

The Panama Canal Expansion Program



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Deputy Administrator
Panama Canal Authority
April 2010

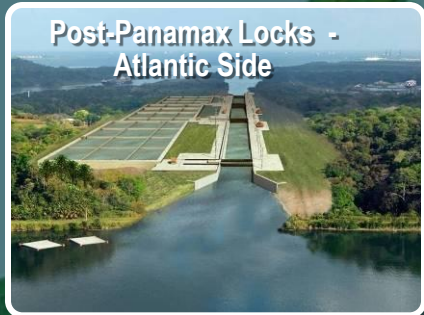


Program Components

\$5.25 billion investment

Atlantic Ocean

Post-Panamax Locks -
Atlantic Side



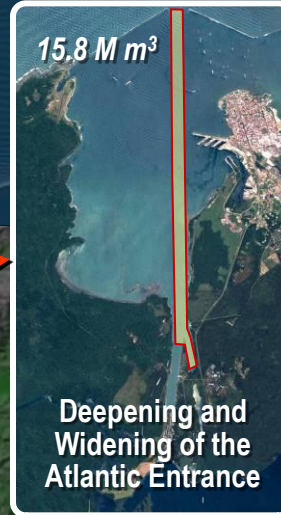
Increasing Gatun Lake's
Maximum Operational Level



26.7 m → 27.1 m

15.8 M m³

Deepening and
Widening of the
Atlantic Entrance



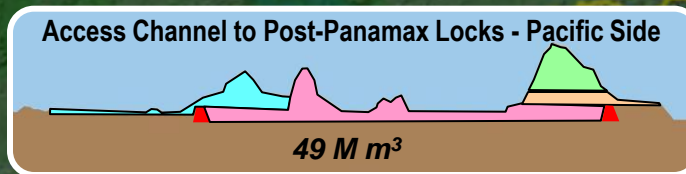
Post-Panamax
Locks – Pacific Side



Deepening and Widening of
Gatun Lake's and Gaillard Cut's
Navigational Channels

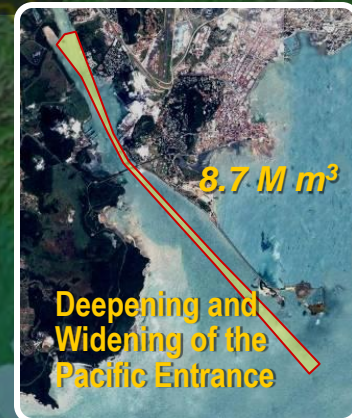


Access Channel to Post-Panamax Locks - Pacific Side



8.7 M m³

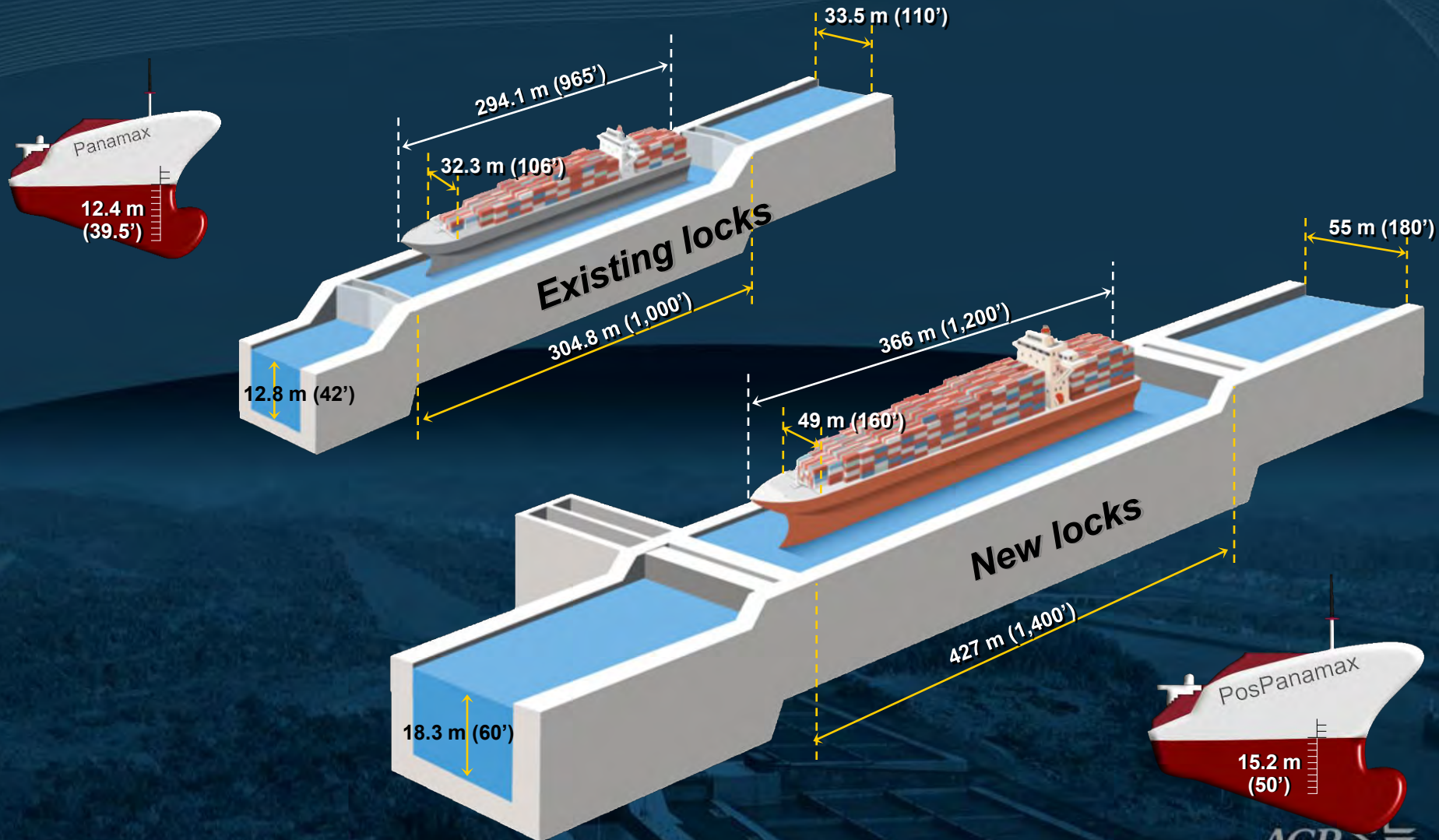
Deepening and
Widening of the
Pacific Entrance



Pacific Ocean

Locks and vessels sizes

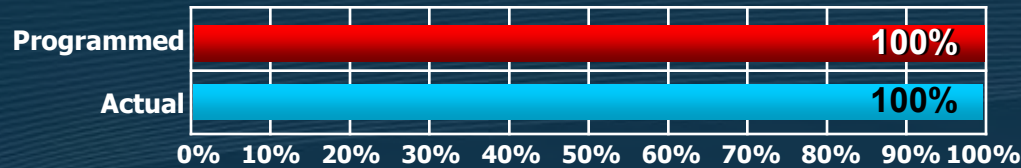
Existing locks' maximum vessel size: 4,400 TEU



New locks' maximum vessel size: 12,600 TEU

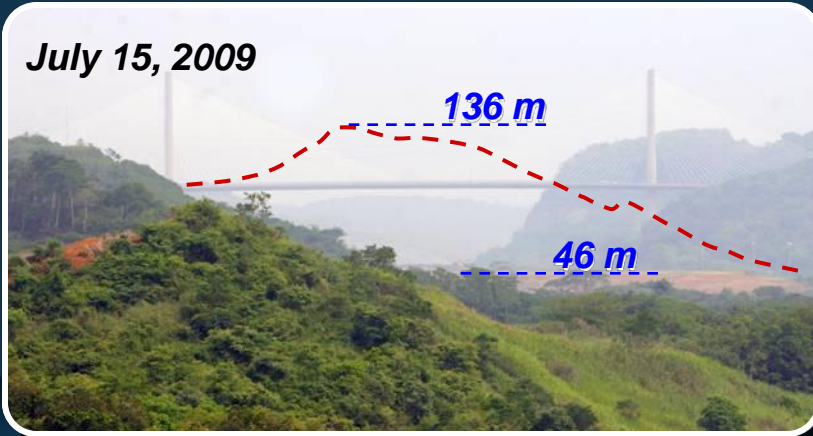
Pacific Access Channel - Phase 1

COMPLETED



Excavated 7.3 M m³

July 15, 2009



July 15, 2009



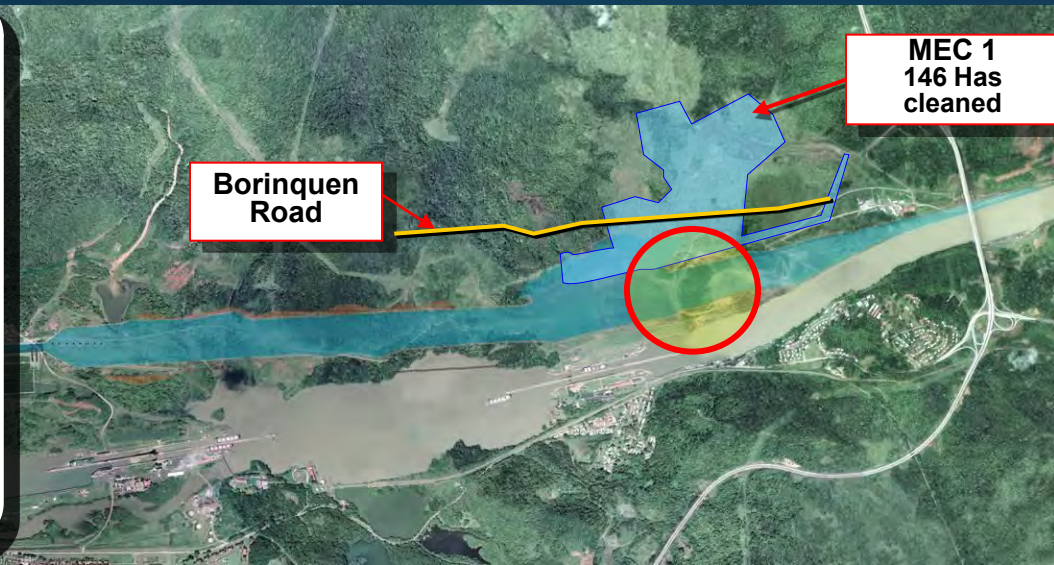
Contract Scope: 7.4 Mm³, cleaning 146 hectares of MEC and relocation of a 3.6 km stretch of Borinquen road

Awarded: 17 July, 2007

Amount Awarded: B/.41,094,000.00

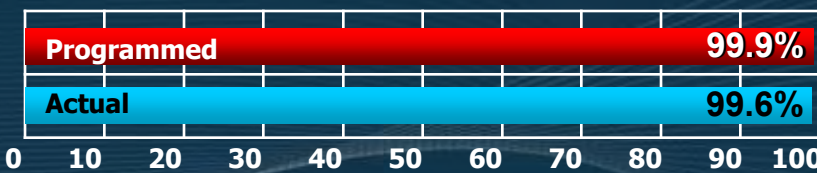
Amount Paid: B/. 40,431,196.00

- Contractor passed final inspection – project is completed
- Administrative closure in process

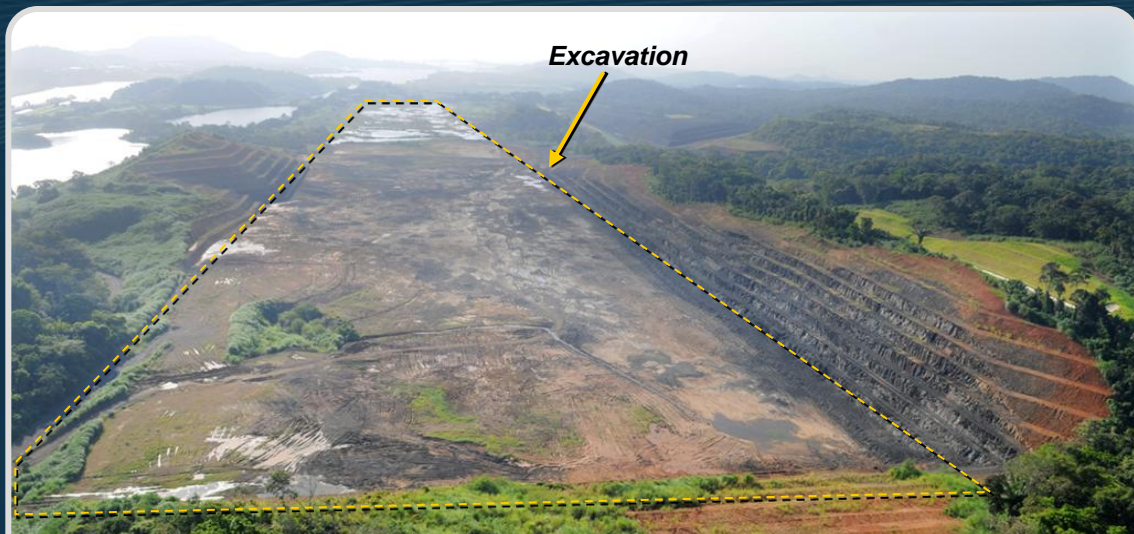


Pacific Access Channel - Phase 2

7.4 M m³ excavated



COMPLETED



Contract scope : 7.5 Mm³ - excavation, relocation of a 1.3 Km. stretch of Borinquen road, diversion of a 3.5 Km. stretch of Cocoli River.

Contract Awarded to the consortium Cilsa-Minera María for B/. 25,489,200.30.

Award date: November 27, 2007.

- Contractor passed final inspection – project is completed
- Administrative closure in process

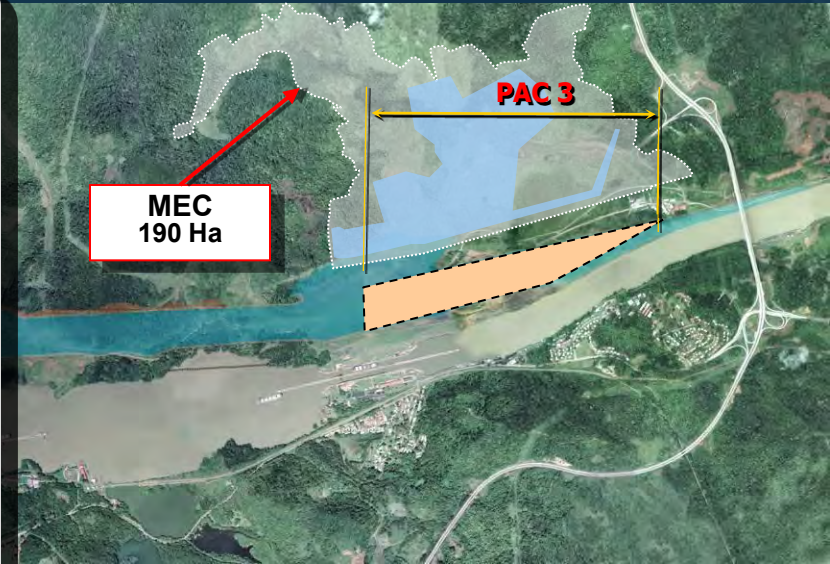
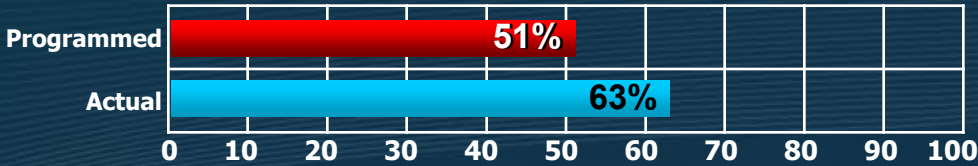


Projects Under Execution

Pacific Access Channel - Phase 3

Awarded: 16-DEC-2008
 Company: Constructora MECO, S.A.
 Excavation: 8.0M m³
 Cleaning remaining 190 has in T6 area

4.47 M m³ excavated
190 hectares cleared



ELEVATION

14
11
8
5
2

140
110
80
50
20
9

+920

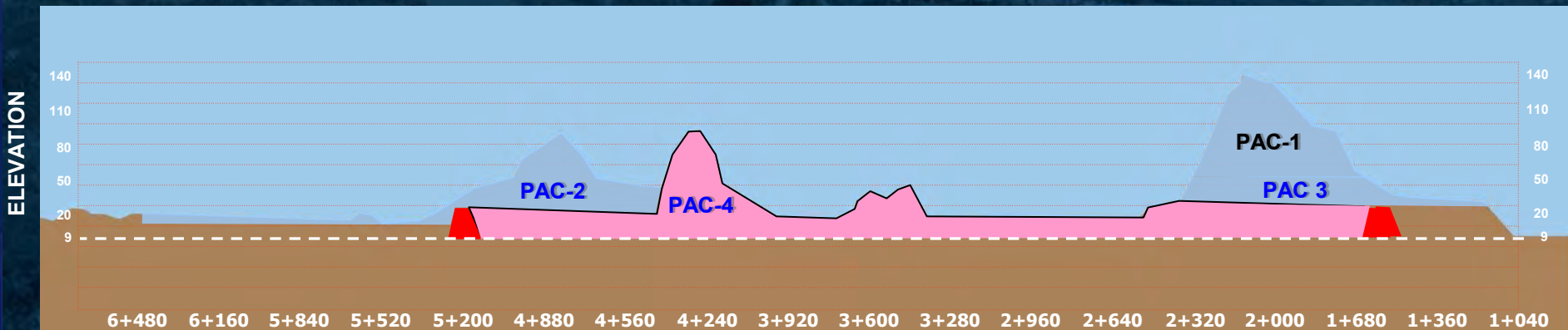
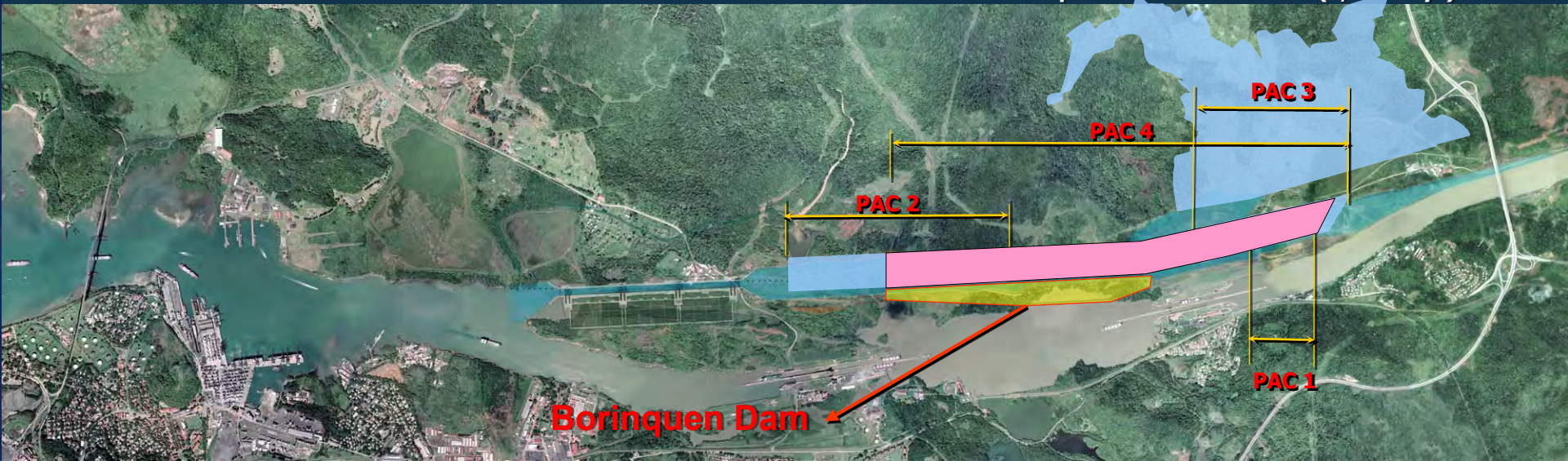
+040

Pacific Access Channel – Phase 4

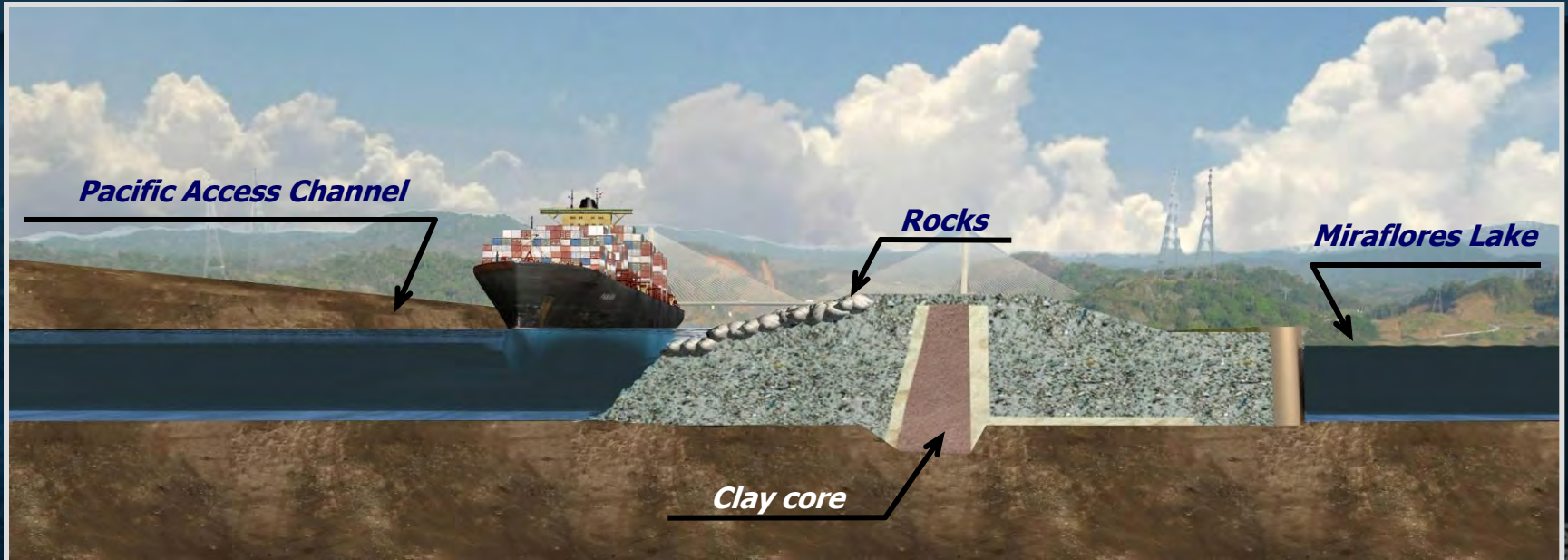
26 M m³ of dry excavation

- Bid announcement: July 31, 2009
- Proposals receipt: 22-DEC-09
- Awarded: 6-JAN-10
- Awarded to: FCC-ICA-MECO Consortium
- Order to proceed: 22-JAN-10
- Expected works startup date: 27-APR-10
- Estimated completion date: 2-AUG-13 (1,288 days)

Programmed	<div style="width: 9%; height: 15px; background-color: red;"></div>	9%									
Actual	<div style="width: 9%; height: 15px; background-color: blue;"></div>	9%									
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

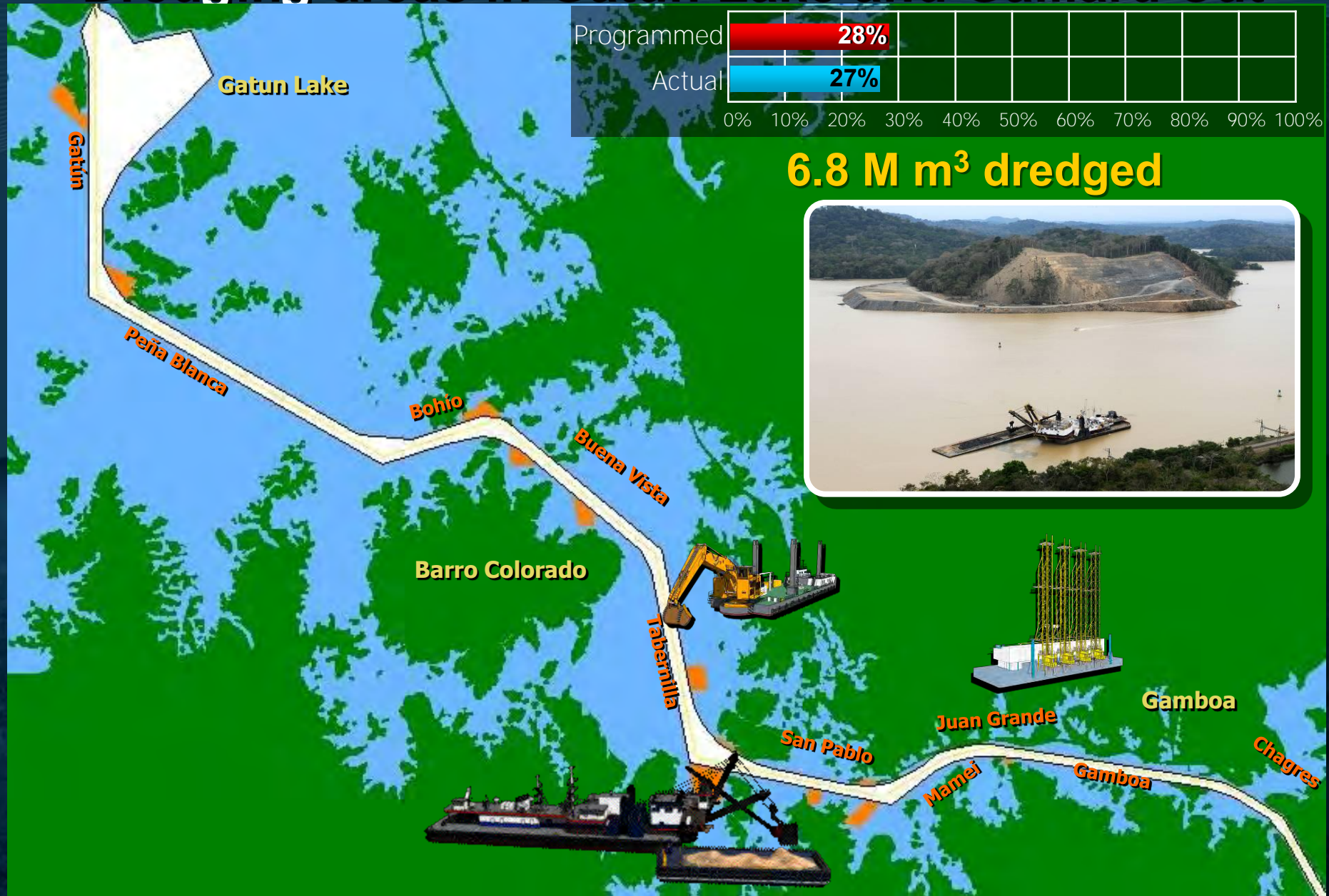


Borinquen Dam



Projects Under Execution

Dredging areas in Gatun Lake and Gaillard Cut



Projects Under Execution

Gatun Lake's critical dredging areas

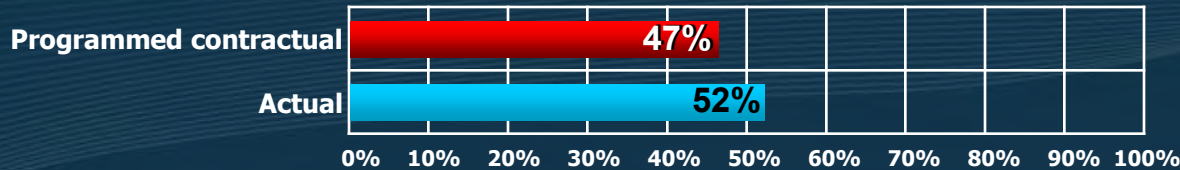


**New prism line
once the island is
removed**

Projects Under Execution

Pacific Entrance Deepening and Widening (8.7 M m³)

4.88 M m³ dredged



Awarded: April 1, 2008

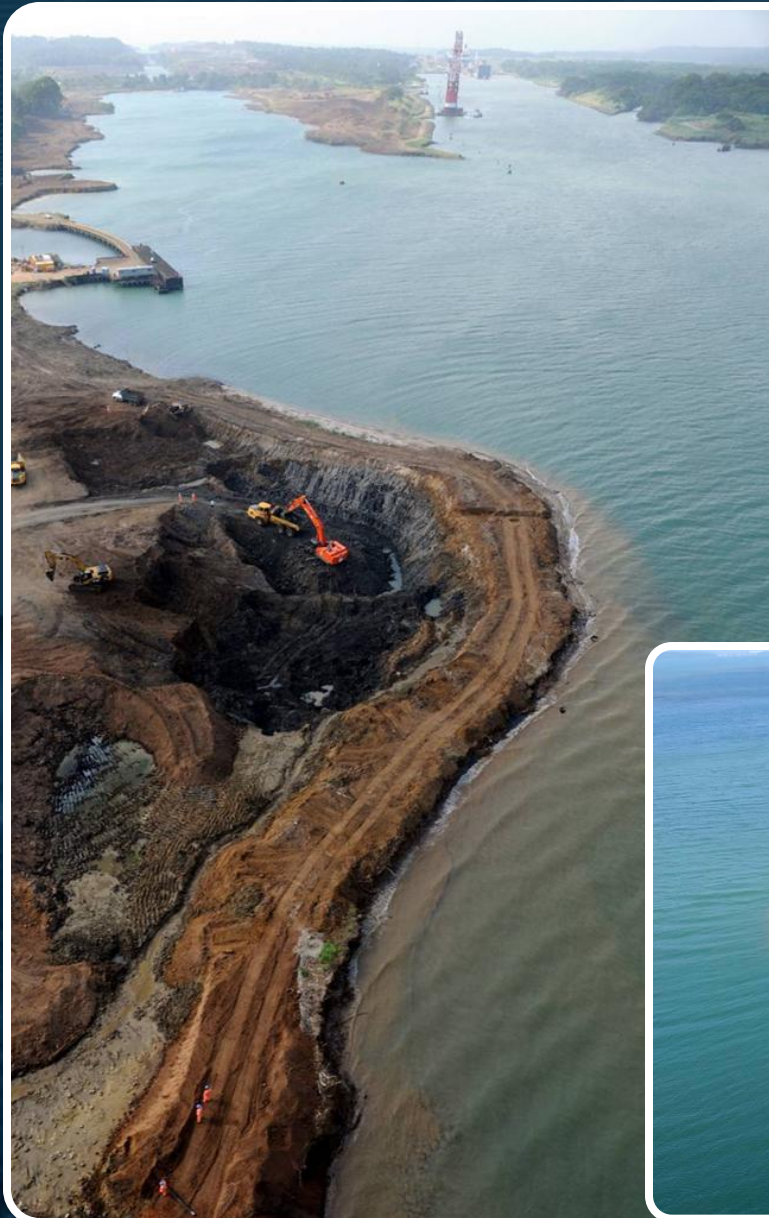
Company: Dredging International

Amount: B/. 177,500,676.78

Dredged volume: 8.7 M m³



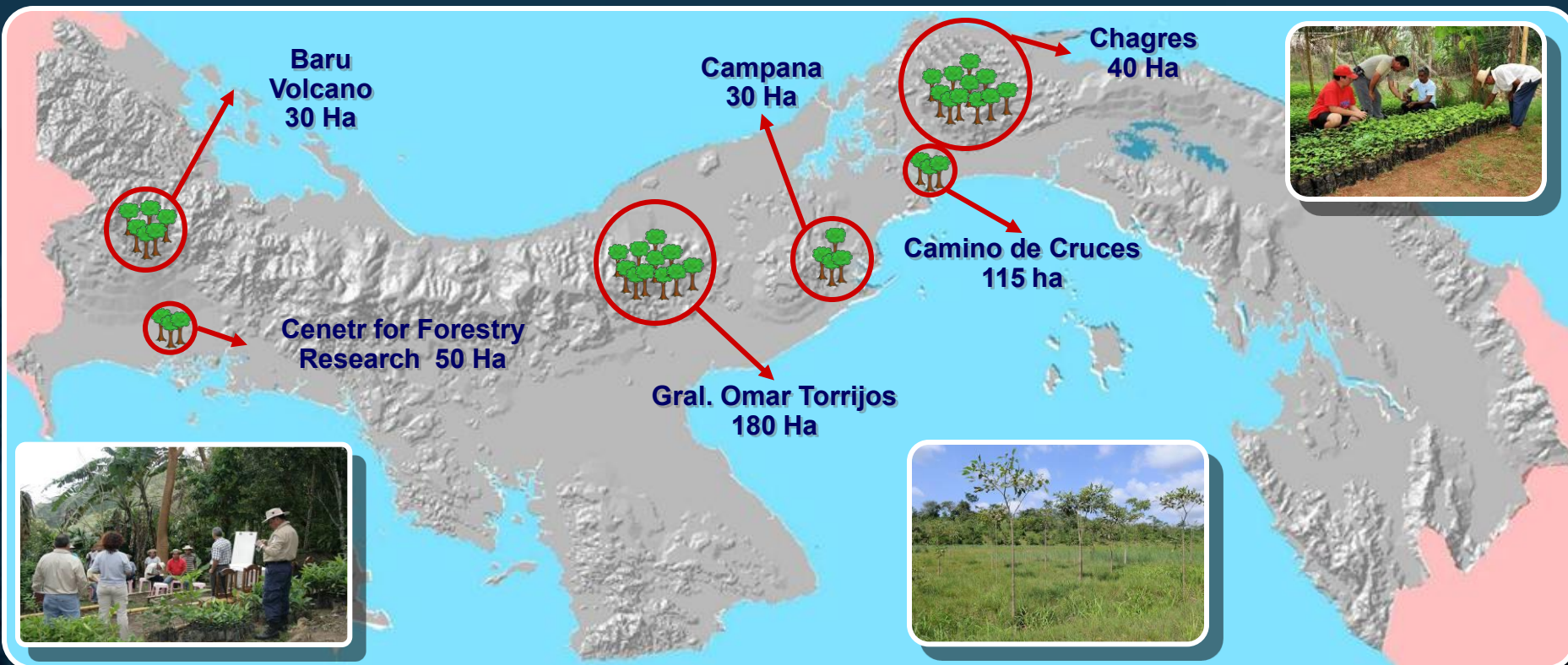
Atlantic Side Dredging



Atlantic Entrance Dredging



Reforestation Projects Under Execution



Locks Design and Construction

Programmed  2.78%

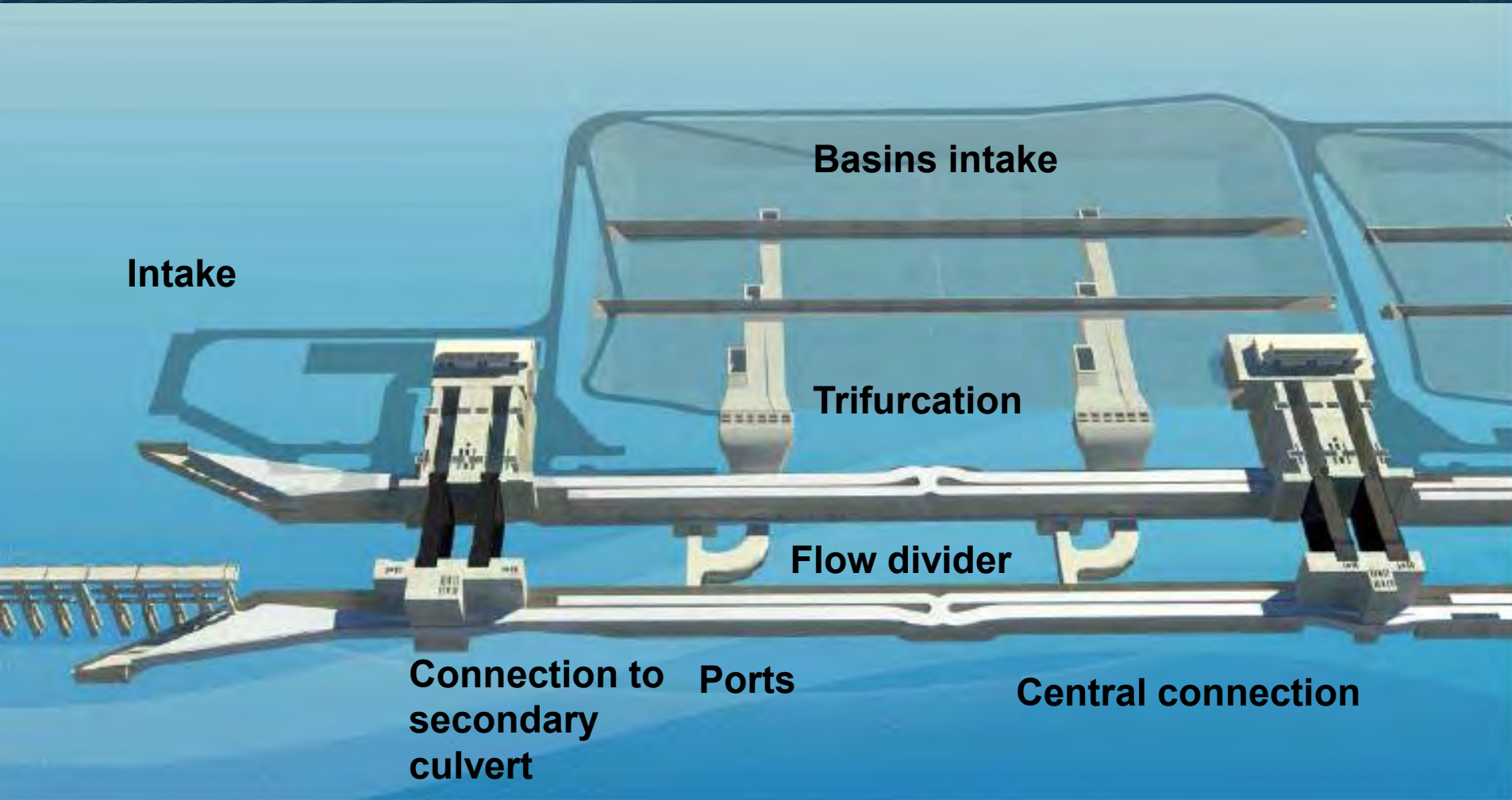
Actual  1.57%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%



Analyzed components

Mathematical model



Physical Model in Lyon, France



Pacific Locks



New Atlantic Locks



Bid Price Behaviour of Principal Expansion Program Projects

B/. 388M below Budget

Pacific Access Channel - 4	BUDGET	\$ 302,374,000	
	FCC-ICA-MECO	\$ 267,798,795.99	- 11%
Atlantic Entrance Dredging	BUDGET	\$ 105,821,000	
	JAN DE NUL, NV	\$ 89,617,317	- 15%
Locks	BUDGET	\$ 3,481,0000,000	
	GUPC	\$ 3,221,631,384	- 7%
Pacific Access Channel - 3	BUDGET	\$ 68,067,623	
	Constructora MECO, S.A.	\$ 36,659,852.28	- 46%
Pacific Entrance Dredging	BUDGET	\$ 181,096,000	
	Dredging International	\$ 177,500,676.78	- 2%
Pacific Access Channel - 2	BUDGET	\$ 48,459,296	
	CILSA - MINERA MARÍA	\$ 25,489,200.30	- 47%
Pacific Access Channel - 1	BUDGET	\$ 61,208,966	
	Constructora Urbana S.A.	\$ 41,094,000	- 33%

25%

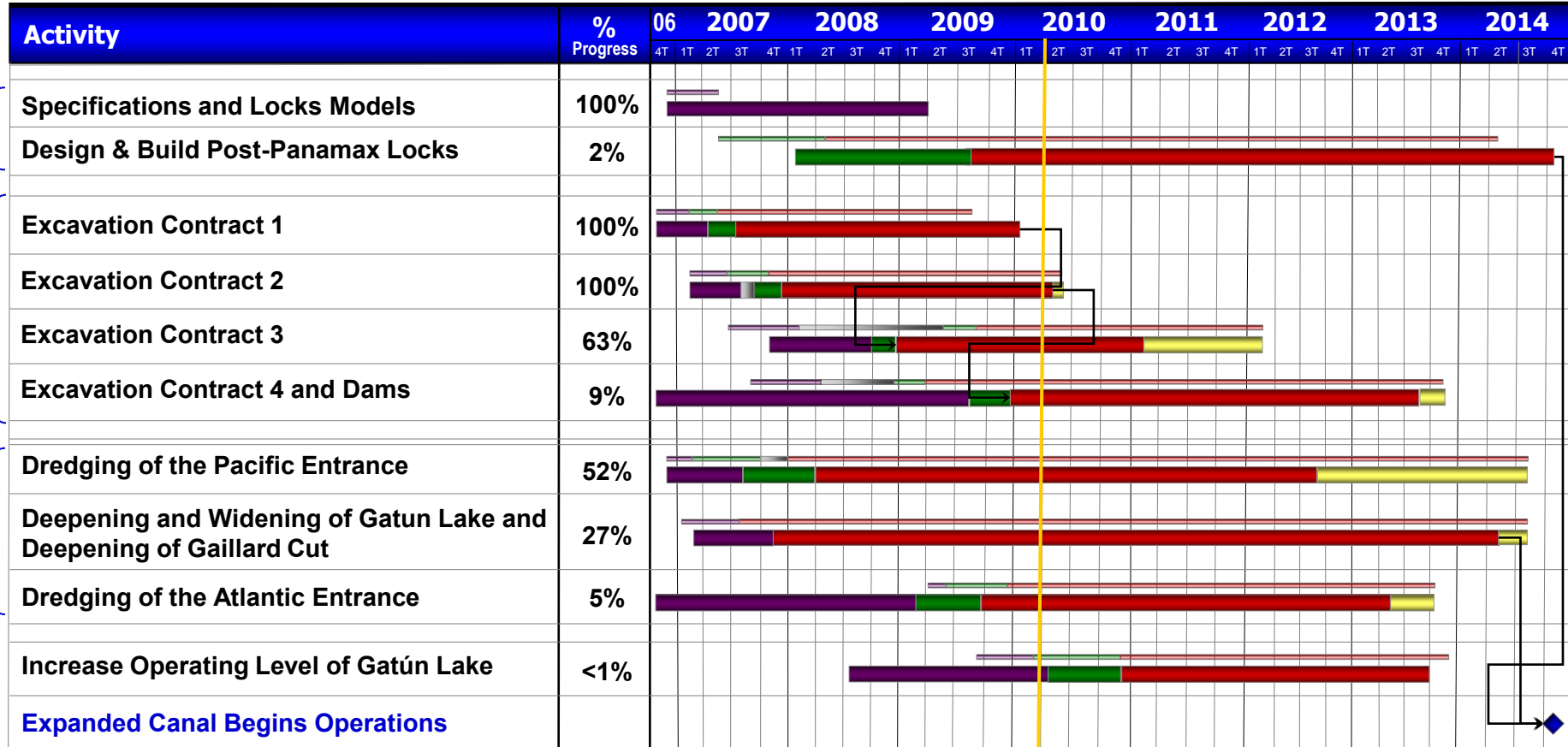
50%

75%

100%

Summary Schedule of Main Projects with Baseline and Contingency

as of March 31, 2010*



Specifications and Design
 Bidding and Contracting
 Execution
 Contingency against baseline
 Beginning of operations

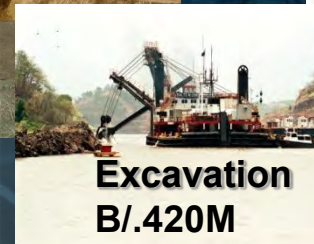
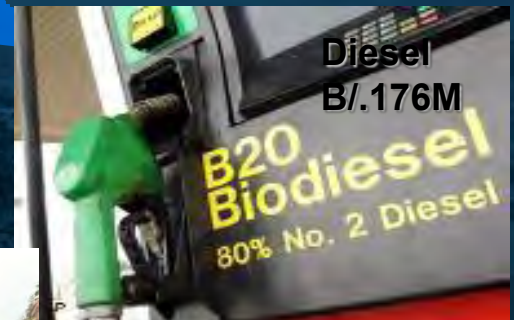
Baseline*
 Baseline
 Baseline

* Baseline from December 31, 2006 including contingency.

Some business opportunities linked to the Canal Expansion



Goods and services required for the Expansion Project



Potential Impact of the Panama Canal Expansion

WORLD MAIN LOGISTICS HUBS



Panama is the main logistical, transportation and transshipment hub of the Americas.

U.S. East and Gulf Coast Ports



Port Authorities Expansion Projects

Location	Project	Estimated Completion
Georgia Ports Authority	Deepening of the Savannah River Channel from 42' to 48'.	2014
Port of Miami	Deepening draft from 42' to 50' and the construction of Port of Miami Tunnel Project to expedite delivery of goods.	2014
Philadelphia Regional Port Authority	Dredging the main shipping channel of the Delaware River from 40' to 45'.	Within 5 – 7 years
Port Authority of New York & New Jersey	Harbor deepening project to 50'; \$10 million approved to analyze alternatives for Bayonne Bridge (height: 151').	Harbor deepening to be completed in phases from 2010 to 2014.
Port of Houston Authority	The Bayport Container & Cruise Terminal project (Phase 1 is completed); future capacity of 2.3M TEU.	All phases completed in 15-20 years
Broward County's Port Everglades Department	Inauguration of Cruise Terminal 18 for megaships.	Nov. 2009



Port Authorities Expansion Projects

Location	Project	Estimated Completion
Port of Palm Beach	Development of logistics center for storage and distribution of cargo to the South Florida region.	
Jacksonville Port Authority	Development of container terminals by MOL (already in use) and Hanjin with total additional capacity of 1.5M TEU	2011 - 2012
Maryland Port Administration	Construction of the new 50-foot berth at Baltimore's Seagirt Marine Terminal.	2012
Manatee County Port Authority	The 788 acre Logistics Port Manatee (LPM) multimodal logistic park (Port Manatee's first container terminal); directly served by CSX railroad.	2011

PORT OF SAVANNAH: DC Activity Translates into Long-Term Carrier Options

▲ Largest concentration of Retail Import DC's along the East Coast

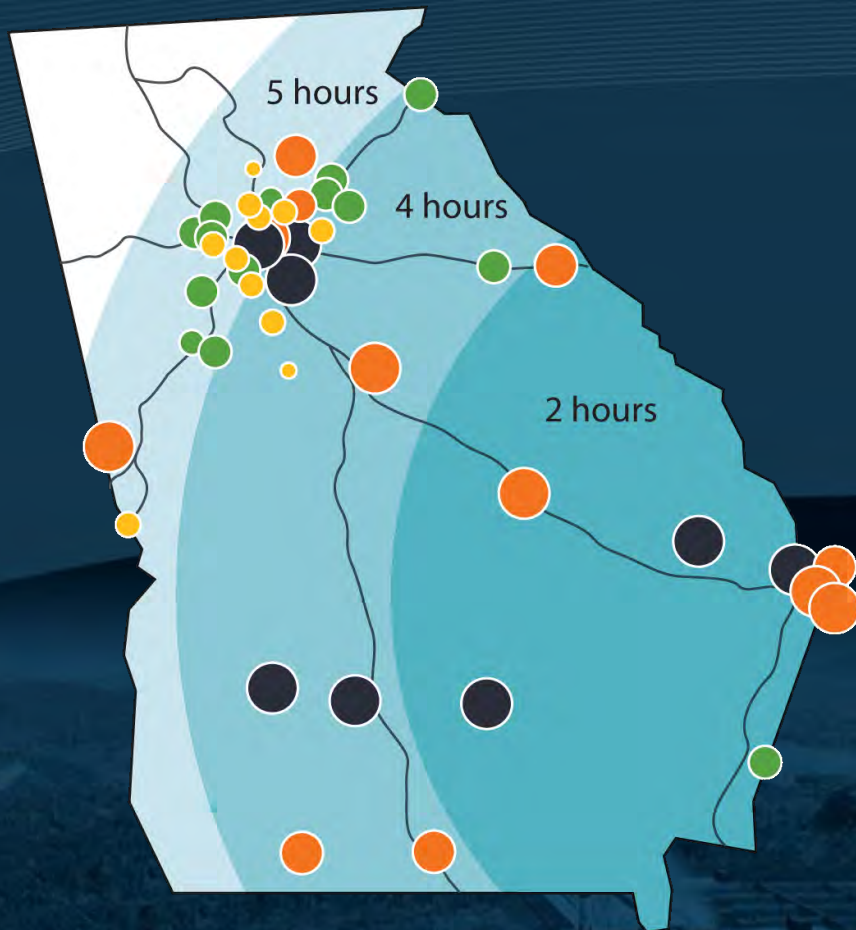
- ▶ 20+ DC's within 100 miles (161 km), including Walmart, Kmart, Lowes, The Home Depot, IKEA, Dollar Tree, Pier 1, and Target to name a few
- ▶ Over 200 additional Georgia DC's from wholesale suppliers to retailers within a 5-hour drive with names like Toys "R" Us, Bass Pro Shop and Academy Sports.
- ▶ Available land and building within 5 miles (8 km) of the port.

- | | |
|---------------------|-------------------------|
| A Electrolux | G Heineken |
| B Target | H The Home Depot |
| C IKEA | I Lowes |
| D Whirlpool | J Dollar Tree |
| E Icon H&F | K Pier 1 Imports |
| F Wal-Mart | |



GEORGIA IMPORTERS:

20+ Savannah-area Import DCs, 200+ more within 5 Hours



Savannah-area Import DC's

	Sq. Ft.	Sq. M.
Academy Sports	1,000,000	92,903
Advance Auto Parts	380,000	35,303
Bass Pro Shops	600,000	55,742
Best Buy	748,000	69,491
Citi Trends Fashion	155,000	14,400
Dollar Tree	800,000	74,322
Farmer's Furniture	250,000	23,226
Fred's	600,000	55,742
Hugo Boss	165,000	15,329
Icon H & F	600,000	55,742
IKEA	1,700,000	157,935
Kmart-Sears	2,200,000	204,387
Kohl's	600,000	55,742
Lowe's	1,250,000	116,129
Midwest Air Technologies	150,000	13,935
Noritake	105,000	9,754
Oneida	500,000	46,452
Paper Tigers	115,000	10,684
Pier 1 Imports	783,000	72,743
Target	2,100,000	195,096
The Home Depot	1,400,000	130,064
Tire Rack	250,000	23,226
Wal-Mart (2)	3,300,000	306,580

Note: This list is not intended to be definitive of Georgia's extensive list of port dependent DCs.

Importance of the Savannah Harbor deepening project

- Designed to deepen the Savannah River from 42 to 48 feet.
- To be completed in 2014, in time with Canal expansion
- Post Panamax vessels transiting the expanded Canal will be able make calls at the Port of Savannah.
- **72 percent of total trade moving through Georgia's ports transits the Panama Canal.**
- Out of the 30 liner services that transit the Panama Canal, 15 call at the Port of Savannah.
- ACP expects rapid deployment of 8,000 TEUs vessels once the Canal expansion is completed.

GPA-ACP Strategic Alliance



- Initially subscribed in 2003 to generate new business by promoting the all-water route from Asia to the USEC via the Panama Canal.
- Renewed in 2008 for three additional years
- Allows for joint marketing activities; exchange of market studies and information on modernization and improvement programs; technological interchange and cross training activities.

Governor Purdue/GPA visit to Panama Canal – Sept 09

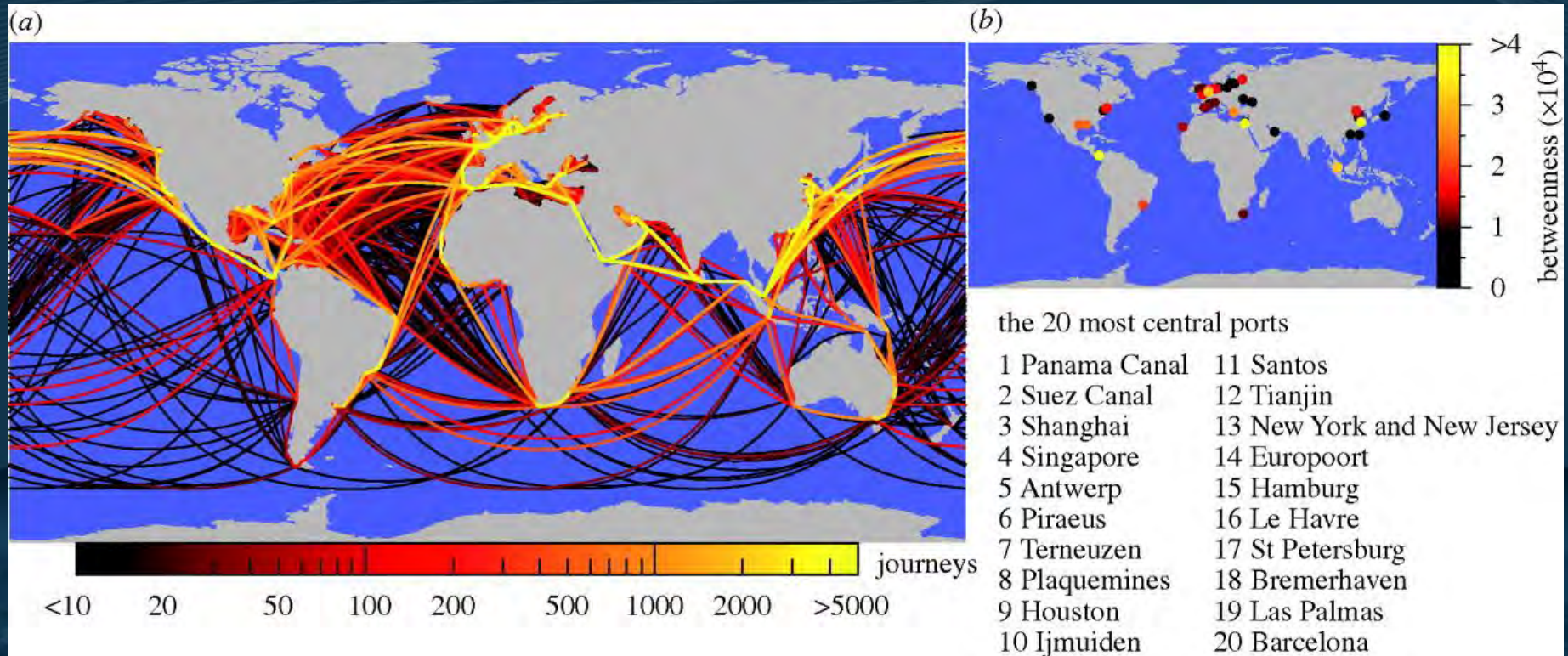


International Ports Connected through the Panama Canal every Week



Source: ACP and ComPairData, 2007

Routes, ports and betweenness centralities in the GCSN



Routes, ports and betweenness centralities in the GCSN. (a) The trajectories of all cargo ships bigger than 10 000 GT during 2007. The colour scale indicates the number of journeys along each route. Ships are assumed to travel along the shortest (geodesic) paths on water. (b) A map of the 50 ports of highest betweenness centrality and a ranked list of the 20 most central ports.

Kaluza P et al. J. R. Soc. Interface
doi:10.1098/rsif.2009.0495

