

The GraceKennedy Foundation Lecture 2014



**FROM PIRACY TO TRANSSHIPMENT:
JAMAICA'S JOURNEY TO BECOMING
A GLOBAL LOGISTICS HUB**

Fritz H. Pinnock and Ibrahim A. Ajagunna



GraceKennedy Foundation

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List of Abbreviations

ASYCUDA	Automated System for Customs Data
CACM	Central American Common Market
CARICOM	Caribbean Community
CARIFTA	Caribbean Free Trade Association
CCAA	Caribbean-Central American Action
CTO	Caribbean Tourism Organization
CVQ	Caribbean Vocational Qualification
ECLAC	Economic Commission for Latin America and the Caribbean
EDIFACT	United Nations Electronic Data Interchange for Administration, Commerce and Transport
EPA	Environmental Protection Agency
FCCA	Florida-Caribbean Cruise Lines
FDI	Foreign Direct Investment
FOC	Flag of Convenience
IADB	Inter-American Development Bank
ICCL	International Council of Cruise Lines
IMDG Code	International Maritime Dangerous Goods Code
IMO	International Maritime Organization
ISO	International Standard Organization
ISPS Code	International Ship and Port Facility Security Code
KCT	Kingston Container Terminal

KWL	Kingston Wharves Limited
LAFTA	Latin American Free Trade Agreement
LPI	Logistics Performance Index
LSCI	Liner Shipping Connectivity Index
MIT	Manzanillo International Terminal
NCTVET	National Council on Technical and Vocational Education and Training
NPDES	National Pollutant Discharge Elimination System
NWCA	North-West Cruise Ship Association
OECS	Organization of Eastern Caribbean States
PAJ	Port Authority of Jamaica
SCM	Supply Chain Management
SIDS	Small Island Developing States
TQM	Total Quality Management
UNCTAD	United Nations Conference on Trade and Development
WCO	World Customs Organization
WTO	World Trade Organization

GraceKennedy Foundation

The establishment of the GraceKennedy Foundation in 1982, in celebration of the company's 60th anniversary, has proven to be one of the most significant contributions that GraceKennedy has made to national development.

The GraceKennedy Foundation can be proud of the role it has played over the past three decades in transforming thousands of young Jamaicans from students with great potential into outstanding citizens, playing their part in helping to achieve Vision 2030 which is to make Jamaica "the place of choice to live, work, raise families and do business".

The Foundation does this by focussing its assistance on two main areas: the environment and education. This is accomplished primarily through the provision of grants to charitable organizations; its scholarship and bursary programme; the funding of two Professorial Chairs at The University of the West Indies and the Annual Lecture Series.

The GraceKennedy Foundation remains committed to fulfilling its vision of having a positive impact on the quality of people's lives.

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GraceKennedy Foundation Lectures

The annual GraceKennedy Foundation lecture has, since 1989, developed a stellar reputation for selecting topics that highlight and explore issues of significance to the nation and, indeed, the region.

This particular topic is important to our country at this time. The establishment of a global logistics hub is seen by many as the key to the transformation of the Jamaican economy. This year's lecture is designed to provide some historical context for this major development and is guaranteed to provide a comprehensive overview of logistics for students at the CXC level and beyond as well as other interested members of the public. We are confident that this lecture will continue in the tradition of previous lectures and will become an invaluable resource for all who seek a deeper understanding of national issues.

The Foundation distributes copies of the lecture book to schools and public libraries across the island, and provides an e-book version online at www.gracekennedy.com in the hope that the lecture's reach will extend beyond those present at its delivery.

The Foundation, as always, welcomes and looks forward to your comments.

Caroline Mahfood
Secretary/Executive Director
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The GraceKennedy Foundation Lecture 2014
From Piracy to Transshipment:
Jamaica's Journey to Becoming a Global Logistics Hub
Fritz H. Pinnock and Ibrahim A. Ajagunna

The title of the GraceKennedy Foundation Lecture for 2014 piques our curiosity and interest. Caribbean pirates in the seventeenth century made Port Royal their home and that town was considered to be the “mercantile hub of the Caribbean and the most economically important English port in the Americas”. In 2014, Jamaica is engaged in activity geared towards preparing itself to be a global logistics hub, with concepts such as globalization, just-in-time (JIT) and outsourcing forcing intense deliberation and planning in order to establish the complex international distribution chains such a hub would entail.

The 2014 lecture reviews the history of logistics, the development of transshipment in the Caribbean, trade relations within Latin America and the Caribbean as well as the cruise shipping industry. It carries out a detailed analysis of the opportunities and challenges which establishing a global logistics hub in Jamaica presents. The island's unique geographical location and its potential of once again becoming the crossroads of Latin America and the Caribbean, especially given the emerging South American markets, are supportive of this goal. Challenges such as building capacity for the sector in the face of a serious demand for productivity and efficiency, highlight the need for rapid development in this area in order to take advantage of the expansion of the Panama Canal, scheduled for 2014. The increased traffic along that route makes action to implement plans for the logistics hub urgent and imperative. Detailed data and analysis point to the need for strategic, transformational thinking and planning to negotiate and establish collaboration and partnerships within the Caribbean. Such cooperation will allow for achievement of the economies of scale required for the infrastructure and equipment necessary to service the expanding market; a market which includes not only the Europeans and the North Americans but also the countries comprising the BRIC group – Brazil, Russia, India and China.

The lecture for 2014 has two authors and The GraceKennedy Foundation is honoured that Dr. Fritz Pinnock and Dr. Ibrahim Ajagunna have provided us with a clear, informative and analytical discourse on the various issues involved in establishing Kingston as a logistics hub in the twenty-first century. Dr. Pinnock once worked at GraceKennedy Ltd. in a managerial capacity and he has been the Executive Director of the Caribbean Maritime Institute (CMI) since 2006. Dr. Ajagunna is the Director of Academic Studies at CMI. Both are highly qualified to reflect on and provide an expert analysis of Jamaica's development into a global logistics hub.

Dr. Pinnock holds a BSc (Hons.) degree in Economics and Accounting from The University of the West Indies (UWI), Mona Campus, Jamaica, an MSc in International Shipping and Logistics from the University of Plymouth, United Kingdom and a Doctor of Philosophy in Sustainable Development from the UWI. He has been a member of the British Institute of Management (MBIM) since 1991 and of the Institute of Logistics and Distribution Management (MILDM). A Fellow of the Chartered Institute of Logistics Transport, United Kingdom (FCILT) (1993), Dr. Pinnock has authored three books, one of which was co-authored with Dr. Ajagunna and Dr. Yann Alix.

- *Marine Terminal Operations & Management* (1997), Jamaica Maritime Institute
- *Caribbean Cruise Tourism: Power Relations Among Stakeholders* (2012), LAP Lambert Academic Publishing, Germany
- *Global Maritime Transportation Corridors* (2012), SEFICIL Foundation, France (co-author with Dr. Yann Alix and Dr. Ibrahim Ajagunna; published in French, Spanish and English)

He has also published numerous articles in peer-reviewed as well as industry-related magazines and journals worldwide – in multiple languages, including French, German, and Spanish. He is a contributing writer and columnist (the Human Factor) to *Caribbean Maritime* magazine, the leading shipping magazine published by the Caribbean Shipping Association, and has developed numerous course manuals.

A Justice of the Peace for Kingston, Dr. Pinnock was selected as the Jamaica Association for Administrative Professionals (JAAP) All-Island Boss of the Year for 2013–2014. He is a special advisor to various agencies (governmental and non-governmental) and sits on several institutional, community and sports-related boards including being the chairman of the Jamaica Rowing Federation and of the Associates Committee, Port Management Association of the Caribbean (PMAC). He is an International Maritime and Logistics Consultant and has worked on numerous projects in collaboration with the government of Canada, the International Development Bank (IDB), CARICOM and many regional ports. He is a member on the HEART Trust/NTA Board of Directors and a member of the National Apprenticeship Board.

Dr. Ajagunna is a Chartered Fellow of the Chartered Institute of Logistics and Transport in the United Kingdom, and a member of that country's Hotel and Catering International Management Association. He is President of the Council of Heads of Caribbean Hospitality Schools (CHOCHS) and a member of the Board of Studies for Tourism and Hospitality Studies, the University Council of Jamaica, as well as the task force on education and training for the logistics hub development in Jamaica. Dr. Ajagunna's research interests are in strategic planning using the Blue Ocean Strategy, maritime transportation and sustainability, integration of logistics and supply chain, security and national development, health tourism using alternative medicine, and sustainable development.

These gentlemen have provided us with a wealth of valuable information in the manuscript they have prepared and the major points will be shared with the audience by Dr. Pinnock. The Foundation thanks them for the research and effort which have obviously guided them and their team in the preparation of the lecture and we anticipate that, as is the case with most of our lectures, the hard copy as well as electronic versions of the complete document, will stimulate much discussion and debate and also become valuable references for those wanting to increase their knowledge on this very topical and important development in Jamaica.

Elsa Leo-Rhynie CD, PhD

February 2014



Fritz H. Pinnock



Ibrahim A. Ajagunna

↔ THE LECTURE ↔

Logistics: Three Eras in Jamaica

Early Developments in Logistics

Logistics has played a major role in military and economic development for over 5,000 years. Time and again, brilliant logistics solutions have formed the basis for the transition to a new historical and economic era. Since the construction of the pyramids in ancient Egypt, logistics has made remarkable strides. To build the great pyramid of Giza, which is 146 metres high and weighs 6,000,000 tons, the Egyptians needed sophisticated materials as well as equipment capable of moving the massive building blocks and putting them into place. Even today, we still cannot fully explain how this level of precision was achieved using the hoisting equipment and means of transport we believe were available during the time of the construction of the pyramids. At about 300 BC intercontinental trade was revolutionized by the invention of rowing vessels, which created the basis for travel across the high seas. This invention formed the foundation for the creation of enormous logistics supply systems required by mobile army camps. Alexander the Great undertook campaigns with his troops, their families and their weapons of war that extended all the way to India, as a result of the developments in sea transport.

Procurement logistics in the construction of the Mezquita Mosque (considered to be the largest mosque in Europe) in Cordoba, Spain, began in 756 under the Caliph of Cordoba in the Umayyad dynasty. The pillars came to Spain from all parts of the Islamic empire. Extraordinary procurement logistics was required to transport the pillars of the mosque from all parts of the Islamic empire. Around 1200 AD the international commercial and defence network known as the Hanseatic League established cooperation for transport bundling and international sea transport. In 1188, the city of Hamburg, Germany, was founded as a base on the North Sea for the Hanseatic League, to make travel on the sea more secure and to represent business interests abroad. Up to 200,000 fur pelts were transported by a single Hanseatic

cog ship. Hanseatic trade extended from the Black Sea to Reval (today Tallinn, in Estonia). From a modern-day vantage point, the League's cross-border trade bears strong similarities to the European Union.

Around 1500, the first time-definite mail shipping service was established in Europe. Under an agreement with Philipp of Burgundy, Franz von Taxis organized the first postal service with strictly defined transit times. Letters were delivered to places such as Paris, Ghent, Spain and the imperial court of Vienna. In view of the infrastructure of the times and the political fragmentation created by the array of small principalities, the mail reached its destination with very little delay.

Logistics, then, involves the management of the flow of resources such as materials, food, equipment and people, as we saw in the examples cited above, to meet the needs of organizations and institutions, whether military or otherwise. The word 'logistics' is believed to be derived from the Greek word *logistikos* meaning 'skilled in calculating'. The first administrative use of the word was in Roman and Byzantine times when there was a military administrative official with the title of Logista under the leadership of Napoleon. At that time, the word apparently implied a skill that involved numerical computation. Until the Napoleonic Wars, military supplies were ensured by looting, requisition or by private companies. In 1807, Napoleon created the first train regiments, entirely dedicated to the supply and transport of equipment.

Port Royal as a Global Logistics Hub in the Seventeenth Century

In the Caribbean in the seventeenth century, Port Royal, Jamaica, was home to the real "pirates of the Caribbean". It was a buccaneer's paradise with one in every four buildings said to be a bar or a brothel. Due to its safe and protected location, its flat topography and deep water close to shore, large ships could easily glide in to be serviced, loaded and unloaded. Along with the ships, sailors and merchants alike established themselves to benefit from the many trading and outfitting opportunities there. Between 1655 and 1692 Port Royal grew faster than any town founded by the English in the New World.

In 1662 Port Royal recorded 740 inhabitants. At its height in 1692, population estimates vary from 6,500 to 10,000. With approximately 2000 buildings densely packed into 51 acres, a realistic estimate would be between 6,500 and 7,000 inhabitants of whom perhaps 2,500 were slaves.

Centred on the slave trade as well as the export of sugar and raw materials, Port Royal became the mercantile hub of the Caribbean and the most economically important English port in the Americas. The city boasted merchants, artisans, tradesmen, captains, slaves, and notorious pirates who all participated in an expansive business network. It had a governor's house, king's house (court of chancery), four churches and a cathedral. Many of the buildings were made of brick, indicating a certain amount of wealth not found at other contemporaneous settlements. Inventories of Port Royal's citizens reveal much prosperity and the observation that, unlike the other English colonies, Jamaica used coins for currency instead of commodity exchange. During the early days of Port Royal's development, officially sanctioned privateering was also a common practice. Privateers or buccaneers were awarded official contracts by the English to raid Spanish, Dutch and French ships in the Caribbean. Part of the booty was reserved for the Crown and the rest flowed into the coffers of Port Royal's citizens. While the 1670 Treaty of Madrid officially ended this practice, privateering and/or piracy continued well into the later part of the eighteenth century.

This then, was Port Royal at its zenith, a vibrant town with expensive goods flowing through the harbour day in and day out. According to Buisseret (2008), John Taylor, writing in 1687, described Port Royal as "a formidable City: well built, strongly fortified, and Populated by a valiant Inhabitant." He counted some 600 brick houses and an equal number built of timber. They were mainly four stories high with cellars, tiled roofs and sash windows and had large shops and storehouses attached.

Kingston as a Service Port

Since the 1692 earthquake when two-thirds of Port Royal was submerged, the town never regained its former glory, and this marked

the end of an era of global integration. Subsequently, the focus shifted to Kingston, which functioned as a service port, meeting the needs of colonial interests and the plantation economy. By 1750, Kingston had the only port of any significance – Kingston Harbour – and no less than 14 finger piers had been built along the shoreline. These finger piers allowed a large number of vessels to be berthed near the source of the best navigational water and the warehouses and stores where the ships' agents and merchants were located. Kingston's growth reflected an increase in mercantile activity as the city grew. As ships grew larger and Jamaica's internal communications more extensive, the outports went into decline from which Kingston greatly benefitted. The decline of the outposts was related to the fortunes of agriculture. By 1910, the wharves and the shipping lines serving them had begun to take on a recognizable pattern and to ship commodities like bananas.

One of the great disadvantages of the old finger piers was that a large number of ships were concentrated on a relatively small area of shoreline. This might have been advantageous in a harbour short of deep berths and adequate access routes but it proved a crippling disadvantage to Kingston, whose roads leading to the harbour had not been designed to take this kind of traffic.

By the mid-1950s it was obvious that some solutions would have to be found for the problems of Kingston's port, which was becoming increasingly inadequate for the increasing volume of goods flowing through it. The decision was taken to build a new port, to link in with the general plan for the development of East-West routes. The two companies which agreed to operate Newport West were Kingston Wharves and Western Terminals. The first of these had already been operating six of the finger piers and included several companies such as GraceKennedy, Jamaica Fruit and Shipping, and Royal Mail. The second, Western Terminals, brought together Lascelles de Mercado and the Henriques and Matalon groups.

Engineering work took place throughout 1965. The first ship docked at Newport West in 1966 and by 1971, the old piers had mostly been abandoned. To open Newport West, the S.S. United States, one of the largest ships to visit Jamaica up to that time, docked there on 14 February 1966. The old wharves in the city of Kingston thus gave

way to modern facilities at Newport West and with it came the ability to handle more diverse lines of cargo. The port, by then renamed Port Bustamante in honour of labour leader and National Hero, Sir Alexander Bustamante, can accommodate most of the larger vessels in ocean commerce today (Port Authority of Jamaica, 2006).

The Port Authority of Jamaica (PAJ) sought for the second time to capitalize on Jamaica's geostrategic location to develop a world-class transshipment hub port in Latin America and the Caribbean. The first phase of Kingston Container Terminal's (KCT) development started with the North Terminal (1973–1975). This created a capacity of 400,000 twenty-foot equivalent units (TEU). Phase 2 took place between 1995 and 1997 with the addition of the South Terminal at Gordon Cay. Phase 3 saw the further development of Gordon Cay, the dredging of ship's channel, and land reclamation at Hunts Bay, Fort Augusta and Gordon Cay. This expansion created the capacity of 1,200,000 TEU, pushing KCT to the position of the third largest transshipment port in Latin America and the Caribbean and in 2002, the 63rd largest container port in the world (Containerisation International, 2003). Phase 4, which took place between 2004 and 2005, featured expansion including that of the berth at Gordon Cay by 91 metres and the addition of 7.7 hectares of container yard space; construction of 502 metres of new berth at the North Terminal and 5.2 hectares of new container yard space. This propelled KCT to become the leading container port in Latin America and the Caribbean.

Containerization and Logistics Development

The development of containerization in the late 1950s by Malcom McLean proved to be the most dominant influence on port infrastructure worldwide. Containerization precipitated globalization by reducing maritime transportation costs. It provides a simple, effective way of moving goods which protects them, increases handling speed, allows for intermodal exchange and economies of scale with ships, reduces inventory and costs, and shortens delivery time. All in all, it increases port productivity. Jamaica moved from Port Royal being the most developed hub port in the New World over three centuries ago, to become a leading transshipment hub port through

Kingston Container Terminal in the 1980s. This trend has continued into the present (see Tables 1 and 2 below).

Table 1
Container Traffic in the Caribbean by Port, 2008–2011 (TEU)

Rank	Ports	Country	2008	2009	2010	2011	% Change 2011/2010
1	Kingston	Jamaica	1,915,951	1,728,042	1,891,770	1,756,832	-7.10
2	Freeport	The Bahamas	1,702,000	1,297,000	1,125,000	1,116,272	-0.80
3	Port of Spain	Trinidad & Tobago	385,000	401,206	388,960	-	-
4	Point Lisas	Trinidad & Tobago	166,655	164,183	184,257	170,581	-7.40
5	Jarry	Guadeloupe	170,729	142,692	150,534	165,096	9.70
6	Willemstad	Curaçao	102,082	97,913	93,603	-	-
7	Bridgetown	Barbados	87,253	82,832	80,430	77,051	-4.20
8	Philipsburg	St. Maarten	-	68,253	70,862	76,701	8.20
9	Georgetown	Guyana	55,530	52,000	59,850	-	-
10	Oranjestad	Aruba	49,300	51,164	49,558	53,952	8.90
11	Georgetown	Cayman Islands	54,584	51,198	45,649	44,766	-1.90
12	Vieux Fort	St. Lucia	34,255	21,756	21,831	33,047	51.40
13	Castries	St. Lucia	35,977	30,186	30,648	27,295	-10.90
14	St. John	Antigua & Barbuda	35,350	31,332	26,366	21,824	-17.20
15	CPCP	St. Vincent & the Grenadines	11,426	14,704	15,569	15,345	-1.40
16	Long Point Port	St. Kitts & Nevis	2,353	3,002	2,424	3,046	25.70
17	Road Bay Port	Anguilla	-	-	2,863	2,543	-11.20
18	Kingstown	St. Vincent & the Grenadines	5,084	1,534	1,398	1,070	-23.50

Source: ECLAC, 2012; Pinnock and Ajagunna, 2013

Kingston maintained its position as the Caribbean's number one transshipment port for the years between 2008 and 2011. The figure reported includes the combined total for Kingston Container Terminal (KCT), which is the number one Caribbean transshipment port, and Kingston Wharves Limited (KWL), which is the number one subregional transshipment port in the Caribbean. The overall figure for Kingston declined by 7.1 percent, reflecting primarily activities at Kingston Container Terminal and not Kingston Wharves Limited.

Table 2
Port Traffic in the Caribbean (Metric Tons) 2008–2011

Rank	Port	Country	2008	2009	2010	2011	% Change 2011/2010
1	Kingston	Jamaica	16,340,168	16,201,507	17,437,635	19,403,321	11.3
2	Port Rhoades	Jamaica	5,415,948	3,886,136	5,283,624	6,281,937	18.9
3	Jarry	Guadeloupe	3,582,054	3,010,669	3,582,054	3,443,234	-3.9
4	Rocky Point	Jamaica	1,664,175	1,917,988	1,976,040	2,016,731	2.1
5	Port Esquivel	Jamaica	2,659,107	991,233	816,063	1,483,371	81.8
6	Bridgetown	Barbados	1,210,215	1,065,143	1,083,971	1,034,647	-4.6
7	St. John	Antigua & Barbuda	1,372,232	1,175,059	978,935	921,762	-5.8
8	Willemstad	Curaçao	1,028,830	856,236	794,206	-	-
9	Montego Bay	Jamaica	784,697	806,568	698,459	687,612	-1.6
10	Castries	St. Lucia	403,512	447,546	482,488	405,281	-16.0
11	Point Lisas	Trinidad & Tobago	560,979	356,864	341,505	378,988	11.0
12	Georgetown	Cayman Islands	668,335	427,845	349,009	-	-
13	Ocho Rios	Jamaica	203,131	173,023	243,601	-	-
14	Vieux Fort	St. Lucia	270,246	132,833	145,744	231,285	58.7
15	CPCP	St. Vincent & the Grenadines	-	-	-	229,141	-
16	Kingstown	St. Vincent & the Grenadines	263,110	204,508	192,786	176,155	-8.6
17	Rio Bueno	Jamaica	46,139	96,057	143,276	-	-
18	Little Bay	Montserrat	188,963	161,766	56,432	142,551	152.6
19	Long Point Port	St. Kitts & Nevis	95,069	97,219	82,043	86,751	5.7
20	Road Bay Port	Anguilla	-	-	80,783	69,781	-13.6

Source: ECLAC, 2012; Pinnock and Ajagunna, 2013

Of the 20 ports in the Caribbean, Jamaica accounts for seven. In 2010, the 20 ports accounted for 34,968,654 metric tons of cargo. Of this, Jamaica accounted for 26,598,698 metric tons or 76.5 percent of the total volume moved. Transshipment cargo and bauxite accounted for over 80 percent of the volume of cargo moved through Jamaican ports. In 2011, the total volume moved increased to 36,992,548 with Jamaica accounting for 29,872,972 metric tons or 80.75 percent of the total cargo volume. Guadeloupe accounted for 10.3 percent of the total cargo volume for 2010, representing 3,582,054 metric tons.

This amount was reduced to 9.3 percent of the 2011 Caribbean total, representing 3,443,234 metric tons.

In the past 20 years, the conditions for global trade and business have improved tremendously. Many political, ideological and customs-related borders between countries and regions of the world have been dismantled. The 'Iron Curtain' fell and the socialist economic order collapsed while the integration of Europe continued to advance. Similar developments in trade integration have occurred in other regions. A driving force of these improvements has been the advances made in the 1990s in information and communications technology. This development is the result of both the World Wide Web and globally accepted, factual standards, including Windows-based PC systems, and the United Nations' EDIFACT (Electronic Data Interchange for Administration, Commerce and Transport) standard. These strides have been complemented by progressive standardization in packaging and containers led by the International Standards Organization (ISO).

The Caribbean shipping industry's infrastructure comprises three major segments:

1. A *global shipping network*, which is restricted to larger international ports in the western Caribbean such as Kingston Container Terminal; Caucedo in the Dominican Republic; and Freeport in The Bahamas. These ports are modern, world-class transshipment facilities, which are designed to support 90 percent of international transshipment cargo by volume. As a result, the businesses are highly competitive and volatile.
2. *Interregional multi-purpose service ports*, which cover a wide range of facilities from finger piers to modern international ports such as Point Lisas in Trinidad and Tobago, and Kingston Wharves Limited in Jamaica.
3. *Small, intra-regional schooner shipping network facilities*, which cover small vessels moving cargo between smaller ports of the Eastern Caribbean. Trade at this level is organized on a subsistence level and will require major infrastructure, regulatory and human resource development to better position the Caribbean to find a place in the fast-moving globally competitive landscape.

Most Caribbean states are microstates, with a heavy dependence on services such as tourism and offshore banking as the primary areas of economic activity. These states are also reliant on imports from North America and the Far East, supported by limited inter- and intra-regional trade (Pinnock, 2012). Given that import parcel sizes are small by global standards, they do not provide a large enough economic base to support the development of modern port facilities. Consequently, the concept of containerization has had a great impact on Caribbean small ports, which were designed to support colonial bulk import of basic items and export of bananas and sugar.

Caribbean countries have done their best to modernize old general cargo ports to accommodate newer container ships, further compounding the pressure these ports face. Further, the size of ships has constantly increased with improvements in technology. Increasingly, there are specialized container ships with no onboard container crane facilities, putting pressure on Caribbean ports to provide shore-based cranes and the supporting pier-side container-handling infrastructure. As a result, the configuration of general cargo ports must change: large transit sheds, used primarily for storing sugar and bananas, need to be removed to create large, open storage areas for container traffic.

The transshipment business helps ports and shipping lines generate economies of scale, which can expand a port's market and lower its costs. The ports of Kingston (Jamaica) and Freeport (the Bahamas), are good examples of the way in which transshipment adds economies of scale beyond that which local business will permit. For countries astride major trade routes, transshipment of foreign cargo can be a major part of their operations. This is, in effect, the business of exporting services that generate income for such countries by exploiting and maximizing a natural resource (geographic location) that never becomes depleted. This form of transshipment involves consignments or containers with neither origination nor destination within the region.

New logistics concepts such as globalization, just-in-time (JIT) and outsourcing have created the need to establish complex international distribution chains. The ultimate goal is to allow shippers to place the right product on the manufacturing or retail floor anywhere in the world – at the right time and the right price. As a result, global logistics

service providers have emerged in the past three decades, with the main objective of satisfying customer-driven demand. To achieve this objective, they frequently rely on partnerships with industrial, distribution and transport entities.

Table 3 summarizes some significant events in the development of logistics since 2,700 BC.

Table 3
Significant Events in the Development of Logistics

	Time	Event
1	2,700 BC	Material handling technology in building the pyramids
2	300 BC	Revolutionary Greek rowing vessels
3	700 AD	Procurement logistics in the construction of the Mezquita Mosque
4	1200 AD	The international network known as the Hanseatic League – cross-border trade
5	1500 AD	Progressive postal service in Europe
6	1700–Port Royal (Geo-political)	Transshipment hub and largest town in the Americas and the Caribbean
7	Early 1800s	The first administrative use of the term logistics (Napoleon era)
8	1800 AD	Emergence of new road conveyances and the railroad
9	1940 AD	Military logistics during the world wars – transfer of military logistics concepts to the business world
10	Post-World War II	Revolutionary philosophies of just-in-time (JIT) and total quality management (TQM)
11	1956	Invention of the sea container
12	1970–1980	Kanban and just-in-time – logistics concepts with a special emphasis on procurement
13	c. 1990	QR and ECR technologies – logistics concepts with a special emphasis on distribution
14	2000s	Advancing globalization – efficient logistics as a competitive edge in the era of globalization

The Argument for Jamaica’s Logistics Hub

The forces of scale and technology drive the global shipping industry. The Caribbean region, which comprises a group of disconnected states sharing ocean space is, therefore, challenged to find relevance within this paradigm. Sustained globalization and global logistics would not be possible without a dense and efficient transport network. The question is: How does the Caribbean fit into this picture? Given the

poor performance of many ports in the Caribbean, it is not surprising that handling charges are two or three times higher than in similar ports in other regions of the world, and the overall cost of transport and insurance in the Caribbean basin is some 30 percent higher than the world average (Pinnock and Ajagunna, 2009).

Globalization is not just a world of new opportunities for companies. It also poses certain risks. In many sectors, more intense global commercial competition has arisen. Even in their home markets, companies are facing new competitors from around the world, and these competitors frequently enjoy significant cost advantages generated by such factors as lower production expenses. As a result of this development, the demand for transport, storage, transshipping, communication, planning and control services is growing. At the same time, pressure to optimize the quality and cost of services is growing for companies. Logistics has become one of the most important levers that companies can use to survive and succeed in global competition.

The impending Panama Canal expansion and the extended global economic recession which started in 2008, have created new opportunities for the development of multiple global logistics hub in the Central American and Caribbean region to serve North America, Central America, and the emerging markets of South America. This signals an end to the traditional transshipment hub port model as the need is for new port facilities, surrounded by 1000 acres of land offering economic value-added opportunities with flexible air/sea port connectivity. Since 2009, Kingston Container Terminal has lost its number one regional hub port status to MIT Panama, which transitioned from being a sole transshipment hub port to integrate economic zone value-added opportunities into its operations. Just as Jamaica created Kingston Container Terminal as a new transshipment hub port in the 1980s, so it will need to create new sea and air ports, integrated into value-added economic zones, as the current KCT facilities are virtually landlocked. As Jamaica considers the first economic zone, which could occupy 6,000 acres of land including a new port facility to be built on the controversial Goat Island, its economic future hangs in the balance. It will no longer be about the Americans and the Europeans but the Chinese, and to come, the Indians and the Brazilians.

Logistics Zones and Performance

Logistics Zones

A logistics zone has been defined as the grouping of activities that deal directly with freight transportation and related services within a defined geographic area. According to Rodrigue (2013), the range of functions of logistics zones is wide – from simple cargo consolidation to advanced logistics services. Many locations not only have assumed a significant number of traditional cargo-handling functions and services but also have attracted many related services, such as distribution centres, shipping agents, trucking companies, forwarders, container repair facilities and packing firms. The development of logistics zones has been an important component of globalization since the growth in international trade and the related material flow requires activities supporting their consolidation, deconsolidation, trans-loading and light transformation (Rodrigue, 2013).

The concept of logistics zones is well-advanced in Europe. In the late 1960s and 1970s, for example, logistics zones were developed in France, Italy and Germany. In the 1980s and 1990s, the number of such zones multiplied. Logistics zones are usually created within the framework of regional development policies as joint initiatives by firms, intermodal operators, regional and local authorities, the central government and or the chambers of commerce and industry (Rodrigue, 2013). In North America, on the other hand, the emergence of planned logistics zones came later as governments rarely placed much attention on such activities. The general availability of land and the private nature of rail operations involved a freight distribution industry that was self-regulated in its locational choices. Cluster formation was mainly a ‘natural’ process, strongly conditioned by national and regional market accessibility. A variety of private real estate promoters, often in partnership with local or state governments, built logistics or industrial parks on an ad hoc basis where land was available, inexpensive and in proximity to a major highway (Rodrigue, 2013). In developing countries, however, the concept of logistics

zones was initially associated with transnationalism, as the setting of foreign trade and export-oriented zones often had a locational criterion related to proximity to international terminal seaport and airport facilities. With the growing level of involvement of developing countries in international trade as well as ongoing growth of internal demand, the development of logistics zones is taking a form more in line with developed countries (Rodrigue, 2013).

Typology of Logistics Zones

According to Rodrigue (2013), logistics zones can be classified according to their modal orientation, geographical scope or function. This will include port-centric logistics zones, inland ports, intermodal logistics zones, logistics parks and freight villages.

Port-centric logistics zones: This is a logistics zone that has been planned in co-location or in proximity to a port terminal facility. It supports freight distribution activities directly related to maritime shipping and thus has a dominant international trade orientation. The common value proposition of port-centric logistics zones, according to Rodrigue (2013), is the availability of land next to a port terminal, which also has the convenience to tap into the labour pool that is generally available in a port city. From a freight distribution perspective, inventory management tends to be facilitated since the containers can be easily picked up or dropped off at the terminal facility. The added security that a port-centric logistics zone offers is also a positive factor, particularly in developing countries. The drawback, however, is that the zones involve higher land costs with potentially more restrictive labour regulations if they are within the jurisdiction of dockworkers. They also lock the shipping options of customers to the port, which may not be the most suitable. In addition, port authorities tend to be proactive in port-centric logistics since it supports and provides added value to port activities and gives them an opportunity to diversify their involvement in regional freight distribution. They can also be associated with satellite terminals supporting port activities such as off-dock rail facilities and empty container depots but these activities tend to be more transport than freight distribution intensive. Airport-centric logistics zones work on a similar principle where logistics activities are co-located and often directly accessible to runways.

Inland port logistics zones: These are intermodal terminals built with the development of adjacent logistics and service activities. The inland terminal is directly integrated to co-located distribution activities, which is one of the main advantages of such facilities as they both become their respective customers. The term ‘dry port’ is often used to label an inland port since it refers to a facility that performs a similar intermodal function to that of a port, and is not directly serviced by deep-sea maritime services. The inland port is conceivably the most advanced form of logistics zone since it links co-located freight distribution activities to a gateway through a rail corridor.

Logistics parks: These are planned zones composed of distribution centres and light manufacturing activities. They provide geographical advantages in terms of accessibility, land availability and infrastructure as well as operational advantages in terms of favourable regulations and economies of agglomeration. However, the degree of accessibility varies depending on the array of intermodal terminals available in the vicinity. Logistics parks in proximity to an intermodal rail terminal are often labelled as **intermodal logistics parks**. Logistics parks are often independently planned and it is common to see them emerge after the construction of an intermodal terminal as a promoter seizes an opportunity to provide land for logistics. This type of logistics park is only serviced by road and does not require significant planning; what it requires is simply a change in zoning and some basic amenities such as road access to a lot and utilities. Logistics parks also tend to appear ‘spontaneously’ at locations having good accessibility levels, and where promoters are able to secure land for development.

Freight villages: These are integrated clusters of support activities for freight distribution such as office space, hotels and restaurants. Freight villages mostly focus on the service and transactional dimensions of freight distribution and could exist in a context where limited freight distribution is taking place. They do not require adjacent intermodal terminals but such terminals are commonly located in the vicinity. Freight villages can also be linked with airport terminals since this type of high-value freight is intensive in transactions. The definition of a freight village is subject to different interpretations as in some cases logistics parks are labelled as freight villages, but the term

should be applied where a high intensity of freight-related services have clusters within a logistics zone.

In essence, a logistics zone is a value proposition for freight distribution that goes well beyond the function of warehousing with distinct economic benefits, such as job creation and capital investment, but also costs such as environmental externalities. An array of services is required as these services support the functions of logistics zones and provide employment. The goal is often to create a service market within a logistics zone since it strengthens local expertise and improves the performance of freight distribution.

Logistics Performance

Ships and ports are two elements in the movement of goods from one point to another or from one country to another. The sum total of unique transportation arrangements is referred to as the supply chain, the management of which is referred to as logistics. The goal of logistics is the movement of goods across borders rapidly, reliably and cheaply. This, in turn, facilitates trade and development.

The Caribbean's maritime transport development goal should go well beyond the sea and encompass trade facilitation, customs modernization, the promotion of electronic processing of trade documents, improvement in access to trade and transport information for the purposes of tracking, tracing, processing and approval, and the cultivation of local logistics competence in forwarding, trucking and freight consolidation. The Caribbean-Central American Action (CCAA) drew attention to an important World Bank measure called the Logistics Performance Index (LPI) (World Bank, 2007). The LPI was constructed by surveying global freight forwarders and express carrier companies. It measured the impact of delays and costs associated with moving goods over the ports of 150 countries. This measure included customs clearance, quality of infrastructure (ports, rail, and information technology), ease and affordability of arranging shipments, ability to track and trace, cost of local transportation, port and terminal handling and warehousing, predictability of on-time arrival, criminal activities, solicitation of informal payments, and degree of improvement or deterioration. According to Pinnock and

Ajagunna (2012), while this survey included only three CARICOM members, the following is a picture of their performance relative to the rest of the world (max score, 5; highest ranked country, Singapore at 4.19):

Country	Rank	Score
Jamaica	118	2.25
Haiti	123	2.21
Guyana	141	2.05

While the goal should be to make progress on each of the elements that contribute to logistics performance, as they are self-supporting, it is probably true that customs modernization is a necessary condition. In this connection the Caribbean region has made progress in implementing UNCTAD's Automated System for Customs Data (ASYCUDA) (www.asycuda.org), developed in the 1980s. The objective of ASYCUDA was to harmonize customs codes, international standards and simplified procedures. The expected outputs are a uniform application of the customs laws and regulations, a better command of the collection of duties and taxes, the availability of timely and accurate statistics, and technical support for installation and training.

Whatever the system, there must be transparency of governing rules and regulations, efficiency of the document and clearance processes, and predictability in the application of the rules and regulations by the authorities (World Bank, n.d.).

Caribbean Transshipment: Situation Analysis

Positioning Caribbean Ports

The transshipment business helps ports and shipping lines generate economies of scale, which can expand a port's market and lower its costs. The ports of Kingston (Jamaica) and Freeport (The Bahamas) are good examples of how transshipment adds economies of scale beyond that which is possible from local business. For those countries – including those in the Caribbean – that sit astride major trade routes, transshipment of foreign cargo can be a major part of their operations. As was noted before, this is, in effect, the business of exporting services that generate income for the country by exploiting and maximizing a natural resource (geographic location) that never becomes depleted. This form of transshipment involves consignments or containers with neither origination nor destination within the region.

Ports in the Caribbean sit at the intersection of the major 'round the world' East-West trade routes linking Asia, America, Europe and the Middle East, and the important North to South routes between North and South America, and South America and Europe. Shipping lines find it economical to line haul; that is, to move freight to one central location from which it is transshipped on vessels serving countries with limited port facilities. Other transshipment ports competing for global hub port status outside of Kingston Container Terminal in Jamaica include Caucedo (Dominican Republic) and Freeport (The Bahamas). Investment in major transshipment ports is risky in that 90 percent of the cargo volume moving in and out of the ports is transshipment. Risk, here, relates to the fact that the transshipment portion can move overnight to competing ports (such as those in Panama and Columbia), as they are not tied to domestic ports.

Table 4
International Ports in the Caribbean

Abaco, The Bahamas	Anguilla, Anguilla
Basseterre, St. Kitts	Boca Chica, Dominican Republic
Bridgetown, Barbados	Castries, St. Lucia
Caucedo, Dominican Republic	Charlotte Amalie (St. Thomas)
Christiansted, US Virgin Islands	Eleuthera, The Bahamas
Fort-de-France, Martinique	Freeport, The Bahamas
Georgetown, Cayman Islands	Grand Turk, Turks and Caicos Islands
Havana, Cuba	Kingston, Jamaica
Kingstown, Grenada	Manzanillo, Panama
Marsh Harbour, The Bahamas	Moa, Cuba
Montego Bay, Jamaica	Nassau, Bahamas
Oranjestad, Aruba	Philipsburg, St. Maarten
Plymouth, Montserrat	Point Lisas, Trinidad
Pointe-à-Pitre, Guadeloupe	Ponce, Puerto Rico
Port of Spain, Trinidad	Port-au-Prince, Haiti
Providenciales, Turks and Caicos	Puerto Plata, Dominican Republic
Rio Haina, Dominican Republic	Road Harbour, British Virgin Islands
Roseau, Dominica	San Andrés, Columbia
San Juan, Puerto Rico	Santiago de Cuba, Cuba
Santo Domingo, Dominican Republic	St. Barthelemy, Guadeloupe
St. Croix, US Virgin Islands	St. Eustatius, Dutch Antilles
St. George's, Grenada	St. John's, Antigua
Tortola, Tortola	Vieux Fort, St. Lucia
Willemstad, Curaçao	

Table 5
Shipping Lines Serving the Caribbean

ANL Container Line Pty Ltd.
APL Ltd.
BBC Chartering and Logistic GmbH & Co. KG
Caja Logistics
China Shipping Container Lines Co. Ltd.
Compagnie Maritime Marfret
Compañía Chilena de Navegación Interoceánica SA
Crowley Liner Services
Europe Caribbean Line
Frontier Liner Services
Grand Alliance
Hugo Stinnes Linien GmbH
Kawasaki Kisen Kaisha Ltd.
Maersk Line
Mediterranean Shipping Co. SA
Mitsui OSK Lines Ltd
Horizon Lines, Inc.
Nordana
Orient Overseas Container Line Ltd.
SeaFreight Line Ltd.
Sea Star Line LLC
Thompson Line
Tropical Shipping Co. Ltd.

Table 6
Caribbean Population and Land Space

No.	Island	Population	Land Space Km²
NORTHERN CARIBBEAN			
1	The Bahamas	323,000	13,878
WESTERN CARIBBEAN			
2	The Cayman Islands	48,000	260
3	Cuba	11,382,000	110,861
4	Dominican Republic	9,183,394	48,442
5	Haiti	10,033,000	27,751
6	Jamaica	2,804,332	11,100
7	Turks and Caicos Islands	30,600	417
EASTERN CARIBBEAN INCLUDING (OECS)			
8	Anguilla	13,677	102
9	Antigua and Barbuda	69,481	443
10	British Virgin Islands	23,552	153
11	Dominica	72,386	754
12	Grenada	89,971	344
13	Montserrat	9,538	102
14	St. Lucia	170,649	616
15	St. Kitts and Nevis	39,349	261
16	St. Vincent and the Grenadines	118,149	389
17	Martinique	396,000	1,128
18	Guadeloupe	448,000	1,628
19	St. Maarten	35,000	21.07
20	Barbados	279,000	431
SOUTHERN CARIBBEAN			
21	Aruba	104,494	193
22	Bonaire	14,000	290
23	Curaçao	24,235	461
24	Trinidad and Tobago	1,305,000	5,128
25	Guyana	771,057	214,970
26	Suriname	431,303	163,270
27	Belize	320,000	22,966

Source: Pinnock and Ajagunna, 2012

Ranking of Caribbean Port Productivity

Table 7 represents Caribbean ports' productivity for the year 2008 per berth move per hour for the months of January to December. These are ports that predominantly use mobile cranes in their load and discharge operations. Kingston Wharves Limited appears to have been the most productive port with year-to-date average of 17.73 berth moves per hour. This is 63.4 percent ahead of Georgetown, Cayman Islands which is ranked number two in this port subgroup. In third position was Castries, St. Lucia followed by Nassau, The Bahamas. In eleventh position was Grand Turk, Turks and Caicos Islands, achieving an average of 4.78 berth moves per hour. From the statistics, Kingston Wharves Limited, Jamaica, achieved the highest berth moves per hour over the period with the exception of March and May 2008. In March 2008, Castries, St. Lucia got the number one spot with 15.05 berth moves per hour. This was followed by Georgetown, Cayman Islands, with 14.45 berth moves per hour ahead of Kingston Wharves Limited in the number 3 position, with 14.43 berth moves per hour. In May 2008, Vieux Fort, St. Lucia, achieved 19.36 berth moves per hour behind Kingston Wharves Limited, Jamaica, with 25.76 berth moves per hour.

Kingston Container Terminal recorded the highest average berth moves per hour (19.80) for the year 2008. This was 59.9 percent ahead of second place Point Lisas, Trinidad, whose average was 11.86 berth moves per hour. Kingston Container Terminal held the top position for every single month, with its highest productivity average recorded in January 2008, with 30.05 berth moves per hour, and its lowest in September 2008 (16.75 berth moves per hour). Barbados took the fourth spot with an average of 7.72 berth moves per hour.

Table 7
Caribbean Productivity by Berth Equipment Type
(Berth Moves per Hour) Mobile Cranes

Port/ Country	Average Moves Per Month												Year Avg.
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Kingston Wharves, Jamaica	22.66	16.79	14.43	17.86	15.76	17.58	17.64	18.88	16.60	18.07	19.56	20.22	17.73
Georgetown, Cayman Islands	11.64	14.27	14.45	13.36	14.24	7.31	8.58	7.47	8.83	13.77	16.80	15.43	11.24
Castries, St Lucia	10.98	14.38	15.05	13.48	7.67	11.96	8.64	13.44	6.10	13.63	13.17	14.38	11.08
Vieux Fort, St. Lucia	11.13				19.36				8.21	9.95	8.72	7.81	9.84
Nassau, The Bahamas	12.83	8.63	7.92	9.29	9.09	7.99	14.97	17.00	7.08	15.20	16.50	13.17	10.93
Port au Prince, Haiti	11.24	9.24	7.22	8.77	16.38	8.14	8.12	8.00	10.05	10.79	11.95	12.36	10.07
St. Johns, Antigua	11.34	13.82	11.93	13.88	15.64	5.27	6.90	5.34	5.67	11.68	15.38	13.01	9.13
Montego Bay, Jamaica	7.42	6.45	12.47	9.62	10.51	9.43	8.22	10.59	4.04	5.48	5.70	10.73	8.67
Providenciales, Turks & Caicos	13.34	13.04	11.00	10.84	10.82	4.50	6.57	6.15	5.97	11.94	12.07	12.07	8.51
Grand Turk, Turks & Caicos Islands	5.13	4.36	4.65	4.49	4.82	2.10	-	4.48	4.86	7.31	9.18	5.92	4.78
Philipsburg, St. Maarten	9.67	8.43	8.70	5.84	8.19	4.97	3.22	5.29	3.28	8.05	8.42	6.17	6.12

Adapted from Florida Ship Owners' Group 2008; Pinnock and Ajagunna, 2012

Table 8
Caribbean Productivity by Berth Equipment Type
(Berth Moves per Hour) Gantry

Port/ Country	Average Moves Per Month												Year Avg.
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Kingston Container Terminal, Jamaica	30.05		21.37	18.24	24.40	20.54	17.21	19.14	16.75	20.92	20.85	18.89	19.80
Point Lisas, Trinidad	7.77	13.85	15.44	14.47	11.95	11.45	10.60	9.86	10.06	13.26	12.82	17.59	11.86
Port of Spain, Trinidad	14.14				17.76				6.56	8.51	9.53	27.81	10.98
Bridgetown, Barbados	14.46	14.97	13.45	12.85	13.33	7.26	6.51	6.92	1.78	11.72	9.58	13.29	7.72

Adapted from Florida Ship Owners' Group 2008; Pinnock and Ajagunna, 2012

Table 9
Caribbean Productivity by Berth Equipment Type
(Berth Moves Per Hour) Ships' Gear/RO/RO

Port/ Country	Average Moves Per Month												Year Avg.
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Georgetown, Guyana			12.25	14.75	13.73	13.55	13.50	12.97	14.03	11.95	14.26	6.78	12.43
Paramaribo, Suriname			11.40	14.18	10.79	10.29	9.75	13.09	13.13	13.09	13.57	11.69	11.98
Roseau, Dominica	5.26	7.96	11.33	12.31	5.16	9.48	12.17	12.07	9.49	9.94	7.20	10.85	8.93
Freeport, The Bahamas	8.09	7.75	8.48	8.39	7.82	7.75	7.21	4.29	6.78	8.14	8.46	8.72	7.42
St. Georges, Grenada	6.38		8.45	8.05	7.27	9.10	7.90	5.52	6.00	6.78	7.15	7.68	7.13
Kingstown, St. Vincent	2.55	7.58	6.71	7.28	5.70	8.06	6.15	6.58	7.64	8.61	8.67	7.00	6.53
Road Town, Tortola												6.34	6.34
Basseterre, St. Kitts	5.08	9.34	8.51	7.92	7.01	8.22	6.62	5.10	3.37	6.07	7.34	8.76	6.26

Adapted from Florida Ship Owners' Group 2008; Pinnock and Ajagunna, 2012

Table 9 categorizes ports that depend on ships' crane/RO/RO (roll-on/roll-off) in their daily operations. It is the traditional notion to categorize these ports as the least productive and least developed amongst the three categories (global shipping network, inter-regional multipurpose service ports and small intra-regional schooner shipping network facilities). However, Georgetown, Guyana achieved a respectable 12.43 average berth moves per hour for 2008 ahead of Paramaribo, Suriname which had a credible 11.98 berth moves per hour. Georgetown achieved the highest berth moves per hour with the exception of the months of August, October and December 2008. In August 2008, Paramaribo achieved the highest berth moves per hour – 13.09. This was followed by Georgetown with 12.97 berth moves per hour. Roseau, Dominica claimed the number three spot for the month with 12.07 berth moves per hour. Again, in October 2008 Paramaribo claimed the number one spot with a repeat performance of 13.09 berth moves per hour. Georgetown held on to the number two position with 11.5 berth moves per hour. In December 2008 Paramaribo once again claimed the number one spot with 11.69 berth moves, followed by

Roseau with 10.85 berth moves. In that month Georgetown recorded its lowest performance for the year of 6.78 berth moves per hour, which placed it second from the bottom.

Table 10 below refers to an overall ranking of all 22 ports regardless of stevedoring equipment (gantry crane, mobile cranes and ships' crane/RO/RO). The table does not include The Bahamas transshipment terminal and Caucedo, Dominican Republic, as these ports are dedicated international transshipment facilities. Gantry cranes are suggested as the most productive followed by mobile cranes, and ships' cranes/RO/RO as the least productive. Kingston Container Terminal was the only gantry operation that was placed in the top four overall ranking. Interestingly, Kingston Wharves Limited, which was ranked amongst the top mobile crane operations, held the number two spot overall. This was followed by Georgetown, Guyana and Paramaribo, Suriname which took the first and second positions of the ships' gear/RO/RO category. Point Lisas, Trinidad took the number five overall spot in the gantry category. Port of Spain took the eighth spot and Bridgetown, Barbados the fifteenth position. Positions 21 and 22 were held by Philipsburg, St. Maarten and Grand Turk, Turk and Caicos Islands, in the mobile crane category.

Drawing from the data in the table, it is clear that factors besides equipment type, including human factors, the management of operations and the logistics of terminal and integrated information technology, have an impact on productivity levels at the various ports in the Caribbean. The top two ports in Table 10 have invested heavily not just in hardware stevedoring equipment, but also in the training and development of their workforce and in advancing their information technology infrastructure.

Table 10
Ranking of all 22 Ports Regardless of Stevedoring Equipment

Port/ Country	Rank	Average Moves Per Berth Hour												Year Avg.
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Kingston Container Terminal, Jamaica	1	30.05		21.37	18.24	24.40	20.54	17.21	19.14	16.75	20.92	20.85	18.89	19.80
Kingston Wharves, Jamaica	2	22.66	16.79	14.43	17.86	15.76	17.58	17.64	18.88	16.60	18.07	19.56	20.22	17.73
Georgetown, Guyana	3			12.25	14.75	13.73	13.55	13.50	12.97	14.03	11.95	14.26	6.78	12.43
Paramaribo, Suriname	4			11.40	14.18	10.79	10.29	9.75	13.09	13.13	13.09	13.57	11.69	11.98
Point Lisas, Trinidad	5	7.77	13.85	15.44	14.47	11.95	11.45	10.60	9.86	10.06	13.26	12.82	17.59	11.86
Georgetown, Cayman Islands	6	11.64	14.27	14.45	13.36	14.24	7.31	8.58	7.47	8.83	13.77	16.80	15.43	11.24
Castries, St. Lucia	7	10.98	14.38	15.05	13.48	7.67	11.96	8.64	13.44	6.10	13.63	13.17	14.38	11.08
Port of Spain, Trinidad	8	14.14				17.76				6.56	8.51	9.53	27.81	10.98
Port au Prince, Haiti	9	11.24	9.24	7.22	8.77	16.38	8.14	8.12	8.00	10.05	10.79	11.95	12.36	10.07
Vieux Fort, St. Lucia	10	11.13				19.36				8.21	9.95	8.72	7.81	9.84
St. Johns, Antigua	11	11.34	13.82	11.93	13.88	15.64	5.27	6.90	5.34	5.67	11.68	15.38	13.01	9.13
Roseau, Dominica	12	5.26	7.96	11.33	12.31	5.16	9.48	12.17	12.07	9.49	9.94	7.20	10.85	8.93
Montego Bay, Jamaica	13	7.42	6.45	12.47	9.62	10.51	9.43	8.22	10.59	4.04	5.48	5.70	10.73	8.67
Providenciales, Turks & Caicos Islands	14	13.34	13.04	11.00	10.84	10.82	4.50	6.57	6.15	5.97	11.94	12.07	12.07	8.51
Bridgetown, Barbados	15	14.46	14.97	13.45	12.85	13.33	7.26	6.51	6.92	1.78	11.72	9.58	13.29	7.72
Freeport, The Bahamas	16	8.09	7.75	8.48	8.39	7.82	7.75	7.21	4.29	6.78	8.14	8.46	8.72	7.42
St. Georges, Grenada	17	6.38		8.45	8.05	7.27	9.10	7.90	5.52	6.00	6.78	7.15	7.68	7.13
Kingstown, St. Vincent	18	2.55	7.58	6.71	7.28	5.70	8.06	6.15	6.58	7.64	8.61	8.67	7.00	6.53
Road Town, Tortola	19												6.34	6.34
Basseterre, St. Kitts	20	5.08	9.34	8.51	7.92	7.01	8.22	6.62	5.10	3.37	6.07	7.34	8.76	6.26
Philipsburg, St. Maarten	21	9.67	8.43	8.70	5.84	8.19	4.97	3.22	5.29	3.28	8.05	8.42	6.17	6.12
Grand Turk, Turks & Caicos Islands	22	5.13	4.36	4.65	4.49	4.82	2.10	-	4.48	4.86	7.31	9.18	5.92	4.78

Adapted from Florida Ship Owners' Group 2008; Pinnock and Ajagunna, 2012

Table 11
Average Time Await Berth for Caribbean Ports (January–December 2008)

Port/ Country	Rank	Average Time Await Berth												Year Avg.
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Roseau, Dominica	1	0:33	3:49	0:21	0:25	0:19	0:18	0:18	0:17	0:18	0:24	0:16	0:16	0:37
Freeport, The Bahamas	2	1:12	0:33	0:22	0:23	0:27	0:21	0:17	0:27	0:59	1:34	1:08	1:11	0:42
Vieux Fort, St. Lucia	3	0:48				0:51				0:34	0:42	1:03	0:31	0:46
Road Town, Tortola	4												1:01	1:01
Castries, St. Lucia	5	0:28	1:57	0:36	1:11	0:31	0:47	1:29	0:31	0:34	1:58	2:11	2:00	1:14
Kingston Container Terminal, Jamaica	6	1:52		0:13	0:27	0:25	0:43	0:28	0:25	0:52	3:10	3:26	2:44	1:24
Montego Bay, Jamaica	7	5:04	2:04	0:47	0:53	0:52	0:47	0:55	0:57	0:42	0:40	0:40	0:55	1:24
Basseterre, St. Kitts	8	0:10	2:06	6:43	2:45	0:20	0:21	0:18	0:35	0:33	2:06	0:55	0:33	1:25
St. Johns, Antigua	9	1:54	1:48	3:09	0:56	3:29	0:41	0:44	1:02	1:35	2:01	0:55	0:37	1:35
Kingston Wharves, Jamaica	10	1:30	1:25	1:25	1:22	3:07	1:12	1:10	2:22	1:13	1:41	1:30	1:17	1:40
Kingstown, St. Vincent	11	4:34	0:35	0:27	0:23	0:56	0:24	0:38	6:54	1:54	1:10	1:02	1:06	1:42
St. Georges, Grenada	12	0:48		0:33	0:59	0:26	0:32	2:53	3:56	0:59	1:41	2:45	1:27	1:46
Georgetown, Cayman Islands	13	2:54	0:58	3:58	0:42	1:17	1:02	1:55	1:13	2:51	3:41	1:27	7:17	2:25
Georgetown, Guyana	14			2:26	3:12	1:48	3:45	1:03	0:47	2:01	2:32	3:14	6:35	2:57
Bridgetown, Barbados	15	23:43	0:58	2:30	1:28	1:33	1:44	0:41	0:49	1:12	0:58	1:57	2:47	3:04
Port of Spain, Trinidad	16	2:18				7:17				12:26	1:15	0:51	0:50	3:10
Philipsburg, St. Maarten	17	5:39	1:17	4:20	4:25	1:34	2:32	1:18	3:39	5:39	1:47	3:34	1:32	3:11
Port au Prince, Haiti	18	1:47	1:16	0:57	4:12	5:45	10:33	1:37	1:55	5:58	2:11	3:03	12:00	3:35
Grand Turk, Turks & Caicos Islands	19	0:11	0:16	0:15	0:10	0:09	0:31		1:15	0:42	0:24	7:01	21:17	3:45
Providenciales, Turks & Caicos Islands	20	1:43	3:09	6:10	4:07	3:40	9:23	2:47	1:46	1:36	1:51	1:59	3:54	3:47
Point Lisas, Trinidad	21	8:22	2:36	3:11	2:46	1:29	3:54	4:41	15:14	6:38	9:30	4:10	2:18	5:30
Paramaribo, Suriname	22			0:52	27:00	2:16	16:20	3:26	6:48	7:19	11:07	12:21	7:51	8:24

Adapted from Florida Ship Owners' Group 2008; Pinnock and Ajagunna, 2012

In a study done in 1980 on the Fortune 500 companies, 70 percent indicated that their greatest assets were their physical assets. In a recast of the study in 2007, over 60 percent of the companies which held that view were no longer a part of the Fortune 500 list. Seventy-six percent of the respondents in the recast study pointed to human capital as their greatest asset with physical assets accounting for 24 percent. This suggests that the Caribbean can no longer remain a quiet corner where each country can manipulate its local industry while ignoring global forces. Today, the market is controlled by the customer who is now demanding greater value which, in turn, calls for more informed and better-trained personnel. This, thus, places pressure on Caribbean ports to move beyond the basic role of receiving, storing and delivering cargo to becoming integrated members of the global supply chain. It is high time that the Caribbean plan to train and certify its human resources with the same degree of importance it gives to acquiring and deploying cutting-edge equipment. Countries such as Barbados are now coming to accept this reality, as seen in its plan to train and certify stevedoring labour in a partnership agreement with the Caribbean Maritime Institute. This makes Barbados the first port in the Caribbean to undertake such an initiative.

Table 11 highlights the average waiting time for vessels to access Caribbean ports. This forms a very important link in the overall picture of the total turnaround time of vessels. There is a popular saying that “a ship in dock is a wasted ship”. Ships are expensive assets and they make money while sailing – not while lying in port. The average time to berth forms a significant part of the overall time it takes to turn a vessel around. Unfortunately, in several instances this time can exceed the total load on discharge time. Table 11 shows Roseau, Dominica with a waiting time of 37 minutes, as the most accessible port followed by Freeport, The Bahamas, with 42 minutes and Vieux Fort, St. Lucia with 46 minutes. In the case of the Caribbean’s two top ports, Kingston Container Terminal is ranked sixth with 1 hour and 20 minutes waiting time and Kingston Wharves Limited is tenth with 1 hour and 40 minutes waiting time. The two bottom ranked ports are Point Lisas, Trinidad with 5 hours and 30 minutes, and Paramaribo, Suriname with 8 hours and 20 minutes. Georgetown, Guyana, the

number three ranked Caribbean port, was placed fourteenth with an average waiting time of 2 hours and 57 minutes. Interestingly, ports in Georgetown, Guyana and Paramaribo, Suriname are tidal ports and can only be accessed on high tide with large container vessels. This can add an additional 6–12 hours to the wait time to allow for low and high tide changes.

Liner Shipping Connectivity Index (LSCI): A Global Perspective

The question of who trades what and with whom depends not only on the demand and supply of goods but also on the ability to deliver the goods to the market. Relevant aspects include geographical factors such as distance, landlockedness and transport costs. Another important, yet often neglected, determinant of trade competitiveness is transport connectivity, defined as access to regular and frequent transport services. Except for bulk commodities, most intercontinental trade is transported by liner shipping services. Access to such services is a determinant of competitiveness and of the geography of trade. Possible indicators for the supply of liner shipping services include number of ships, twenty-foot equivalent units (TEU) capacity, number of shipping companies and services offered by them, as well as maximum ship size. Also, a distinction needs to be drawn between direct services and those requiring transshipment.

As regards connectivity per country, UNCTAD has since 2004 produced a Liner Shipping Connectivity Index (LSCI) which combines available information about fleet assignment, liner services, and vessel and fleet size per country in order to provide a measure of a country's integration in the global shipping network, and thus its trade competitiveness. According to the LSCI, most of the least-connected countries are also developing countries and the majority of them are small island developing states (SIDS). Whereas 75 percent of the top 20 best-connected countries recorded an improved LSCI between 2004 and 2006, only 30 percent of the 20 least-connected countries recorded an improvement during the same period. Therefore, the 'connectivity gap' between the best- and the least-connected countries is increasing. This is worrying for the Caribbean region whose nations are important constituents of the SIDS grouping.

Analyzing recent trends, we find that the number of ships, the maximum ship size and the total TEU capacity deployed per country have increased since 2004, whilst the number of services and the number of companies as an indicator of competition have decreased. International seaborne trade in 2007, driven by emerging and transitioning economies, surpassed a record 8 billion tons. More than 80 percent of international trade in goods is carried by sea and an even higher percentage of developing-country trade is carried in ships. In 2007, world seaborne trade (goods loaded) increased by 4.8 percent to surpass 8 billion tons for the first time (UNCTAD, 2007). By the beginning of 2008, the total world merchant fleet had expanded by an impressive 7.2 percent to reach 1.12 billion deadweight tons (dwt). At the beginning of 2008, the average age of the world fleet dropped marginally to 11.8 years. Container ships made up the youngest fleet with an average of 9 years. By May 2008, the world container ship fleet had reached approximately 13.3 million TEU, of which 11.3 million TEU were on fully cellular container ships. This fleet included 54 container ships of 9,000 TEU and above, which were operated by five companies: CMA-CGM (France), COSCON and CSCL (both from China), Maersk (Denmark) and MSC (Switzerland).

Liner Shipping Connectivity Index (LSCI): A Caribbean Perspective

Access to world markets depends to a great extent on the availability of regular and efficient marine transport connections, especially liner shipping services. UNCTAD's LSCI aims at capturing a country's level of integration into the existing liner shipping network by measuring liner shipping connectivity.¹ Table 12 shows the LSCI for the Caribbean between 2004 and 2010. Between 2004 and 2008, the Dominican Republic improved its connectivity level by 60.3 percent, which increased its ranking from 58 in 2004 to 37 in 2008. This was the most significant improvement in the Caribbean and was due largely to the opening of the Caucedo port, which attracted global carriers such as MSC shipping line and Hapag-Lloyd, among others. However,

¹The LSCI was introduced in 2004 as an indicator of liner shipping connectivity for 162 countries. In 2008 Tuvalu was added to the countries, making it 163 countries.

between 2008 and 2010, the Dominican Republic slipped to the number three position in the Caribbean, moving from 37 in 2008 to 49 in 2010. On the other hand, Jamaica was able to regain the number one position in the Caribbean, moving from number 41 in 2008 to number 32 in 2010. Similarly, The Bahamas, which was ranked number 49 in 2008, improved by approximately 6.5 percent, moving to Caribbean number two at 46 in 2010. The global transshipment hub ports have the highest level of connectivity to the global supply chain, followed by the subregional hubs and then the service ports. This further supports the view put forward by the researchers that the investment in the new Mariel terminal in Cuba and its proposed management by Singapore's global operator, PSA, will change the configuration from 'transshipment triangle' to 'transshipment pentagon'. The three least connected ports in 2010 were those in the Cayman Islands, Antigua and Barbuda, and Dominica, which were ranked at 152, 153 and 155 respectively.

Table 12
Liner Shipping Connectivity Index in the Caribbean

Current Rank 2010	Country	2010		2008		2006		2004		Change
		LSCI	RK	LSCI	RK	LSCI	RK	LSCI	RK	
32	Jamaica	33.09	32	24.61	41	23.02	37	21.32	33	11.77
46	The Bahamas	25.71	46	19.83	49	16.19	51	17.49	42	8.22
49	Dominican Republic	22.25	49	26.49	37	15.19	53	12.45	58	9.80
65	Trinidad and Tobago	15.76	65	17.42	56	11.18	67	13.18	52	2.58
96	The Netherland Antilles	7.97	96	10.22	80	7.82	91	8.16	88	-0.19
100	Haiti	7.58	100	4.16	131	2.91	143	4.91	117	2.67
103	Cuba	6.57	103	7.76	95	6.43	99	6.78	96	-0.21
117	Aruba	5.34	117	6.14	105	7.53	92	7.37	90	-2.03
129	Barbados	4.20	129	6.41	102	5.34	107	5.47	108	-1.27
132	Suriname	4.12	132	5.32	114	3.90	131	4.77	120	-0.64
134	Belize	3.95	134	3.36	143	2.62	146	2.19	149	1.76
135	Guyana	3.95	135	5.36	113	4.60	119	4.54	123	-0.59
136	St. Lucia	3.77	136	5.09	116	3.43	133	3.70	131	0.07
139	St. Vincent & the Grenadines	3.72	139	5.45	110	3.40	134	3.56	133	0.07
140	Grenada	3.71	140	4.74	119	3.37	135	2.30	148	1.41
149	St. Kitts & Nevis	2.84	149	7.91	93	5.59	105	5.49	107	--2.64
152	Cayman Islands	2.51	152	3.21	146	1.79	156	1.90	153	0.61
153	Antigua & Barbuda	2.40	153	4.36	124	2.43	148	2.33	145	0.07
155	Dominica	1.88	155	3.26	144	2.33	150	2.33	146	-0.44

Source: UNCTAD, 2011; Pinnock and Ajaunna, 2012

The LSCI is calculated based on five components:

1. Deployment of container ships
2. Deployment of container carrying capacity in TEU
3. Number of liner shipping companies
4. Number of services
5. Maximum ship size, which refers to the ships that are deployed to provide liner shipping services to a country's port

Of these, the first three components are the most important.

Deployment of Container Ships: Fleet deployment is the number of ships that national and international liner shipping companies assign to liner services from and to the country's ports. A larger number of ships is an indicator that a country's shippers have more opportunities to load their containerized exports; that is, that they are better connected to foreign markets.

Deployment of Container Carrying Capacity (TEU): This refers to the number of slots for TEU. Given the growing average size of container ships, TEU deployment tends to grow faster than vessel deployment.

Number of Liner Shipping Companies: The downward trend in the number of liner shipping companies continued in 2008 due to mergers and acquisitions and an overall trend towards consolidation. The average number of liner shipping companies providing services per country has further declined since 2008.

From a global perspective, there are two major trade lanes – the Far East to Europe and the Far East to the US West Coast. At the end of 2008, there were just under 700 vessels servicing these markets. While the actual number of vessels may have decreased over the past five years, the average size of vessels has been increasing sharply (see Table 13). Today, the average size of vessels on the Far East to Europe route is approximately 7,000 TEU, and the Far East to US West Coast stands at 5,000 TEU. At the end of the spectrum, intra-Caribbean vessels average 700 TEU. This is due in part to the fact that the number one industry in the Caribbean – tourism – has little or no physical product to export.

Hence, maritime transport is priced on a one-way movement (import of cargo and empty return of containers). This creates an imbalance in trade, which makes it uneconomical to operate vessels far in excess of the average minimum size of 700 TEU, as more than 50 percent of the time vessels are deployed with empty, non-freight paying container repositioning movement. Most of these smaller vessels are of older tonnage with high fuel consumption per TEU and high maintenance costs. Drawing from Containerisation International statistics, at the end of 2008, a total of 476 ships served the Caribbean of which over 90 percent were involved in transshipment cargo movement. This is limited to larger ports such as Kingston, Freeport, and Caucedo.

Table 13
Trade Routes, Vessel Capacity and Number of Ships Serving the Caribbean

No.	Trade Routes	No. of Vessels	Total Capacity (TEU)	Average Size of Vessel (TEU)
1	Far East to Europe	330	2,234,943	7,000
2	Far East to USA West Coast	358	1,828,366	5,000
3	Caribbean/Central America to South America	121	204,448	1,700
4	Caribbean /Central America to North America West Coast	64	240,217	3,800
5	Caribbean/Central America to North America Gulf	58	110,282	1,900
6	Caribbean/Central America to South America (West Coast)	58	129,764	1,000
7	Caribbean/Central America to South America (East Coast)	56	132,298	2,400
8	Caribbean to Europe	54	84,040	1,600
9	Intra-Caribbean to Central America	25	17,212	700
10	Caribbean to Mediterranean	21	30,090	1,500
11	South Africa to Caribbean/Central America	7	19,503	2,700
12	Australia to Caribbean/Central America	6	13,622	2,300
13	Caribbean/Central America to North/South Pacific	6	13,622	2,300

Source: Pinnock and Ajagunna, 2012

Over the last decade, there has been a shift in trade away from North America, Canada and North West Europe towards direct sourcing from the Far East and South America. Table 13 supports the fact that the larger vessels are engaged in these two trade routes, giving greater economies of scale per container transported. We believe that it is more cost-effective to move cargo between regional hub port and global hub port than between two service ports in different Caribbean regions. This view is supported by the fact that it is often less costly to import a container from China to Kingston than it is to move a container from Kingston to Aruba (both in the Caribbean).

Globally, there are 9,494 container ships with a total carrying capacity of 14,534,657 TEU. At the beginning of January 2009, 1,265 new ships were on order, representing a mere 13 percent increase in actual number of ships. However, total capacity on order is 5,855,430, representing a 40.3 percent increase in global carrying capacity. Over 95 percent of the new vessels on order are in excess of 4,000 TEU, making them too large to service the Caribbean. This, therefore, begs the question as to the sustainability of Caribbean maritime transportation as the smaller fleet capable of serving the region is getting older and more difficult to operate on economically viable terms, and in the face of technological advancement and escalating operating costs (fuel, maintenance and labour).

The Cruise Industry in the Caribbean

Myth or Reality?

There can be no denying the positive impact of cruise travel for both passengers and local people. Economically, the influx of ships and people generate millions in wages and purchases in the Caribbean. Money spent by cruise visitors while ashore adds income for local businesses and governments. As a result, cruise travel is now the largest sector of the tourism industry in the Caribbean (Pinnock and Ajagunna, 2012). The dependence of many Caribbean states on tourism has led to huge port developments to accommodate the mega-ships and the subsequent increase in visitor numbers; thus, Caribbean tourism relies to a great extent on efficient logistics performance.

Pinnock and Ajagunna (2012), in an analysis of the cruise industry in the Caribbean, observed that the cruise industry has grown from being a US/Caribbean local cottage industry to becoming a global industry spanning the seven seas. This growth continued in 2012 with innovative, feature-rich ships, international ports of call and convenient departures from proximal embarkation cities as fundamental tenets of the new industry. The current cruise ship order book extending through 2015 includes 26 new builds (17 ocean-going vessels and 9 European and American cruise riverboats) with 45,600 berths and a value of nearly US\$12 billion. The decline of transoceanic travel in the 1950s, the introduction of non-stop air travel between the USA and Europe by Pan American Airlines in 1958, and the overcapacity of transatlantic ocean liners, gave birth to the modern cruise tourism industry. Since its introduction, the image of cruising and cruise ships has not changed. However, the industry has shifted to a mass-market, multi-billion dollar business with the Caribbean as the largest destination. There have also been significant shifts in the clientele, size of ships and the unbundling of services provided on-board. Cruise ships have grown significantly in size and they have the luxury of land-based resorts but with the option of several destinations.

The Caribbean cruise industry has been affected by three major factors:

1. **The introduction of private islands.** This has become a unique feature of the Caribbean and an increased itinerary option for cruise lines. The number of private islands in the Caribbean is shown below in Table 14.

Table 14
Private Islands in the Caribbean

The Bahamas	Western Caribbean	Eastern Caribbean	Southern Caribbean
Coco Cay	Catalina Island	Labadee	Princess Bay
Pleasure Island	Serena Cay		
Princess Cay	Isle of Youth		
Royal Isle	Cayo Levantado		
Castaway Cay			

Pinnock and Ajagunna, 2012

It is not uncommon for private islands and days at sea to account for up to 60 percent of the stops on a Caribbean cruise itinerary. This has shifted the focus from the Caribbean destinations to the ship as the primary object of the cruise. This benefits the cruise lines as all the revenue derived from private island calls go directly to their bottom line. This calls into question the validity of the statistics presented by the cruise lines in that the number of persons reportedly visiting the Caribbean cannot be taken as an absolute number, as it is calculated from the ship's manifest at the port of call. If 4,000 passengers left the Miami home port and stopped at two private islands and two Caribbean destinations, it would be reported that 20,000 passengers visited the Caribbean. The real question is, should private island visits be classified as visits to the Caribbean? Or could the numbers be viewed as double counting?

Some observers have pointed out that, in the case of the Caribbean, private islands are a major driver in cruise ships becoming 'deterritorialized' destinations. Apart from geographic location, private islands have no other connection with other Caribbean

islands in terms of employment or social and economic activities. Another major area of contention is that the absence of the Caribbean people in cruise ship promotional literature is a signal to passengers of their limited contact with local people on a cruise compared to their staying in a traditional hotel where they would have no control over the persons with whom they came into contact.

2. The impact of scale. The introduction of the Carnival Destiny in 1996 as the first Post-Panamax cruise vessel changed the face of the cruise industry. The focus shifted from the cruise vessel being a mode of transport taking people to destinations on an itinerary to the ship itself becoming a destination, supplemented by ports of call. This era signalled the shift of value and net earning from the Caribbean to the ship.

3. The removal of home port away from the Caribbean. This is the shift from the traditional flight-to home port to the drive-to home port in the USA, opening up new city populations and eliminating the need for airline travel. Since the 9/11 tragedy in the USA, home ports used by the major cruise lines have nearly doubled. The increase has opened the door to some intriguing travel options. New York City has risen to become successful after many years playing second fiddle to the major Florida ports.

Barbados: A Case of Home-porting Success

Pinnock and Ajagunna (2012), in an analysis of the benefits of home porting in Barbados, assert that the Caribbean nations have been relegated to becoming traditional ports of call with Puerto Rico having the largest home port in the Caribbean. It is the desire of all Caribbean countries to attract larger volumes of home port calls because of the potential for significant benefits to the country. Home porting accounts for increased airlift in and out of Caribbean destinations, which often includes passengers using the services of hotels with the added advantage of pre- and post-cruise extension visits. Additionally, it benefits from container loads of provisions shipped in to service vessels, and local services such as garbage disposal, bunker suppliers, fresh water provisioning and sludge removal.

Since 2000, more than one in every five cruise-ship calls to Barbados represents a home-porting vessel. The number of home-porting cruise ship calls to total cruise ship calls over the period 2000 to 2011 ranges from a low of 21.51 percent in 2004, to a high of 37.33 percent in 2006. These statistics are unrivalled by any other Caribbean port including those in Puerto Rico and The Bahamas. Unquestionably, home porting has been a significant success for the Barbados cruise industry, for which the country and the Barbados Port Inc. have never been properly recognized. Interestingly, major world events in the period under review such as the 9/11 tragedy in the USA and the global recession in 2008 showed no impact on the home-porting percentage share of the overall cruise ship calls as most of the cruise brands using Barbados' home port facility were based in the UK and Europe.

Despite the high passenger arrival numbers reported by St. Maarten, the Cayman Islands and Jamaica, the home-porting percentages are less than two percent, confirming Barbados as the clear Caribbean winner on the home-porting front. The plans by the Barbados Port Inc. to construct a world-class cruise facility in conjunction with specialized home-porting infrastructure will only strengthen Barbados as one of the highest earners from cruise tourism in the region. This factor also accounts for the successes achieved by land-based tourism in Barbados because there is a high integration between cruise- and land-based tourism.

The lesson to Caribbean countries is that while it is fashionable to build bigger and more sophisticated ports, it has to be balanced with a strategy that ensures that scarce capital resources are not just being invested to subsidize cruise industry operations which are dominated by a few major companies.

Cruise Line Dominance

The dependency of many Caribbean islands on tourism has resulted in much discussion surrounding the power imbalance between transnational cruise companies and some of the developing small island states and other stakeholders. In the context of collaborative

tourism planning Reed (1997) and Pinnock (2012), drawing on the work of West (1994), define power as the “ability to impose one’s will or advance one’s own interest”. Reed stated that cruise tourism has not been excluded from the power relations debate. Johnson (2002) added to this debate, noting that a particular concern is the current disparity between developed and less developed countries in terms of the destinations’ control of and interface with the cruise line industry. Expressing concern and making reference specifically to cruise tourism in the Caribbean, Wood (2000) highlighted power issues for the region, stating that:

The (cruise) companies are entirely non-Caribbean. Their destinations are increasingly under their direct ownership and control; Caribbean cruises are taking on elements of ‘cruises to nowhere.’ The ships’ labour force is overwhelmingly non-Caribbean. What these ships do in the Caribbean Sea (including dumping) is outside the jurisdiction of Caribbean states.

Liburd (2001) further argued that, due to a number of regulatory loopholes and gaps in environmental laws, cruise lines are largely immune to criminal prosecution under any form in the USA and in the Caribbean where the ships spend most of their time.

To some extent, it can be argued that the Caribbean’s inability to take a unified position against a powerful cruise industry is as much about the region’s political structure and fault-lines as it is about the intra-regional competition that enables the various cruise lines to pit one country against another. Burns and Holden (1995) state that although not all government bodies have tourism plans, most hold an official position about tourism. Although it would be ideal for the Eastern Caribbean states to demonstrate collaboration, the islands and their governing bodies will have different expectations, goals and objectives regarding cruise tourism development because of their diversity. This makes collaboration between the destination stakeholders and industry stakeholders highly complex (Burns and Holden, 1995).

Examples of the imbalance in these power relations and the complexity in the political make-up of the Caribbean region were

evident in the dispute in the early 1990s between CARICOM and the Florida-Caribbean Cruise Association (FCCA) over cruise passenger head taxes (Pinnock and Ajagunna, 2012). Head tax is the amount paid by the cruise lines to the governments of the islands visited and it varies between countries. CARICOM supported standardization in an attempt to enable a more equitable distribution of economic benefits from the cruise industry amongst all island states (Liburd, 2001). The FCCA opposed the idea and St. Lucia became a victim of the dispute with cruise lines boycotting the island as a port of call. Appeals by St. Lucia for solidarity among the Caribbean Tourism Organization (CTO) members were disregarded when Dominica accepted the ships formerly destined for St. Lucia (Pattullo, 1996).

Managing Carrying Capacity

The dependence of many Caribbean countries on tourism has given way to huge port developments to accommodate mega-ships and the consequent increase in visitor numbers. For example, St. Lucia has developed Castries to accommodate the docking of six ships (Cartwright and Baird, 1999). As a result of such developments, there is increasing concern regarding the carrying capacity of some of the smaller islands as problems of congestion have been noted, leading to irritation and some hostility from residents. Pinnock and Ajagunna (2012) refer to examples given by McElroy and Albuquerque (1998), which include Philipsburg in St. Maarten, Charlotte Amalie in St. Thomas, Cruz Bay in St. John and Road Town in Tortola.

Calls have been made in many ports for a more sustained and managed expansion of port infrastructure to cater for cruise ship tourists (Hobson, 1993). It is important that the Caribbean region assess the reality in terms of economic gain from the increasing number of passengers arriving in already congested ports. Johnson (2002) suggests varying itineraries and limiting passenger numbers as possible solutions but given the level of inter-island competition and the perceived economic benefits from cruise tourism it is always going to be a contentious issue and, if implemented, difficult to maintain. It is not only achieving consensus amongst stakeholders regarding adoption of carrying capacity initiatives that presents a challenge,

however. The concept, practicalities and application of carrying capacity measures, as planning tools, are fraught with debate within the tourism industry. This is an area that cannot be ignored and regulating the number of cruise ships that dock in certain destinations should encompass a thorough evaluation of the economic benefits against the number of cruise vessels docking at any one time and the subsequent volume of passengers that proceed ashore. Bermuda's rationing of cruise ship access is one example of managing capacity effectively (Baum, 1997).

The extent to which ports are developed may have an impact on the overall desirability of the destination. Watson and Kopachevsky (1996) comment on the dangers of creating an 'eyesore' or 'built environment' to accommodate increases in capacity to the detriment of the natural environment. Visual pollution of the coastline occurs not only through infrastructure development of ports but also through the size of ships docking at small island ports (Cartwright and Baird, 1999).

If the protection of the Caribbean's natural environment is key in managing the growth and development of cruise tourism and subsequently assuring that the industry has a sustainable future in the region, then one has to assume that the natural environment must be equally valued by all stakeholders. Wang (2000) highlights the importance of the physical attributes of the Caribbean, suggesting that the region is symbolically transformed into a tourist's paradise with imagery of "tropical, palm-fringed islands surrounded by golden sand", and alluding to those attributes that may serve as key pull factors in the choice of destination. However, cruise tourism also has been compared with all-inclusive resort experiences (Cooper et al., 1998, cited in Johnson, 2002) and cruise companies actively market their ships as the holiday experience rather than the destinations.

Some ports in Caribbean destinations have been developed to replicate the theme of the cruise ship environment and have sought to "become an extension of the fantasy environment of the ship" (Wood, 2000). This not only calls into question the authenticity of the tourist experience in visiting the Caribbean islands by cruise ship but also re-emphasizes the issue of the importance placed by cruise operators

on the natural environment as a key attraction and consequently, the relative importance placed on its long-term preservation. Pattullo (1996) further amplified this point, expressing the view that the Caribbean has lost its relevance except as a vague and shimmering backdrop. Pattullo (1996) quoted Bob Dickinson, Carnival's Managing Director, who stated that, "The limited number of countries and ports offered is not a deterrent to Carnival customers; after all the ship is the attraction, not the port of call." In addition to cruise companies marketing their ships as destinations in themselves, it can be seen that the dominance of the transnational cruise companies goes beyond the boundaries of the cruise vessels themselves in what Wood (2000) refers to as "the enclave-based encapsulation of cruise tourists (and their dollars) with the development of private clubs for passengers in Caribbean ports of call".

The Weakness of Global Governance and the Privatization of Cruise Industry Regulations

In addition to the fact that the Flag of Convenience (FOC) system limits enforcement of safety, environmental and labour conventions, existing international law in these areas are very weak, especially for environmental and labour issues. Many laboriously negotiated agreements have never come into force because they have failed to get the required level of ratification. Those that have come into force are mostly very weak. For example, it remains legal for cruise ships to dump anything but plastics and oil in most of the world's oceans. The restrictions that exist apply almost entirely to territorial waters, usually only for three miles (5 km) from shore but occasionally twelve miles (20 km). Even with such limited restrictions, the cruise industry has been embarrassed by a steady string of violations of international and national environmental laws within territorial waters in recent years. Violations have only declined when port states imposed severe penalties. Indeed, assertion of port control has been the major source of change in cruise ship environmental practices in the past decade. But even if there were no violations within territorial waters, massive dumping of sewage and toxic substances could remain the norm outside of those waters.

In this context the cruise industry has sought to privatize environmental governance by making it a voluntary activity of industrial organizations. This can be seen as conforming to neoliberalism's distrust of government, so that when market solutions are not available other private arrangements among market actors are preferred. Held and McGrew (2002) see such trends as reflecting:

... the privatisation of global regulation, that is, a redrawing of the boundaries between public authority and private power. From technical standards to the disbursement of humanitarian assistance, private agencies have become increasingly influential in the formulation and implementation of global public policy. Contemporary global governance involves a relocation of authority from public to quasi-public, and to private, agencies.

Two such arrangements have emerged with respect to cruise ship pollution in the past several years. These are voluntary codes of conduct and memoranda of understanding (MOU) between cruise industry organizations and local authorities. In June 2001, the International Council of Cruise Lines (ICCL), an organization of most of the major cruise lines, announced that its members had unanimously adopted mandatory environmental standards for all of their cruise ships. Compliance with these standards was to be a condition of membership in the ICCL. This was clearly a response to pollution scandals of the previous several years involving almost all of its members and also to the fear that US state and federal environmental legislation to deal with environmentally destructive cruise ship practices in Alaska would be extended to other areas.

While the ICCL policy went beyond international requirements in committing cruise ships to refraining from dumping toxic wastes anywhere, whether in territorial waters or not, in most respects the policy simply stated that its members would observe current international and national environmental regulations, which are extremely minimal, as noted above. The policy is weaker than the legislative controls in Alaska and than Canada's (non-binding) guidelines for cruise ships (Klein, 2003). The ICCL policy allows for

the discharge of both black water (sewage) and grey water (mainly sink and drain run-off) 4 miles (6 km) from shore, and is silent on such subjects as air emissions and ballast water. Perhaps, most important, the ICCL policy contains absolutely no mechanism either for monitoring or enforcing compliance. Since its promulgation, several of its members have been convicted of criminal acts that violate the policy but no ICCL action has been taken against them. Thus, in the eyes of most environmental organizations, the policy, while a step in the right direction, is no substitute for governmental or international regulation (Nowlan and Kwan, 2011; Ocean Conservancy, 2002; Oceans Blue Foundation, 2002; Klein, 2003).

The cruise industry has also sought to prevent regulatory legislation by negotiating MOU with local authorities. The Florida Department of Environmental Protection and the FCCA signed an MOU in March 2000, and the state of Hawaii signed one with the North-West Cruise Ship Association (NWCA) in October 2002. In March 2004, the NWCA signed an MOU with the Port of Seattle and the state's Ecology Department. In each case, there was little or no public input and strong opposition from the local environmental community. Monitoring and compliance have been voluntary.

As a Blue Water Network and Ocean Advocates report made clear, the outcome of the voluntary MOU approach and legislative regulation first in Alaska and then in California, have been strikingly different (Klein, 2003). In Alaska and California, not only have violations of environmental regulations significantly declined after initial convictions and fines but cruise companies also have shifted their least polluting ships to those areas, leaving their more polluting ships to serve areas without MOU. As another report stated, "Cruise ship pollution incidents have continued to occur since the cruise industry heeded the 'wake-up call' of the Royal Caribbean cases. More than 50 incidents have occurred, many in violations of voluntary policies or MOUs" (Schmidt, 2004).

While calls continue to be made to establish mechanisms to force FOC states to meet their legal obligation of ensuring that the ships they register meet international safety, security, crewing and environmental standards, the assertion of port state control (PSC) has come to be seen by many as the most politically available means to redress the failings of the FOC regime. European countries reached

their own MOU – the Paris Memorandum of Understanding on PSC – to target cruise ships for regular inspection starting in 2003 (Klein, 2002). In the USA, federal and state courts have gradually extended port state controls, particularly in connection with passenger rights and safety and, as noted above, several states have put in place their own regulatory framework. The federal government has shown an increased willingness to file charges directly against cruise companies that violate anti-pollution regulations rather than referring them to registry states. In addition, grassroots campaigns have begun to produce some significant cruise company responses, most notably in Royal Caribbean’s promise in 2004, in response to Oceana’s boycott campaign against it, that it would install advanced wastewater purification technology on all its ships, both new and existing ones.

The Way Forward for the Caribbean

The Caribbean Sea is a homogenous area shared by all states. The Caribbean islands collectively need to legislate the cruise tourism industry if sustainability is to be achieved and if the ‘trust us’ mentality of the cruise lines is to be countered. Harmonization of the legal framework for regulation of cruise ships is necessary. There are numerous loopholes and gaps in environmental laws that should be controlling pollution by cruise ships; several types of cruise ship discharge are exempt from key regulations governing other wastewater dischargers. For example, the Clean Water Act makes it unlawful to discharge any pollutant from a point source into US waters unless a permit is obtained under the National Pollutant Discharge Elimination System (NPDES). However, discharge of sewage from vessels, effluent from properly functioning marine engines, laundry, shower, and galley sink waste (grey water), or any other discharge “incidental to the normal operation of a vessel”, are exempt from the requirement to obtain NPDES permits. Grey water can legally be dumped anywhere except in the Great Lakes, even though the EPA has found that grey water has the potential to cause adverse environmental effects.

Globalization and the Economic Impact of Logistics and Supply Chain

Business Challenges and Responses

Today's biggest business challenge involves knowing how to respond to a world in which the frame and basis of competition are always changing. Against that backdrop, any effort to set corporate strategy must consider more than just traditional performance measures. Today, few corporate strategies are more important to a company's cost structure and competitive rank than its supply chain strategy. Companies must now consider how well their supply chain strategy addresses the risks and opportunities created by the major global trends reshaping how our businesses and societies will work. The world is growing closer at a rapid pace. Political and ideological borders are disappearing. Trade barriers are being dismantled and customs duties are being eliminated. At the same time, innovative information and communications technologies are creating new, far-reaching possibilities. Logistics has become a critical factor in the success of modern companies because customer and supply networks can be extended around the world. At the same time, though, global competition is intensifying. The result: globalization is creating new challenges to go along with its sweeping opportunities.

In the past 20 years, the conditions for global trade and business have improved tremendously. Many political, ideological and customs-related borders between countries and regions of the world have been dismantled. Since the 1990s the role of information and communications technology in these advances has been integral, as evidenced in the affordances of the World Wide Web such as globally accepted, factual standards, including Windows-based PC systems, and EDIFACT. The standards help business partners to be located more quickly and cost effectively, and make the processes used in the everyday business world considerably more efficient than they were in the 1980s. These strides have been complemented by progressive standardization in packaging and containers led by the International Standards Organization (ISO).

Table 15
Supply Chain Tipping Points

	Year	Events
1	1960s	Inventory management focus, cost control
2	1970s	Manufacturing requirement planning (MRP) – operations planning
3	1980s	Manufacturing resource planning II (MRPII), just-in-time (JIT) – materials management, logistics
4	1987	Sales and operations planning
5	1988	Evolution of the personal computer (PC)
6	1989	Theory of just-in-time (JIT)
7	1990s	Theory of constraints and supply chain management (SCM) – enterprise resource planning (ERP) - ‘integrated’ purchasing, financials, manufacturing, order entry
8	1992	Supply chain organization
9	1994	Re-engineering the organization
10	1995	Internet/email era
11	1996	E-procurement
12	1998	Total quality management (TQM)
13	1999	Radio frequency identification (RFID)
14	2000	Year 2000 problem (Y2K)
15	2001	Lean Six Sigma
16	2002	The advent of .com
17	2004	Demand-driven concepts
18	2008	Social responsibility
19	2009	Emergence of chief supply chain officer (CSCO)
20	2012	Market-driven value networks

Source: Supply Chain Insight LLC, 2013

For industrial and trade companies, the possibility of extending the networks of their suppliers and customers farther and farther internationally has become much more appealing. After all, they can search for materials, employees, know-how and the conditions for their activities in countries and regions that offer them the best cost-performance ratio. Customs regulations and document processing have been greatly simplified. Communications and transport options

have become significantly faster, more cost-effective and more reliable. The lower transport costs arising from these changes are the reason that more and more companies are deciding to extend their value-creation processes around the world.

Trends in Global Supply Chain and Forces Reshaping the World

The global economy is growing ever more connected. Complex flows of capital, goods, information and people are creating an interlinked network that spans geographies, social groups and economies in ways that permit large-scale interactions at any given moment. This expanding grid is seeding new business models and accelerating the pace of innovation. It also makes destabilizing cycles of volatility more likely and potentially more frequent.

According to McKinsey & Company (2010), the coming decade will be the first in 200 years that emerging market countries contribute more to growth than developed ones. This growth will not only create a wave of new middle-class consumers but also drive profound innovations in product design, market infrastructure, and value chains.

There will be one billion new middle-class consumers in the next seven years, moving up to three billion by 2030. One and a half million people per week are moving from rural areas to urban centres, making cities the new epicentres of growth. As such, 440 cities will account for more than 50 percent of the world's GDP growth over the next decade.

New Challenges of Globalization

Globalization poses certain risks in addition to the new opportunities it presents for companies. Some of the challenges and risks are highlighted in the discussion that follows.

From product to service: Since the middle of the twentieth century, the key to success in more and more markets of the global economy has changed. The successful companies today are those that are capable of asserting themselves in a world of oversupply and abundance. As a result, services are becoming increasingly vital.

The evolution and its causes: The fundamental reasons that have fuelled this sweeping evolution are rich nations' transformation from industrial to post-industrial societies, new demographics related to this change as well as new material and service technologies. Population levels are stagnating. In those places where they are not, growth is based on immigration and, as a result, the rise of multicultural and, thus, more heterogeneous societies. The average age of people is climbing. Households are becoming smaller and more mobile. More and more money is being spent on non-material needs like communications, entertainment and health care. At the same time, less money is being spent on needs like food and beverages, clothing, important household items and the construction of apartments. New materials and technologies open the way for efficient production around the world.

In the wake of these developments, companies are having more difficulty generating revenue with standardized, mass-produced products. Needs are becoming more individual, diverse, malleable and fleeting. Niche markets that can be successfully supplied over a long period of time are shrinking and more frequently require a combination with services. This applies not only to consumer goods but also to industrial sectors of the economy.

The path to the tailored solution: Today, many companies are trying to meet the new demands by employing 'individualization' or 'mass individualization' ('mass customization'). As examples from a variety of business sectors show, the successful companies are those that are able to offer their customers tailor-made, service-focussed solutions without being smothered by an overwhelming assortment of inventories and production costs. Concepts from modern logistics are expected to provide answers to the new challenges arising from mass individualization, decreasing loyalty to companies and brands, reduced predictability and the growing service demands of customers.

Logistics, the trend-blazing pioneer: For a company to be successful, the ability to react promptly to customer requests is becoming increasingly important. As a result of today's tremendous technical advances, products take less time to develop and spend less time in the marketplace. As the architect of modern value chains, logistics

provides tailored concepts that help optimize product development and order processing times as well as companies' reaction times.

Reacting immediately to new demands: More than 10 years ago, George Stalk, an American working at the Boston Consulting Group, announced the transition from cost- and price-based competition to 'time-based competition.' In doing so, he summed up a development that had been brewing for some time: that a company's success was becoming more dependent on its ability to react immediately to customer requests. Furthermore, new technologies are being developed faster and faster in many areas. The result: the time frame for technologies or individual products to be commercially successful is becoming shorter. The reason for this development is that they are being crowded out by innovations more quickly. Moore's Law is a much-quoted and a particularly extreme example of developments in the microelectronic industry. According to this law, processing speed will double in every product generation while the price of this speed will be cut in half. As a result, factories that produce a certain generation of microchips grow obsolete in an increasingly shorter period of time – and with them the PCs and numerous other products based on a chip generation.

Speed as the best condition: In the past, companies with the most reasonably priced products were particularly successful in the marketplace. Today, though, quick reaction time is the key factor. Companies are successful primarily when they can react especially rapidly to the needs of their customers and can be the first to bring a new technology or a new product to the market. This applies in particular to the computer, telecommunications and fashion businesses and, to a less extent, to many other economic sectors. The concepts and technologies used in modern logistics do their part to boost product development and order-processing times as well as reaction time by companies. Such companies are experts for the architecture of intelligent, modular supply and value chains (or 'supply chains').

The environment, the most precious resource: Since the beginning of the 1970s, a new environmental awareness has emerged among political leaders and the general public. People have come to realize

that sustainable business practices are indispensable over the long run and that special attention must be given to natural resources and the environment. This consciousness has taken hold in the logistics sector as well, resulting in new concepts such as combined transports or systems of circulatory flow management to address the challenges.

Holistic management for success: Numerous activities and processes must be managed within a company. To satisfy customers and to be commercially successful, these activities and processes must be optimally coordinated. The idea was taken up in the 1980s and became known in scholarly research as supply chain orientation. This form of management now plays a dominant role in related academic areas and in the daily world of business. Supply chain methods are widely applied in logistics as well.

Thinking in processes and value chains: Key factors that contribute to a company's survival and success include the efficient use of material, financial and personnel resources; the optimization of functions, research and development; as well as product innovation. To ensure long-term success, optimization of subsections is far from the only critical element. Above all, thinking and acting within broad contexts plays a major role as well. One particularly crucial component of successful company management is the linking of commercial activities that facilitate customer satisfaction. These activities have a major impact on production costs, quality, a company's reaction time and its adaptability to changing business and market conditions. This realization, promoted around the world in particular by the writings of Harvard Professor, Michael Porter, in the 1980s, is known as process orientation and 'supply chain thinking' (also 'process thinking', 'value chain thinking', 'flow system thinking'). It is becoming a bigger part of companies' vocabulary and actions. Logistics is the field where the knowledge and methods of holistic, systematically optimized process and supply chain design, management and mobilization are collected and applied.

From government-run companies to private logistics service providers: In a trend driven by Western countries, processes of deregulation and liberalization have been initiated since the 1980s

around the world in an effort to increase commercial efficiency. Within academia, the idea of far-reaching liberalization was prompted in particular by American economist, Milton Friedman. The elimination of government-controlled prices and access rights increased streamlining pressures in the liberalized sectors and, subsequently, triggered a revolution in the markets. The effects of deregulation were felt especially by the transport sector and by postal and telecommunications services. The past two decades in the logistics sector have been primarily shaped by the global trend to deregulate former public or government activities such as communications and transport services. Previously, modern thinking about business and the role of the state included the expectation that all citizens and companies in a country would be offered such services at the same quality level and at the same price – just like the provision of water, electricity, hospitals and security services like the police and armed forces. Here, the state was either an owner or a monopolist – for example, of postal services, railroads or air-traffic control systems – or, at a minimum, regulated rates, access rights and conveyance obligations through the issuance of concessions and licenses.

The revolution among service sectors: Even the Treaty of Rome, the agreement that set up the European Community in 1958, said that such regulations should not be retained in a modern economy. Since the 1980s, American and British governments under leaders such as Carter, Reagan and Thatcher have taken energetic steps to introduce processes of deregulation and liberalization. Many other countries - not least of all Germany – followed slowly. The subsequent elimination of government-set prices and access rights in the areas of transport, postal and telecommunications services unleashed a revolution in the service sectors. Significant rate cuts for parcel and goods shipping have produced intense streamlining pressures in these markets. Traditional providers have had to undergo restructuring, create new quality products and launch aggressive marketing campaigns in order to survive. Such activities resulted from the fact that more and more providers, armed with ideas, rushed into the marketplace. Today, new business models and provider structures like contract logistics and ‘3PL’ and ‘4PL’ services have taken hold. They are creating new

approaches to streamlining, quality improvement and flexibility in industrial and trade companies. In this process, modern logistics is not just reacting to the changing needs of the global economy. Rather, it is becoming a driving force of innovation.

Concentrating on the essentials: The global economy is becoming increasingly far-reaching and networked. As a result of these changes, companies must overcome many challenges, including massive individualization, time-based competition and new environmental requirements. Lean, flexible companies are the ones best equipped to respond to these demands. They can concentrate on their core skills and simply outsource unimportant jobs. By doing so, they ensure that every activity, every investment and every business unit contributes to added value and increases the benefits of shareholders. At the same time, the number of interrelationships and interfaces among smaller companies is expanding, raising the importance of logistics.

Strengthening core skills through the use of outsourcing: In the past few decades, both academics and managers in the field of business administration have come to an important realization. The increasing use of complicated management systems and complex organization units is not considered to be a promising way to approach the challenges posed by the global economy, massive individualization, time-based competition and new environmental demands. The reason is that such systems fuel rapid cost increases, and these costs frequently erode or even surpass the desired gains, for example, in the form of increased planning and management effort, increased system failures and follow-up costs of system disruptions. In response to this realization, a trend in which companies concentrate on their core skills has been spreading since the 1990s. The preferred approach is straightforward, lean organizational units that focus on one or a limited number of tasks and manage themselves to the greatest possible extent. Those activities that are considered to be outside the realm of core skills are outsourced. As a result of outsourcing, new organizations consisting of smaller, simple and similarly structured modules are created, and these modules can be flexibly linked to one another. In this process,

the organizations are converted into high-performance, manageable components of multi-linked value chains, company structures and national economies of the future.

The Macroeconomic Significance of Logistics

Numerous industrial sectors can no longer do without the services of logistics providers. As a result, these providers make a significant contribution to microeconomic value creation. Economic developments in recent years have led to the creation of complex company networks and systems of goods flow – in the process, the globalization of procurement, production and sales as well as the division of labour have increased. In addition, the complexity of international logistics systems in many sectors has grown as a result of increasing product variation and differentiation. Another factor is that many companies are concentrating on their core skills and are reducing their vertical integration. The efficient management of the resulting global flow of goods has boosted both the business and economic significance of logistics.

Germany, for example, is Europe's largest sales market with 82 million consumers. Among business sectors, the logistics market in Germany ranks third, behind the automotive industry and health care. In 2006, revenue totalled €170 billion. A total of 2.5 million people were employed by logistics service providers as well as industrial and trade companies. The traditional logistics sectors of transport, storage and transshipment generated the largest share of overall logistics revenue. In addition to logistics service providers and the internal logistics operations of industrial and trade companies, the macroeconomic impact of logistics extends to the logistics supplier sector. Supply products include vehicle, conveyor and warehouse technology, IT systems, property, operating materials, fuel and related services. Together with these supplier products, the macroeconomic impact of logistics totals €240 billion and 3 million employees. If logistics-dependent employment in other business areas, for example, in transport infrastructure and construction, is considered, an additional 1.6 million employees is added to the total.

Mobility is a critical condition for gains to be achieved in productivity, growth and employment in a macroeconomic context. The connection between economic growth and demand for product-transporting services is the result of various effects. These effects can clearly show the growing significance of the economic sector of goods distribution.

The effect of goods volume: For a long time, it was assumed that in highly developed economies fewer and fewer quantities of goods were produced for the macrologistics system and that transport volume rose at a slower pace than the economy. Today, it can be assumed that the development actually goes in the opposite direction as a result of the increasing inter-company division of labour created by intensified outsourcing in some highly developed countries. Transport intensity – that is, transport performance per production quantity unit – increases for many types of goods. Individual parts or components of a product are transported numerous times during various stages of the value chain, for example, transport between plants.

The effect of goods structure: In highly developed economies, the number of high-quality consumer and production goods rises. The share of mass goods, on the other hand, stagnates or even falls. The distribution of goods then shifts to high-quality products that must be shipped quickly. Because of the relatively low costs, road transport generally benefits. Railroads and inland water transports generally suffer because of their low speed.

The effect of logistics: Logistics systems constantly undergo optimization. Supply chain management, production-synchronization deliveries that employ just-in-time concepts, the forgoing of storage and global outsourcing are just a few examples of this. But the application of modern logistics concepts affects the economic sector of goods distribution. This is because the new logistics focus of industrial and trade companies has altered the demand placed on the goods-distribution system. Road transport can react relatively flexibly and well to these demands. Railroads and inland water transport have a difficult time making this switch.

The effect of integration: The creation of large economic regions gives rise to international, cross-border logistics systems. For instance, the European Union and regulations from the World Trade Organization (WTO) have propelled globalization in the goods-distribution sector. As economic regions spread, cross-border trade expands and the distances that must be covered by logistics systems lengthen. The effect of integration describes the increasing demands placed on the economic sector of goods distribution that arises from the creation of larger economic regions and cross-border logistics systems.

Trade Relations, Logistics and Supply Chain in Latin America and the Caribbean

Regional Integration

Since World War II trade relations among regions has been marked by two important phenomena – globalization and regional integration. Globalization has brought tremendous change to the global economy and to world geography. This change has led to increased agglomeration, larger concentrations in urban spaces and far better and more complex transportation networks, resulting in cost reductions and facilitation of just-in-time production methods. This transformation has resulted in world trade growing at an average annual rate of 6.5 percent with trade relative to output tripled.

Globalization of the supply chain and intra-industry trade – fuelled by increased trading in intermediate and final goods, which accounted for 27 percent of all trade in 2006 – reached unprecedented levels, with increasing opportunities for developing countries to take on ever more active roles in the global economy (Brühlhart, 2006). At the same time, economies of scale in transport, advances in infrastructure and transport services, containerization, further streamlined processes, and the production of manufactured goods have all led to economic agglomeration, which has changed the landscape of the world economy. Trade patterns have also shifted, with increasing flows between neighbouring countries and trading blocs with similar factor endowments.

Commentators have argued that one explanation for Latin America and the Caribbean's slower integration into the world trading system is their inability to cope with a globalization process that is inherently transport-intensive and where supply chains are now being organized on a global scale. Technological innovations in the area of transport have changed the economic landscape of the world, allowing countries to exploit economies of scale in both the transport and the production of manufactured goods. However, the region continues to invest less than others in infrastructure and the logistics performance that would allow it to fully benefit from these developments.

Regional integration has brought with it significant development in the global trading system, driven by globalization as well as the democratization of political power and the search for stability in the global economy. It has also brought about changes in regional governance and technological innovation.

These two phenomena – globalization and regional integration– are in large part a result of successive efforts by governments to establish a global trading system. Many commentators have agreed on one point – that both Latin America and the Caribbean have been actively involved in the transformational processes that have deepened considerably since the 1990s with the unilateral opening of economies and increased regional trade agreements.

Latin America, on one hand, has had a long tradition of regional cooperation and integration through the rise of import-substituting industrialization (ISI) development strategies and the creation of the Latin American Free Trade Association (LAFTA) and the Central American Common Market (CACM). ISI strategies have been focussed on promoting indigenous small-scale businesses through high levels of external protection, state participation and investment regulation, with the intention of achieving export-led growth and decreased dependence on highly industrialized countries. This approach was premised on growth potential for the small businesses and the creation of production efficiencies which would allow them to compete in the global market.

However, due to a complicated political and economic climate, the first attempt at regional integration in Latin America (LAFTA) was unsuccessful. This was due to factors such as:

- National protectionism marked by tension between the state and the private sector.
- Trade negotiations which did not provide sufficient incentives to create a rule-based system that would allow the benefits from increased exchange to be evenly distributed among member countries.
- The development of national and regional infrastructure, low levels of investment and maintenance and poor transportation services hindered the potential gains from increased regional cooperation amongst the Latin American countries.

While this has been the case with Latin American nations the Caribbean, on the other hand, had a remarkably different history of economic integration, due to the late independence of many of the island nations from their colonial masters. The first attempt at regional integration was the Caribbean Free Trade Association (CARIFTA), which was established in 1968 with the intention to liberalize trade between member nations. In 1973, the Caribbean Community (CARICOM) replaced CARIFTA as a result of the imbalance in benefits accruing to member nations.

Following the debt crisis of the 1990s and the structural reforms promoting trade and financial liberalization, Latin America and the Caribbean entered into a period of revived regional cooperation in an attempt to reduce traditional barriers to trade while at the same time promoting open and competitive economies. This also encouraged a development strategy that brought about increased cooperation and trade by securing reform through institutional arrangements.

Commentators have pointed out that, while subregional initiatives did not limit agreements to trade, they have incorporated structural considerations to reform the institutional environment and to build longer-term strategic policies, which enable member countries to compete in the global trading arena. These strategic policies include agreements in standards, transport, customs cooperation, services, investment, dispute settlement, labour and competition. According to experts, through these measures, member countries have sought to enforce internal regulatory measures as well as capture the benefits of increased opportunities for export diversification, foreign direct investment (FDI), greater specialization, product differentiation, and intra-industry trade resulting from increased market access and a clear regulatory framework.

Reduction in Barriers to Trade

The last few decades have seen a remarkable reduction in barriers to trade and significant improvements in maritime transportation, containerization and ICT. These have brought about significant reductions in the length of time and the cost of global transactions and exchange. Importantly, regional integration has not only strengthened

the bargaining power of many Latin American and Caribbean countries; it has also created opportunities for intra-regional trade and economic growth. Nevertheless, Latin America and the Caribbean region continue to lag behind many of the industrialized countries in securing benefits from increased trade liberalization and regional integration. At the same time, they are unable to maintain their share of world merchandise exports.

The Tariff Structure

Many countries continue to rethink and re-evaluate the value of regional trading blocs while creating stronger incentives to deepen regional integration. The benefits derived by many countries from regional integration have been expanded to include freight logistics, specialized infrastructure and trade facilitation. A 2003 IDB study pointed out that a 10 percent decrease in freight costs and tariffs would boost bilateral imports of Latin America and the Caribbean by 46 percent, with intra-regional exports growing by an average of 60 percent.

According to the experts, tariffs in the Latin American region declined from over 40 percent in the mid-1980s to about 10 percent in 2008, while over 57 regional integration initiatives were signed. However, this figure is less in the Caribbean as the region's average still hovers around 30 percent. The share of intra-regional trade within the region's major trading blocs has declined as a result of limitations in the integration process. According to the experts, these have been caused by limited progress in trade facilitation measures; however, difficulties have also arisen from deficiencies in funding opportunities and political deadlock in advancing a more integrated trade and policy agenda.

This has led many commentators to argue that developing countries such as those of Latin America and the Caribbean are finding themselves hard-pressed to adjust their trade policy agenda to take into account trade costs not covered in past rounds of trade negotiations. Despite efforts to increase regional cooperation in trade, Latin America and the Caribbean continued to show weak performance when compared not just with industrialized countries of

the West but also with other developing countries such as Costa Rica. Logistics performance indicators consistently show Latin American and Caribbean countries underperforming relative to other emerging markets, not to mention the member countries of the Organization for Economic Co-operation and Development (OECD).

Logistics Performance

Increased efficiency in freight logistics and the advancement of the trade facilitation infrastructure will effectively enable new regional players to enter the global economy. Without a renewed focus on trade transaction costs, however, both Latin America and the Caribbean will continue to be left out of self-reinforcing production and trade networks while economies of scale in production and related transportation performance will continue to make it more difficult for them to compete at the global level. Because the Latin American and Caribbean regions lack the basic infrastructure in order to compete globally, both regions will need to focus specifically on the following in order to achieve the benefits of integration:

- Provision of basic infrastructure, particularly road networks and the development of trucking service industry in each country, and inland within Latin America.
- Improvements in services and regulations that facilitate public-private partnerships, as in port and railroad infrastructure.
- Improved services delivered by each region to facilitate customs management, border crossings, information and communications technologies and security.
- Support to logistics and value chain management development in small and medium-sized enterprises, operations, and intermediaries.
- Implementation of an institutional structure to facilitate high-quality logistics performance.
- Integration of regional infrastructure development criteria, giving priority to projects of greater regional impact.
- Development of financial mechanisms to increase investment in key areas.

- Commitment to an agenda for productive integration and freight logistic services, which supports national and subnational entities in the public and private sectors.

These initiatives will help the region better cope with a changing international environment and allow it to exploit the positive links between trade, integration, and economic growth.

An array of logistics performance indicators show the region lagging behind most industrialized countries and several developing regions. The 2009 Enabling Trade Index (ETI) shows Latin America and the Caribbean achieving an overall score of 3.76 out of 6, with the global average being 4.27. Similarly, the Logistics Performance Index overall ranking positions Latin American and Caribbean countries behind those of the Middle East and Northern Africa as well as the industrialized countries of Asia, with their lowest scores being in customs performance (2.37 out of 5) and infrastructure (2.38). According to Guasch and Kogan (2006), poor logistics performance has also led to higher transport costs for the Latin American and Caribbean regions relative to their counterparts. Currently, logistics costs in Latin America and the Caribbean range between 18 and 34 percent of product value, while the OECD benchmark is 9 percent.

Scale and Technology: Driving Forces in Logistics Development

Bigger Ships Are Coming

The global container shipping industry is the backbone of intercontinental supply chains, accounting for some 98 percent of intercontinental containerized trade volume and 60 percent of trade value. The most meaningful way to measure demand and capacity is by what is termed 40-foot equivalent units (FEU), which represent one FEU transported one kilometre in distance. In 2007, the global container-shipping network transported almost 600 billion FEU of goods. Interestingly, the largest trade based on this metric was Asia/Europe with 174 billion FEU, which represents 29 percent of global flows. The transpacific, with 140 billion FEU and 24 percent of global flows, was a close second. In terms of originated container shipments, intra-Asia still dominates with 19 million FEU but is only the third largest container trade due to a much shorter average length of haul.

The news has been especially bright for lines specializing in container shipping. At least one shipping line, Maersk, believes the future looks positive. The company has placed on order 10 of the world's largest ships, the Triple-E, the first of which was expected to be delivered in 2013 (Martin, 2011). The Triple-E is the newest innovation in container vessels, with a U-shaped hull that allows for an added row of containers, giving it 23 rows across its width, compared to Emma Maersk's 22 rows. This US\$190 million, 400-metre behemoth vessel will carry 18,000 TEU containers (2,500 more than the current largest, Emma Maersk). According to industry reports, the expanded hull and extra row provide additional capacity for 1,500 containers. Triple-E ships can only accommodate 34 persons and will be operated with a standard crew of 19 seafarers (although it can be operated with as few as 13 people). In addition, Triple-E ships will be capable of travelling at 23 knots but they will be purpose-built to travel more slowly. For environmental purposes, the ships will be able to reduce their CO₂ emissions significantly by travelling 8 knots slower than their top speed.

The report further indicates that the additional container space has been created in the vessel by moving the navigation bridge and accommodation 5 bays forward and the engine room and chimney 6 bays back in what is called a ‘two-island’ design. With the more forward navigation bridge, containers can be stacked higher in front of the bridge (approximately 250 more) without losing visibility. And approximately 750 more containers fill the space behind the bridge above deck and below deck using the space created by the engine room’s position further to the back of the vessel.

With a length of over four football fields (400 meters), the Triple-E ships will be the longest vessels plying the seas. For purposes of comparison, Martin notes that the Emma Mærsk class vessels are 396 metres long, the supertanker Berge Emperor is 380 metres long, the cruise ship Allure of the Seas is 361 metres long, and the carrier USS Enterprise is 341 metres long. Martin further reports that, “the largest ship ever built was the supertanker Knock Nevis which was 458 metres long but is no longer in service and is being scrapped.”

In a move set to affect global shipping transport costs and efficiencies, Maersk has an additional 20 Triple-E ships on order. High-level economies of scale will enable the new vessel to surpass the industry record for both fuel efficiency and CO₂ emissions per container moved. Bigger ships mean improved efficiency only if the ships can be filled to capacity. Industry analysts believe that more and more companies will try to reduce their carbon footprint for reasons of both publicity and profitability. Martin (2011) points out that the Triple E’s enormous capacity will enable Maersk to move the greatest number of containers possible for its customers in the most energy-efficient way and with the smallest CO₂ footprint.

Maersk is not alone in its desire to have bigger ships. Industry updates indicate that other shipping lines are already making enquiries of Choe Yong Seok of Daewoo Shipbuilding and Marine Engineering in Seoul, South Korea, to explore the possibility of building ships that can carry 20,000 20-foot containers, a capacity which is more than double the capacity of most common vessels now in operation.

Freight Logistics

International trade is facilitated by freight logistics services, which provide efficient integrated management of point-to-point supply and distribution chains. Logistics suppliers manage the supply chain process by planning, implementing, and controlling the efficient and effective point-to-point flow and storage of goods, services and related information, throughout the production, distribution and delivery stages, from the initial suppliers of inputs to final consumers of products. Logistics services form a crucial and integral part of supply chain management and are a major determining factor of the competitiveness of an economy in global trade and investment.

Efficient freight logistics services are beneficial to world trade in goods and services and crucial to the economic development of different economies. The availability of competitive logistics services enhances overall efficiency and competitiveness in international trade. For this reason, the international trend is to focus on the integrated management of the supply chain, which enables manufacturers of goods as well as service providers to pay specialists for providing freight logistics management, and to focus better on their core competencies in a bid to enhance their competitiveness.

Caribbean countries have significant interests in high levels of imported goods to service their dominant tourism industry as well as local demand. Their few exports are primarily agricultural products with limited industrial goods that would benefit from timely, reliable and efficient supply chain. Competitive logistics services also benefit transport service suppliers through more efficient use of their capacity to reduce costs and improve profitability. Logistics costs, including transport, packaging, storage, inventory, administration and management, are a key consideration for all players in the international logistics chain.

The Aftermath of the Economic Recession

The early part of 2011 was characterized by declining freight rates and oversupply of capacity in the world's major trade lanes. Once again, the container shipping industry sat uncomfortably close to a self-

induced financial meltdown, which would return the main players and their customers to a period of instability and service change.

Despite efforts to restore freight rates to reasonable levels in 2011, in reality there was limited success. From a brief peak in mid-2010, freight rates have fallen almost continually and are now dangerously close to loss-making levels; this will potentially destabilize the market. Continued overcapacity underpins the ongoing roller-coaster ride for freight rates. Despite the carriers' previously proven ability to lay-up capacity when financial disaster was close, so far there has been no significant move towards a repeat of this. Capacity continues to increase both in size and number of vessels and negligible economic growth in Europe and the USA, for example, could delay the prospect of higher demand.

Despite the current mismatch of capacity and demand, a clear long-term strategy has been demonstrated by at least one carrier who is ordering container vessels significantly larger than anything else afloat. Such a move could result in a significant reduction in operating costs per container which may prove good for the consumer, as and when these savings are achieved.

What the Future Holds for the Shipping Industry

Industry experts forecast that the US economy will recover further and thereafter, experience modest growth over the next ten years, averaging 2.7 percent per year. Europe's economy, on the other hand, will grow slightly slower at 2.3 percent per year, while Asia will be the fastest growing with 4.4 percent real growth. Likewise, global container traffic, measured in FEU, was forecasted to grow at 6.9 percent over the same period. Growth in the first five years will average 7.5 percent per year, compared to 5.8 percent per year from 2012 to 2017, as the largest markets would become mature and as certain product categories would reach their maximum import substitution potential.

Europe is estimated to be about five years behind the United States in terms of large-scale shifting of production to Asia, and thus has more import growth potential relative to the transpacific trade.

In the same manner, industry experts forecasted that forwarders will be the fastest growing customer segment in the Asia/Europe

market and will continue to take direct shipper business away from container carriers. Eastbound transpacific market volumes will grow slower than Asia/Europe, at 6.9 percent per year, and revenue even slower at 3.8 percent per year from 2009 to 2012. But similarly to the Asia/Europe trade, forwarders will be the fastest growing customer segment within the transpacific.

The Caribbean at the Cross Roads

World merchandise trade, especially that which is containerized, has outpaced world Gross National Product changes over the last 20 years. According to the *Journal of Commerce* and *Containerisation International Year Book*, in 2010, Latin American and Caribbean ports handled approximately 47 million TEU, representing eight to nine percent of world container throughput. The total global throughput was estimated at 546 million TEU of which the Far East and South East Asia accounted for over 50 percent, Western Europe accounted for approximately 90 million TEU and North America just under 50 million TEU. It was further estimated that approximately 20 million containers or 4 percent of world throughput were handled in countries bordering the Caribbean Sea and the Gulf of Mexico.

The figure for Latin America and the Caribbean presents a distorted view of the real Caribbean numbers. The Caribbean microstates account for less than 10 percent of the total volume of cargo. Maximum container capacity for Kingston, Jamaica; Freeport, the Bahamas and Caucedo, Dominican Republic combined stands at 5,550,000, representing approximately 12 percent of the actual 47 million TEU moved by the Latin America and Caribbean grouping. In reality, these three ports accounted for just over 3.5 million TEU representing 7 percent of the actual 47 million TEU moved.

The economies of Latin America and those of the Caribbean are diametrically opposite in that the countries of Latin America are agro-based and light manufacturing economies. These economies are more attractive to the shipping lines as they provide a two-way trade, enabling competitive shipping rates provided by the looser match between imports and exports. With the virtual death of the sugar and banana industries in the Caribbean, the Caribbean countries are classified as

the most tourism-dependent nations in the world. Economies such as those of Antigua and Barbuda and the British Virgin Islands see in excess of 90 percent of revenue being derived from tourism. Despite the small parcel sizes of import cargo, there is little or no export generated from the Caribbean, creating a significant trade imbalance and placing pressure on import cargo freight rates to bear the cost of empty container returns.

Reviewing the container shipping order book between 2011 and 2015, 49 percent of the total vessel capacity on order is in excess of 10,000 TEU; 17 percent represents vessels between 8,000 to 9000 TEU and 11 percent represents vessels between 4,000 and 5000 TEU. Vessels of up to 1,000 TEU represent less than 5 percent of the global order book. This means that the relative freight rates for these smaller vessels will continue to remain significantly higher per TEU capacity than the larger vessels, and leave very little option for fleet renewal.

Most of the ports in the Caribbean and in particular the OECS countries are state monopolies with the primary objective of creating employment as opposed to productivity and efficiency. The concept of a social port serving commercial shipping lines is further complicated by the fact that during the winter tourist season, when cargo volumes are highest, they coincide with the peak period of cruise ship visits, which take priority for the berth, thereby leaving the cargo vessels to load and discharge at night at exorbitant overtime rates. The picture becomes even more complicated as many Caribbean ports invest in creating dedicated cruise ship facilities which are occupied for less than 40 percent of the year due to the seasonal nature and volatility of the cruise industry.

Interestingly, over 600,00 metric tons of cargo are transported annually between the OECS states by small, intra-regional schooner vessels. Countries such as Dominica, St. Vincent and Montserrat rely on these vessels, which are not officially recognized as the third layer of the Caribbean maritime infrastructure network. In essence, as globalization and technology continue to reshape global trade, it becomes more difficult for the smaller Caribbean economies to survive as for all intents and purposes they are classified as miscellaneous without due recognition to their uniqueness. The Caribbean cannot continue to pursue the mass market in general as the scale of the vessels in operation threatens the viability of these delicate economies.

Transformation Through Human Capital

Addressing the Productivity Challenges

The historical backdrop for sea transportation in the Caribbean is that of piracy, slavery and colonialism, in a setting of small market needs. The movement of world oil prices, the impact of globalization, and containerization have all changed the backbone of the global shipping industry and the Caribbean was slow in responding. Today, the Caribbean is categorized as being two to three times more expensive in trade facilitation than the rest of the world. With the container revolution currently in its sixth generation, with 15,000 TEU vessels on order, the Caribbean islands are constantly dredging and upgrading infrastructure in an attempt to remain relevant in a changing global environment.

The Value of Training

The pressure on the Caribbean has not just been on the physical infrastructure but on finding and retaining qualified human resources. In addition to the fact that the Caribbean has not kept pace with the advances in information technology, there is a wide disparity between countries and ports of the region in terms of productivity, as shown in Tables 7–11 in Chapter 3. Caribbean ports have now recognized the need to invest in the development of the human resources in the shipping industry. To date, Jamaica, Barbados and St. Kitts and Nevis have recognized this and have entered into partnership with the Caribbean Maritime Institute, the only IMO-accredited, maritime white-listed training institution in the Caribbean. It is also accredited by the NCTVET for training and certification of various workers. Stevedores, stevedore coordinators, crane operators, lines men, equipment operators (straddle carrier, gantry crane, vessel planners, yard planners, top lift drivers, fork lift drivers, tractor trailer drivers, stacker drivers and equipment dispatchers) are being trained and in the engineering department, maintenance technicians, mechanical engineers and electronic engineers. Both Barbados and St. Kitts

have invested hundreds of thousand of US dollars in training their workforce in these areas, with the highest demand in the maintenance departments.

Caribbean waterfronts have been the birthplace of major trade unions across the region. Today, the shipping associations across the region serve the dual role of providing a competent workforce on the ports as well as being active trade unions, thus protecting the rights of workers in a harmonious and productive environment.

Gender Imbalance

A major productivity challenge facing the Caribbean is the gender imbalance in the shipping industry. Most ports in the region are labour-intensive and operate on the basis of archaic and restrictive labour practices, and in some cases exclude women. In the past, women's status in society and their participation in economic activities were strongly influenced by religion and the traditional roles ascribed to them. Likewise, lower enrollment of girls in technical subjects in secondary and tertiary educational institutions probably stems from these traditional expectations. In the past, the shipping industry offered a way out of poverty for many male workers as employment in the industry provided access to foreign currency and a regular salary, thus having a direct impact on the economic viability of maritime industry workers and their families. The shipping industry is now seen as a possible career path for the finest talent, regardless of gender.

In reality, there is no reason why women should not participate in and benefit from employment within the shipping industry. The irrelevance of sea experience to many shore-based jobs means that the skills of the sea experience cannot be transferred to shore-based jobs, which imposes long-term constraints on the representation of women in the sea-faring industry. Also, the perception that certain jobs are men's jobs leads to lack of training and work-experience opportunities for women. This is a reality in contemporary society as many shipping lines are still slow to accept women into technical aspects of shipping employment.

Just as there are more women who have been led into the fashion industry or primary school teaching because of 'custom and practice'

or tradition, it is gender stereotyping which decrees that “shipping is a man’s world,” and this must be addressed. The obstacles to this are several and notably so in an international context where there are cultural, traditional and even historical objections to be surmounted, if women are to play a full part in an essential maritime industry.

To break the cycle, adequate training must play a critical role in the integration of women into all spheres of professional life, including shipping, with special emphasis on improving accessibility at all levels of training to women applicants. At the Caribbean Maritime Institute, in 2009 a female cadet topped the class of 110 students of which women were only 10 percent. Despite the troubled economic waters of recent times, employment in the shipping industry is becoming wide open. Times have changed. Today, more women are getting on board. Now women are more likely to be found swabbing decks or servicing the mammoth steam turbines below, side to side with their male counterparts.

In 1988, the IMO published its first Strategy for the Integration of Women in the Maritime Sector. This policy identified access to training and employment for women as two priority objectives. Also, the IMO’s global programmes aimed to integrate women into mainstream activities and to promote the participation of women in maritime training, short-term consultancies, regional seminars, fellowship programmes and in-house gender training. Industry studies indicate that the technological revolution within the maritime sector is calling for a highly-trained workforce. Female seafarers are an under-utilized and underdeveloped resource that could provide part of the solution to the problem of crewing the world’s merchant fleet. However, it is clear that to achieve this there is a need for changes in attitude towards employing women as seafarers, recruitment of women in the shipping sector generally and increased training opportunities for women in logistics and supply chain.

The Caribbean Maritime Institute is currently working on developing a Caribbean Vocational Qualification (CVQ) to address the training needs of the Caribbean shipping and logistics industry. This development will facilitate training from basic entry-level skills to Masters degree levels, addressing both middle and top-level management needs in the industry.

Laws and Regulations Governing Logistics Services in Jamaica

A Legislative and Regulatory Framework

The need for a light-handed, flexible and clear legislative and regulatory framework has been cited as critical elements of a successful logistics services sector. Of note, countries which have ranked high on the World Bank’s Logistics Performance Index such as the Netherlands and Singapore have been reported to have regulatory frameworks which are transparent and tax-friendly, and that support trade facilitation and competition with resultant lower costs to service providers. The quality of the regulatory framework for the attraction and support of logistics services is critical to the development of the sector, and achieving the balance of enforcing internationally acceptable standards while increasing competitiveness is a challenge for most countries, not the least being Jamaica (Pinnock and Ajagunna, 2012).

While an appropriate level of regulation creates the environment for the reliability and predictability of transport and logistics services, heavy-handedness or over-regulation has the opposite effect. Increased restrictions increase the time and cost of compliance and negatively affect the price, reliability and quality of logistics services and are considered restrictions to trade. The regulation of relatively new sectors such as logistics in Jamaica may require specific or targeted legislation, which will not only facilitate the need for a clear regulatory framework but also allow for easy revision to meet the rapidly changing requirements of the sector. In developing such legislation it is important to review existing legislation to avoid any conflict of jurisdiction or interpretation (Pinnock and Ajagunna, 2012).

The World Bank-sponsored report “Freight Transport for Development: Integrated Logistics” (2010) stated that one of the main objectives for the regulation of logistics services would be “the development and maintenance of supportive service market institutions, which at the same time are open, adaptable and pro-

competitive”. The report highlighted areas where regulations will play an important role in ensuring that the logistics service sector operates effectively and efficiently:

- Open market entry
- Liberalized business investment and business-permitting policies
- Liberal emigration policies allowing expatriate logistics managers to bring specialized skills into a developing country
- Reduced taxes on foreign services supply, resulting in tax reduction on production, thus allowing for greater economic growth
- Light-handed regulation to allow for the attraction of the best global technologies and management practices
- Regulatory policies that encourage diversity since the integrated logistics services sector contains multiple segments
- Regulations to ensure that less sophisticated buyers get assurance that the advertised services of the logistics services providers are genuine; this can be done through professional certification

The general focus of the study was that legislation should liberalize the economy, allowing for foreign participation where necessary and certainty in the standards of the providers of logistics services in the jurisdiction. A number of areas of regulation that touch and concern the logistics services sector, including the matter of market access raised in the above-mentioned World Bank report, have been identified below:

- Maritime transport
- Customs facilitation
- Security
- Competition
- Market access
- Logistics competence
- Immigration
- Fiscal incentives
- Labour
- Dangerous goods
- Trade

Maritime Transport

Efficient maritime transport is a key element of the provision of logistics services. The regulation and control of ships operating in the ports of a country is required to be in accordance with the International Maritime Organization (IMO) standards governing safety, security and the protection of the marine environment and, in particular, the recommended mandatory legal instruments. The adoption of the applicable IMO treaties achieves some level of harmonization of global standards with the resultant facilitation of maritime traffic and reduced costs to the participants in the supply chain. The applicable legislation in Jamaica is outlined below:

Shipping Act, 1998: The Act establishes the Maritime Authority and sets out the legal framework for administration of ship registration, seafarers' welfare, safety, wrecks, salvage, casualty investigation and related matters. The Act incorporates the primary international treaties governing the safety of life at sea and provides for the inspection of foreign ships calling at Jamaican ports for compliance with the Act in keeping with the international practice for the conduct of port state control. The Act contains certain restrictions related to the commercial operation of foreign flag ships in Jamaican waters; however, regulations in the form of the Shipping (Local Trade) Regulations, 2006 were passed to provide for conditions under which foreign registered ships can operate within Jamaican waters. Local trade, which involves activities such as dredging and towage, must be distinguished from the trading of foreign flag vessels within Jamaican ports for which there are no restrictions.

Port Authority Act, 1972: The Port Authority of Jamaica was established pursuant to this Act with a mandate for regulation and development of port facilities and the maintenance of ship channels and navigation aids. The Port Authority is charged with the regulation of the use of all facilities in a port. Port facilities are defined as facilities for, inter alia, dry-docking, berthing, loading and unloading of goods, carriage of passengers, and warehousing. The Port Authority may also operate port facilities vested in the Authority and may, under the direction of the Minister responsible for transport, operate port

facilities, which are not vested in the Port Authority. The Authority also has the power to regulate the berths and stations occupied by vessels in a port. The restriction of maritime service activities is not uncommon worldwide, which has resulted in delays in the treatment of maritime service in WTO-related instruments. Notwithstanding, the possible lessening of competition arising from the ability of the government through the Port Authority to operate and regulate warehouses in particular could be deemed as restrictive in the promotion of logistics services.

The Port Authority (Compulsory Towage) (Harbour of Kingston) Directions 1994: This subsidiary legislation developed by the Port Authority regulates the provision of towage services in the port of Kingston.

Harbours Act, 1874: The Harbours Act establishes the position of the Harbour Master and regulates the movement of ships within the declared harbours of Jamaica and the maintenance of aids to navigation.

Harbour Fees Act, 1927: This legislation provides for the payment of fees by ships to the Collector of Customs, on behalf of the Port Authority, for maintaining the harbour. Certain vessels are exempted from paying fees (for example, government ships, pleasure craft, vessels in distress).

Pilotage Act, 1975: The Act regulates the pilotage service, which adds to the safety of vessels calling at Jamaican ports and devolves the administration of the service to the Port Authority of Jamaica.

Quarantine Act, 1951: The Quarantine Act regulates the prevention of the spread of any infection by means of a ship. It requires certain documentation to be produced and signals to be displayed. A ship may not enter a port until it gets clearance known as 'pratique'. Quarantine officers have powers to inspect ships to determine whether the cargo may be discharged, as well as powers to detain or send it to a port which the officer thinks can address the presence of a communicable disease on board.

Public Health Act, 1985: This Act also regulates the prevention of communicable diseases. The definition of ‘premises’ under the Act is all-embracing and includes warehouses, factories, port facilities and ships in so far as issues affecting public health are concerned.

Wharfage Act, 1895: The rights and duties of a wharfinger and the setting of wharfage rates for goods that pass through the port are governed by the Wharfage Act. The Act also sets out the duties of wharfingers in relation to the receipt, delivery and storage of goods. In carrying out statutory duties as a bailee to take due care of goods in his or her possession, a wharfinger is required to erect and maintain adequate sheds or other places of security for storing goods. Matters relating to free storage periods and penal rates for the storage of goods beyond the statutory free period are also addressed under the Act. Additionally, the Act provides for the Port Authority and wharfinger to set rates for loading, unloading, movement, receiving and delivery of containers or other service of whatever nature rendered in connection with that wharf in relation to containers. The Wharfage Act does not address the management of containerized cargo and dangerous goods, and the regulation of wharfage rates. In this regard, it needs to be revised.

Security

Since the events of September 11, 2001, supply chain security has become a significant factor in the provision of logistics services. In July 2004 the IMO adopted amendments to the International Convention on the Safety of Life at Sea, 1974, as amended to introduce the International Ship and Port Facility Security Code. The Code sets out the standards for assessing security risks and the implementation of measures to reduce the security threats to ships and port facilities. The failure to implement the Code will result in a country’s ports becoming uncompetitive, as ships will no longer call at ports that cannot demonstrate that they have adequate security measures.

Port Authority (Port Bustamante Security) Regulations, 1989: This regulation addresses the registration of exporters and truckers as part of the security arrangements for accessing wharf premises. This

is the only legislation that contains provisions governing truckers and freight forwarders, albeit minimal.

The Port Authority (Port Management and Security) By-Laws, 2005: These by-laws implement Chapter X-2 of the International Convention on the Safety of Life at Sea, 1974, as amended, which incorporates the International Ship and Port Facility Security Code in relation to port facilities. Of note, there is no legislation incorporating the provision of the ISPS Code in relation to the security measures applicable to ships and the companies that manage ships, and this deficiency should be cured as a matter of urgency.

Labour

Having regard to the relatively low level of logistics competence in Jamaica and Barbados and the need to attract international logistics firms and professional logistics managers to support logistics centres, it is important that the labour legislation is not unduly restrictive in relation to the employment of foreign workers.

Immigration Restriction (Commonwealth Citizens) Act, 1945: This Act is the primary legislation governing the control of the employment of foreign nationals, which as indicated above is key to the initial phases of the development of logistics centres and services in general. The grant of a work permit is in the absolute discretion of the Minister responsible for labour who may grant the permit either conditionally or without conditions, or may refuse to grant it. Although this provision is not unusual it may be appropriate to adopt some policy guidelines supporting the need for foreign service suppliers in the logistics services sector.

Factories Act, 1943: The Factories Act regulates the registration of factories and equipment therein, the approval of plans for the construction of new factories and the health and safety conditions required to be maintained. The definition of factories should be amended to include docks and warehouses where value-added logistics services are being carried on.

Labour Relations and Industrial Disputes Act, 1986: The Act and the Labour Relations and Industrial Disputes Regulations, 1975, are key pieces of legislation that provide for a stable industrial relations environment, which is key to the attraction of logistics providers and business investors to Jamaica.

Caribbean Maritime Institute Act, 1993: The lack of certification of persons working in the logistics sector has been highlighted as a major weakness of developing countries and is a factor that is taken into consideration by investors in logistics centres. The Caribbean Maritime Institute, established under the Act to deliver training for the shipping industry, is currently specifically training personnel for participation in the logistics services sector.

Customs Facilitation

Customs facilitation plays a critical role in the increased level of efficiencies and associated lower costs that logistics services seek to achieve. Whilst a number of the issues in relation to facilitation do not involve the amendment of the Customs Act, 1955, but the revision of procedures, it is important that mechanisms be put in place to adapt to the requirements for logistics services providers. The Customs Act addresses the matter of the licensing of customs brokers and their primary duties are set out in the legislation. This ensures that some standards are being applied in the provision of brokerage services.

It is noteworthy, however, that there are no provisions regulating the operations of freight forwarders. Freight forwarders play an important role in the provision of logistics services and legislation should be adopted to provide for licensing as soon as reasonably possible. The licensing of bonded warehouses is also covered by customs legislation and the statutory provisions should be examined to ensure that the requirements of logistics centres can be facilitated.

Dangerous Goods

Over 50 percent of all the goods carried by sea can be considered dangerous and logistics services will increasingly involve the handling of such goods. A clear licensing regime for persons whose services

involve dangerous goods is necessary. There is no dedicated legislation incorporating the International Maritime Dangerous Goods Code (IMDG Code) for the handling of dangerous goods. However, the Shipping Act, 1998 provides at Part IX for regulations to be put in place to incorporate the IMDG Code. Draft legislation is in place.

Competition

The Fair Competition Act, 1993: The Act prohibits anticompetitive conduct which harms consumers directly or indirectly, and established the Fair Trading Commission with powers to investigate the actions of enterprises that may lessen competition or result in abuse of an enterprise's dominant position in the market.

The Customs Duties (Dumping and Subsidies) Act, 1999: The Customs Duties (Dumping and Subsidies) Act, establishes the Antidumping and Subsidies Commission, implements the provisions of the Agreement on the implementation of Article VI of the General Agreement on Tariffs and Trade, and connected matters. Rules relating to the determination of fair market price, and material and injury arising from the dumping of goods are established under the regulations made under the Act.

Fiscal

Income Tax Act, 1955: A detailed review of the Act was not undertaken; however, issues relating to the withholding tax and the enhancement of double taxation arrangements with trading partners will have to be explored in any policy governing the development of logistics services.

Market Access

Legislation that is discriminatory against foreign suppliers of services will reduce the attractiveness of the jurisdiction to logistics services suppliers. The legislation examined in relation to logistics did not have any restrictions to market access by foreign suppliers save and except for the licensing of pilots and the conduct of towage services. The Revised Treaty of Chaguaramas also requires that national treatment

be given to service suppliers of other member countries. In some cases, foreign suppliers are restricted from providing their own port-related services.

Trade Facilitation

Export Industry Encouragement Act, 1956: This Act provides fiscal incentives to companies involved in export activities. The activities which are considered approved export services are listed in the Second Schedule of the Act and although some of the activities could fall within the classification of logistics services it is recommended that the schedule be amended to specifically provide for logistics services.

Jamaica Export Free Zone Act, 1982: The Jamaica Export Free Zones Act, 1982, provides the legal framework for the encouragement of prescribed export activities through the grant of customs duty, General Consumption Tax and stamp duty relief for capital goods, raw materials components, or articles intended for use in connection with the approved activities. Additional incentives include a hundred percent tax holiday in perpetuity and exemption from import and export licensing. The First Schedule of the Act prescribes the activities that may be carried on in a free zone, which includes storing, warehousing, transshipment, exporting, loading and unloading. The Act also provides for the establishment of single-entity free zones where a company may have its own premises designated as a free zone and enjoy all the benefits granted under the Act to free zones. The Act can, without much revision save amendments to the First Schedule, support logistics service activities. The use of the free zone concept has been applied with much success in the top logistics services jurisdictions such as Singapore and the Netherlands.

Carriage of Goods Act, 1889: The application of the internationally accepted rules governing bills of lading is an important part of the legal framework for international trade involving ships. The Carriage of Goods Act incorporates the 1924 International Convention for the Unification of Certain Rules of Law Relating to Bills of Lading (Hague Rules). Issues related to containerization and multimodal operations are not addressed in the legislation, which is in need of revision. The

recently adopted Rotterdam Rules should be considered during any review of the legislation.

Bill of Lading Act, 1855: The Act enables consignees and other lawful holders of bills of lading to sue under the contract evidenced by the Bill of Lading. The Act is in need of revision to deal with the modern forms of bills of lading, including the use of electronic bills of lading.

Cargo Preference Act, 1979: The legislation provides for the reservation of certain cargoes transported to or from Jamaica to Jamaican government controlled ships. The Act is in breach of WTO rules regarding market access and, in particular, national treatment and the Most Favoured Nation principle. The Jamaican government no longer owns ships and as such, the Act is not being applied and should be repealed.

Trade Agreements

The European Partnership Agreement (EPA) signed in October 2008 between members of the European Union and CARIFORUM countries is an important pillar in the development of logistics services in Barbados, Jamaica and the Caribbean in general. The EPA will allow European logistics services suppliers unrestricted access to the markets in the Caribbean save where special reservations recognized under the Agreement have been made. The Agreement also requires countries to commit to ensuring that their trade and customs legislation and procedures take into consideration international instruments and standards applicable in the field of customs and trade, including the substantive elements of the revised Kyoto Convention on the simplification and harmonization of customs procedures, the World Customs Organization (WCO) Framework of Standards to Secure and Facilitate Global Trade, the WCO data set and the International Convention on the Harmonized Description and Coding System (HS) (Article 31).

Additionally, state parties commit to the simplification of requirements for the rapid release and clearance of goods, which are key to successful logistics operations. International maritime transport is defined under Article 109 of the Agreement as including “door to door and multi-modal transport operations, which is the carriage of

goods using more than one mode of transport, involving a sea-leg, under a single transport document, and to this effect includes the right to directly contract with providers of other modes of transport,” and European providers of these services are permitted under the Agreement to have a non-discriminatory commercial presence in the markets of the Caribbean, including national treatment. Logistics services suppliers could therefore establish businesses in the region subject to any preferential treatment granted under the Revised Treaty of Chaguaramas.

Implications and Opportunities of a Logistics Hub for Jamaica

Implications

The Caribbean remains isolated and disconnected from the global shipping and logistics supply chain. In order to achieve efficiency and productivity, the region needs to benefit from the synergies of integration. The challenge for the Caribbean is how to realign its fragmented air and maritime transportation networks. In the case of Jamaica, the country has experienced little economic growth over the last 40 years and has become a victim of globalization. Globalization describes a variety of complex economic, political, cultural, ideological and environmental forces that are altering our experience of the world. It depends on the following four primary forces – technology; global trade liberalization; specialization and economies of scale; and an integrated global supply chain (see Figure 1).

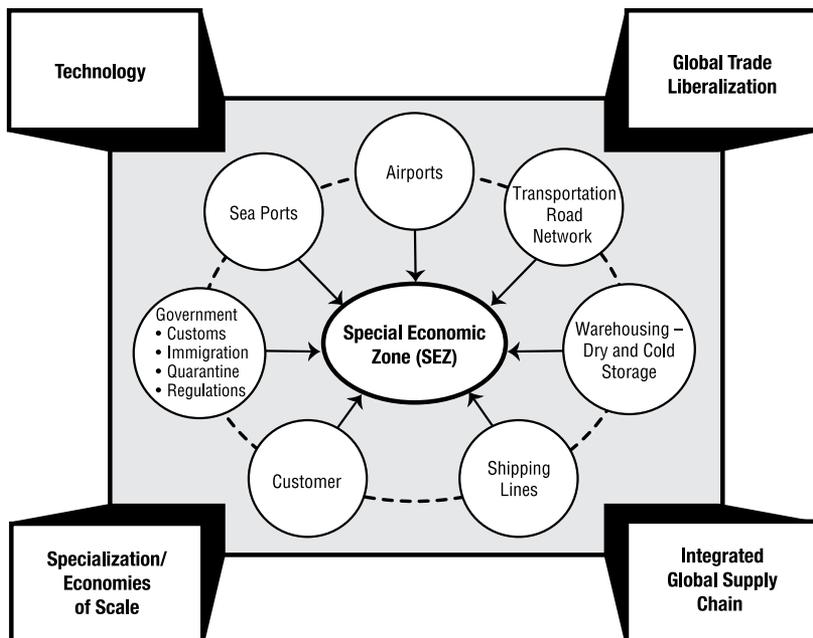
The disaggregation of the global production and distribution system has created an opportunity for Jamaica to become a part of the global value chain by virtue of the reconfiguration of the global trade corridors through the expansion of the Panama Canal. The logistics hub initiative is the vehicle through which Jamaica seeks to engage the global network. The logistics hub is a concept and not a physical space; it seeks to link up to 16 proposed economic zones through which value will be added serving the expanding populations, beyond the North-North trade to include South-South trade corridors. The implications of a logistics hub for Jamaica will include but not be limited to the following:

- Jamaica's legislative systems need to be transformed in keeping with global standards. Part of this will have to be the phasing out of free zones by the year 2015 in keeping with the World Trade Organization (WTO) ruling. According to the WTO, all export subsidies are to be removed and therefore, Jamaica will need to reposition Special Economic Zones (SEZ) as new vehicles that will provide 'legs' to the logistics hub. In addition, all legislation

needs to be in alignment to support global trade. This will require a shift from collecting duties and excise taxes to enhancing trade facilitation.

- Relatively inflexible government bureaucracy will have to change. In the global world, the right response will require a shift in power from many government ministries to a simplified structure, which allows for an easier way of doing business.
- A shift from a personality-based to an objective-based processing system will be required. At the heart of Jamaica's low productivity lies the continuous struggle for power by all levels of leaders throughout the society. The world is calling for a consistent standard, which can only be met through alignment with global quality systems. The subjective approach to leadership and management will not maintain a platform that is adequate to meet the needs of a global supply chain.

Figure 1
Challenges for Jamaica's Logistics Hub



Source: Modified from Pinnock and Ajagunna, 2012; Ajagunna, 2012

Opportunities

The impending Panama Canal expansion and the extended global economic recession of 2008 have created new opportunities for the development of multiple global logistics hub in the Central American and Caribbean region to serve North America, Central America and the emerging markets of South America. This signals an end to the traditional transshipment hub port model as the need for new port facilities surrounded by 1000 acres of land and offering economic value-added opportunities with flexible air/sea port connectivity, becomes more pressing. Since 2009, Kingston Container Terminal has lost its number one regional hub port status to MIT Panama, which transitioned from being a sole transshipment hub port to integrate economic zone value-added opportunities into its operations. As it did in the 1980s when it created Kingston Container Terminal as a new transshipment hub port, so will Jamaica need to create new sea and air ports integrated into value-added economic zones as the current KCT facilities are virtually landlocked. As Jamaica considers the first economic zone, which could occupy 6000 acres of land including a new port facility being built on the controversial Goat Island, its economic future weighs in the balance. It will no longer be about the Americans and the Europeans but about the Chinese and, to come, the Indians and the Brazilians.

For the Caribbean shipping industry to remain relevant, ports have to reinvent themselves. The traditional roles of receiving, storing and delivering cargo are no longer sufficient to maintain a competitive advantage. Ports are more than natural sites for transshipment in order to transfer goods from one mode of transport to another. They have historically provided a link between maritime and inland transport and the interface between sea, road, rail and air. Increasingly, ports are playing a more important role in the management and coordination of materials and information flow as transport is an integral part of the entire supply chain. The role is changing more to creating synergies, as well as converging interests among the players in the port community in order to guarantee reliability, continuous service and good productivity levels. To achieve a great return and for sustainability, Jamaican ports need to focus on the following:

- **Expand, modernize and integrate Jamaica's infrastructure:** This initiative presents the opportunity to expand the existing airport and seaport infrastructure to provide for greater improvement in productivity and efficiency. It will also provide the opportunity to build new airport and seaport facilities linking large-scale SEZ in order to serve the complex global economic chain.
- **Capitalize on the global trend of nearshoring:** The nearshoring market is very large and growing particularly in manufacturing, information technology and business process outsourcing services whereby many major businesses in the United States of America and Europe are rethinking their hundred percent Far East production centres because the offshore advantage of labour arbitrage is evaporating. The factors leading to the shift in nearshoring to Central and South America are cost and time to ship goods to the USA and South America. The lack of cultural affinity, as well as time zone disparity also play a key role. In keeping with the trend, nearshoring gains ground as companies seek agility, cost savings and speed to market. In essence, nearshoring provides an opportunity for Jamaica to provide value-added service to global brands, which seek to reduce some of the supply chain vulnerability by moving final services close to demand.
- **Realign Jamaica's education and training systems to meet global standards:** Over the past four decades, Jamaica's education and training system have not kept pace with the changes in global demands and trends. Jamaica's education system has been more focussed on the liberal arts, and skills training has been less desirable and considered secondary. Jamaica is now at the point where education and training systems are out of line with global standards, global certification, productivity and efficiency. The logistics hub will demand competent, globally certified and highly motivated individuals as opposed to available bodies for work. This potential shift in the economy will require a more responsive system that provides training in new and emerging skill areas. This will require large-scale training and re-training of Jamaica's workforce.

- **Infrastructural improvements:** To service segments of the global supply chain will require facilities and amenities that meet first-world standards. In logistics, two key components are bridging the distance and the time gap. Distance is bridged through efficient air and sea transportation linking with road, rail and coastal transportation. On the other hand, time is bridged through efficient movement of information, goods and services while minimizing idle inventory, which is waste in a global supply chain context.
- **Repackaging of Jamaica's rich culture:** This includes Jamaica's cuisine, music and spirits as tradeable value-added commodities. In addition, the logistics hub initiative provides the platform for Jamaica to integrate its influential and resourceful Diaspora and the local population as strong human resource assets.

GLOSSARY OF SHIPPING TERMS

Aisle space - Space in cargo sheds or warehouses found necessary by operating experience; also usually required by fire regulation.

Anchorage - That portion of a harbour (or designated area outside of harbours) in which ships are permitted to lie at anchor.

Apron - That portion of a wharf or pier lying between the waterfront edge and the transit shed. Strictly speaking, from the viewpoint of construction, that portion of the wharf carried on piles beyond the solid fill. Also called apron wharf and wharf apron.

Ballast - Heavy material, either liquid or solid, placed low in a vessel to provide proper stability, trim, or draft.

Beam - The greatest width of a vessel.

Berth - The water area, at the waterfront edge of a wharf, reserved for a vessel. The term is sometimes used to refer to the dock or wharf structure.

Bill of lading (ocean) - Document signed by the captain, agents, or owners of a vessel, furnishing written evidence for the conveyance and delivery of merchandise sent by sea to a certain destination. It is both a receipt for merchandise and a contract to deliver it as freight.

Bonded goods - Dutiable goods upon which excise duty has not been paid, i.e., goods in transit or warehoused pending use. The bond is the agreement entered into by the owner of the dutiable goods with Customs and the excise authority, in which the owner promises to pay the duty when the goods are released for final distribution or use.

Bonded warehouse - A storage facility certified by US Customs as meeting standards of security for storage of goods in bond.

Bow - The front of a vessel.

Bulk cargo - Cargo stowed without benefit of package or container, i.e., shipped loose as in grain or liquid.

Bulk container - Containers of various types designed for carriage of liquid or dry commodities in bulk. *See* Containers (types).

Bunker - A hull compartment used for the storage of ship's fuel.

Bunkers - Fuel oil.

Cargo - Freight loaded aboard a ship.

Cargo manifest - Commonly refers to a manifest which does not have charges, but rather only lists cargoes.

Carried-on and carried-off (CO-CO) - Break-bulk cargo which is carried on and carried off the ship by cargo handling equipment such as lift trucks, as opposed to LO-LO, RO-RO, or bulk loading techniques.

Carrier - an individual, company, or corporation engaged in the transportation of goods.

Cartage - Used in reference to the hauling (trucking or draying) of cargo between two points.

Certificate of origin - A certificate indicating the country of origin of the goods being shipped.

Channel - The buoyed, dredged, and policed fairway through which ships proceed from the sea to their berth or from one berth to another within a harbour.

Chassis - Special trailer or undercarriage on which containers are moved over-the-road.

Clean bill of lading - A bill of lading issued by the carrier on which no exceptions have been noted concerning the packaging or condition of the cargo in whole or in part.

Commodity - Type of article shipped.

Consignee - The individual or firm receiving shipped goods.

Container - A single, rigid, non-disposable dry cargo, ventilated, insulated, reefer, flatrack, vehicle rack, or open-top container; with or without wheels or bogies attached; not less than 20-feet in length; having a closure or permanently-hinged door that allows ready access to the cargo. All types of containers will have construction and fittings, able to withstand, without permanent distortion, all the stresses that may be applied in normal use during continuous transportation. An ISO container is constructed to the specifications of the International Standards Association. *See also* Containers (types).

Container equivalent - (FEU/TEU) The conversion of the various sizes (lengths) of containers in service into container equivalent (40-foot equivalents, 20-foot equivalents) to provide a common basis for comparison (20-foot equivalents are the internationally recognized standard comparison).

Container freight station - (CFS) The physical facility where goods are received by carrier for loading into containers or unloading from containers and where a carrier may assemble, hold, or store its containers or trailers.

Container gantry crane - Commonly used to refer to rail-mounted gantry located on the wharf for the purpose of loading and unloading containers.

Container load (CL) - A shipment sufficient in size to 'fill' a container, either by cubic measurement or weight, depending upon government tariff.

Container service - Service performed at loading port in receiving and loading cargo into containers at the container freight station and transporting such containers from the CFS to the container yard (CY).

Container terminal (CT) - Area where large-scale container handling and storage facilities are available, generally giving access to two or more modes of transportation.

Containerized cargo - Cargo which can physical, conveniently, and economically fit into container.

Containers (types) - (1) **Dry cargo containers:** *End loading, fully enclosed:* basic container, equipped with end doors; suitable for general cargo not requiring environmental control when end route. *Side loading fully enclosed:* equipped with doors for used in stowing and discharge of cargo where it is not practical to use end doors. *Open top:* used for carriage of heavy, bulky, or awkward items where loading or discharging of the cargo through end or side doors is not practical. *Ventilated:* equipped with ventilated ports on ends or sides and used for used for heat generating cargoes or cargoes requiring protection from condensation damage. *Insulated:* for cargo, which should be exposed to rapid or sudden temperature changes.

(2) **Special purpose containers:** *Refrigerated:* insulated and equipped with a built in refrigeration system. *Dry bulk:* designs for carriage of dry bulk cargo, such as dry chemical and grains. *Flat rack:* used for lumber, milk products, large or bulky items, machinery, or vehicles. *Automotive:* for carriage of vehicles. *Live stocks:* configured for the nature of livestock carried. *Collapsible:* configured for stowage when not in use.

Crane - A machine for hoisting weights or cargo, moving them horizontally for limited distances, and lowering them to new locations.

Crane, cargo - A crane especially adapted to the transferring of cargo between a vessel's hold and a wharf or lighter.

Crane, fitting-out - A crane located and especially arranged for shipyard use to place equipment in a ship after it is in the water.

Crane, fixed - A crane whose principal structure is mounted on permanent or semi-permanent foundations.

Crane, floating - A crane mounted on a barge or pontoon which can be towed or self-propelled from place to place.

Crane, gantry - A crane or hoisting machine mounted on a frame or structure spanning an intervening space and designed to handle containers into and out of a ship. It can be mounted on the ship as a semi-permanent part of the vessel.

Customs duty - Tax assessed against all merchandise imported into the USA, unless specifically exempted. Rates of duties are classified as ad valorem, specific, or compound, and vary according to commodity.

Customs house broker - A party licensed by the Bureau of Customs to handle all details of documentation for import shipments.

Customs broker - An individual or firm bonded and licensed to enter and clear vessels and cargo with the Bureau of Customs.

Customs Convention on the International Transport of Goods by Road, 1959/TIR - Regulations to enable goods to travel in customs-sealed road vehicles or in customs-sealed containers carried on road vehicles across one or more national frontiers with a minimum of customs interference.

Dangerous goods - The term used by IMCO for hazardous materials.

Deadweight - The weight, in tons, of all cargo, fuel, water, ballast, stores, etc., on board a vessel. Gross deadweight is the total lifting capacity of the vessel.

Deadweight cargo - Cargo of such a nature that one long ton is stowed in less than 70 cu. ft.

Deck - The working surface of pier or wharf.

Deck load - Permissible weight to which a structure may be subjected per unit of area.

Delivery - Transfer of care and custody of containers (full or empty) and cargo from carrier to shipper/consignee or their legal representative.

Depot (container) - Container freight station or designated area where empty containers can be picked up or dropped off.

Destination (or origin) - Service charge (DSC/OSC).

Dredge - A machine for excavating material from the bottom of a body of water; classified by type of excavating equipment used thereon, as bucket dipper, hopper, hydraulic.

EDI - Electronic data interchange, a system of EDP standards.

FEU (Forty-foot equivalent unit) - A term used in indicating container vessel or terminal capacity. Two 20-foot containers equal one FEU.

Freight - May refer to either cargo carried or charges assessed for carriage of the cargo.

Freight forwarder - An individual or firm engaged by a shipper to handle all or most aspects of export shipments. This may involve the hauling of cargo from plant to pier, preparing export declarations, banking, or bills of lading. In the USA, a freight forwarder engaged in international commerce must be licensed by the Federal Maritime Commission.

Freight handling area - Square feet or surface floor space between the waterfront edge of the wharf and the line where freight is customarily piled, plus the area of lanes or roadways reserved for the trucking or handling of cargo to and from shipside.

Gantry - The movement of a rail- or tire-mounted crane along the trackway. Sometimes referred to as 'travelling' the crane.

Harbour - An area of water affording a natural or artificial haven for ships. In a proper and more limited sense, an area separated by natural or artificial indentations of shoreline from the main body of water, as the area within two headlands or points between which run the main ship channels leading to an open sea.

IMCO - International Maritime Consultative Organization. The organization through which the handling of dangerous goods and other regulations can become internationally acceptable.

In bond - Term applied to the status of merchandise admitted provisionally to a country without payment of duties, either for storage in a bonded warehouse or for transshipment to another point where duties will eventually be imposed and paid.

Inland points intermodal (IPI) - See micro-bridge.

Insulated container - Container possessing protective insulation to minimize effect to external temperatures on the cargo.

Intermodal - Used to denote ability of containers to change mode of transport from rail to truck to ship, in any order.

International Standards Organization (ISO) - Worldwide organization formed to promote development of standards to facilitate the international carriage and exchange of goods and services and to develop mutual cooperation in the sphere of intellectual, scientific, technological, and economic activities.

Invoice - Document enumerating goods transported from point A to point B. when the goods are exported by A to be sold on his or her own account, the document becomes a specification and is not, strictly speaking, an invoice, although it still retains the name.

ISO - International Standards Organization.

Letter of indemnity - See bond of indemnity.

Line haul - To move freight to one central location from which it is transhipped on vessels serving countries with limited port facilities

Material handling equipment - Forklift trucks, platform tracks, warehousing industrial cranes, straddle carriers, pallet trucks, platform trucks, warehouse trailers, conveyer systems, and other equipment used in storage and handling operations.

Maximum gross weight - Maximum total weight of a container, including its payload and any internal fittings. This is also called the rating.

Maximum payload - Maximum allowable weight of a payload, i.e., maximum gross weight less tare weight.

Marker/clearance lights - Lights located on the front, side, and rear of chassis in accordance with over-the-road regulations.

Meter/metre - (1 m) 39.37 inches.

Metric ton (MT) - 1,000 kilos or 2,204.6 pounds.

Micro-bridge (micro-landbridge) - A through movement in which cargo moves between an inland US point and a port via rail or truck, connecting with a steamship line for movement from or to a foreign port. The ocean carrier accepts full responsibility for the entire movement on a single through bill of lading.

MT - Metric ton; also measurement ton.

MTC - Metric ton or cubic metre. Most often used in reference to shipping charges, i.e., metric tons or cubic metres, whichever produces the greater revenue.

Place of Destination - Location at which goods or cargoes are delivered into the custody of the consignee or agent.

Place of Origin - Location at which goods are received by a carrier or agent from the consignor or agent.

Port-to-port - Can also be CY/CY, CY/CFS, CS/CY, CFS/CFS. Shipper or consignee, not having the facilities to load or unload the cargo at premises, can utilize the services of forwarders, consolidators, or the carrier to stow goods in container at the port of departure.

Quay - Type of wharf, parallel to the shoreline. Accommodates ships on only one side.

Queuing Line - Lane set aside at the entrance to a terminal for vehicles delivering or picking up cargo.

Ramp - (1) An artificial, inclined path, road, or track along which people, animals, and wheeled vehicles may pass, primarily for the purpose of

ascending or changing their elevation. (2) Railroad term used to describe an intermodal terminal.

Roll-on/roll off (RO-RO) - Direct drive-on and drive-off of highway trailers, railcars, and other wheeled cargo or vehicles, from and to specially adapted ships.

RO-RO (RO/RO) - Term which, when applied to a ship, refers to a vessel which is constructed in such a way as to permit cargo to be driven on and off the vessel. Also refers to cargo which is motorized and has wheels and may be driven or towed onto such a vessel. *See also* Roll-on/Roll off.

Shipping - A quantity of goods physically tendered by a shipper at one point of origin at one time on one shipping document, for a consignee at one point of destination.

Stern - The back end of a vessel.

Stern ramp - RO-RO vessel ramp entering into a protruding from stern aperture along center line of vessel.

Stevedore - Individual or firm employing longshoremen for the purpose of loading and unloading a vessel.

Stowage plan - Diagrammatic sketch of vessel showing location of cargo as stowed in the vessel's hold(s).

Tariff - A list of rates, charges, regulations, and requirements of a carrier, port, or conference. Also the duties themselves. Ocean tariffs are filed with and approved by the Federal Maritime Commission. Inland tariffs (rail and motor) are filed with the Interstate Commerce Commission.

Terminal - (1) A berth side area where cargo is loaded to and discharged from vessels. (2) A depot – usually inland – where containers are brought for devanning.

Terminal charges - A charge assessed against the cargo to offset carrier's expenses for handling at the carrier's terminal.

TEU (Twenty-foot equivalent unit) - The common unit used in indicating the capacity of a container vessel or terminal. A 40-foot container is equal to two TEUs.

Tier - A row of cargo units or containers arranged one above or behind another.

Tolls - See wharfage.

Ton - Unit of measure. May be short ton (ST, 2,000 pounds); long ton (LT, 2,240 pounds); cubic metre (m³fi 35,31445 ft); metric ton (Met. ton, 2,204.6 pounds); measurement ton (MT, 40 cubic feet of space); or revenue ton (RT, any combination of above, as manifested or producing the greatest revenue).

Trade routes (TR) - Trade route members assigned by US Maritime Administration to encompass all US worldwide trading areas.

Transit time - A time period for cargo to move between two points (i.e., from a consignor to a consignee). Total transit time is usually calculated by adding the sea time between two given ports, the port handling time, the inland movement time, and half of the service frequency.

Transportation and exportation entry - A document authorizing transportation in bond of cargo arriving in the USA and destined for a foreign country.

Truck-trailer - A combination of a tractive unit and a drawbar trailer.

Turnaround time - The period during which a transport vehicle is confined to port, terminal, or warehouse for loading or unloading of cargo.

Waybill - A document prepared by a transportation line at the point of origin of a shipment, showing the point of origin, destination, route, consignor, consignee, description of shipment, and amount charged for the transportation service. Forwarded with the shipment or by mail to the agent at the transfer point or waybill destination.

Wharfs - A berthing place for vessels to facilitate direct loading and discharge. *See also* Quay.

REFERENCES

- Ajagunna, I. 2012. *Planning Process for Sustainable Tourism Development: A Study of the South Coast of Jamaica*. Germany: LAP Lambert Academic Publishing.
- Baum, T. 1997. "The Fascination of Islands: A Tourist Perspective." In *Island Tourism: Trends and Prospects*, Lockhart D.G. and D. Drakakis-Smith (eds). London: Pinter. 21–35.
- Booth, R.A. 1994. "Stop the Misuse of Punitive Awards." Editorial. *New York Times* (Late New York edition), 7 (Section 3).
- Brühlhart, M. 2006. "Regional Wages and Industry Location in Central Europe." *Economics of Transition* 14(2): 245–267.
- Buisseret, D. 2008. *Jamaica in 1687: The Taylor Manuscript at the National Library of Jamaica*. Kingston: University of the West Indies Press.
- Burns, P.M., and A. Holden. 1995. *Tourism: a New Perspective*. Upper Saddle River, NJ: Prentice Hall.
- Cartwright, R., and C. Baird. 1999. *The Development and Growth of the Cruise Industry*. Oxford: Butterworth and Heinemann.
- Cooper, C.J., W. Fletcher, D. Gilbert, and R. Shepherd. 1998. *Tourism Principles and Practice*. 2nd ed. Essex: Longman.
- Guasch, J.L., and J. Kogan. 2006. "Inventories and Logistic Costs in Developing Countries: Levels and Determinants – A Red Flag for Competitiveness and Growth." *Revista de la Competencia y de la Propiedad Intelectual*. Lima, Perú.
- Held, D., and A. McGrew. 2003. "Introduction." In Held, D. and A. McGrew. (eds). *Governing Globalisation: Power, Authority and Global Governance*. Cambridge: Polity Press. 1–21.
- Hobson, J.S.P. 1993. "Analysis of the US Cruise Line Industry." *Tourism Management*. 453–462.
- Johnson, D. 2002. "Environmentally Sustainable Cruise Tourism: A Reality Check." *Maritime Policy* 26: 261–270.
- Klein, R.A. 2002. *Cruise Ship Blues: The Underside of the Cruise Industry*. Canada: New Society Publishers.
- Klein, R.A. 2003a. "Charting a Course: The Cruise Industry, the Government of Canada, and Purposeful Development." Ottawa: Canadian Centre for Policy Alternatives. www.cruisejunkie.com/ccpa2.

- Klein, R.A. 2003b. "The Cruise Industry and Environmental History and Practice: Is a Memorandum of Understanding Effective for Protecting the Environment?" San Francisco: Bluewater Network. www.bluewaternet.org/reports/res_ss_kleinrep.
- Kyhunghee, P. 2010. "Shipping Industry Update: Going Big and Going Green." *Bloomberg BusinessWeek*. 9 December.
- Liburd, J.J. 2001. "Cruise Tourism Development in the South of St. Lucia." *Tourism: An International Inter-disciplinary Journal* 49 (3): 215–228.
- Martin, Jack. 2011. "The Triple-E Maersk Container Ship Will Be the Largest Ship and the Most Efficient, Martin Reports." *Gizmag*, 21 February. <http://www.gizmag.com/triple-e-maersk-worlds-largest-ship/17938/>.
- McElroy, J.L., and K. de Albuquerque. 1996. In *Sustainable Tourism in Islands and Small States: Issues and Policies*. L. Briguglio, B. Archer, J. Jafari, Geoffrey Wall (eds). London: Cassell.
- McKinsey & Company. 2010. "Five Mega-trends Reshaping the Global Economy." http://www.mckinsey.com/insights/globalization/five_forces_reshaping_the_global_economy_mckinsey_global_survey_results.
- Nowlan, L., and I. Kwan. 2011. *Cruise Control: Regulating Cruise Ship Pollution on the Pacific Coast of Canada*. British Columbia: West Coast Environmental Law.
- Ocean Blue Foundation. 2002. *Blowing the Whistle and the Case for Cruise Certification: A Matter of Environmental and Social Justice under International Law*. Vancouver, British Columbia. <http://www.oceanblue.org/bluetourism/chartacourse/cruiseship/2002/report>.
- Ocean Conservancy. 2002. *Cruise Control: A Report on How Cruise Ships Affect the Marine Environment*. Washington, DC. <http://www.oceanconservancy.org/dynamic/aboutUs/publications/cruiseControl>.
- Patullo, P. 1996. *Last Resorts: The Cost of Tourism in the Caribbean*. London: Cassell.
- Pinnock, F., and I. Ajagunna. 2012. "Caribbean Maritime Transportation Sector: Achieving Sustainability through Efficiency." *Caribbean Paper No. 13*. Canada: Centre for International Governance and Innovation (CIGI).

- Pinnock, F., and I. Ajagunna. 2012. "Maritime Highway Corridors into the Caribbean Seas: Perspective on the Impact of the Opening of the Expanded Panama Canal in 2014." In *Les Corridors De Transport*, Sous la direction de Yann Alix. Avec la collaboration scientifique de Gustaaf de Monie. Paris, ems Management & Societe.
- Pinnock, F., and I. Ajagunna. 2009. "Caribbean Port Productivity – The Role of Human Capital." *Caribbean Maritime*, April–June.
- Pinnock, F., and I. Ajagunna. 2012. "Cruise Tourism in the Caribbean: Benefits from Home-Porting – A Success Story from Barbados." *Caribbean Maritime*, October – December. <http://www.caribbean-maritime.com/index.php/back-issues/issue-17-october-2012-cruise-yachting/129-benefits-from-home-porting.html>.
- Pinnock, F., and I. Ajagunna. 2012. "Expansion of Panama Canal and Challenges for Caribbean Ports." *Caribbean Maritime* 16, May–September.
- Queary, P. 1999. "Cruise Ship Dumping Sparks Interest". Associated Press. <http://www.sddt.com/News/article.cfm>
- Reed, M. 1997. "Collaborative Tourism Planning as Adaptive Experiment in Emergent Tourism Settings." *Journal of Sustainable Tourism* 7 (3): 331–355.
- Rodrigue, Jean-Paul. 2013. "Freight Distribution Clusters (Logistics Zones)." In *The Geography of Transport Systems*. New York: Routledge. <http://people.hofstra.edu/geotrans/eng/ch5en/appl5en/ch5a6en.html>.
- Schmidt, K. 2004. *What Works Best, Regulatory or Non-Regulatory Solutions to Cruise Ship Pollution Prevention? The Environmental Perspective*. San Francisco: Blue Water Network. http://bluwaternetwork.org/reports/rep_ss_cruise_sandiego 2.
- "US Cracks Down on Marine Pollution." 1993. *Lloyd's List*. April 17.
- US General Accounting Office [GAO]. February 2000. "Marine Pollution: Progress Made to Reduce Marine Pollution by Cruise Ships, but Important Issues Remain." Doc. No. GAO/RCED-00-48.
- United States Commission on Ocean Policy. 2004. Preliminary Report of the US Commission on Ocean Policy. Washington, DC. <http://www.oceancommision.gov/>.

- Wang, N. 2000. *Tourism and Modernity: A Sociological Analysis*. Oxford: Pergamon Press.
- West, P. 1994. "Natural Resources and the Persistence of Rural Poverty in America: A Weberian Perspective on the Role of Power, Domination, and Natural Resources Bureaucracy." *Society and Natural Resources* 7: 415–427.
- Wood, R.E. 2000. "Caribbean Cruise Tourism: Globalization at Sea." *Annals of Tourism Research* 27 (2): 345–370.
- World Bank. 2010. "Freight Transport for Development: Integrated Logistics." http://siteresources.worldbank.org/TRADE/Resources/TradeFacilitationCatalog_Apr2010.pdf.
- WTO. 2009. *Export Promotion and the WTO: A Brief Guide*. International Trade Centre.