CHALLENGES IN DEVELOPING A SUSTAINABLE DREDGING STRATEGY

1 August, 2018
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2 | DREDGING CHALLENGES

3 | PARTNERSHIP WITS OAS-CIP

4 | EDUCATIONAL TOOLS
Egyptian dredging: circa 5000 BC

Egyptian merchant ships like the figure above, drew about 5 feet when fully loaded. That depth required dredging deeper than humans could perform while wading in the canals. They developed cloth buckets on long poles mounted on barges.
Phoenician dredging: circa 2,700 BC
Roman dredging: circa 1,400 BC - 42 CE
Spanish dredging: bucket wheel 1541 CE
Dutch dredging: by agitation and scratching
French Dredging: Suez 1859-1869
US Dredging: Panama 1904-1914
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Dredging challenges

- Funding
- Limited available expertise and knowledge transfer
- Lack of regulatory strategies
- Cartelized industry
- Geotechnical risk
- Cost control
Controllable risk per project phase

- 85 percent during pre-construction phases
- Pre-construction risks are the most manageable
- Owners typically apportion risk management towards construction phase

(source: PCG past project analytics)
Achieving sustainability

• Educate authorities and other stakeholders
• Implementation of risk management strategies
• No front end cost cutting
• Early contractor involvement
• Work with industry accepted environmental standards
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About PCG

• Miami (USA) - based dredging experts that have developed a dredging risk management consultancy concept.

• Specialized in strategic decision making regarding the planning and execution of dredge and marine civil works, procurement strategies, environmental strategies, etc.
Select current and recent clients (2015 – present)

<table>
<thead>
<tr>
<th>Company</th>
<th>Services / Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Punta Catalina Consortium</td>
<td>Outfall and Pier Capital Dredging</td>
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<tr>
<td>Royal Caribbean Cruise Lines</td>
<td>Bermuda Narrows Capital Dredging</td>
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<tr>
<td>PortMiami</td>
<td>Phase III – Capital Dredging</td>
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<td>Norwegian Cruise Lines</td>
<td>Harvest Caye Capital Dredging</td>
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<td>The World Bank</td>
<td>Contract Consulting (Dredging)</td>
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<td>U.S. Army Corps of Eng.</td>
<td>Dredging Fundamentals Course</td>
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<td>Port of Paita</td>
<td>Capital Dredging</td>
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<td>Kingdom of the Netherlands</td>
<td>General Consulting</td>
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<td>British Caribbean Bank, Ltd.</td>
<td>General Consulting</td>
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<tr>
<td>Navelena Constructora</td>
<td>Rio Magdalena, Col. Dredging Program</td>
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</table>
• One Year Partnership

• Over 100 professionals of OAS-CIP member countries have gone through our classes and seminars

• Peru (APN), Dominican Republic (Navy, National Port Authority etc.) & Panama (AMP)

• All of the hosts have requested additional classes
Mandate of OAS-CIP and PCG partnership

- Offer specialized training of Dredge Project stakeholders throughout The Americas
- Prepare countries for the successful delivery of complex maritime infrastructure projects
- Examine and propose solutions to common port-sector problems
- Focus on ensuring environmental sustainability
Peru APN Seminar

- 33 participants
- 1.5 day Seminar
- Primary Focus on Performance-Based Contracting and Environmental Control

Primary Sponsor:

[APN and Perú logos]
Dominican Republic Seminar

- 40 participants
- 1.5 Day Seminar
- Focus on contract management, risk management

Primary Sponsors:
Panama AMP class

- 40 AMP participants
- Included site visit
- Covered 20 different topics
- Project specific discussions
- Opted for week-long course (Site Visit)
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Seminar Format Options

• Pro-bono Executive Seminar (1.5 days, host only pays travel plus room and board costs)

• Full week-long Dredging Course (4.5 days, USD 15,000)
  • Includes certificate, pre and post tests and site visit

• Interactive online course (4.5 days, variable rate)
  • Includes certificate

• Custom tailored course
  • Client determines topics and duration
Seminar Content

• 25 different lectures:
  • Dredging History
  • Design of Dredging Projects
  • Hydrographic Surveying
  • Contract Administration
  • Geotechnical Site Investigations
  • Dredge Disposal
  • Performance-Based Dredging Contracts

• Interactive discussions with experts