

PANAMA CANAL EXPANSION PROGRAM

2010



PANAMA CANAL

Expansion Program Components

Post-Panamax Locks

Construction of new Post-Panamax locks on the Pacific and Atlantic sides. The new locks complexes will have three chambers each with water-saving basins, a lateral filling and emptying system and rolling gates.

Pacific Access Channel

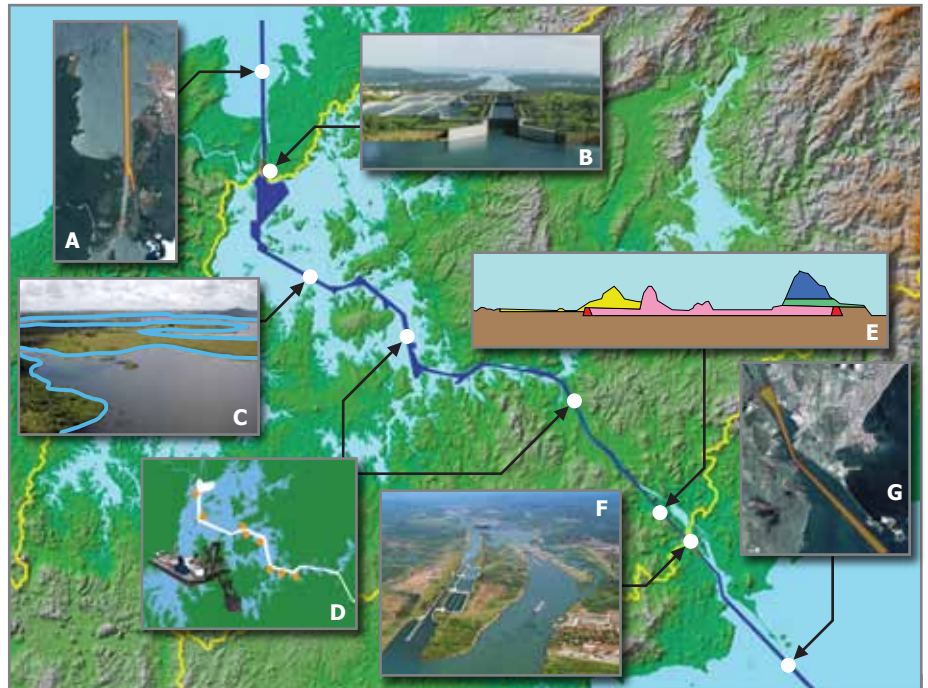
Excavation of the new Pacific Post-Panamax locks north access channel. The project requires the dry excavation of approximately 49 million cubic meters of material along 6.1 kilometers. Executed in four different phases (PACs 1 – 4).

Improvements to Navigational Channels

Involve dredging of the existing navigation channels to enable the safe navigation of Post-Panamax vessels through the expanded Canal.

Improvements to Water Supply

Call for an increase of Gatun Lake's maximum operating level by 45 centimeters to improve Canal water supply and draft dependability.



- 1. Culebra Cut
- 2. PAC-1
- 3. MEC-1
- 4. PAC-3
- 5. MEC-2
- 6. PAC-4
- 7. MEC-3
- 8. Miraflores Lake
- 9. PAC-2
- 10. Pacific Post-Panamax locks
- 11. Pacific Entrance Dredging
- 12. Atlantic Entrance Dredging
- 13. Atlantic Post-Panamax locks
- 14. Gatun Lake

- A. Atlantic entrance deepening and widening
- B. Atlantic Post-Panamax locks
- C. Rising Gatun Lake's maximum operation level
- D. Deepening and widening of Gatun Lake and Culebra Cut navigational channels
- E. Post-Panamax locks Pacific access channel
- F. Pacific Post-Panamax locks
- G. Pacific entrance deepening and widening



Projects

By August 31, 2010, contracts for the amount of \$4,190 million had already been awarded

Excavation of the Pacific Access Channel Phase 1

This contract was awarded on July 17, 2007 to Panama – based Constructora Urbana S.A. (CUSA) for a total of B /. 41.1 million. It was completed during the first quarter of 2010 and its activities included the leveling of Paraiso Hill from its original 136 meters to 46 meters above sea level. In achieving this, CUSA removed a total of 7.3 million cubic meters of material.

The contract also included the cleaning of a total 146 hectares of firing ranges, known as MEC (munitions and explosives of concern) areas, and the relocation of 3.6 kilometers of the Borinquen road.



Excavation of the Pacific Access Channel Phase 2

This contract was awarded on November 27, 2007 to Cilsa Panama - Minera Maria, for a total of B /. 25.5 million. It was completed during the first quarter of 2010. Activities under the contract involved the removal of 7.4 million cubic meters of material, the 3.5 – kilometer diversion of the Cocolí River and the relocation of 1.3 kilometers of the Borinquen road. Construction of this road began in May 2008.



The new Borinquen road.





View of the work under the third phase of the dry-excitation from the Centennial Bridge.

Excavation of the Pacific Access Channel Phase 3

The ACP awarded this contract on December 16, 2008, to Constructora Mecos S.A., for a total of \$35.5 million. This contract includes the excavation, removal and disposal of 8 million cubic meters of material, leveling of Paraiso Hill from 46 to 27.5 meters above sea level and clearing of 190 hectares of MEC areas.

Excavation of the Pacific Access Channel Phase 4

The ACP awarded this contract on January 7, 2010 to consortium ICA-FCC-MECO, for a total of \$267.8 million.

PAC-4 includes the excavation of nearly 26 million cubic meters of unclassified material; construction of the 2.3-kilometer long Borinquen dam that will separate the waters of Miraflores Lake from the new channel; and clearing of 80 hectares of MEC-contaminated areas.



Ongoing work on the Borinquen cofferdam.

Dredging of the Pacific Entrance Navigational Channel

This contract was awarded on April 1, 2008 to Belgian company Dredging International for a total of \$177.5 million.

The project consists of the widening of the Panama Canal Pacific entrance navigational channel to a minimum 225 meters and deepening to 15.5 meters below mean low water level, as well as partial construction of the Pacific Post-Panamax locks south access. A total of 8.7 million cubic meters of material will be removed under this project.

Dredging for the Deepening and Widening of Gatun Lake and Deepening of Culebra Cut

ACP personnel is responsible for dredging work for the deepening and widening of Gatun Lake, as well as the deepening of Culebra Cut, from which 20 million cubic meters of material will be removed.

To complete this project, the ACP is using in-house and leased equipment.

Dredging of the new Pacific Access Channel North Approach

ACP awarded this contract to dredging company Jan De Nul n.v. on August 16, 2010, for a total of \$54.5 million.

The project entails dredging of the Pacific access channel north approach, which will link the new locks on the Pacific to Culebra Cut.

Its activities include the excavation and dredging of nearly 4 million cubic meters of material, widening to 218 meters and deepening to 16.76 meters below mean lake water level along 1.6 kilometers on the area of the north access channel that will join the Third Set of Locks on the Pacific with Culebra Cut. Proposals for this contract's public bid were submitted on August 6, 2010. This is the last excavation and dredging contract to be awarded under the Canal Expansion Program.

Dredging of the Gatun Lake North Access Channel

On June 4, 2010, the ACP awarded Dredging International a \$40 million contract to dredge a section of the Gatun Lake north access channel. A total of 4.6 million cubic meters of material will be removed from the area.



Equipment deployed for dredging activities on the Atlantic side.

which will require dredging of some 14.8 million cubic meters of material, and dry excavation of an additional 812 thousand cubic meters of material.

An area of approximately 13.8 kilometers is being dredged and the existing Atlantic entrance navigation channel is being widened from its 198 meters to a minimum 225 meters, and the north access channel to the new locks on the Atlantic side to a minimum 218 meters.

This contract includes the execution of an option for additional deepening up to 16.1 meters, which represents a volume of 2.3 million cubic meters of material, at a cost of \$16,411,600. Both volumes include the 60-centimeter dredging tolerance.

Raising Gatun Lake's Maximum Operating Level

The project entails rising Gatun Lake's maximum operating level from 26.67 meters to 27.13 meters to increase water supply for the operation of the expanded Canal. Due to the increase in water level, it will be necessary to modify certain infrastructure, including hydraulic cylinders for the operation of the gates in Pedro Miguel and Gatun locks, Gatun Spillway gates and other ACP and third party facilities. The project is scheduled for completion by September 2013.



April 2009

May 2010

Excavation work on De Lesseps Island.

Dredging of the Canal Atlantic Entrance

This contract was awarded to Belgian company Jan de Nul n.v. on September 25, 2009, for a total of \$89.6 million.

The work includes the deepening of the approach channel to 15.5 meters below mean low water level,



Extension of Gatun Spillway gates

Third Set of Locks



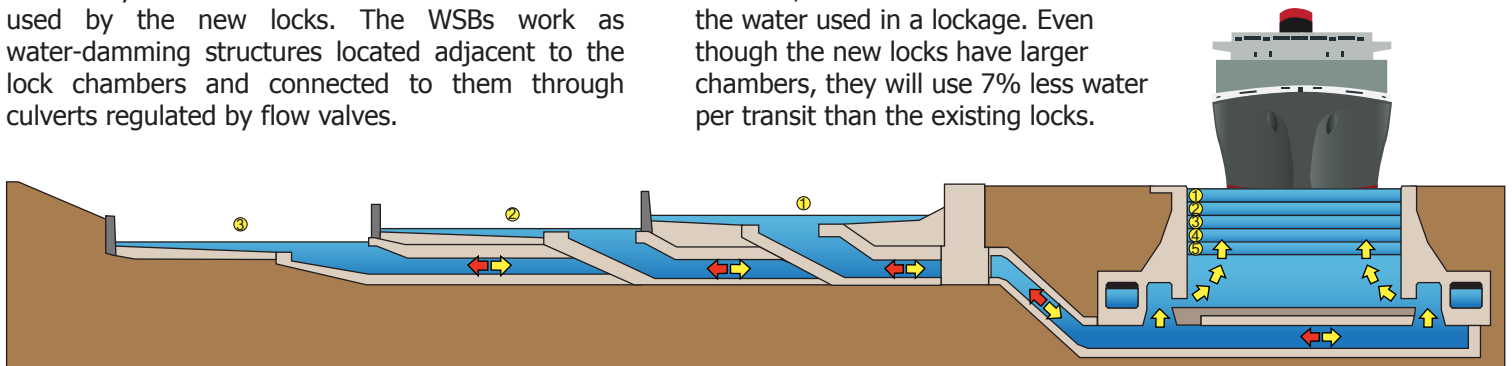
POST-PANAMAX LOCKS

The new locks complexes will have three chambers each, water-saving basins on each level, a lateral filling and emptying system and rolling gates.

WATER-SAVING SYSTEM

Water-saving basin (WSB) technology is the most efficient system to reduce the volume of water to be used by the new locks. The WSBs work as water-damming structures located adjacent to the lock chambers and connected to them through culverts regulated by flow valves.

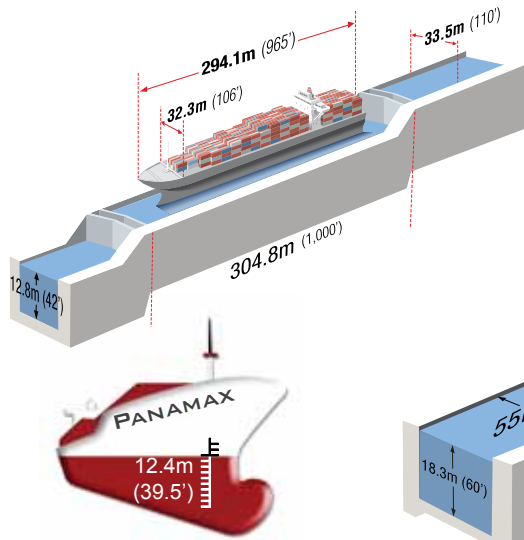
With three water-saving basins per chamber, the new locks will save 60% of the water used in a lockage. Even though the new locks have larger chambers, they will use 7% less water per transit than the existing locks.



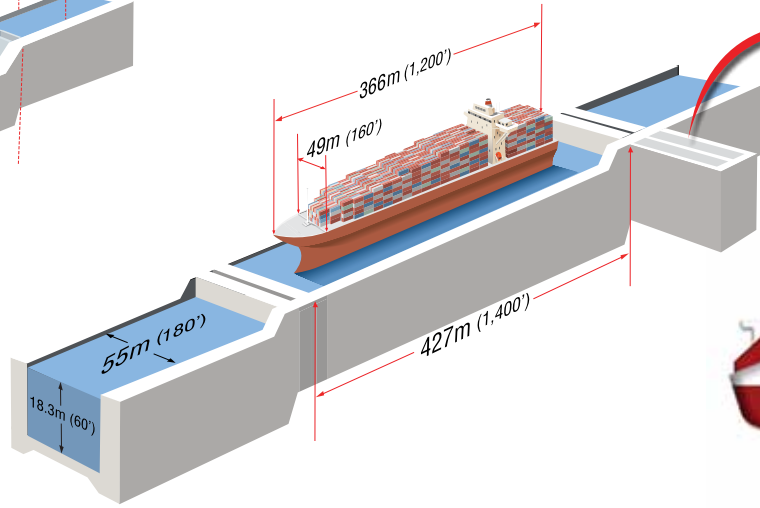
①, ② & ③: Water is transferred by gravity to WSBs to be used on the following lockage.
④ & ⑤: Once equalized, it moves to the next level and eventually to sea.

General Information on the New Locks

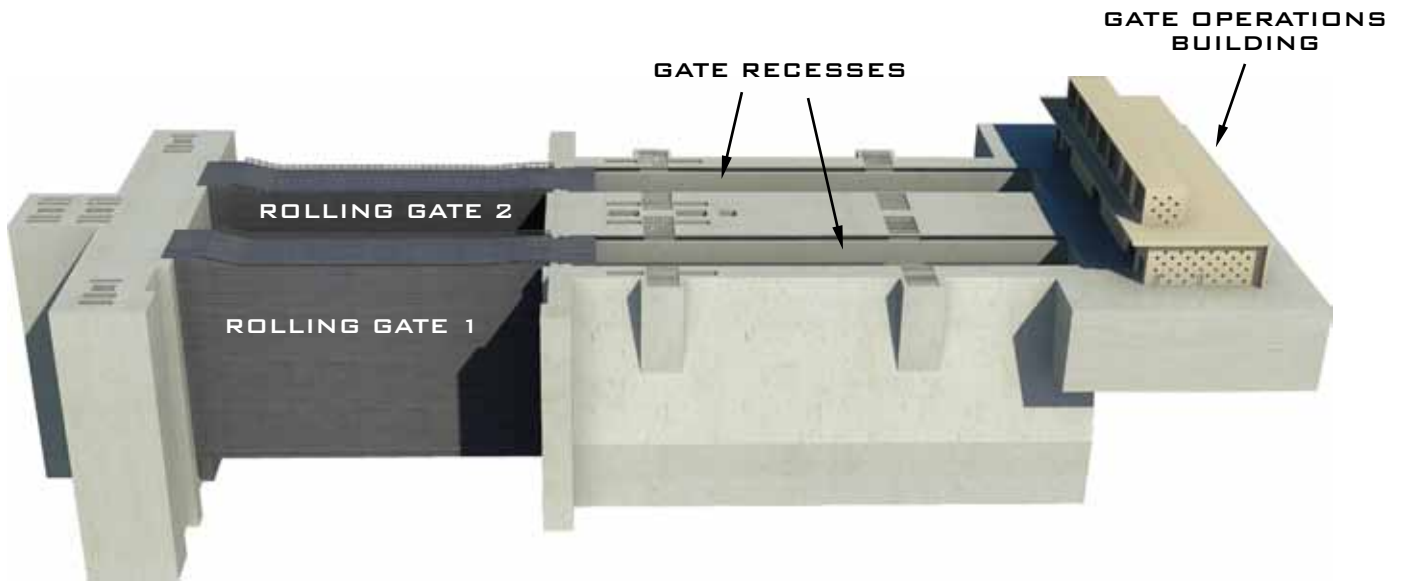
EXISTING LOCKS



NEW LOCKS



The use of rolling gates will ease their maintenance.



GATES AND RECESSES

The new locks will require 16 rolling-type gates that will operate from adjacent recesses located perpendicular to the lock chambers. Such gate configuration allows each recess to perform as a dry dock, which in turn enables servicing the gates on site without the need to remove them and therefore interrupt lock operations.

This results in increased lockage capacity and flexibility and provides for shorter and more cost-effective maintenance times.

In contrast, the miter gates that are currently in operation, do not have a recess, they need to be removed and transported to a dry dock whenever overhaul work is required. This process requires the temporary interruption of lock operations.

Design and Construction of the Third Set of Locks

After little over a year of intensive administrative and field work, efforts for the design and construction of the Third Set of Locks by Grupo Unidos por el Canal, S.A. (GUPCSA) progress under strict management by the locks project management team.

The locks contract represents approximately 60 percent of the overall budget for the Expansion Program, which purports that the details of its administration are as comprehensive as the contract itself.

The contractor has begun excavations in the future locations of the locks chambers and water-saving basins both on the Pacific and Atlantic sites, and completed the settlement of disposal sites for the excavated material. The contractor already surpassed the one-million cubic meter excavated material mark.

The project is executed under close and strict supervision by ACP Environmental Management and Surveillance experts, who guarantee that all activities comply with the Environmental Management Plan.

A myriad of other activities is performed simultaneously in the industrial parks, where temporary equipment is being installed to support the construction of the locks. Similarly, assembly of the main plants to produce the concrete and crush the rock, along with all utility and other installations required for the operation of these large industrial parks are being conducted.

Environment

In compliance with its commitment to protect and preserve the environment, the ACP along with the contractors for each component of the program and in coordination with Panama's National Environmental Authority (ANAM), conducts wildlife rescue and



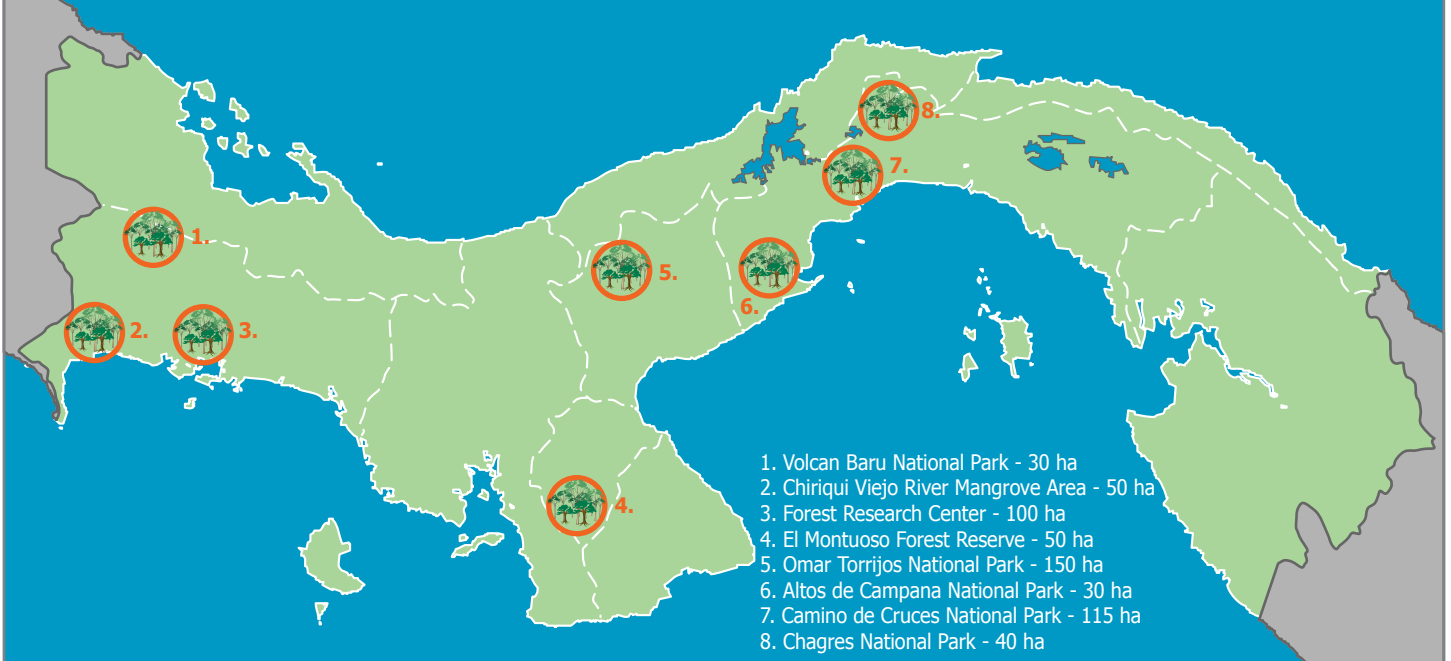
Dry-excavation work in the area of the Third Set of Locks chambers on the Atlantic side.

relocation operations as work progresses in the various projects being executed under the Expansion Program. To date, a significant number of mammals, amphibians (mostly frogs) and reptiles (among them crocodiles and snakes) and a limited number of birds have been rescued and relocated as part of this effort.

It was also established that for each hectare of forest affected by the works, two would be reforested. Under this premise, contracts have been awarded to reforest 565 hectares. The projects are located within the Omar Torrijos National Park in Cocolé; Forest Research Center in Chiriquí; Chagres National Park in Panama; Volcan Baru National Park in Chiriquí; Altos de Campana National Park in Panama; Camino de Cruces National Park in Panama City; Montuoso Forest Reserve in Herrera and the mangrove reforestation project in the mouth of the Chiriquí Viejo river in the Chiriquí province.

Dry-excavation work in the lock chamber footprint and industrial plant to support the construction of the Pacific locks.





Expansion Program reforestation projects.

Also, by the end of August 2010, the ACP had already paid ANAM \$3,562,374 as ecological compensation for the execution of the Expansion Program. GUPCSA, which is responsible for the design and construction of the Third Set of Locks, and the ACP, have also paid Panama's Aquatic Resources Authority (ARAP) the amount of \$508,386 for the reforestation of mangrove areas.

Accountability

Fulfilling its responsibility to provide information about the Expansion Program, and in compliance with Law 28 of July 17, 2006, the ACP submits quarterly reports on the progress achieved to the Executive Branch, the National Assembly, the Republic's Controller General, the Ad-hoc Committee (formed by members of the civil society) and the multilateral financing agencies. The contents of these reports can be accessed in the ACP Internet page www.pancanal.com for public consultation. Fifteen reports have been published as of the first quarter of 2010.



ACP specialists guided auditors from the Panama General Controller's Office during a visit to the Expansion sites to verify the contracts under the Program.

The Expansion Program has also established a hotline (800-0714) and e-mail address (ampliacion@pancanal.com) to provide general information on the program as well as to respond to queries, complaints and suggestions related to the execution of the works.

The ACP has put in place a strict environmental surveillance and monitoring program based on a five-level structure to guarantee compliance with the environmental commitments of the program.

This structure is formed by the contractor's environmental personnel, ACP environmental surveillance personnel, an independent consultant responsible for submitting compliance evaluations and reports, and the international multilateral financing agencies, which periodically receive reports on compliance with local and international environmental requirements. ANAM serves as the Panama government's monitoring agency.

ANAM receives biannual reports on the environmental development of the program and conducts joint inspections with the ACP. To date, three main environmental compliance reports have been submitted to ANAM on the overall Expansion Program and more than 20 joint inspections have been conducted.

Paleontological and Archaeological Studies

In January 2010, the ACP renewed its contract with the Smithsonian Tropical Research Institute (STRI) to locate and analyze paleontological findings on the sites of the Third Set of Locks project.

As a result of this agreement, a paleontological potential map for the Panama Canal Area was developed. Based



Findings in the PAC-4 area include a series of stone-dressed trenches. Archaeological surveys have confirmed that the trenches were built by the U.S. military between 1912 and 1913.

on this map, a series of paleontological rescue activities have been conducted on the site of the future Gatun Locks on the Atlantic side and in the area of Cartagena Hill on the Pacific side.

The ACP has continued conducting the technical evaluation of archaeological findings in the expansion areas. To date, the inventory of findings includes arrows dating from the pre-Columbian era and bottles from the beginning of the 20th century, which are being used to document the pre-Columbian and historical reality on this side of the country. A structure made of brick and cement mortar was also identified as a waste incinerator built back in 1908.

Archaeological findings are assessed and registered after they are categorized through bibliographic searches, and then photographed and analyzed according to their importance and historical relevance.

All the information is gathered in a results analysis report that is submitted as official correspondence to Panama's National Cultural Institute (INAC) Historical Patrimony Bureau for registration and archive and for use as reference material.

Labor Aspects

When Panamanians cast their vote on October 22, 2006 to support the ACP's plan to develop the colossal Canal Expansion Program, a commitment to training was immediately endorsed.

The government took advantage of this opportunity to launch a program through which the National Institute for Professional Formation and Human Resources Development (INADEH, its acronym in Spanish) would train the workforce required for the program. This training has contributed to meeting the Expansion Program's labor demand created mainly by the project to build the Third Set of Locks.

To date, more than 8,000 Panamanians from all around the country have taken part of the expansion work from the beginning of the Program in September 2007.

It is estimated that a similar number will be required for the remaining phases of the project, which will add up to 12,000 jobs created during the peak of the execution of Panama's main infrastructure project.



Installation of dredging pipe in the PAC-4 disposal site.

Financing

On October 14, 2008, then Panama President Martin Torrijos Espino announced the Cabinet Council's authorization for the Panama Canal Authority (ACP) to negotiate the required \$2,300 million financial support for the expansion of the waterway with a group of multilateral and bilateral credit organizations.

From the beginning of 2007 through December 2009, the ACP administration conducted negotiations for the financing of the Expansion Program, always keeping the ACP Board of Directors informed and maintaining close coordination with a liaison group designated by the Executive Branch.

After being authorized by the Cabinet Council, the ACP Board of Directors proceeded to approve the signing of financial support contracts with the following institutions:

FINANCING INSTITUTIONS	
European Investment Bank (EIB)	\$ 500 million
Japan Bank for International Cooperation (JBIC)	\$ 800 million
Inter-American Development Bank (IDB)	\$ 400 million
International Financial Corporation (IFC)	\$ 300 million
Andean Development Corporation (CAF)	\$ 300 million
Total	\$ 2,300 million

Bid Price for the Main Expansion Project Contracts

PAC - 1	Jay Cashman, Inc.	219%	\$ 89,968,160.00
	Consorcio CONDOR PROIMPETROL Panamá	195%	\$ 79,960,263.11
	Consorcio GRUPICA	178%	\$ 73,132,858.57
	ASTALDI - GHELLA SPA	151%	\$ 61,930,269.41
	Consorcio EPSA MASERING MURCIA	134%	\$ 55,224,233.40
	Consorcio CORESA	117%	\$ 48,204,942.14
	International Undergroup Corp	116%	\$ 47,629,959.40
	Consorcio CILSA-PMA MINERA MARIA	108%	\$ 44,459,871.73
	CORP MS INTL.-MECO SANTA FÉ	106%	\$ 43,516,258.78
	Constructora Urbana, S.A.	100%	\$ 41,094,000.00
OFFICIAL BUDGET	149%	\$ 61,208,966.00	
PAC - 2	International Undergroup Corp	242%	\$ 61,745,339.00
	Consorcio ICA Panamá -ICA CV	180%	\$ 45,822,242.77
	Consorcio CONDOR PROIMPETROL	167%	\$ 42,455,577.54
	Consorcio M&S MECO SANTA FÉ	161%	\$ 40,986,400.04
	Consorcio Conalvias Retraneq	147%	\$ 37,492,853.18
	Constructora Urbana, S.A.	121%	\$ 30,913,000.00
	Consorcio MASERING CROMAS	120%	\$ 30,564,475.00
Consorcio Cilsa-Panamá Minera María	100%	\$ 25,489,200.30	
OFFICIAL BUDGET	190%	\$ 48,459,296.00	
PAC - 3	Consorcio Cilsa-Panamá Minera María	204%	\$ 74,654,321.90
	Consorcio Conalvias-Retraneq	167%	\$ 61,323,876.97
	Constructora Santa Fe, Ltd.	126%	\$ 46,049,339.26
	Corporación M&S Int.	123%	\$ 45,218,642.00
	Constructora Urbana, S.A.	104%	\$ 38,200,000.00
Constructora MECO, S.A.	100%	\$ 36,659,852.28	
OFFICIAL BUDGET	186%	\$ 68,067,623.00	
PAC - 4	Odebrecht	142%	\$ 379,803,132.13
	Jan De Nul n.v. - CHEC	134%	\$ 359,102,231.18
	ISC Panamá	110%	\$ 294,913,000.00
	ICA-FCC-MECO	100%	\$ 267,798,795.99
OFFICIAL BUDGET	113%	\$ 302,374,000.00	
Dredging Atlantic Entrance	Great Lakes Dredging and Dock Co.	219%	\$ 195,943,129.00
	Boskalis-Dredging International	198%	\$ 177,611,840.00
	Van Oord Dredging	181%	\$ 162,182,828.00
	China Harbor Engineering Co. Pilotec, S.A.	130%	\$ 116,732,224.00
	Jan De Nul n.v.	100%	\$ 89,617,317.00
OFFICIAL BUDGET	118%	\$ 105,821,000.00	
Dredging Pacific Entrance	Jan De Nul n.v./Van Oord Dredging and Marine Contractors BV	273%	\$ 485,453,336.00
	Boskalis International BV	146%	\$ 258,851,577.20
	Dredging International	100%	\$ 177,500,676.78
	OFFICIAL BUDGET	102%	\$ 181,096,000.00
Dredging Gatun Lake North Reaches	Van Oord	245%	\$ 97,998,256.97
	Boskalis International BV	214%	\$ 85,500,207.49
	Great Lakes Dredge & Dock	181%	\$ 72,392,354.34
	China Harbor Engineering Co. (CHEC)	169%	\$ 67,377,423.00
	Jan De Nul n.v.	145%	\$ 57,856,939.00
	Dredging International	100%	\$ 39,983,822.82
OFFICIAL BUDGET	159%	\$ 63,600,000.00	
Dredging Pacific Access Channel North Approach	BKI-MECO	131%	\$ 71,344,784.00
	International Underground Corporation	101%	\$ 55,329,492.00
	Jan De Nul n.v.	100%	\$ 54,550,647.00
	OFFICIAL BUDGET	104%	\$ 56,527,400.00
Design and Construction of the Locks	C.A.N.A.L.	186%	\$ 5,981,020,333.00
	Bechtel Taisei Mitsubishi	133%	\$ 4,279,819,670.00
	GUPCSA	100%	\$ 3,221,631,384.00
	OFFICIAL BUDGET	108%	\$ 3,481,000,000.00

100% 150% 200% 250% 300%



For more information:
e-mail: ampliacion@pancanal.com
Tel.: (507) 800-0714