the Mozambique Ports Development Company stated “the demand is there and what we need to do is create

⁶⁸ Catarina Kerr, “Cape Town terminal ahead of deadline and under budget,” *IFW Net*, June 6, 2011 <<http://www.ifw-net.com/freightpubs/ifw/index/cape-town-terminal-ahead-of-deadline-and-under-budget/20017878082.htm>>.

⁶⁹ *Id.*

⁷⁰ “R33bn upgrade for South Africa's ports,” *Southafrica.info*, May. 4, 2012.

⁷¹ “CMA Terminals and ICTSI sign agreement for a 25% stake of Lekki International Container Terminal Services LFTZ Enterprise, in Nigeria,” <http://www.cma-cgm.com/finance>, Jan. 28, 2014.

⁷² *Arabianbusiness.com*, “Africa Top 10 Ports”, May 12, 2008.

the gateway, developing the infrastructures to take these commodities to the market.”⁷³ Already, containers received between October and December 2010 was up more than 50%.⁷⁴ As the \$1 billion project is completed over the next 20 years, Mozambique seeks to serve the markets in China and India.⁷⁵

- SOUTH ASIA

About 90% of India’s international trade by volume is carried through sea. There are about 46 projects with total investment of \$14 billion currently under execution at major and non-major ports ended 2020. More than half of this budget is located for building 7 new ports to increase the number to 20. Over 83 with total investment outlay of \$30 billion are at the formulation stage. These projects focus not only on the growth of Indian ports sector but also on promoting India as a transshipment hub. The overall port capacity in the country is expected to grow at a CAGR of 13.3% from 1,020 million tons in FY11 to 3,130 million tons in FY20.⁷⁶

- MIDDLE EAST

Jebel Ali Port is the world’s largest man-made harbor and is ranked 9 amongst the top 10 container ports worldwide. DP World port operator, the third-largest in the world, has invested \$850 million over the three-year period to boost the capacity of its container terminal by more than 26%. The investment will add an additional 4 million TEUs of annual capacity, bringing the total capacity at Jebel Ali to 19 million TEUs by end of 2014. Operator, will reconfigure 6,100 feet of berth and 173 acres of yard space from an existing general cargo berth into a new container terminal within the existing container port. The new terminal, which will have a draft of 58 feet, will be able to handle the world’s largest container vessels planned for the future.⁷⁷

Abu Dhabi opened a 2 million-TEU container terminal at Khalifa port in 2012. Oman, which recently closed its old Port of Muscat, is expanding the Port of Sohar. Saudi Arabia opened its new King Abdullah port on the Red Sea in 2013 with initial capacity of 1.3 million TEUs that is scheduled to expand to 2.7 million TEUs by the end of this year. Qatar is building the huge \$7 billion New Doha Port. The first phase of the project, due for completion in 2016 will have capacity of 2 million TEUs. Once the project is built out, the government is likely to close the old Port of Doha, which has a 400,000 TEUs capacity.⁷⁸

⁷³ Arabianbusiness.com, “DP World-operated port plans \$1bn investment,” June 3, 2011.

<<http://www.arabianbusiness.com/dp-world-operated-port-plans-1bn-investment-403427.html>>.

⁷⁴ Fred Katerere, “Mozambique Maputo Port Container Three Month Volume up by 50%, O Pais Says,” Bloomberg.com, Jan. 26, 2011.

⁷⁵ Arabianbusiness.com, note 23.

⁷⁶ “3rd India Port Expansion and Capacity Upgrading Summit,” Nov. 22-23, 2012.

⁷⁷ <http://www.dpworld.ae/en/content>.

⁷⁸ Leach, Peter, “Global ports grapple with congestion generated by larger ships and alliances,” The Journal of Commerce, Aug. 26, 2014.

- EAST ASIA

Seven of the top 10 world container ports are located in mainland China. Shanghai, with 33 million TEUs in 2012, maintains the number one ranking in the world. The 10th ranked container port handled more than 13 million in 2012. There have been huge improvements and extensions in all of these ports.⁷⁹

Large extension projects are reported even for low throughput ports. Dandong Port in Northern China has spent nearly \$7.1 billion over the five-year plan to increase throughput some 67% at facilities with strong connections in North Asia. The expansion will take throughput at China's northernmost port, which borders North Korea on the Yellow Sea from 60 million metric tons to 100 metric tons. The investment would cement the port's role as a transport hub connecting the Korean peninsula with the Eurasia region, including Russia and Mongolia.⁸⁰

- NORTH AMERICA

Vancouver, Canada's largest container port will spend about \$700 million to expand marine terminal, bridge, and railway and road capacity in the coming years. All of these projects are crucial because congestion builds at grade crossings where rail traffic interferes with truck traffic and the problems then back up to the port.⁸¹

Last year in a NY-NJ port, a \$105 million road improvements accomplished as part of several years-long, multibillion-dollar infrastructure investment program that also has included dredging port channels to 50 feet, development of Express Rail intermodal rail terminals, and raising the Bayonne Bridge to allow clearance by larger ships.⁸²

The Port of Los Angeles in the coming decade will spend more than \$3 billion to deepen its access channel, expand marine terminals, add on-dock rail capacity and improve traffic flow through street and bridge improvements in the harbor area. The program is needed to accommodate a projected significant increase in cargo volume, better handle the container ships of 8,000 to 10,000 TEUs capacity that are becoming increasingly numerous in the harbor and reduce pollution from port operations.⁸³

Under a new five-year plan issued by the Florida Seaport Transportation and Economic Development Council, three ports could receive a combined \$2.8 billion through fiscal year 2017-2018 in Capital Improvement Program dollars. In total, 15 Florida ports will see total investment of \$4 billion in capital improvements over the five-year period. Florida's top three ports, Jacksonville, Tampa and Port Everglades, handled 2.1 million TEUs in 2013. Everglades, the largest one will be ready for Panama Class ships in 2015.⁸⁴

Houston port authority is boosting 2014 capital investment to \$324 million from \$220 million this year, to deepen the berths at its Bayport and Barbours Cut container terminals to 45 feet and add a new truck gate at Bayport. The port has annual capacity of about 2 million TEUs, which can be increased quickly to 5 million

⁷⁹ <http://www.worldshipping.org/about-the-industry/global-trade/top-50-world-container-ports>.

⁸⁰ "North China Port in \$7 Billion Expansion," *The Journal of Commerce*, Oct. 27, 2011.

⁸¹ Mongelluzzo, Bill, "More capacity planned for Port Metro Vancouver," *The Journal of Commerce*, Aug.8, 2014.

⁸² Bonney, Joseph, "NY-NJ OKs \$105 Million for Port Roads," *The Journal of Commerce*, Dec. 5, 2013.

⁸³ Mongelluzzo, Bill, "Port of LA Plans \$3 Billion for Expansion," *The Journal of Commerce*, Aug. 28, 2011.

⁸⁴ Egan Corianna, "Florida to Invest Billions to Improve Port Competitiveness," *The Journal of Commerce*, May.4, 2014.

with the build out of the second half of Bayport terminal as demand increases over the next few years. The real port's growth in throughput may just be getting started in light of at least \$35 billion that energy and petrochemical companies plan to invest in plants that line the banks of the 52-mile Houston Ship Channel.⁸⁵

- SOUTH & CENTRAL AMERICA

Eastern ports of South America located in Brazil and Argentina are handling the larger stake of logistics with respect to West Coast ports in Chile and Peru. Brazilian waterways regulator Antaq approved \$1.73 billion in upgrades for ports in Rio de Janeiro and Santos. The port of Santos will receive \$531.4 million for two projects at its Tecon terminal ended 2018. The first construction would extend piers to 3,600 feet, as they currently are 2,940 feet long. The second project involves deepening the terminal's berthing channel, from the current 39 feet to 45 feet. It is also reported that port officials will invest over \$840 million into new equipment at the port through 2044. Also, another \$88 million investment for its grain operation in Santos is under way.⁸⁶ Brazil's Super Port Açú is going to be the largest port in the Americas when completed.⁸⁷ The project has been delayed due to lack of required finance from the investor but it is ongoing. It will be able to accommodate a Chinamax vessel capable of carrying 388,000 DWT dry bulk. The impact of this port on international port competition is uncertain at this point, but opening the largest port in the Americas unquestionably will add to the competitive environment.

General Ports Administration, the state company running the port of Buenos Aires in Argentina has signed a contract worth \$700 million to adapt the port to handle the Post-Panamax ships. The plans to upgrade the port over the next two to five years include permanent dredging of the entire port area.⁸⁸

Chile's Terminal Pacífico Sur Valparaíso has ordered three large ship-to-shore container cranes to boost capacity. The new cranes are expected to improve the terminal's container handling capabilities, allowing it to operate on large container vessels such as the 16,020 TEUs CMA CGM Marco Polo-class ships, which have a length of 396 meters and breadth of 53.6 meters.⁸⁹

El Salvador's Port La Union at Cutuco has doubled the annual TEU capacity of El Salvador's largest port. Currently, it can handle 300,000 TEUs per year, with two more phases of expansion planned to increase capacity to 1.7 million TEUs in the final phase.⁹⁰ Port La Union at Cutuco was mired in political and labor turmoil that kept the port from opening for an entire year despite completion of construction in 2009.⁹¹ The concession process and labor issues are just one example of how cutting-edge port specifications and technology mean little without a stable labor force to make the port function.

⁸⁵ Leach, Peter, "Regional Economy, Petrochemicals Investment Ignites Growth at Houston Port," *The Journal of Commerce*, Nev. 21, 2013.

⁸⁶ Egan Corianna, "Brazil approves \$1.7 billion for port infrastructure," *The Journal of Commerce*, Aug. 21, 2014.

⁸⁷ Joe Leahy, "Superport is Brazil's new route to China," *Financial Times*, May 10, 2011.

<http://www.ft.com/cms/s/0/d9abc660-7a60-11e0-af64-00144feabdc0.html#axzz1ORTLD6Ma>.

⁸⁸ "Port of Buenos Aires Expansion to Include Dredging," *Dredgingtoday.com*, Feb. 24, 2014.

⁸⁹ Lavigne Grace, "Chile's Valparaíso port boosts container-handling efficiency," *The Journal of Commerce*, May.9, 2014.

⁹⁰ Catherine Setterfield, "Cepa to finalize La Union port concession by July 2012," *Business News Americas*, Apr. 14, 2011.

⁹¹ *Id.*

- EUROPE

Currently 65 to 70% of Europe's container traffic with Asia moves through ports in northern Europe, Rotterdam, Antwerp and Hamburg, and 25 to 30% through ports in southern Europe. Barcelona, Marseilles and Genoa have teamed the southern European ports. In a marketing effort called the Intermed Association they increase their share of Asian cargo by promoting their facilities as gateways to Europe for imports from Asia via the Suez Canal.⁹²

All of the Barcelona's new terminals and warehouse zones are part of the \$5.5 billion port expansion completed south of the old harbor in the years since 1992. Currently it is an ongoing \$200 million project for purchasing and installation of new container cranes to bring the throughput of the port to 3 million TEUs.⁹³

The Port of Marseilles has a current \$73 million project to advance its railway system.⁹⁴

Rotterdam is perhaps Europe's most important port. This port recently has inaugurated a 1.55 billion euro new terminal Maasvlakte 2 that doubled the capacity of container handling of Rotterdam. Maasvlakte 2 will be a direct extension of the existing Maasvlakte and will have access to all its connections with the European hinterland. Maasvlakte 2 will create a new top location in the heart of the European market, with 1,000 hectares of space for deep sea related container transshipment, distribution and chemical industry. These sectors have a great interest in the industrial sites on the deep waterways of Maasvlakte 2. Nowhere else in Europe will the largest ships in the world be able to moor 24 hours a day.⁹⁵

The board of directors of Antwerp Port Authority in Belgium has approved the long-term financial plan (2011-2025), representing an amount of 1.6 billion euro in 2010. This plan is to keep this port rank as the second largest in Europe. Port Authority will invest in expansion of the port, port facilities, equipment (purchase of a new suction dredging barge, new tugboats, dumb barges, a pusher barge and dock-mounted cranes and mobile cranes) and buildings.⁹⁶ Antwerp, Belgium, already is one of Europe's busiest container ports, primarily due to its interior placement and easy access to the hinterland. The port increased its value by reactivating the Iron Rhine railroad connection to the German hinterland.⁹⁷ In addition to its hinterland projects, the port at Antwerp is deepening its drafts to a maximum of 15.5 meters at high tide, which will allow 1,500 more TEUs per ship. The port's long-term financial plan, with a projected cost of 1.6 billion euro, includes expansion of the port, improved port facilities, dock renovation and new equipment.

The German Federal Parliament allocated 265 million euro for the widening of the Eastern section of the Kiel Canal of the Hamburg port, the 3rd largest port in Europe six months in June 2014. The Parliament also has committed itself to an additional 260 million euro by 2019 for improvements.⁹⁸

⁹² Siim Kallas, "Preparing Ports For the Future," Mercator Media, May 23, 2013.

⁹³ Peter Leach, "Barcelona Gears Up for More Asia Cargo," The Journal of Commerce, May 13, 2014.

⁹⁴ Peter Leach, "Marseilles Container Volume Grows 14 Percent," The Journal of Commerce, July 24, 2012.

⁹⁵ "Maasvlakte 2 inaugurated after costing €150M less than expected," Port Finance International, May 22, 2013.

⁹⁶ Annik Dirkx, "Antwerp Port Authority Invests 1.6 billion euros," PR Newswire, Oct. 6, 2010.

⁹⁷ Hilde Meersman et al., "The Case of the 'Iron Rhine' and the 'Betuweroute,'" *Joint Transport Research Center*, April 10-11, 2008.

⁹⁸ "Allocation of funds for the widening of the Kiel Canal also boosts the Port of Hamburg's competitiveness," <http://www.portofhamburg.com>, Jun. 11, 2014.

- AUSTRALIA

Australian stevedore Asciano has invested \$359 million to redevelop and expand its container terminal at Port Botany in Sydney. The project will increase the gateway's capacity from its current 1.15 million TEUs per year to 1.6 million TEUs end of 2014. After 2014, further capacity will be added in line with demand by introducing additional stacker cranes to take capacity up to 2.8 million TEUs per annum.⁹⁹ In Australia, container volume is expected to quadruple over the next 30 years.¹⁰⁰ New legislation recently was approved for a second container port at the Port of Hastings, which already has access to deep water and has an extensive supply of port-zoned land.

E. Analysis of Port Competition Factors

The Organization for Economic Cooperation and Development (OECD) conducted a study in 2008 aimed at understanding the changes in port competition. The OECD theorized that the containerization and increase in vessel size would mean fewer ports of call for each ship, which, in turn, means more competition for the limited calls among ports. Similarly, with an improved rail system, many ports' hinterland coverage will overlap.¹⁰¹ The overlap makes the choice of port less crucial, since the same hinterland can be served from multiple ports. Customers are most interested in price, service quality and reliability.¹⁰²

The OECD highlighted the emergence of global supply chains as a major contributor to port competition. Because many ports have not vertically integrated with shippers, these ports are at a competitive disadvantage.¹⁰³ The shipping lines have become significantly more concentrated in the last 30 years. In 1980 the top 20 world shipping lines had 26% of the TEU slot capacity. In 2007, the top 20 shipping lines had 81% of TEU slot capacity.¹⁰⁴

In addition to the concentration of shipping lines, there is a real threat of overcapacity with larger ships at the Panama Canal and elsewhere. The long-term effects of overcapacity are mergers and cost reduction, followed by changes in ports of call. In the short-to-medium term, there will be lower freight rates and thus more incentive to shop ports, which will lead to heated and increased competition among ports.¹⁰⁵

The effect of the concentration of shipping lines, overcapacity, and numerous expansion plans around the globe, and regional free trade negotiations is that ports now have diminished bargaining power. Factor in the overlap in hinterland coverage and increased incentives to shop ports by today's concentrated shipping lines and there is certainly an intense environment of competition among the world's ports.

There have always been challenges to enlarge the ships carrying more cargo. Oil price increases over the past 10 years accentuates this trend and encourages shippers to demand even larger vessels. Capacity

⁹⁹ Mike King, "Sydney, Australia, Container Terminal to Be Expanded," *The Journal of Commerce*, Jul. 19, 2012.

¹⁰⁰ Denis Napinthe, "New legislation delivers for second Victorian container port," May 31, 2011 <http://www.premier.vic.gov.au/images/stories/documents/mediareleases/2011/110531_Napthine_-_New_legislation_delivers_for_second_Victorian_container_port.pdf>.

¹⁰¹ OECD, "Port Competition and Hinterland Connections," *Joint Transport Research Center*, April 10-11, 2008.

¹⁰² *Id.*

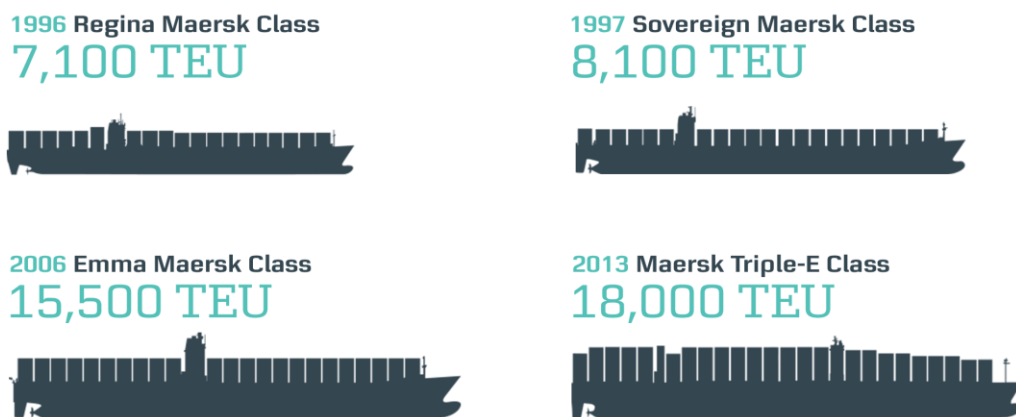
¹⁰³ *Id.*

¹⁰⁴ Theo Notteboom, "The relationship between seaports and the intermodal hinterland in light of global supply chains: European challenges," *Joint Transport Research Center*, March 2008.

¹⁰⁵ Meersman, note 26.

almost doubled from 7000 TEUs to 18000 TEUs within 1995 to 2014 period (Exhibit 5). Thus, shipment costs per TEU over this period sharply declined. The outcome would be a shift in shipping costs from the ship or maritime section to the port section at first and hinterland secondly. Larger ships require larger processing capacity and utilization of more equipment and employment of more labor at the terminals. Therefore the significance of ports in the supply chain and transportation specifically is rising continuously.¹⁰⁶ To illustrate, most West Coast terminal/port charges per container (including infrastructure fees, stevedoring and terminal fees, assessments, port charges, towing and pilotage) average between \$320 and \$420 per move compared to an average box rate of \$240 for the Atlantic Coast port range.¹⁰⁷

Exhibit 5- The evolution of cargo ships



The depth of water in a port is a critical factor in making a port competitive. Accordingly dredging is an important activity in any development projects in ports around the world. Post Panamax ships with 12000+ TEUs capacity have 50 feet draft. Port capability in handling the cargo is also a critical factor to be considered. The number of terminals, number of quays and the total number of berths are also important. Facilities and equipment involved in port handling — including stevedoring — in port transportation and storage and also inland transportations through the hinterland also play a critical factor. These factors gain more weight when the port has to handle container cargos instead of bulk cargos, as the container ships need more depth of water and also require more equipment on the berth side. That is why every port, whether as a transshipment hub or hinterland port, is now concentrating on their infrastructure, logistics and customer services developments and augmentation.

Each port faces a unique set of competitive constraints that primarily depends on geographic location, size of the port, port ability to handle different types of cargos and at last its capability to support its hinterland by handling inter-modal logistics. It is obvious that close ports always contest with each other to gain more market from their common hinterland, but sometimes to mitigate competition they try to achieve some kind of market

¹⁰⁶ <http://www.maersk.com/en/industries/transport>.

¹⁰⁷ "Economic Impact and Competitiveness of the West Coast Ports and Factors that Could Threaten Growth", Martin Associates, Apr. 30, 2014.

segmentation by dividing their hinterland. Generally, there are different types of competitions. The two main constraints in port competitions originate from other modes of transport (inter-modal competition) and from other ports (inter-port competition). In assessing the strength of these constraints, it is important to consider the degree of substitutability between ports which is based not only on their capabilities, but also on abilities to handle cargos in hinterland by intermodal services. To achieve these, one of the core concerns is how vertical integration between port owners/authorities and port service providers has been designed, implemented and utilized in a daily basis. There are also intra-port competitions that draw the challenges inside the ports, between several terminals of a port or several service providers within a port.¹⁰⁸

Competition between U.S. East Coast and West Coast ports after Panama expansions in 2015 is a clear example of two ports or strings of ports competes for the same hinterland. Each coast (mainly the East Coast) tries to capture a more geographical market from the mainland. Economic growth in Central and Eastern Europe has initiated a new race between Western and Southern European ports and somehow, even with each other. They are expanding their capabilities in providing intermodal services for customers thousand kilometers apart in Eastern Europe. It is worth mentioning that closeness of ports is not always ends to completion. Hong Kong is not a competitor of Guangzhou; although they are close to each other; as the former is operating like a transshipment hub and the latter is operating as a hinterland port.



¹⁰⁸ OECD, "Competition in Ports and Port Services", Dec. 9, 2011.

Table¹

	Panamax	New Panamax	Chinamax	Suezmax	Capesize
Capacity (in TEU)	4,500	12,000	* primarily dry bulk	* primarily dry bulk	* primarily dry bulk
Capacity in Dry Bulk (DWT)	50,000-80,000	**Unpublished	400,000-up	120,000-320,000	80,001-199,000
Air Draft (in meters)	58	58	Unlimited	68	Unlimited; must go around Cape of Good Hope or Cape Horn
Length (in meters)	294	366	360	Unlimited	
Width (in meters)	32	49	65	50	
Draft (in meters)	12	15.2	24	20	

Table 1 : Container Vessel Specifications

Source: http://en.wikipedia.org/wiki/File:Ship_measurements_comparison.svg



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1