The Panama Canal -
Enhancing Panama’s Logistics Cluster

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# PANAMA AT A GLANCE

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>GDP average growth rate – last 10 years</strong></td>
<td>7.5%</td>
</tr>
<tr>
<td>Real GDP growth rate 2014</td>
<td>6.2%</td>
</tr>
<tr>
<td>GDP estimated- 2014 (millions of dollars)</td>
<td>US$47,459</td>
</tr>
<tr>
<td>Population (million)</td>
<td>3.8</td>
</tr>
<tr>
<td>Unemployment rate -2014 E (in %)</td>
<td>4.0</td>
</tr>
<tr>
<td>Inflation rate - 2014 E (in %)</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Source: Contraloría General de la República, Indesa
The Panama Canal a Game Changer for World Trade

- 144 trade routes
- 1,700 ports
- 160 countries

FY 2015 Total: 229.1 M LT

Top 5 Commodities

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grains</td>
<td>52.0M</td>
</tr>
<tr>
<td>Petroleum &amp; Petroleum products</td>
<td>46.5M</td>
</tr>
<tr>
<td>Container Cargo</td>
<td>40.0M</td>
</tr>
<tr>
<td>Metals and Ores</td>
<td>14.3M</td>
</tr>
<tr>
<td>Chemicals and Petroleum Chemicals</td>
<td>13.7M</td>
</tr>
</tbody>
</table>
Total Cargo Movements of Main User Nations Panama Canal

Cargo Long Tons

70% of Canal cargo traffic originates in or is destined to the United States

<table>
<thead>
<tr>
<th>User Nation</th>
<th>FY 2014</th>
<th>FY 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>154.1</td>
<td>160.8</td>
</tr>
<tr>
<td>China</td>
<td>51.5</td>
<td>48.4</td>
</tr>
<tr>
<td>Chile</td>
<td>29.5</td>
<td>29.5</td>
</tr>
<tr>
<td>Japan</td>
<td>21.7</td>
<td>22.9</td>
</tr>
<tr>
<td>Peru</td>
<td>16.5</td>
<td>18.8</td>
</tr>
<tr>
<td>South Korea</td>
<td>19.1</td>
<td>18.5</td>
</tr>
</tbody>
</table>
It is all about reliability, connectivity, and value added services.
Source: ACP MEMN, Compair Data, July 2015
The Panama Canal - 2016

It’s all about economies of scale!
**Expansion Program at a Glance**

**PROJECT: 94%**

**Atlantic Entrance Deepening & Widening**
- Dredging of Canal’s entrance in the Atlantic Ocean

**Gatun Lake Navigation Channel Widening & Deepening and Deepening of the Culebra Cut**
- Removal of sub aquatic material to deepen & widening of the navigation channel in the Gatun Lake and the Culebra Cut

**Pacific Access Channel**
- A new access channel north of the new locks on the Pacific side
  - Executed in four phases (PACs 1 to 4), entails the excavation of ~50 MMcu.m of material along a 6.1 km span

**Atlantic Side Neo-Panamax Locks**
- Features 3 chambers, 9 water-saving basins, a lateral filling and emptying system, and 16 rolling gates

**Increase of Gatun Lake’s Maximum Operational Level**
- Enables raising Gatun Lake’s maximum operating level by 45 cm to improve the Canal’s water supply and draft dependability

**Pacific Side Neo-Panamax Locks**
- Features 3 chambers, 9 water-saving basins, a lateral filling and emptying system, and 16 rolling gates

**Pacific Entrance Deepening and Widening**
- Deepening the Pacific entrance to 15.5 m below mean low water level and widening it to 225 m

**Source:** ACP
It’s all about economies of scale!
The Expansion will Significantly Enhance the Canal’s Global Competitive Position

Economies of scale - Efficiencies in the supply chain – Connectivity

Exporters

Shipping Lines

Importers

Consumers
Panama provides easy access to consumers located in Latin America, the Caribbean, North America, Asia and Europe.
# Economies of Scale

<table>
<thead>
<tr>
<th></th>
<th>Pre-Expansion</th>
<th>Post-Expansion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Max Vessel Capacity</strong></td>
<td>Panamax (294m length)</td>
<td>Neo-Panamax (366m length)</td>
</tr>
<tr>
<td><strong>Capacity</strong></td>
<td>4,400 TEU’s</td>
<td>13,000 - 14,000 TEU’s</td>
</tr>
<tr>
<td><strong>Canal Water Time</strong></td>
<td>31.5 h</td>
<td>24.0 h</td>
</tr>
</tbody>
</table>

**Relevant Vessel Capacity Increase**

- **Existing Locks**
  - 294 m
  - 32 m
  - Maximum capacity of transiting vessels **4,400 TEU**

- **New Locks**
  - 366 m
  - 49 m
  - Maximum capacity of transiting vessels **up to 14,000 TEU**

*The Expansion will create a new lane of traffic along the canal through a new set of locks, doubling the waterway’s capacity. Higher capacity to strengthen ACP’s market position.*
In 2019, **95.4%** of the containership fleet will be able to transit the Panama Canal.

Source: ACP/MEMN/Fairplay World Fleet as of August 2015.
As much as 10% of container traffic between East Asia and the US could shift from West Coast Ports to East Coast Ports.
Increasing Market Participation Persuading New Players to Consider the Panama Canal Route

### Container Vessels
- Vessels Up to 14,000 TEU
- new volumes from:
  - Latin America
  - Recover market from: West Coast United States, Suez Canal

### Dry Bulk
- Up to 170,000 DWT
- Coal from Colombia
- Metalurgical coal from Vancouver
- Iron Ore from Brazil in Minicapesize (85,000-120,000 DWT)

### Liquid Bulk
- Up to 150,000 DWT
- Tankers
- Petroleum Products

### LNG/LPG
- LNG Up to 177,000m³ and VLGC

Source: ACP
(1) ACP preliminary estimation on container cargo market share on the Northeast Asia to U.S. East coast route
Roundtrip:
- Panama Canal: 22,000 nm
- Suez Canal: 26,600 nm

- Approx. 14 days less
- Savings of 4,600 nm
- 2 Vessels less required

Average roundtrip utilization: 60% full TEU
- Headhaul: 80% full TEU
- Backhaul: 40% full TEU
Dry Bulk Grain Trade Grain Belt
New Orleans, USA to Dalian, China

Panama Canal
Sea distance: 10,069 nm
Savings of 5,284 nm
Approx. 16 days less

Cape of Good Hope
Sea distance: 15,353 nm

Sources: ACP Route Choice Model
Vehicle Carrier Services
Northeast Asia – East Coast of the United States

Panama Canal: 10,859 nm
Suez Canal: 14,490 nm

Approx. 8 days less
Savings of 3,631 nm
LNG Trade – U.S. Gulf to Fukuoka, Japan

Panama Canal: 9,623 nm
Savings of 4,494 nm
Approx. 10 days less

Suez Canal: 14,117 nm
CO2 Footprints per TEU
Container Route Kaoshiung- New York

<table>
<thead>
<tr>
<th>Route</th>
<th>Panamax</th>
<th>U.S. Landbridge</th>
<th>Cape Horn</th>
<th>Cape of Good Hope</th>
<th>Suez Canal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panamax</td>
<td>2.51</td>
<td>2.64</td>
<td>4.07</td>
<td>2.86</td>
<td>3.02</td>
</tr>
<tr>
<td>Post-Panamax 8000 TEU</td>
<td>2.06</td>
<td>2.38</td>
<td>3.37</td>
<td>2.86</td>
<td>2.51</td>
</tr>
<tr>
<td>Post-Panamax 8700 TEU</td>
<td>1.82</td>
<td>2.23</td>
<td>2.98</td>
<td>2.53</td>
<td>2.21</td>
</tr>
</tbody>
</table>
Panama is the Latin-American country with the highest container port throughput registered in 2014.

Four renowned international port operators run the country’s main container ports under concession contracts; Hutchinson and PSA in the Pacific; and SSA Marine, Evergreen and Hutchinson in the Atlantic.

Panama offers a unique connectivity to world maritime trade, a channel that links two oceans and ports, an interoceanic railroad, ancillary services for ships and ports, and a shipyard for oceangoing ships, that add value to the route and places Panama as the main transshipment hub in the region.
Transshipment, drives Panama’s connectivity!

Panama ports transshipment activity:
- Manzanillo Port = 84%
- Balboa Port = 92%
- Colon Container Terminal = 69%
- Cristobal Port = 76%

The Panama Canal is the driver of transshipment...
Panama's Logistics Cluster Support Infrastructure

- Manzanillo International Terminal (MIT)
- Colon Container Terminal
- Transisthmian Highway
- Tocumen International Airport
- Transisthmian Railway
- Corozal Container Terminal - Proposed
- Panama Ports Company Cristobal
- Panama Ports Company Balboa
- PSA
- The Panama Canal

Panama Ports

In Millions of TEU

- Container Movements at Panamanian Ports 2000 – 2014

PANAMA: 50 MILES OCEAN TO OCEAN
Panama Canal's Diversification Strategy

Corozal Container Terminal
- Additional transshipment creates the need for more container terminal capacity – To be execute in two phases
- Total capacity: 5MM TEU

Roll-On Roll-Off Terminal
- Potential for a dedicated terminal for vehicle transshipment in Panama

Logistics Parks
- Capitalizes on recovered areas
- Offers a strategic location for distribution and value-added activities

Bunkering
- Opportunities to obtain a larger market share in vessel bunkering through more efficient operations

LNG Terminal
- Capitalizes on global LNG flows
- Offers LNG bunkering to vessels
- Opportunities in regional re-distribution

Pipelines
- Opportunities related to the flow of petrochemicals and refined products from one ocean to the other

Vessel Repairs Services
- There is a need for facilities to provide major scheduled ship repairs, routine maintenance or emergency repairs
- Both Atlantic and Pacific markets

Top-Off Operations
- Potential for developing a ship-to-ship top-off operations in Panama
- Capitalizes on new routes for ores from the Northern coast of South America to Asia

Power Generation
- Cost-competitive through the use of LNG as alternate fuel source
- Reduces the carbon footprint

Source: ACP
Port of Corozal (under study)

Corozal is the only available shoreline area on the East bank of the Pacific entrance with Road and Rail Connectivity

Phase 1: 3.2 M TEUs
Phase 2: 2.1 M TEUs

The ACP is studying the possibility of building a container terminal in an area of 118 hectares at the Pacific entrance of the Panama Canal. The terminal would have access to the railway and highway systems which allow the movement of containers from one ocean to another in less than an hour. The new container terminal would serve ships, shippers and cargo in the largest and most complete logistics hub of the Americas.
Logistics Park Development

Manzanillo Logistic Park
Total: 16.9Has
898,787 ft² warehouses

Colon Free Zone
Total: 1,064.58Has
63,507,071 ft² warehouses

ACP Master Plan for Logistics Park Development
Total: 257.76Has
16,647,469 ft² warehouses

Panama Pacific Special Economic Zone
Total: 88Has
3,982,647 ft² warehouses

PANAMA: 50 MILES OCEAN TO OCEAN
Feasibility Study for an LNG Terminal

- Energy Generation
- Re-distribution
- Internal fleet

Technical Cooperation Agreement
Feasibility Study for an LNG Terminal

Board of Directors Approval (May 28)
Grant Agreement Signature (June 26)
Public Tender Bid
Study Development, Estimated Time 8 Months
Thank you...