



**1st Mare Forum Panama
2016**
**Panama, the Singapore
of the Western
Hemisphere**
- *Looking Ahead* -



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INTEROCEANIC PROJECTS – MESOAMERICAN REGION

Todos los canales llevan a China

Los canales y rutas para conectar con el Pacífico y el Caribe a través de canales interoceánicos están pasando, cada uno, por una ruta que culmina en el Canal de Panamá. Todos contemplan la ayuda de China. Esto por sus proyectos.

Corredor Interamericano Centroamericano

Fecha del anuncio: Se comenzó a construir el 2011 y se completará en el 2015.

Proyecto: Corredor Interamericano Centroamericano, se trata de un proyecto de infraestructura que conecta los países centroamericanos y el Caribe con el Pacífico y el Atlántico.

Financiación: El proyecto es financiado por el Banco Interamericano de Desarrollo (BID) y el Banco Mundial.

Extensión: 300 km

Costo estimado: US\$1.500 millones

Corredor Interamericano de Colombia

Fecha del anuncio: En 2011, el gobierno de Colombia anunció el inicio de las obras.

Proyecto: Corredor Interamericano de Colombia, se trata de un proyecto de infraestructura que conecta Colombia con el Caribe y el Pacífico.

Financiación: El proyecto es financiado por el Banco Interamericano de Desarrollo (BID) y el Banco Mundial.

Extensión: 372 km

Costo estimado: US\$1.000 millones

Canal Suez Interamericano de El Salvador

Fecha del anuncio: Proyecto de 2011.

Proyecto: El Canal Suez Interamericano de El Salvador, se trata de un proyecto de infraestructura que conecta El Salvador con el Caribe y el Pacífico.

Financiación: El proyecto es financiado por el Banco Interamericano de Desarrollo (BID) y el Banco Mundial.

Extensión: 260 km

Costo estimado: US\$200.000 millones

Corredor Interamericano de Guatemala

Fecha del anuncio: Proyecto de 2011.

Proyecto: Corredor Interamericano de Guatemala, se trata de un proyecto de infraestructura que conecta Guatemala con el Caribe y el Pacífico.

Financiación: El proyecto es financiado por el Banco Interamericano de Desarrollo (BID) y el Banco Mundial.

Extensión: 284 km

Costo estimado: US\$40.000 millones

La carretera de Costa Rica

Fecha del anuncio: En agosto del 2011 se anunció la construcción de la Carretera Interamericana de Costa Rica.

Proyecto: La Carretera Interamericana de Costa Rica, se trata de un proyecto de infraestructura que conecta Costa Rica con el Caribe y el Pacífico.

Financiación: El proyecto es financiado por el Banco Interamericano de Desarrollo (BID) y el Banco Mundial.

Extensión: 27,9 km

Costo estimado: US\$400 millones

Financiación: US\$12,45 millones para el estudio preliminar.

Canal Interamericano de Panamá

Fecha del anuncio: En el agosto de 2011.

Proyecto: Canal Interamericano de Panamá, se trata de un proyecto de infraestructura que conecta Panamá con el Caribe y el Pacífico.

Financiación: El proyecto es financiado por el Banco Interamericano de Desarrollo (BID) y el Banco Mundial.

Extensión: 80 km

Costo estimado: US\$275 millones

Financiación: Trabajo de ingeniería de 12 años.

Canal Suez Interamericano de Colombia

Fecha del anuncio: En 2011 se anunció el inicio de las obras.

Proyecto: Canal Suez Interamericano de Colombia, se trata de un proyecto de infraestructura que conecta Colombia con el Caribe y el Pacífico.


Financiación: El proyecto es financiado por el Banco Interamericano de Desarrollo (BID) y el Banco Mundial.

Extensión: 220 km

Costo estimado: US\$1.000 millones

Financiación: Trabajo de ingeniería de 12 años.

Este documento es una compilación de información de fuentes públicas. No se garantiza la exactitud de los datos. Los precios y los plazos de ejecución pueden variar.



Proyecto de Desarrollo Integral
del Gran Canal de Nicaragua

尼加拉瓜运河综合开发项目

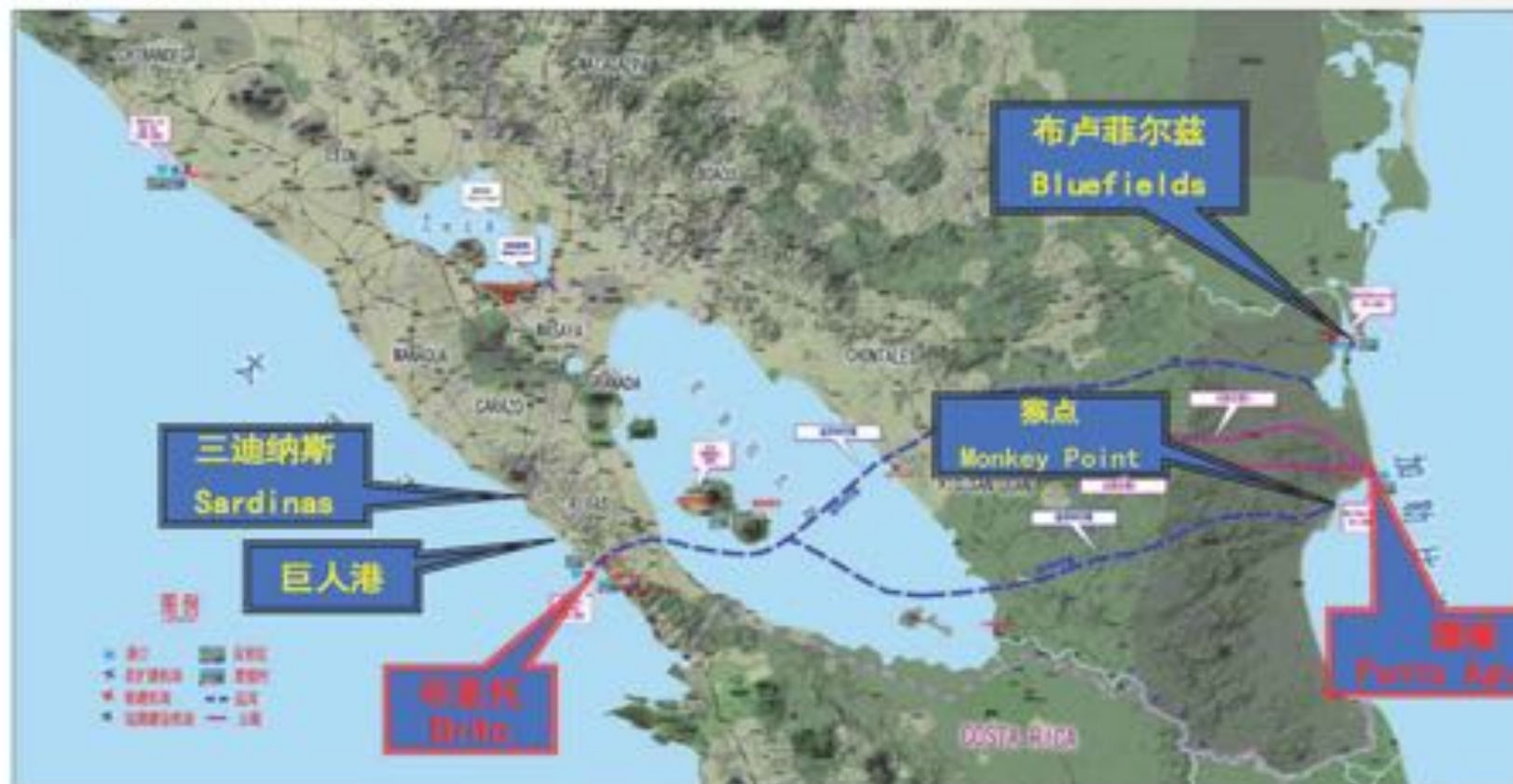
Informe de Plan de Diseño
设计方案汇报

July 2013

Con el análisis del funcionamiento del proyecto y la estimación del volumen de tráfico, se planea construir un puerto a cada lado del canal, tanto del Pacífico como del Caribe.

经过综合比选后, 推荐在太平洋侧建设 Brito 港, 在加勒比侧建设鹰嘴港。

Después de una comparación integral, se recomienda construir el puerto de Brito del lado de Pacífico y el puerto de Punta Águila del lado de Caribe.



IS THERE ENOUGH DEMAND TO
JUSTIFY MORE INTEROCEANIC CANALS
IN THE REGION?

Increasing Containership Size and Canal Choice

- Forecast of a market of the Gran Canal Interoceanico de Nicaragua (GCIN) -

Simme Veldman, Ecorys Nederland

Cees Glansdorp, Marine Analytics

Eric van Drunen, Van Drunen Consulting

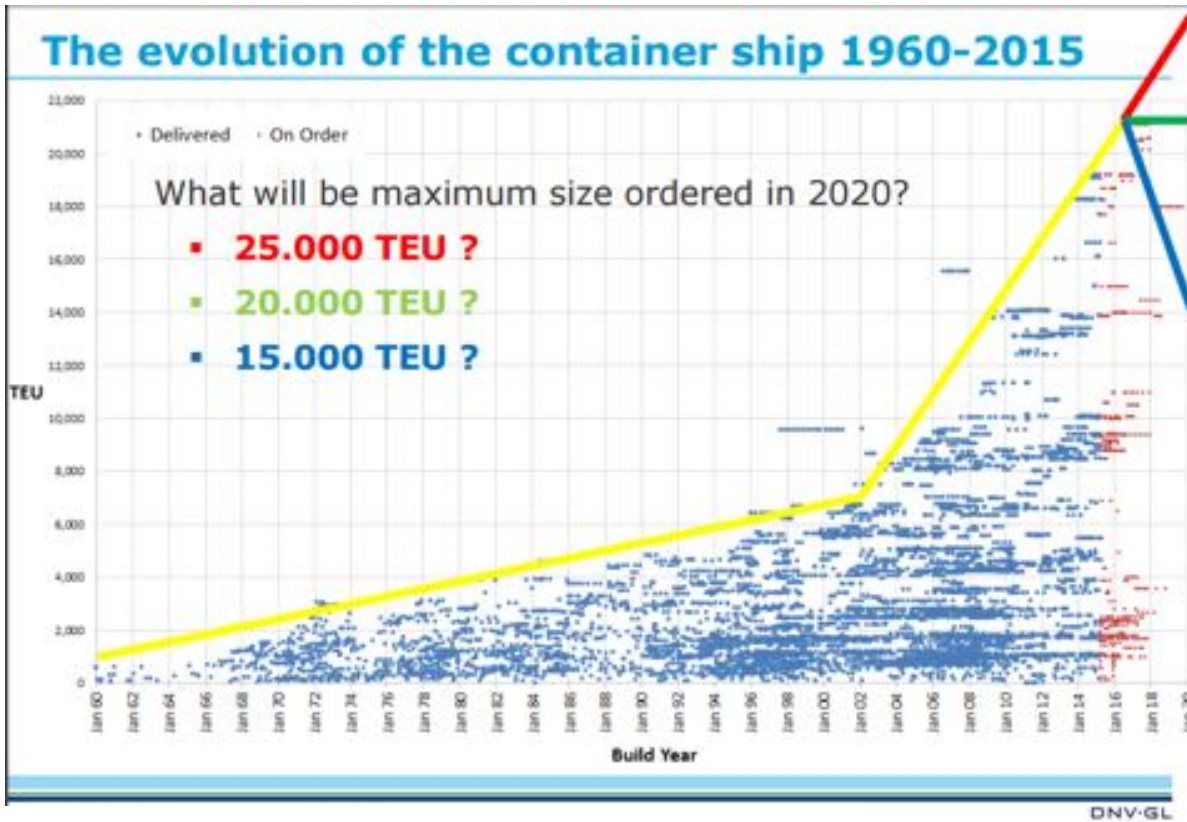
Ioannis Giannelos, Ecorys Nederland

1. Market definition: captive market

The captive market concerns the segment of ships from 13,500 TEU to 18,000 TEU or 27,000 TEU, depending on the investment case. This market applies to the North America – East Asia container trade

Competition on the market of smaller ships will take place by toll level, canal transit time and transit costs and is not subject of this study

DEVELOPMENT OF CONTAINER SHIPS (1960 – 2015)



		Vessel size			
		14,000 TEU	16,000 TEU	18,000 TEU	21,000 TEU
Utilisation	100%	100%	97%	91%	89%
	95%	105%	101%	96%	94%
	90%	110%	106%	101%	98%
	85%	117%	112%	106%	103%
	80%	123%	119%	112%	109%
	75%	131%	126%	119%	116%

Economy of scale - where is the end?

DEVELOPMENT OF CONTAINER SHIPS (1960 – 2015)

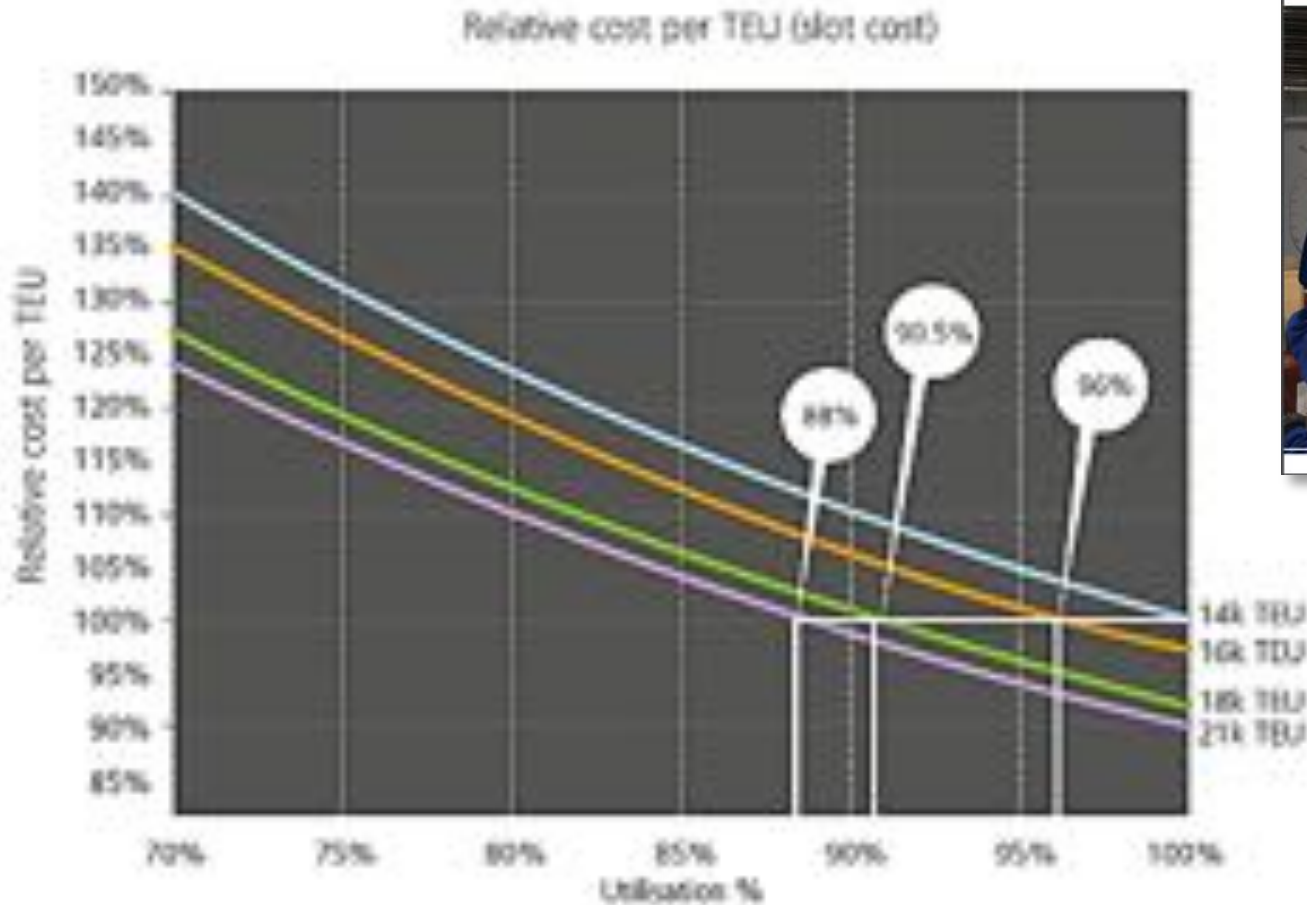


Figure 1 Slot cost (USD/TEU) for different vessel sizes and varying utilisation. Data from different DNV projects and studies; minor inconsistencies may occur. Actual curves calculated for 18 kn average speed. [DNV]

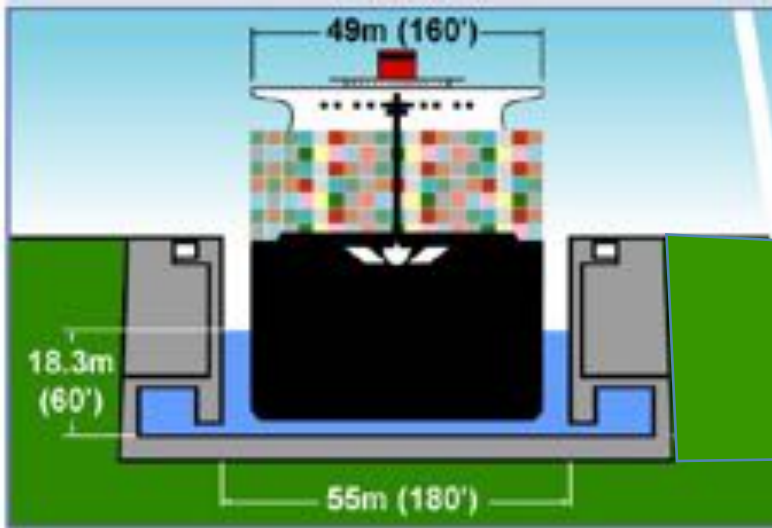
DEVELOPMENT OF CONTAINER SHIPS (1960 – 2015)

Rows	Tiers	TEU Nominal	Len m	Lpp m	B m	T m	DWT
24	12	20,332	400.00	383.00	58.60	15.00	178,895
24	12	20,332	400.00	383.00	58.60	16.00	198,592
24	12	20,332	400.00	383.00	58.60	17.00	218,756
24	12	21,325	400.00	383.00	61.10	15.00	186,599
24	12	21,325	400.00	383.00	61.10	16.00	207,131
24	12	21,325	400.00	383.00	61.10	17.00	228,149
24	12	22,228	400.00	383.00	63.60	15.00	194,581
24	12	22,228	400.00	383.00	63.60	16.00	215,947
24	12	22,228	400.00	383.00	63.60	17.00	237,819
26	12	22,212	430.00	413.00	58.60	15.00	192,420
26	12	22,212	430.00	413.00	58.60	16.00	213,669
26	12	22,212	430.00	413.00	58.60	17.00	235,468
26	12	23,301	430.00	413.00	61.10	15.00	200,719
26	12	23,301	430.00	413.00	61.10	16.00	222,900
26	12	23,301	430.00	413.00	61.10	17.00	245,592
26	12	24,264	430.00	413.00	63.60	15.00	208,940
26	12	24,264	430.00	413.00	63.60	16.00	232,022
26	12	24,264	430.00	413.00	63.60	17.00	255,636
28	12	26,316	460.00	443.00	63.60	15.00	222,849
28	12	26,316	460.00	443.00	63.60	16.00	247,652
28	12	26,316	460.00	443.00	63.60	17.00	273,014

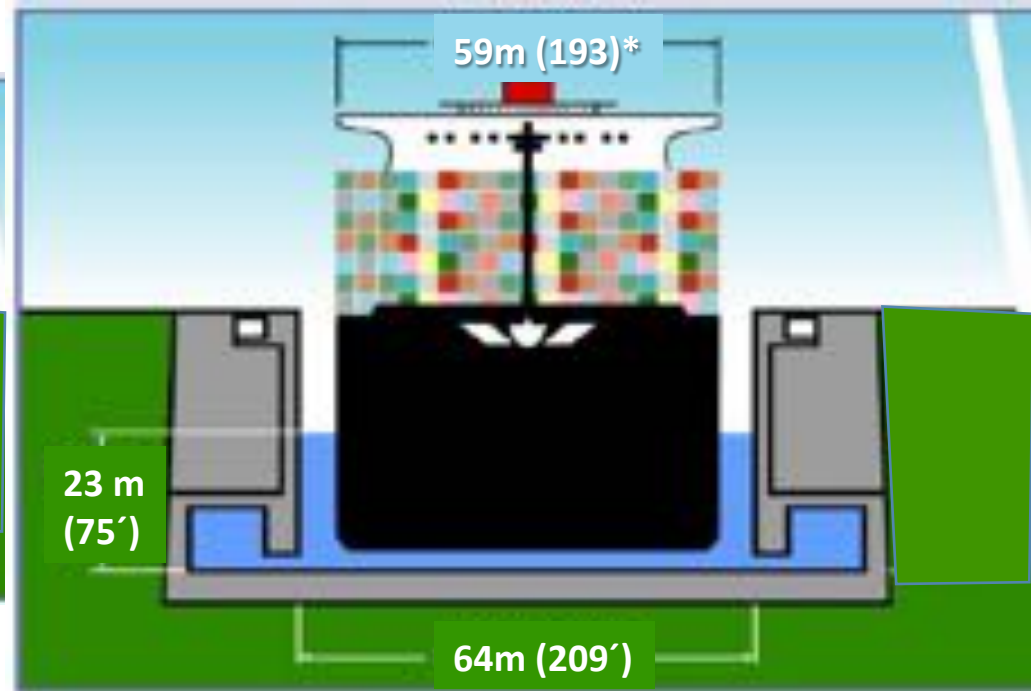
Table 1: ULCS design options



Expanded Panama Canal Dimensions



Nicaragua Canal Conceptual Design Dimensions



Rounds of alliance formation in container shipping



© Theo Notteboom
May 2016

Information shared in this presentation is confidential
 HMM, P&O, NYK Line,
 Nippon Yusen, Yang Ming

Figure 1-Selected Container Ports With Recently Reported Vessel and/or Landside Congestion



Source: Drewry Maritime Research (www.drewry.co.uk)

Over \$8 Billion for East & Gulf Coast Port Improvement Projects Adding Capacity



1. Market definition: captive market
2. Trade forecast: 2020 and 2030 target years

	2011	2015	2020	2030
Annual GDP growth by region (in%)				
North America		2.6%	2.6%	2.4%
East Asia		5.8%	5.8%	4.7%
Europe		1.7%	1.7%	1.9%
Container growth - GDP growth multiplier				
Multiplier		1.6	1.6	1.25

1. Market definition: captive market

2. Trade forecast: 2020 and 2030 target years

Annual growth rates container volume (in %)				
North Am. - East Asia		6.6%	6.6%	4.4%
North Am. - Europe		3.4%	3.4%	2.7%
Europe - Far East		5.9%	5.9%	4.2%
Container volume (in million TEU)				
North Am. - East Asia	20.5	26.5	36.6	56.4
North Am. - Europe	5.6	6.4	7.6	9.8
Europe - Far East	19.2	24.2	32.3	48.5
	2011	2015	2020	2030

World Economy

World GDP: 2010 - 2020

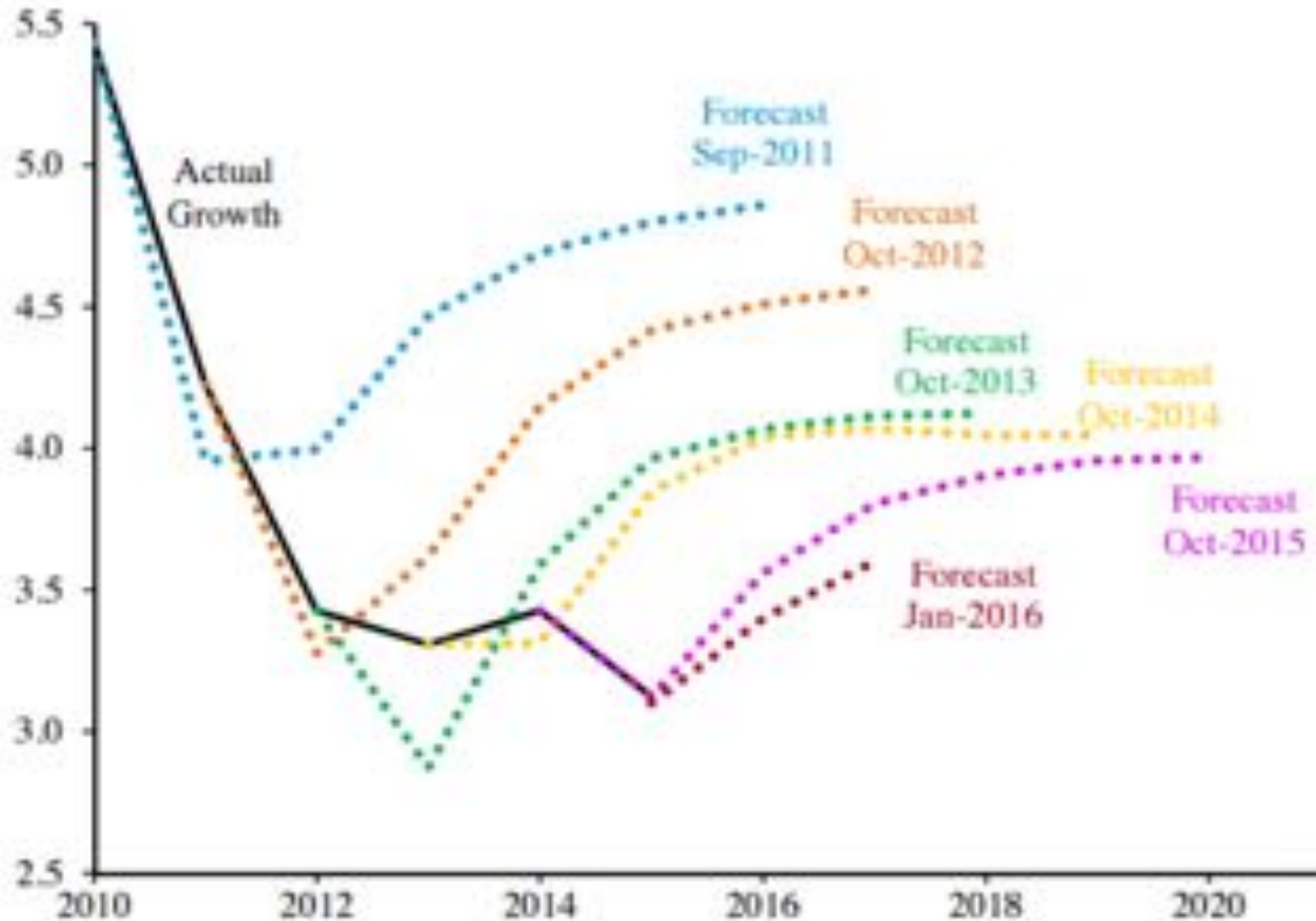
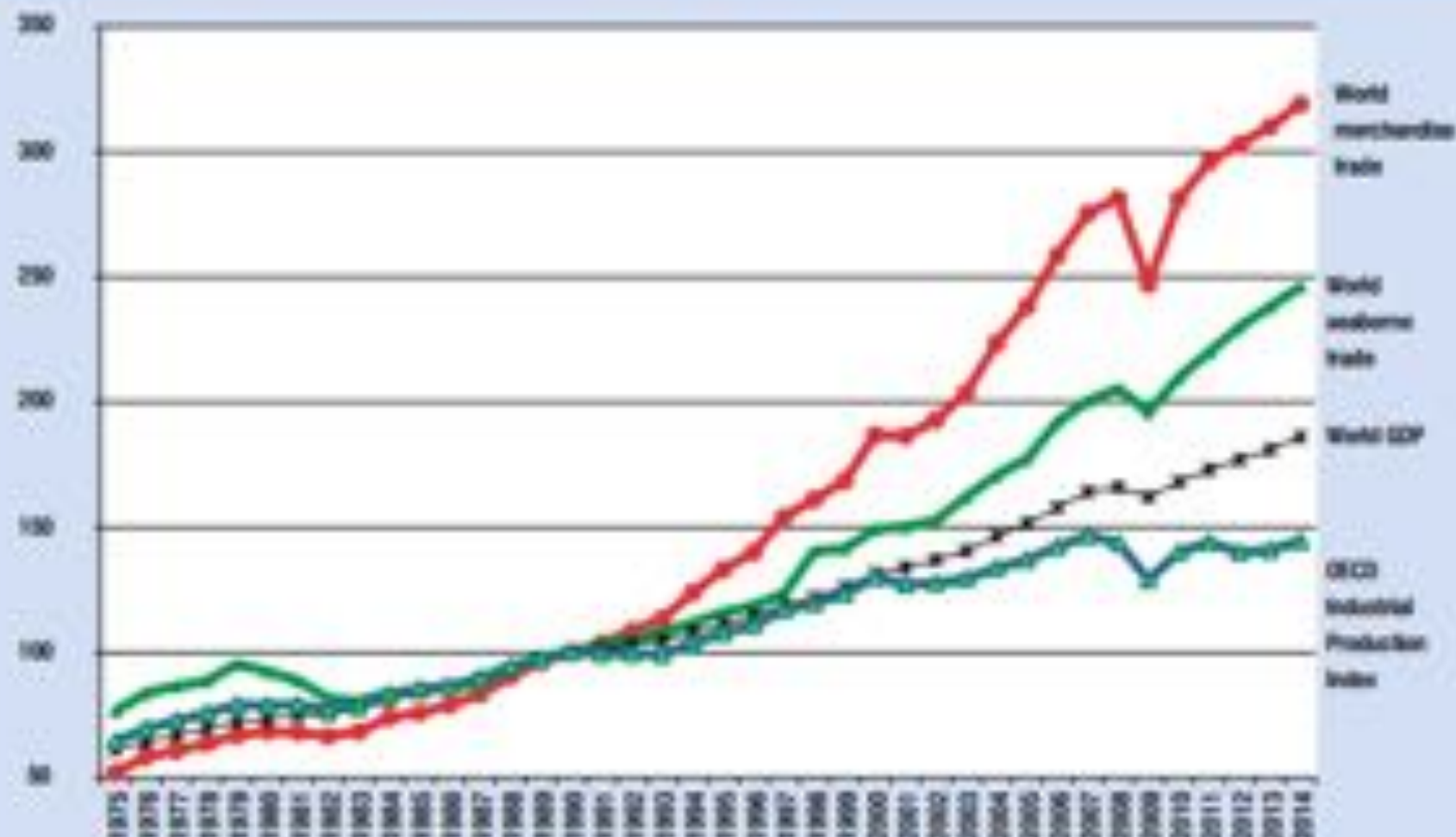
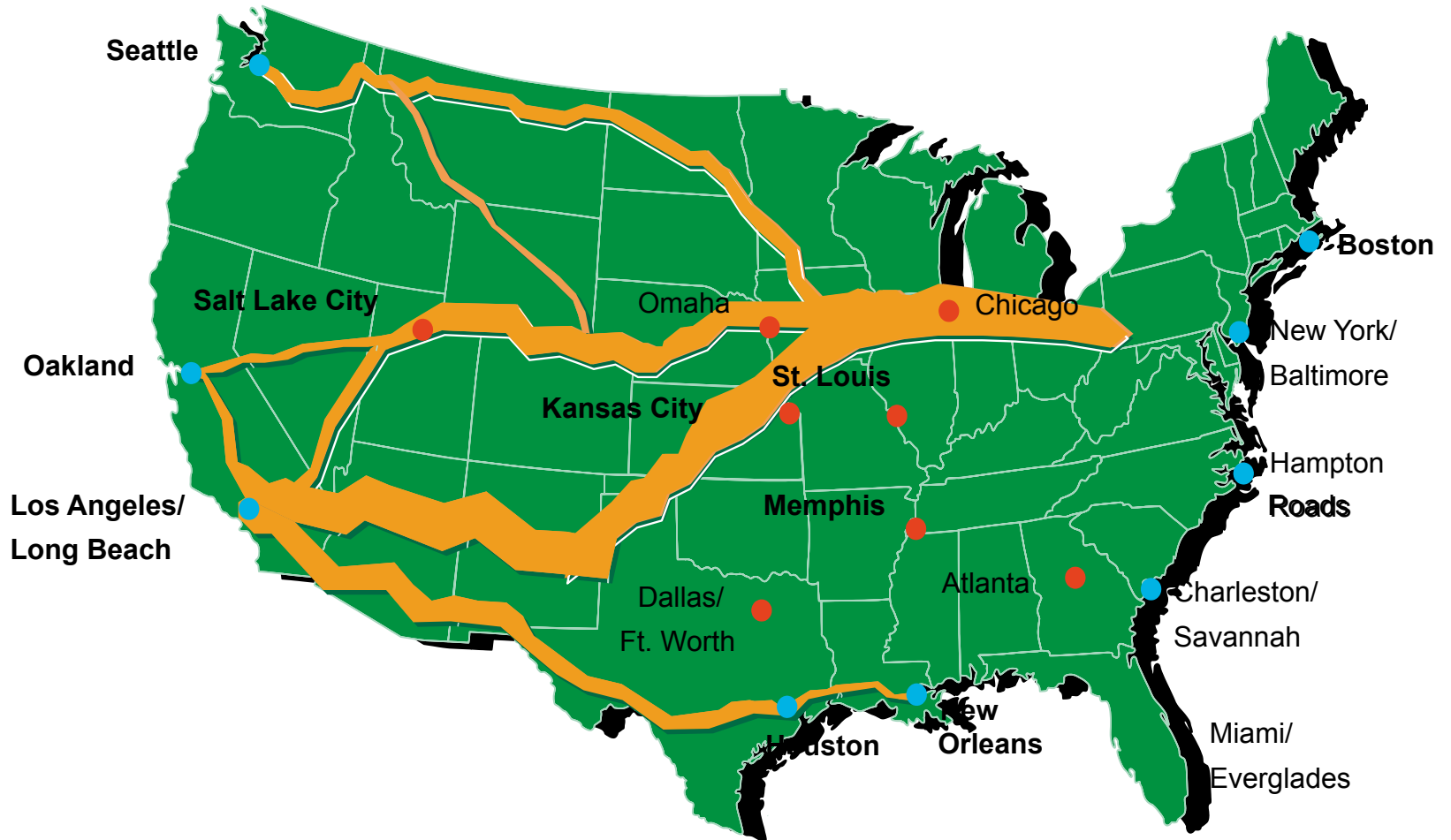


Figure 1.1. The OECD Industrial Production Index and indices for world GDP, merchandise trade and seaborne shipments (1975–2014) (base year 1980 = 100)



Sources: UNCTAD secretariat, based on OECD Main Economic Indicators, June 2015; United Nations Department of Economic and Social Affairs, 2015; IFAK Global Economic Outlook, June 2015; UNCTAD Review of Maritime Transport, various issues; WTO, appendix table A.1a, World merchandise exports, production and gross domestic product, 1980–2012; WTO press release 739, 14 April 2015.

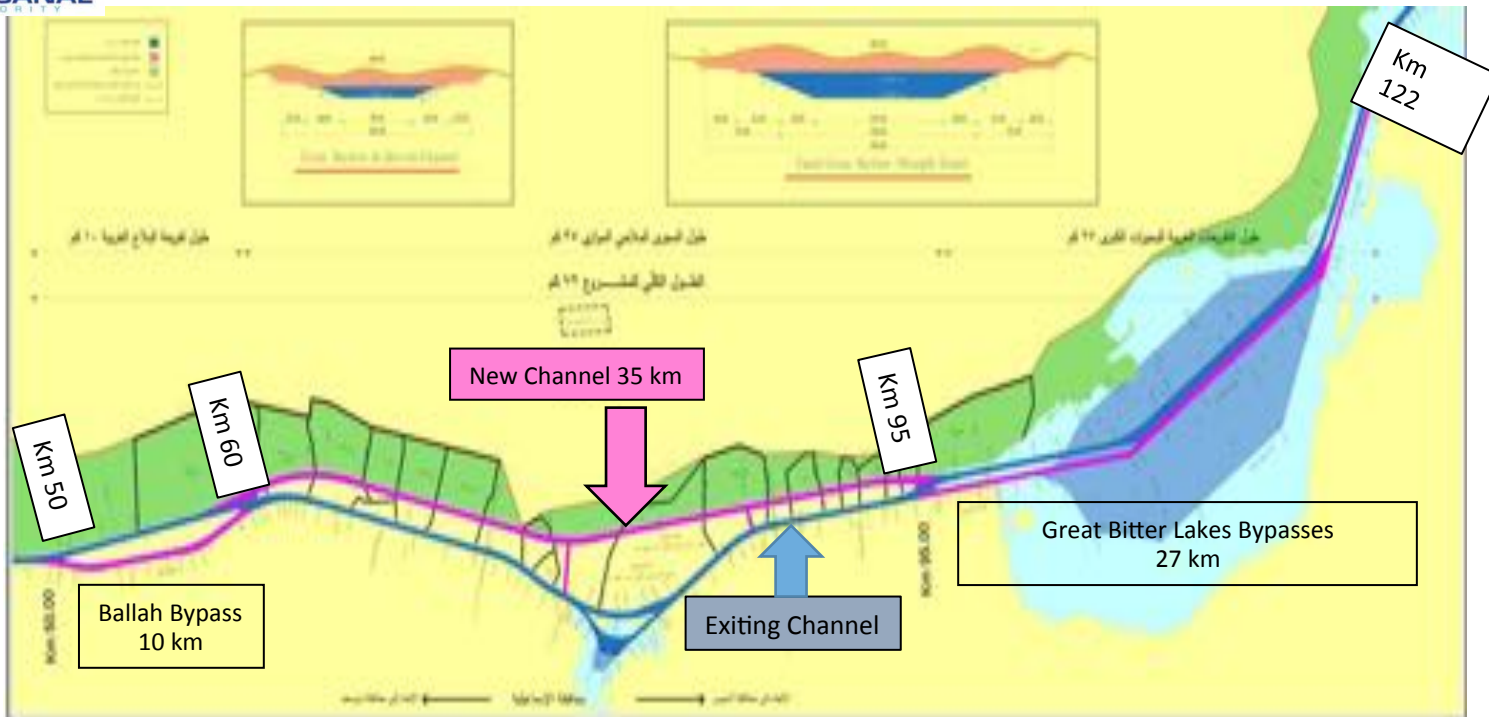
U.S. INTERMODAL SYSTEM



Source:



PRINCIPAL TRADE LANES AND CHANGES THAT COULD AFFECT THEM



**Deepening Bypasses (37 km) to accommodate ships with draft 66 Ft
Dredging new channel (35 Km) From km 60 to km 95**

North East Asia (NE Asia)



East Central Asia (EC Asia)



South East Asia (SE Asia)



1. Market definition: captive market
2. Trade forecast: 2020 and 2030 target years
3. Increasing ship size: economic triggers and technical limitations

Ongoing increase of containership size

1. The driving force of bigger ships are economies of ship size
Will size increase further for ships in excess of 18,000 TEU?
2. The pre-design of ships of up to 27,000 TEU shows that:
 - Design service speed of 25 knots will lead to cavitation problems, this can be solved by applying either lower design service speed or by double propulsion systems
 - Maximum stapling height of containers limits depth to some 30 metres resulting in maximum draft of up to 16 metres
 - Maximum draft problems in port do not increase much more than as for the existing ships of 18,000 TEU

Conclusion: economies of ship size can continue for the sizes up to 27,000 TEU

1. Market definition: captive market
2. Trade forecast: 2020 and 2030 target years
3. Increasing ship size: economic triggers and technical limitations
4. Market share competing routings: using a Logit model

Example operational and cost characteristics largest ships per routing for 2030

	Land - bridge	Suez Canal	GCIN
Size of ship (TEU)	15,000	18,000	18,000
Roundtrip distance (n. miles)	11,600	28,800	20,882
No of ports of call	7	15	10
Canal transit time (days)	n.a.	0.5	3.0
Canal length (km)	n.a.	193	314
Speed in Canal (knots)	n.a.	8	8
Roundtrip time (days)	44	85	66
Toll per passage (USD 1000)	n.a.	546	434
Other passage costs (USD 1000)	n.a.	27	43
Cost per loaded TEU (USD)	446	925	789

Distance Table

Panama Canal vs. Nicaragua

Comparación de Distancias							
Puertos de Origen	Puerto de Destino	Panamá		Nicaragua		Diferencia	
		Distancia*	Días**	Distancia*	Días**	Distancia*	Días**
Shanghai	NY	10,586	25.1	10,128	25.6	458	-0.5
	Savannah	10,177	24.1	9,621	24.5	556	-0.4
	Miami	9,814	23.3	9,234	23.6	580	-0.3
Busan	NY	10,089	24	9,646	24.4	443	-0.4
	Savannah	9,680	23	9,139	23.3	541	-0.3
	Miami	9,317	22.2	8,752	22.4	565	-0.2
Yokohama	NY	9,702	23.1	9,242	23.5	460	-0.4
	Savannah	9,293	22.1	8,735	22.4	558	-0.3
	Miami	8,930	21.3	8,348	21.5	582	-0.2
Hong Kong	NY	11,211	26.6	10,774	27	437	-0.4
	Savannah	10,802	25.6	10,267	25.9	535	-0.3
	Miami	10,439	24.8	9,880	25	559	-0.2

Yokohama
Busan
Shanghai
Hong Kong

New York
Savannah
Miami
Corinto
Manzanillo
Balboa

Datos relevantes	
Altura del istmo de Rivas	185 pies
Elevación del lago de Nicaragua	107 pies
Profundidad promedio del lago	35 pies

*Nautical Miles, includes Canal distances (Panamá 43, Nicaragua 154)

**Average Speed 18 knuts, 0.7 dais to transit Panama, and 2.5 days to transit Nicaragua

Source: ACP

Distance Table

Panama Canal vs. Nicaragua

Comparación de Distancias

Puertos de Origen	Puerto de Destino	Panamá		Nicaragua		Diferencia	
		Distancia *	Días**	Distancia *	Días**	Distancia *	Días**
Valparaíso	NY	4,626	10.7	5,083	13.9	-457	-3.2
	Houston	4,182	9.7	4,517	12.6	-335	-2.9
Guayaquil	NY	2,848	6.6	3,321	9.8	-473	-3.2
	Houston	2,404	5.6	2,755	8.5	-351	-2.9

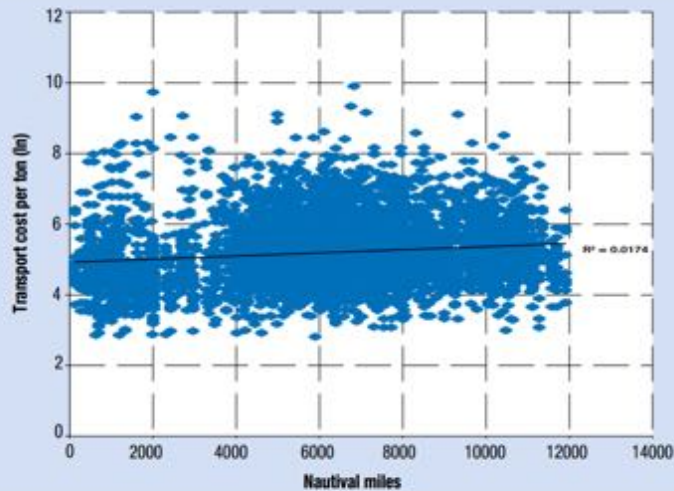


*Nautical Miles, includes Canal distances (Panamá 43, Nicaragua 154)

**Average Speed 18 knuts, 0.7 dais to transit Panama, and 2.5 days to transit Nicaragua

Source: ACP

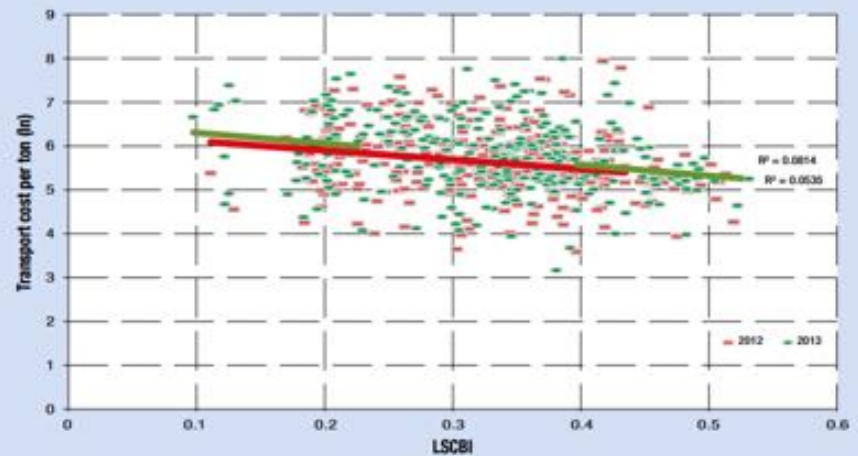
The “no-relationship” between distance and maritime transport costs



Source: ECLAC and UNCTAD secretariat, based on data from the International Transport Database – ECLAC, 2013.

Note: Based on 12,595 observations of maritime transport costs in international trade for the year 2013 at the Standard International Trade Classification two-digit level.

The relationship between transport costs and LSBCI, 2012 and 2013



Source: UNCTAD secretariat, based on data from the International Transport Database – ECLAC, 2012 and 2013.

Note: Based on 7,868 observations of maritime transport costs in international trade for the years 2012 and 2013 at the Standard International Trade Classification one-digit level.

Connectivity and Port Infrastructure more important than distance!

1. Market definition: captive market
2. Trade forecast: 2020 and 2030 target years
3. Increasing ship size: economic triggers and technical limitations
4. Market share competing routings: using a Logit model
5. Timing of introduction of bigger ships:

Conclusions

- Technical restrictions with respect to ships and ports will not stop further increases in ship size up to 27,000 TEU
- There is a considerable market share to be achieved by the GCIN on the North America - East Asia container trade
- Sensitivity analysis on trade shows that this share is rather solid

REALITIES

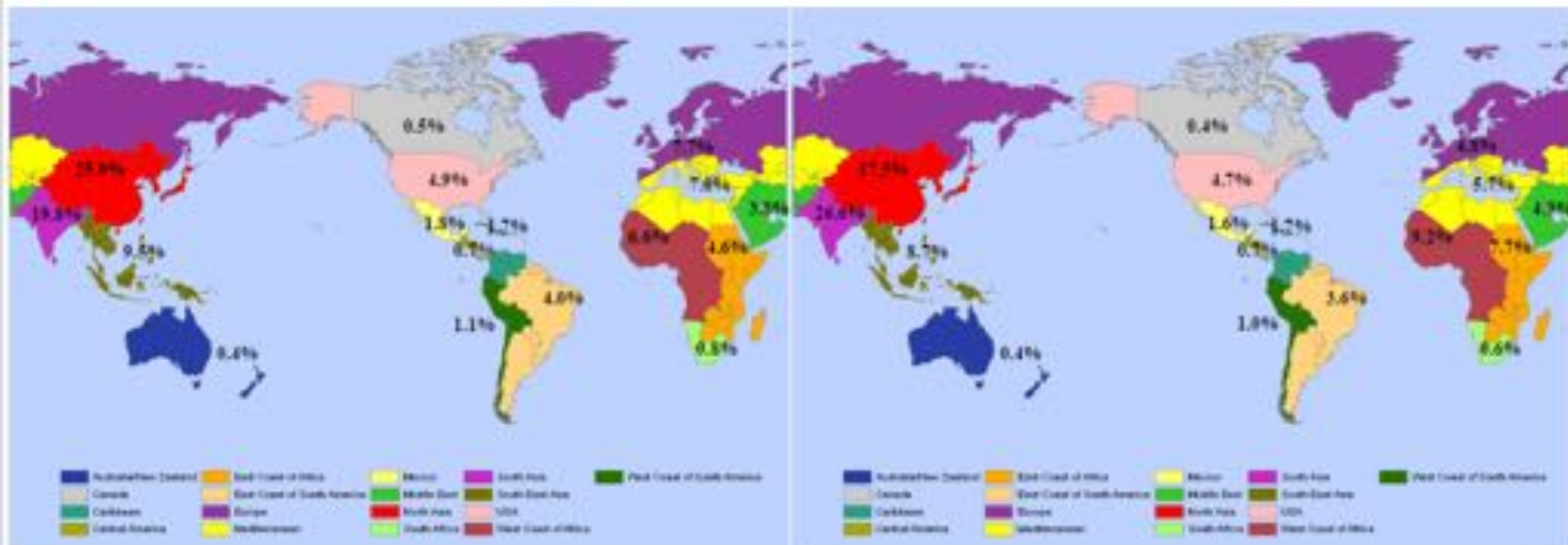


COMPLIANCE

PRINCIPAL TRADE LANES AND CHANGES THAT COULD AFFECT THEM

TRADE LANE SHARES OF THE WORLD POPULATION IN 2010

TRADE LANE SHARES OF THE WORLD POPULATION IN 2050



Larger: South Asia, Middle East, West Africa, East Africa

Smaller: The Americas, Caribbean, Europe, Mediterranean, S Africa,

Four country categories emerge from these dramatic shifts

Category themes	Characteristics	Countries
Under pressure	<ul style="list-style-type: none"> Traditionally low-cost countries whose deteriorating competitiveness is driven by a wide range of factors 	 <p>Brazil Russia China Poland Czech Republic</p>
Losing ground	<ul style="list-style-type: none"> Traditionally high-cost countries whose competitiveness continues to deteriorate owing to the lack of productivity gains and energy cost increases 	 <p>France Belgium Italy Switzerland Sweden</p>
Holding steady	<ul style="list-style-type: none"> Countries roughly maintaining their relative competitiveness versus global leaders 	 <p>Netherlands India Indonesia United Kingdom</p>
Rising stars	<ul style="list-style-type: none"> Increasing competitiveness versus all others Moderate wage growth, sustained productivity gains, stable foreign-exchange rates, and energy advantages 	 <p>United States Mexico</p>

Source: BCG

The Boston Consulting Group

Ubicación en México de Plantas de Vehículos Ligeros



Ubicación en México de Plantas de Vehículos Pesados



REGIÓN NORESTE

198 Plantas

Productos/sistemas: Aire acondicionado, sistemas automotrices, partes plásticas, partes para el sistema eléctrico, partes para motor y maquinado.

REGIÓN NOROCCIDENTAL

78 Plantas

Productos/sistemas: Sistema de aire acondicionado y calefacción, componentes de interiores, accesorios y sistemas eléctricos para automóviles.

CIFUNSO

FI
FABRIL INDUSTRIAL

DURA

Impa

MORSE

altridonex

HYUNDAI

TRICO

ENCLETON

Johnson
Controls

MAGNA

LEAR

COOPER

TRW
Automotive

DENSO

Metalsa

metlak

ArvinMeritor

E.T.N

Honeywell

INTEROCEANIC INTERMODAL CORRIDORS



Cuba could be “game changer” for the region

- Cuba’s geographical position could make it the main logistics and manufacturing center for the U.S.;
Want nearer sourcing?
- The impact on tourism alone, could be dramatic.
- CHEC already began the development of a multipurpose terminal near Santiago, Cuba.



THE FINANCIAL TIMES, JUNE 16, 15****

Opinion: Could Cuba be Vietnam in the Caribbean?

Richard E Feinberg-Hanoi may have lessons for Havana

PRINCIPAL TRADE LANES AND CHANGES THAT COULD AFFECT THEM

Tomorrow's Service Patterns: via New Panamá Locks?



PRINCIPAL TRADE LANES AND CHANGES THAT COULD AFFECT THEM

ZED Mariel (Zone A) - Investors gathering...



- TC Mariel first investor and user of the Mariel Special Development Zone (ZEDM)
- ZAL – Logistics Activity Zone opened in August 2015 (20,000m² dry and 5,000m³ refrigerated warehousing.
- 6 additional projects under construction:
 - Meat processing plant
 - Industrial paints plant
 - Juices & drinks plant
 - Heavy equipment leasing & service centre
 - Logistics provider
 - Hotel supplies logistics provider
- Considerable international interest (current investors: Spanish, Mexican, Belgian, Cuban, French.....)





According to the schedule provided by HKND, the main works, including construction of the world's largest lock and full excavation of the waterway, will start by the end of 2016. A year before that happens, they will construct infrastructure facilities, logistics system and preparatory works for the West Port.

Source: HKND web page



Pang Kwok Wai indicated that the approval of the ESIA is a critical breakthrough and the Project is now moving forward as scheduled. In the next stage, the resettlement of 27,000 residents (6,800 households) is even more important and challenging than any other technical problems that might arise during the construction phase, he added.

Source: HKND web page



Doubts towards the Project involve financing and economic operating issues, for example, according to one calculation method, the annual return is expected to be US\$1 billion; then under the half split scheme with Nicaraguan government, how to reach the breakeven point and make it profitable. How would you respond to these doubts?

Pang Kwok Wai: The calculation method of many who doubt has serious defects. **The Project is not only relying on the transportation, but also on the Free Trade Zone, Ports, tourism and etc.** The economic feasibility study was carried out and completed by McKinsey & Company and now we are also doing further financial return projections.

Source: HKND web page



**3rd Set of
Locks**

**Conceptual 4th Set
of Locks**



1st Mare Forum Panama 2016

**Panama, the Singapore
of the Western
Hemisphere**

- Looking Ahead -



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