CARIBBEAN OIL

IS THE CARIBBEAN THE NEXT MAJOR GLOBAL OIL-PRODUCING REGION?

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Surinâme • Turks and Caicos • Manzanillo • Barbados • Port of Cartagena • Saint Lucia • Caribbean Maritime University
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Mission Statement:
To foster operational and financial efficiency and to
enhance the level of service to the mutual benefit of
Caribbean Ports and their stakeholders, through the
sharing of experience, training, information and ideas.

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Caribbean oil – Hope yet trepidation

The rhetorical question has been raised: is the Caribbean region the next global oil-producing region? The truth is: the Caribbean is no newcomer to oil. Some of the earliest attempts to mine oil were made in the southern Caribbean. Today the Caribbean has more proven oil reserves than could have been imagined when the first successful attempts to drill for oil were made in Trinidad 150 years ago.

For much of the 20th century, Venezuela was known as a foremost global oil supplier and said to have the world’s largest proven oil reserves. Yet, recent successes in exploration off the northern South American shoreline have created great excitement. It is this global excitement and the long-term prospects and implications for the Caribbean that inspired the Special Feature: Caribbean Oil (pages 19–27).

How will the development of the Liza oilfield off the coast of Guyana affect that country? Indeed, how will the expansion of oil production in the southern Caribbean affect national economies in this vast sea of sovereign states? As the old man said: only time will tell. What we do know is that things never remain the same where oil has been found. Dr. Canute James brings Guyana’s new realities under the microscope (pg. 22). He also looks at Belize where there has been social resistance (pg. 25).

Oil apparently brings great hope but stirs trepidation in a region where clean, green and pristine are the underpinnings of one of the great pillars of its national economies — Tourism.

Gleanings

In gleanings to produce Special Feature: Caribbean Oil, information came to the surface that may stimulate further thought. For example:

- Tanker cargoes of LPG and LNG to East Asia are transiting the Panama Canal in ever increasing volumes. (A new record was set on October 1, 2018 with the transit of four LNG ships on the same day. The previous record, three tankers, lasted just six months).
- Oil discharge to the marine environment must be expected wherever oil is mined and may be caused by natural seepage or spills from ocean-based and land-based sources.
- The Caribbean is home to more than 140 million barrels of commercial storage for crude and refined products.
- Caribbean deep water ports present shippers the opportunity to bring small cargoes of oil from around the Americas; blend different grades of crude to meet buyer’s specifications and to fill super tankers destined for Asia or Europe.

Random gleanings suggest that there are many (direct and indirect) economic benefits that could flow northwards through the Caribbean from an expanded oil industry in the south, even in this age of enlightenment and a continuing transition to models of sustainable development. Yet, the spectre of environmental disaster, off shore and on shore, looms large and is never far away.

“What we do know is that things never remain the same where oil has been found.”

Mike Jarrett
Editor-in-Chief
The port is a dynamic place to work and in every corner an accident awaits. Therefore, human safety is a vitally important aspect of port operations. All who come to work on any given day should survive their shift and leave safely for home when their workday is ended.

Port management is about monitoring these operations through a set of regulations and procedures that guarantee safety.

Although ports invest heavily in automation, the human component is indispensable in the supply chain. This means that investment in human capital is very important in order to maintain or increase competitiveness within the port. But, while we are busy trying to guarantee smooth operations in the Port, we should acknowledge the possibility of breaches of safety regulations and procedures due to the physical and mental state of each employee on duty.

With this in mind, the Suriname Port Management Company has developed a drug policy to safeguard port operations. The objective is to ensure staff reliability and effective job performance and to identify and curtail the misuse of drugs by employees on the job.

Too often, the consequences of an ‘unfit’ employee on the job are either downplayed or overlooked, even when the ramifications are far-reaching. This policy is not confined to operations employees only but also to desk personnel.

Under the new drug policy at the Suriname port, all employees will be randomly tested. To set an example, the former Managing Director of the Port was the first to volunteer to do the drug test. Since then, it has also been port policy to include the drug test procedure in the application procedures for operations employees.

The port has entered into a partnership with the Suriname Bureau for Drugs and Alcohol (BAD). This organization specializes in providing professional help for detoxicating drug users.

The SPMC’s drug policy is included in the Collective Labour Agreement and the Alcohol and Drug Policy Charter and it is monitored by the Human Resource and Social Worker. All employees, new or established, will receive a copy of this agreement so that all are aware of the policy and consequences if tested positive.

The Human Resource Department periodically does random drug tests. Testing for alcohol is also included in the testing.

When testing started in 2014, seven workers returned positive readings. After following the prescribed programme they were tested ‘clean’. Four are still actively working in the Port and one is inactive because of illness. Two have since left the company.

The SPMC lists the procedure as follows:

- The Human Resources Department keeps an interim sample among the employees.
- The selected employees are tested for use of alcohol and drugs.
- If an employee has tested positive for the banned substances, the employee will be referred to the BAD where an expert examines the reason for the use and the person involved is counseled in the organization’s rehabilitation programme.
- The Human Resources Department, in collaboration with the head of the department of the particular employee, monitors how the employee functions on the work floor in relation to progress in the rehabilitation programme of the BAD.
- After the result of the follow-up tests are negative and remain negative, the supervision of BAD comes to an end.
- The employee will receive a warning from the port company about drug use which states that, if repeated, disciplinary measures will follow.

As of 2019, it is compulsory that every employee will complete an annual medical assessment and drug test.
With the recent implementation of the Access Permit (AP) system, the Suriname Port Management Company (SPMC) has taken another step towards its goal of transforming the port at Paramaribo into an effective and dependable link in the global supply chain. In this regard, the company has been adopting and implementing the latest international standards and operational best practices.

“As we are living in a digital world, implementing new strategies and tools to excel in competitiveness is inevitable. Therefore, it is very important for our operations to replace manual documents with digital documents,” said SPMC CEO, Andreas Talea.

In 2014, the port launched project Upgrading Port IT Infrastructure to do exactly what the name implied. This project is being implemented in phases and the adoption of the AP system is a significant step in the process.

The first phase of implementation of the AP system has been completed and the process of evaluating its effectiveness is in progress.

The AP is a digital system which replaces the pass issued for entry to the Dr. Jules Sedney Terminal. It facilitates a fluent flow of the traffic within the port; improves security and safety and allows the port to deliver services more efficiently. It delivers all information about the truck and the driver and it minimizes the chance of errors.

The second phase of the implementation of the AP is identification of all container movements.

The SPMC has been diligently working on all aspects of port development in order to deliver global standards of professionalism. The Access Permit system is a significant technological step. The company has also been working on workplace strategies to protect all employees and to build a safe working environment at the port. One such initiative is a Policy on Alcohol and Drugs in the Port, which is now being implemented.
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The current fiscal year is proving to be just as hectic as the last in the port community of the Turks and Caicos Islands. Following a brutal hurricane season in 2017 and catastrophic physical destruction, the Ports Authority of the Turks and Caicos Islands signed contracts for capital projects to be implemented during the 2018/2019 fiscal year.

Post hurricane clean-up, repair and recovery activities have been replaced by rehabilitation, replacement and construction. Current priorities include rehabilitation of critical port infrastructure and super-structure that were destroyed or damaged during the hurricanes.

Other priority projects listed by the Ports Authority of the Turks and Caicos Islands include:

- Redevelopment and modernization of the main port at South Dock Providenciales and preparing and arranging financing for phase 1 of a development project.
- Short term improvements at South Dock Providenciales including the dredging of the turning basin and improvements to the container yard.
- Construction of a roro ramp and pavements at South Dock, Grand Turk.
- Rehabilitation of the south Caicos Port that sustained hurricane damage.
- Completion of Environmental Impact Assessments for Caicos Islands maintenance dredging projects.

Island Drilling Ltd won the contract to rehabilitate the Grand Turk roro ramp last summer, in August 2018. It had been closed for public use for about three years, ‘due to structural deficiencies which rendered it unsafe’, the Ports Authority explained. The work involved general repairs to the ramp; installation of a pre-cast concrete structure to replace the existing steel bridge and repairs to the ramp abutment.

South Dock Grand Turk has a main pier and a roll-on roll-off ramp (roro ramp). The two together comprise the only facility in Grand Turk for receiving or shipping cargo. The roro ramp has been used mainly for inter-island barge services and vessels engaged in the movement of building materials including sand, gravel and concrete blocks; and, otherwise for moving goods located in Grand Turk that cannot be lifted by crane.

Repair of the roro ramp was therefore an economic imperative.

Cruise shipping

Despite the severe battering from hurricanes, fallout was not as dramatic as in other territories. Cruise ship calls declined marginally, from 285 in 2016 to 262 in the year of the hurricanes, just 8%. Cruise passenger arrivals in that period declined by an even smaller margin, just over 2%.

The Grand Turk Cruise Center is central to the shore experience provided by this high-volume cruise destination. It supports a vibrant local tourism economy and also provides a vital social function. It had to be closed for 56 days for repairs and rehabilitation as the Turks and Caicos Islands recovered from the double blow of two tropical hurricanes in successive weeks.

It’s an ill wind that blows nobody any good and the winds of hurricanes Irma and Maria collectively contributed to an increase in construction activity and stimulated increases in gross domestic product in many territories across the region. The performance of the ports system in the Turks and Caicos Islands in 2017-2018 surpassed the statistic of the previous year. This improvement, the Port Authority said, correlates with increased construction activity taking place in the tourism sector and increased imports of building materials following the hurricanes.

Total cargo handled by the port system increased by 2.4%, as vessel calls increased by 93 visits (to reach a total of 526).

Indeed, there was growth in all the major categories of imports, including fuel, aggregates and motor vehicles, the Ports Authority of the Turks and Caicos Islands reports.

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Having recently completed a massive expansion programme that effectively doubled container capacity at the end of 2015, Manzanillo International Terminal (MIT) is confident with its overall capability to handle the demands of future growth.

With that expansion, at a cost of 270 million USD, MIT increased capacity from 2.0 million teu to 4.0 million teu and built a 400-metre quay for neopanamax vessels. They dredged around the post-panamax berths to 16.5 metres; installed four super-postpanamax cranes; and then automated the container yard, adding six automatic stacking cranes (ASCs) in the process.

“Basically, MIT has plenty of infrastructure to cater for future growth. Now, it’s mostly about people and process, including technology,” the company told Portside Caribbean at the end of 2018.

MIT has a long tradition of upgrading and empowering staff and observing safe and fair employment practices and, as automation creeps into every nook and cranny of industrial life, the company has become increasingly protective of its people, “… not just our staff but the communities around (the terminal) where our staff and their families live,” MIT Vice President Juan Carlos Croston said a year ago when MIT hosted the inaugural Caribbean Port Management Workshop (January 2018).

Since that discussion, MIT has moved to engage some of its employees as goodwill ambassadors for the company. With the launch of its Ambassadors Programme, MIT engaged with staff to share and promote corporate values and, in so doing, improve customer service. MIT Volunteers now work tirelessly to improve the living conditions of the people of Colon by helping to build houses; elderly home care assistance; building schools; providing health care support; children community assistance with sport clinics; upgrading culture; providing and supporting education; promoting environment conservation; among other social and community empowerment programmes.

Meanwhile, the company’s programmes for improvement and advancement continued with a recently completed project to make the terminal’s electrical power supply even more reliable. Plus, trucks have been retrofitted in the process of automation of the yard.

During the current year, MIT will lay 1.8 hectares of concrete pavement, which should have a significant effect in improving speed and yard efficiency. Plans for the year also include the installation of more than 400 electrical outlets for reefer containers.

Before that however, by the end of February 2019, MIT will extend the height of eight gantry cranes. At Berth Eight, four gantry cranes will be extended from 42 metres to 50 metres. At Berth Five, four gantry cranes will be extended from 36 metres to 47 metres. This will allow MIT to handle vessels of more than 18,000 teu capacity.

MIT is located on the Atlantic Coast of Panama, near to the Northern entrance of the Panama Canal. It is a privately managed, deep-water port, originally built as a specialized container terminal. Transshipment cargo accounts for approximately 85% of its throughput. In this regard, MIT provides connectivity to some 125 countries.
It now appears that construction of the new 300-metre Berth Six at the Bridgetown port will not be happening soon.

The newly elected Barbados Labour Party Government brought construction to a halt shortly after taking office in June 2018, having won all 30 seats in the May 24 general elections.

The country’s first female Prime Minister, the Right Honourable Mia Amor Mottley, declared that the national economy was in a far worse condition than at first thought, and that foreign reserves were ‘tenuous’. In her first news conference following Cabinet meeting, Prime Minister Mottley, as reported in the local media, said Barbados was 850 million USD in debt and was “in need of serious, urgent action.”

Review

National debt, it seems however, was not the only problem the Prime Minister and her newly elected government had for terminating construction at the Port of Bridgetown. She has publicly queried contracts signed by the previous government including construction projects at the Port and particularly Berth Five and Berth Six. These arrangements, she has indicated, are the subject of review by the Government.

As Portside Caribbean reported in February 2018, it was designed to have a depth alongside of 15 metres and a loading capacity of up to 55 tons per square metre. Nine acres of reclaimed land was to be asphalted to create a container storage zone adjacent to the new berth. With this completed, Barbados Port Inc. would have moved closer to achieving one of its main objectives of separating cruise ship activities from maritime cargo operations. But, at the time of writing, this project has been halted while the Barbadian Government’s review of these contracts and agreements prior to its taking office continue.

Up and running

Equipment upgrades and acquisitions, reported on in Portside Caribbean however, have been proceeding, including the installation of the new Panamax Liebherr gantry crane. A second crane of similar capacity was scheduled to arrive in Barbados in March, 2019.

Acquisitions completed to improve and expand the port’s capabilities include: five electric drive straddle carriers, 12 CAT (3-ton) diesel forklifts, five Yale electric forklifts (4500lbs), two (30-ton) Taylor diesel forklifts, two Taylor empty container handlers, one Hyster empty container handler and four (8-ton) Hyster diesel forklifts.

All these items have been delivered and are in service.
Effort and initiatives to keep Colombia’s Port of Cartagena on the cutting edge continue relentlessly with the commissioning of four additional ship-to-shore cranes at the Contecar terminal. They are expected to be operation in the summer of this year.

New facilities for container inspection are also to be established at Contecar and three straddle carriers and six yard trucks to be used in the inspection area are to be acquired.

Upgrading of the passenger arrival lounge at the Cartagena cruise ship terminal, mainly to facilitate a faster passenger flow is also on the schedule for 2019.

Contecar has recently benefitted from significant development as its development programme unfolds. Gate control technologies (optics), on both entrance and exit lanes, have been installed. Eight automatic weight control scales, on exit and entrance gates, are now in place. Two additional hectares of container yard space have been created and green zones and landscaped areas have been expanded by 10%.

Perishables
A new facility for handling perishables has been established at Contecar. Housed in a 1,090m² building, the facility has four 100m² refrigerated cells and an antechamber measuring 450m².

“In this space, diverse services associated to reefer cargo can be offered, like inspection, packaging, labelling, marking, classification, executed under the highest quality standards,” the company stated.

Contecar claims it is the only port facility with exclusive quay positions for roro ships plus a Pre Delivery Inspection (PDI) zone. In a strategic agreement with European car manufacturer, Renault, involving the development of a regional logistics hub, an exclusive space for Renault automobiles was established. This facility has a holding capacity of 2,650 parking slots.

Carpe diem
International trade in perishables, hazardous goods and the necessary movement of oversized and project cargo present business development opportunities and the Port of Cartagena is seizing the day. It has developed the International Distribution Center for international telecommunications and media company Millicom. The facility will receive products from Asia and re-route to final destinations in Central and South America. A similarly, regional logistics operation has been established for global sporting goods retail chain, Decathlon Group. These two operations are similar to existing process arrangements with brands such as Pirelli, Bayer and DirecTV.

A summary of work projects currently in progress or in advanced planning phase at Cartagena include:

- Construction of logistics distribution centre with an area of 23,000m²; 32 cross-docking stations; and, a mezzanine storage system for additional warehousing capacity.
- Installation of photovoltaic cells (for clean energy supply), using existing warehouse roofs.
- Reinforcement of quay side to allow operation of 14,000 teu vessels.
- Upgrading of multipurpose storage yard (5 additional hectares) for motor vehicles, oversized and project cargo.
- Expansion of reefer cross-docking station with two additional cold chambers and four dispatch doors.
- Construction of six additional reefer hubs, increasing terminal capacity to a total of 1,728 plugs.
- Development of three additional hectares for container storage at SPRC terminal (+225,000 teu).
- Construction of two new mooring dolphins for cruise ships.

Located just 265 nautical miles from the Panama Canal, the award-winning Port of Cartagena connects the Caribbean with 750 ports in 140 countries. In 2017, annual container moves increased by 6.7% to reach 2,678,005 teu. Expectation in Colombia is that 2018’s performance will reflect an increase of 8.3% over that of 2017, topping the 2.9 million teu mark. •
A walk around the cargo section and the Ferry Terminal at Port Castries reveals a sense of order and organization. The port is not endowed with bristling shiny dockside equipment. That is clear. But the yards are clean and effectively managed and there is no congestion.

Most of the domestic cargo, en-route to approximately 179,000 Lucians, comes through this port facility; as do tens of thousands of passengers from neighbouring countries who annually use ferry services to and from Saint Lucia.

Cargo

The port’s equipment moved about 586,000 tons of cargo (containerized and breakbulk) in 2017, making that the second highest annual result since 2012 when 590,000 tons of cargo moved through the port. (NB: these totals include tonnages for both containerized and breakbulk cargo.)

Over recent years Port Castries has been handling more boxes. In five of the 10 years in the period ending in 2017, the port surpassed its annual average for TEU handled (ie 32,608 TEU). Indeed, the port handled more than 37,000 TEU in each of the last two years of the period under review, 2016 and 2017. Only once before, in 2012, did the Port Castries top 37,000 TEU.

It may be too early to suggest that there is a growth trend in cargo volume going through Castries. However, the numbers are instructive. Six times in 10 years Castries has had a 30,000 TEU/year and three of those were consecutive — 2015, 2016 and 2017.
Cruise

Castries has been receiving an average of 363 cruise ship calls every year in the 10 years ending in 2017. But in 2017, it received the most cruise ships in a decade of operations when it logged a total of 461 cruise ship calls. Indeed, 2016 brought the fewest cruise ship calls in the period while the following year brought the most. Many cruise ports were crippled by the devastating hurricane season of 2017 and Saint Lucia apparently benefited.

On average about 637,000 cruise passengers experience Castries each year. But that mean has been exceeded in five of the 10 years under review. In the face of this steady growth and the record number of vessel calls in 2017, the Saint Lucia Air and Seaports Authority may soon need to address issues relating to expansion and upgrading of its cruise port facilities. Domestic cargo growth is slow as it essentially reflects population growth and incremental expansion in the domestic economy. It may be bolstered, to some extent, by land-based (hotel) tourism but additional hotel capacity takes a long time to come on-stream. Growth in cruise tourism is however far more immediate and more dramatic in many respects and happens generally faster than it takes to plan, design and build a cruise port facility.

Cruise ports in expansion mode will find provision of berthing space quite a challenge and Castries is no different. With two cruise docks at the Saint Lucia Cruise Ship Terminal adjoining the Pointe Seraphine Duty Free Shopping Complex, cruise ships using the port have a tight manoeuvre to turn around so as to dock bow out.

GATEWAY TO CASTRIES HARBOUR

LINE OF SIGHT: The view of the ship channel into the Castries port, looking westward into the open Caribbean Sea is totally different from one shoreline to the other. (1) The view in the top photo is from the docks on the southern side of the bay a few hundred metres east of Bananes Bay. (2) The lower photo is the view from the northern shore, near to the end of the runway of the George F.L. Charles local airport. In the distance (lower photo) on the left of the channel is Tapion Rock which, as can be seen in this line of sight, influences the angle of approach that cruise ships would take to enter the relatively small harbour. Docking on the south side, as it appears from this land view, would offer some advantages for cruise ship captains and also for the port as Bananes Bay offers potential for future growth development. - MJ

Bananas Bay... already a stand of palms, waiting. With up to 12 metres depth, Bananes Bay (pronounced 'Bhanan') was once used by tankers of Shell and Texaco.
“Port Castries has the beauty, charm and space to exploit the opportunities that will now arise.”

Fortunately, Port Castries have some possibilities for expanding its cruise ship berthing capacity just across the entrance channel on the south of the harbour in the Bananes Bay area just west of the present cargo facility and south of Cocoa Nut Point. Given the port’s geometry, cruise ship captains should find berthing this area far easier and faster to get to as it apparently lines up with the 1,400-feet wide entry channel. As to whether there is enough depth that can be claimed to establish a third cruise berth at this location: the evidence certainly suggests that there is well over 30 feet of water in this undeveloped area of the port. And there is already a stand of mature palm trees in the area, as if waiting for such a development.

Saint Lucia is enjoying increasingly popularity as a yachting and cruise destination and Port Castries has the beauty, charm and space to exploit the opportunities that will now arise.
The third and final day of the 21st Annual General Meeting and conference of the Port Management Association of the Caribbean last summer (June 29, 2018) in Jamaica was spent on the campus of the Caribbean Maritime University. Conference delegates were transported by bus from Dunn’s River on Jamaica’s north coast, where the event was held, across country to the south coast, through one of the busiest Caribbean cities.

The university’s main campus is located on the southern shore of the Kingston Harbour, near Jamaica’s capital city.

For most delegates, this was the first visit to the university since it received its charter in 2017.

In addition to the conference presentations scheduled for that day, the PMAC members and associates visited the CMU’s engineering labs and simulators and got an opportunity to see and experience some of the state-of-the-art technologies being employed in the university’s various academic programmes.

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PHOTOS BY MIKE JARRETT
PMAC visits
Caribbean Maritime University
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COUNTRIES IN THE CARIBBEAN WITH PROVEN RESERVES OF OIL:
BARBADOS • COLOMBIA • CUBA • GUYANA • SURINAME • TRINIDAD AND TOBAGO • VENEZUELA
Is the Caribbean the next major global oil-producing region?

With successful exploration in the southern Caribbean Sea, this already appears to be a 21st century reality. Indeed, Caribbean oil, because of the tremendous potential off the coast of Guyana, (the Liza oil field in 2015 and the Payara reservoir in 2017) discovered by consortia including ExxonMobil, Hess, Statoil and CNOOC Nexen Petroleum1, has brought the region into sharp focus.

From all reports, there is a lot of oil below the surface off the Guyana-Suriname coastline; enough value, it seems, to dwarf the current economic potential of the entire Caribbean region.

So far, 10 discoveries have been made offshore Guyana, most on the southern side of the Stabroek Block. Hess has since moved to begin operations on Block 59 offshore Suriname.

“Combined, these recent developments are what some call the birth of a new oil region — the Guyana-Suriname Basin — with never before seen assets that could easily outpace other developments in the Caribbean, including economically sunk Venezuela,” wrote Ricardo Martínez Díaz, freelance Latin American oil and gas analyst [E&P magazine, July 31, 2017].

Started in Trinidad

Exploration for oil in the Western Hemisphere may have begun first in Trinidad shortly after the abolition of African slavery. Caribbean historian, Gerard A. Besson records that the first successful attempts in Trinidad were made in 1857 when the Merrimac Oil Company when struck oil at La Brea. Drilling down to 280 feet, the company found oil but not enough, even at a time when global demand for the ‘black gold’ was still limited. The venture was deemed a financial failure and Merrimac closed that well after two years. At about the same time, the world’s first successful oil well was drilled in Titusville in the state of Pennsylvania. This success no doubt fuelled enthusiasm for further explorations in Trinidad.

In 1865, even as revolts against inhuman conditions rocked post-Emancipation Jamaica, the English expatriate Walter Darwent, recently arrived in Trinidad, established the Paria Petroleum Company in San Fernando. In two years, Paria was producing up to 60 gallons of crude a week from three wells at Aripero and San Fernando. Unfortunately, Paria suffered the same fate as Merrimac.

Besson wrote: “…not enough yield, not enough demand, not enough profit.”

Trinidad’s oil production remained virtually non-existent to the end of the 19th century and remained so early until the early 20th century, when
industrialization and the proliferation of internal combustion engines to replace steam rapidly expanded demand for fossil fuels and derivatives. The two great European wars of the early 20th century and the age of invention and innovation that they inspired created an ever-increasing global demand for crude oil. By the early years of the 1970s, oil-producing countries came to realise that the level of global dependence on crude oil and its derivatives oil products had created for them a sellers’ market. Hardly anything could move without oil. The newly founded Organization of Petroleum Exporting Countries (OPEC), described by many as a global cartel, manipulated the market by regulating production levels so as to gain price advantages.

Some flourished
Countries, like Trinidad and Tobago and Venezuela, which mined and produced their own crude, saw their national economies flourish. Others, like the majority of Caribbean states, experienced economic hardships; rapidly increasing national debt; and, all the social ills, displacement and instability that come with economic decline.

At the turn of the millennium, only three Caribbean countries produced oil and natural gas: Trinidad and Tobago, Cuba and Barbados. Collectively they had proven reserves of about 1.5 million barrels of crude and about 26,000 billion cubic feet of natural gas.

In 2002, Trinidad and Tobago was, by far, the largest producer of oil and gas in the Caribbean with Cuba a distant second and Barbados even further back in third position (see Table 1). Before the end of the second decade, the situation had dramatically changed. Caribbean oil — deposits discovered and the vast untapped potential of oilfields already mapped — had already become significant in the global economy.

1. CNOOC Nexen Petroleum Guyana Ltd., incorporated in 2005, is a subsidiary of Canadian oil and gas company Nexen (ultimately owned by Hong Kong-based CNOOC Limited), is an energy firm based in Barbados. It has a 25% interest in the Stabroek offshore exploration block. The company’s operating partner, Exxon Mobil, discovered oil in 1,743 metres of water, in 2015. The firm was incorporated in 2005. •

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**CARIBBEAN BASIN & GAS PRODUCERS START 21ST CENTURY**

<table>
<thead>
<tr>
<th>PROVEN RESERVES as of 1/1/2003</th>
<th>PRODUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude Oil (million barrels)</td>
<td>Natural Gas (bn. cubic feet)</td>
</tr>
<tr>
<td>Barbados</td>
<td>2.5</td>
</tr>
<tr>
<td>Cuba</td>
<td>750</td>
</tr>
<tr>
<td>Trinidad &amp; Tobago</td>
<td>716</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1,468.50</strong></td>
</tr>
</tbody>
</table>

*Source: Oil and Gas Journal, December 23, 2002.*

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CARIBBEAN OIL FACTOID

Steelband music and pan are by-products of Caribbean oil industry

‘BP RENEGADES’ STEEL ORCHESTRA – 2019 Panorama champions
As Guyana moves towards realising its significant oil potential, it has one latent concern: it could be too much, too suddenly.

The series of successful finds since 2015, from the Liza prospect on the Stabroek block, by US major, ExxonMobil, will begin to be realised in March 2020 when the company begins production of 120,000 barrels per day (b/d).

With a tenth exploration discovery in December last year, the company lifted its estimate of resources on Stabroek to five billion barrels of oil equivalent. This, it said, promises output of 750,000 b/d by 2025, a production level that would put Guyana among the world’s major oil producers.

There could be more oil and significant natural gas. ExxonMobil’s successes have led to a prospecting frenzy offshore, involving others such as Total, Tullow, Repsol, Chevron, ENI, DEA and CGX Energy. Guyana’s offshore territory is part of the Guyana-Suriname basin that US Geological Survey said contains an estimated 13.6 billion barrels of oil and 32 trillion cubic feet of natural gas.

Retained earnings from ExxonMobil’s projected output by 2025 could lift Guyana’s per capita income to five times current levels. Managing this could be a problem. It could present the country with a resource curse, often called Dutch disease, that has plagued other oil producers.

Dutch disease describes the potential for a strengthening of the local currency from a sudden overwhelming inflow of revenue from one economic sector. The resulting currency appreciation then undermines other parts of the economy, drives up imports and generates unemployment. These problems overtook the Dutch economy soon after that country discovered significant gas reserves in the North Sea.

The Guyana government is aware of the danger and has moved early to protect the national economy. Plans including establishment of a sovereign wealth fund that will manage the income from oil.

“Stabilization is particularly important for resource-rich countries, dependent on natural resources,” the Guyana government has stated. “A key function of our sovereign wealth fund is savings to ensure the equitable distribution of assets from the extraction of non-renewable resources across current and future generations. This will allow for the transformation of a depleting asset base that is oil, to a permanent asset base.”

Conflict with Venezuela
The government has also established an energy department to take charge of the oil sector. Warding off Dutch disease is not the only problem faced by the emerging oil producer. ExxonMobil said, in late December, that it had suspended seismic surveys on the Stabroek block after a research vessel it had contracted was approached by a Venezuelan navy ship. That incident is the consequence of a (more than) century-old dispute in which Venezuela claims sovereignty over Guyana’s western Essequibo province. The dispute has prevented the countries from agreeing to a maritime border.

Guyana claimed the survey vessel was on its territory. Venezuela contended that it was in Venezuelan waters. Up to the end of December ExxonMobil had not indicated when it would resume survey work but said this incident would not interrupt its production targets.

This was not the first interruption of seismic work by Venezuela. In October 2013, the Venezuelan navy seized research vessels that had been studying the Roraima block on behalf of US independent Anadarko. The vessel and the crew were released after a week but Anadarko has not restarted work on the block.

Guyana rejected a call in April 2018 from Venezuela to resume talks for a diplomatic solution to the dispute.
PETROCARIBE MELTS DOWN AS THE VENEZUELAN ECONOMY WEAKENS

When he launched his PetroCaribe project in 2005, late Venezuelan president Hugo Chavez had one intention: to use his country's oil largesse to garner support in his ideological battle with the US.

With almost all the Caribbean and Central American countries, being net oil importers, suffering from high oil prices, Chavez designed a project that was immediately attractive to the 18 countries that were invited to participate.

Chavez offered to use state-owned oil company PDV to supply 188,000 b/d in crude and refined products, allowing the importers to keep part of the payment as a long-term, low-interest loan. PDV determined the quotas, which ranged from 1,000 b/d (for Grenada) to 50,000 b/d (for the Dominican Republic).

In essence, the idea was not new. Venezuela had been meeting Cuba's oil needs under an agreement in 2000 but had accepted part-payment in the form of a range of Cuban services in fields including security, healthcare and sports.

Not all countries that were offered PetroCaribe benefits signed on to the project. Oil producer Trinidad and Tobago did not need it, while net oil importer Barbados felt that the increase to its foreign debt was not worth it.

More recently, as the Venezuelan economy weakened, Caracas accepted some counter-trading for its PetroCaribe shipments. The Dominican Republic met part of its payments with black beans, syrup, fructose and glucose, pasta, animal feed, military uniforms, bulletproof vests, berets, belts, flight covers and gloves.

At one stage, Jamaica met part of its payments with Portland cement.

Collapse

PetroCaribe was affordable by Venezuela because it was based on high oil prices. But the project was victim to forces external and internal to Venezuela.

When the project was launched, oil prices were averaging a healthy (for exporters) 80 USD per barrel. PetroCaribe appeared even more valuable when prices went above $160/b in mid-2008. However, in early 2016, with the collapse of oil prices, PetroCaribe began to unravel.

Reduced foreign earnings left Chavez’s successor, Nicolas Maduro, unable to find the billions of dollars required to finance a range of social projects started by Chavez.

Prospects for Venezuela’s economy — and for PetroCaribe — became more difficult as the fall in oil prices coincided with a slide in production. Output by the country with the world’s largest oil reserves, which produced 3 million barrels a day in the 1990s, fell to 2.3 million b/d in 2013. By the end of 2018, output had further declined to just 1 million b/d.

Troubled by billowing inflation, a collapse of its currency and shortages of the most basic of products, Venezuela took loans from China and Russia and backed these with agreements to pay with oil. This turn of events left even less for its PetroCaribe clients. Shipments to the Caribbean slowed to a trickle. Countries that had signed on began purchasing crude and lighter products on the world market.

Debt obligations

Some countries reduced their significant PetroCaribe debt obligations.

The Dominican Republic used 1.9 billion USD of the proceeds of a global bond issue in 2015 to redeem 4 billion USD in outstanding PetroCaribe debt, making use of a principal haircut of 52%. Jamaica used the 2 billion USD it raised on the international capital market in 2015 to retire its 3 billion USD PetroCaribe debt at a price of 1.5 billion USD.

The collapse of the PetroCaribe facility aborted related projects in which PDV would help to expand refineries in which it had an interest in the Dominican Republic and Jamaica; and, to build one in Nicaragua to process 150,000 b/d of Venezuelan crude so as to supply Central American markets.

Cuba was not immune to Venezuela’s economic meltdown. It has been forced to seek alternative sources for about 100,000 b/d in crude and products, once regularly supplied by PDV.
onshore and offshore blocks. There are already ‘strong indications of interest’ from several companies, the government said, without naming any.

• Cuba also plans an April 2019 restart of a deepwater drilling campaign that lost steam in 2012 after foreign companies found no commercially exploitable deposits. However, companies that will take part in the planned tender will have to take into account the USA’s economic sanctions.

• Jamaica has Tullow Oil concluding seismic work on some of the 11 blocks offshore, for which it signed production sharing agreements with state oil company Petroleum Corporation of Jamaica (PCJ) in 2014. UK independent United Oil & Gas (UOG) has taken a 20% stake in Tullow’s licences, with PCJ describing the blocks as ‘highly prospective’.

**Caribbean refineries**

It has been an uncertain period for the Caribbean region’s refineries. The decommissioning of Trinidad’s refinery coincided with the collapse of the government-owned 335,000 b/d Isla refinery on Curacao where Venezuela’s state-owned PdV (that operates the facility under lease) has stopped providing feedstock. PdV’s lease expires at the end of 2019, and the Curacao government has selected Saudi Aramco’s US refining subsidiary Motiva Enterprises as the preferred bidder to take over the facility.

Prospects are brighter for the mothballed refinery on St Croix in the US Virgin Islands. Tullow Oil has concluded an agreement in November 2018. Beginning in late 2019, BP will supply crude and market the refinery’s output (200,000 b/d) of low sulphur products.

Cuba’s 65,000 b/d Cienfuegos refinery suffered from a decline in feedstock from Venezuela, but the facility ended 2018 with increasing throughput as PdV delivered higher volumes from its own production and from other sources. This was supported by supplies from Russia and Algeria.

The Dominican Republic’s Refidomsa refinery and Jamaica’s Petrojam are both suffering from Venezuela’s economic problems. PdV has a 49% stake in both refineries, but has failed to deliver on promises to expand and modernise the plants. Both the Dominican Republic and Jamaica said separately in January 2018 they intended to take over PdV’s interest in the refineries so they could move ahead with upgrading the facilities. Jamaica’s prime minister has suggested that Petrojam could be shut down if it were not upgraded.

*Canute James, PhD, Adjunct Senior Lecturer and former Director of the Caribbean School of Media and Communication (CARIMAC), Mona Campus, University of the West Indies, was a reporter for the Financial Times of London and radio reporter, presenter and producer in London, England for the BBC.*

**FACTOID**

Peoples in the southern Caribbean were using oil before the Spanish arrived in the 16th century.
Peace has returned to the tranquil waters off Belize. The hopes entertained by aspiring hydrocarbon prospectors to exploit an estimated 3.2 billion barrels equivalent of oil and gas have been put to rest.

After a decade of contention between the government and local and foreign environmental protection lobbies — with support from UNESCO — the government cancelled prospecting licences it had granted to several companies for developing its oil and gas resources.

At the heart of the dispute was the threat that oil exploration could pose to Belize’s 300 kilometre Mesoamerican coral reef, the world’s second largest after Australia’s Great Barrier Reef.

The Belize Barrier Reef Reserve System, the largest barrier reef in the northern hemisphere, is home to hundreds of marine species which the lobbies felt would be endangered by the planned oil exploration. The species identified included marine turtles, manatees, the American marine crocodile and whale sharks.

Such was the threat that in 2009, UNESCO added the reef system to its list of endangered sites and urged the government to take special measures to preserve it.

Exploitation of Belize’s immense (3.2 billion b/d) offshore oil and gas potential would have made that country a significant global producer.

At the other end of the region, Guyana’s estimated resources of five billion barrels equivalent will lead that country to produce about 750,000 b/d by 2025. If Belize had gone ahead with exploiting its hydrocarbons — producing even a half of Guyana’s projected output — the Central American country’s economy would have been significantly transformed.

With the identification of the country’s offshore hydrocarbon potential, the government issued several permits for prospecting. The contracts covered concessions ranging from 200,000 acres to two million acres and were awarded to: Turkish resort operator Princess Group’s subsidiary Island Oil; the Taiwan firm CPC’s international arm OPIC; and two local firms, Tropical Energy and Petro Belize.

The environment protection lobbyists became immediately engaged. They made a series of petitions urging the government to cancel the contracts. Sustained resistance by the lobbies forced the government to delay seeking a replacement for OPIC, which had turned in its licence — a move the government then conceded was the result of pressure from environmentalists.

In February 2012, the environment lobbies tried to force a national referendum on offshore oil exploration. However, the elections commission stymied that initiative, saying support for the vote was insufficient.

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In February 2012, the environment lobbies tried to force a national referendum on offshore oil exploration. However, the elections commission stymied that initiative, saying support for the vote was insufficient. The lobbies however claimed that 96% of the signatories were against offshore exploration. But, the environmentalists scored a victory in April 2013 when the supreme court ruled that six production sharing contracts concluded by the energy ministry were not valid. The court ruled that they did not meet the government’s benchmarks for competence in exploration and production.

The court said the government failed to assess the environmental impact on Belize’s ocean resources before issuing the contracts, as required by law. The contractors ‘did not demonstrate a proven ability to contribute the necessary funds, assets, machinery, equipment, tools and technical expertise to drill safely’, the court said.

This development was followed by growing international pressure, with the government receiving pleas from almost half a million people around the world to abandon the plans for prospecting around the reef. The arguments were driven by the consequences of BP’s massive Deepwater Horizon oil spill in the Gulf of Mexico three years earlier and the devastating impact a similar accident could have on the Mesoamerican reef.

Belizean legislators accepted the arguments, and imposed a moratorium on offshore prospecting in December 2017.

With this decision, on June 26, 2018 at the 42nd session of UNESCO’s World Heritage Committee meeting in Bahrain, the decision was made to remove the Belize Barrier Reef Reserve system from the List of World Heritage in Danger.

CARIBBEAN OIL FACTOID

The most magnificent of the three pitch lakes in the world is in Trinidad and Tobago.
The Government of Trinidad and Tobago announced on August 28 that it would be closing the country’s only petroleum refinery, Petrotrin. One week shy of his third anniversary in office, Trinidad and Tobago’s seventh Prime Minister Dr. Keith Rowley addressed the nation. In a solemn speech on September 2, 2018, the Prime Minister of the twin-island republic told his compatriots that Petrotrin’s oil refinery at Pointe-a-Pierre would be closed in three months, on November 30, and that the corporation was to be restructured.

Following the Prime Minister’s announcement, the Oilfields Workers Trade Union (OWTU) scrambled to find a formula to keep the refinery functioning but to no avail. Proposals presented by the union did not impress the Petrotrin Board of Directors, Chairman Wilfred Espinet said the submission did not offer a viable solution to the problems that brought the newly elected government to its decision to close the facility. Espinet announced that Petrotrin would be moving ahead to shut down the refinery and preserve the company’s assets.

Petrotrin (Petroleum Company of Trinidad and Tobago Limited) was founded in 1993 as a merger of two government-owned oil companies (i.e. Trintopec and Trintoc). It was the state-owned oil company of the Republic of Trinidad and Tobago. It went defunct, as scheduled, on November 30, 2018. Its successor, Trinidad Petroleum Holding Limited, will administer two new companies — Heritage Petroleum Company Limited and Paria Fuel Trading Company, both of which came into operation on December 1, 2018.

In his address to the nation the Prime Minister made the following points regarding the Petrotrin refinery:

- On August 30, 1984 the government purchased the refinery, already antiquated and failing, from Texaco for $189.2 million, (in a move mainly to save some 3,000 jobs).
- Over the past decades T and T has moved ‘imperceptibly’ from oil to gas.
- The liabilities of the Petrotrin threaten the credit rating and the financial stability of the country. International rating agencies warn of further downgrades if nothing significant is done to improve this worsening situation.
- There is an 850 million USD bond (TT$6 billion) that is due for payment in a single transaction in August 2019 and another of almost 700 million USD due soon after.
- On Tuesday, August 28, the board of directors of Petrotrin announced plans for to get the company on a path to sustainable profitability, to stop the taxpayers financing operations that are losing billions of dollars and to stop the haemorrhaging of foreign exchange in US dollars.
- The primary objective of the announced interventions is to transform the business of the company from chronic money losing to a return to profitability.

Petrotrin’s ongoing failure now threatens national survival. Analyses by local and foreign expertise all indicate that the refinery will continue to lose money.

Analyses show that other aspects of company operations, Exploration and Production, if operated properly and separated from the refinery, could be a good business producing handsome dividends.

Addressing the latter point, the Prime Minister said: “It is this advice that has finally been accepted by the Cabinet after about a year of intensive work.”

“Unfortunately, the nightmare does not end with these disastrous projects, the company now borders on insolvency, as its cost of operations far exceeds its revenue. Survival has only been possible through the non-payment of taxes and royalties owing to the Government as well as the procuring of Government guarantees for loans from financial institutions,” the Prime Minister stated.

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**SPECIAL FEATURE: CARIBBEAN OIL**

**CARIBBEAN OIL**

**DID YOU KNOW?**

Venezuela’s proven oil reserves are considered the largest in the world.

BY MIKE JARRETT

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“Unfortunately, the nightmare does not end with these disastrous projects, the company now borders on insolvency, as its cost of operations far exceeds its revenue. Survival has only been possible through the non-payment of taxes and royalties owing to the Government as well as the procuring of Government guarantees for loans from financial institutions,” the Prime Minister stated.
The government of Trinidad and Tobago concluded negotiations with Venezuela in which the twin-island republic will gain access to the oil fields of their South American neighbour. The deal was announced by Trinidad and Tobago’s Prime Minister, Dr. Keith Rowley, last summer at the same time he announced the closure of the Petrotrin refinery.

Trinidad and Tobago is heavily dependent on the natural gas industry by way of the processing and export of natural gas or gas-based products such as methanol, fertilizer and other products.

“We opened discussions with Venezuela to get agreement on access to their large proven gas fields, just across our border. These reserves are economically and logistically more marketable from Trinidad than from Venezuela,” the Prime Minister explained in a public broadcast.

He said that over the past 15 years the Trinidad and Tobago national economy had become increasingly dependent on revenues from gas as against earnings from oil. He said the country’s gas reserves have been dwindling.

Success in this joint initiative, the Prime Minister said, would provide an extension of Trinidad and Tobago’s involvement in the gas business; while providing Venezuela with an opportunity to monetise some of its gas which otherwise would not get to market in any foreseeable time frame.

The agreement was signed on August 25, 2018 between Trinidad and Tobago’s National Gas Company (NGC), Shell and PDVSA.

The agreement clears the way for the construction of pipeline infrastructure to allow access to a Venezuelan gas field.

“This historic development, built on the time-honoured diplomatic principle of good neighbourliness for the benefit of both nations, established a competitive gas pricing mechanism which is sufficiently attractive to excite development of (Venezuela’s) Dragon field which is north-west of us, as well as on the south coast cross-border fields which we share with Venezuela. It gives us some potential to grow in the medium term and diversify our gas supply base even as it almost immediately adds to the pool of what is available for current needs,” the Prime Minister said.

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CARIBBEAN OIL
DID YOU KNOW?
Venezuela has 20% of global oil reserves.
Barbados: No News Yet

There has been no official statement from the Barbados National Oil Company Ltd. (BNOCPL) as to where Barbados will ship its crude oil and from which market it will obtain its refined products. With the recent November 30 closure of the Petrotrin oil refinery in Trinidad and Tobago, Barbados must make new arrangements to replace the decades-old arrangement where Petrotrin received Barbados crude and, through barter, supplied Barbados with its needs. During this arrangement, the Government of Barbados exported about 260,000 barrels of crude oil to Petrotrin annually. In return, it was importing about 60,000 barrels of gasoline from Petrotrin monthly. The country has storage capacity for 80,000 barrels of gasoline. Diesel and fuel oil are obtained from sources outside the Caribbean and kerosene for jet fuel is imported by private dealerships. Discussions of developing a similar arrangement as the one that existed with Petrotrin with a number of suppliers have started but no partnership has yet been announced.

Dominican Republic: Construction at Puerto Plata

There are signs that the initiative to resuscitate the Puerto Plata port for cruise and cargo business will begin shortly. The country’s President, Danilo Medina Sánchez, recently (January 14, 2019) attended a ground-breaking ceremony at the port to symbolically begin construction. Puerto Plata is the main marine cargo facility on the Dominican Republic’s (DomRep) north coast. It has the Caribbean’s only functioning aerial tramway. Site works will include reconstruction of the cargo dock and construction of a cruise and passenger terminal. The new cruise facilities are expected to make Puerto Plata a major contributor to the country’s already successful cruise business. In 2017, cruise ship arrivals in the DomRep increased by 37% over the previous year; pushing passenger arrivals to 1.2 million (200,000 more than expected). The Puerto Plata development is expected to cost over 100 million USD.

Jamaica: Kingston Freeport Celebrates

Kingston Freeport Terminal Limited (KFTL) celebrated its most productive day on January 24 to 25. The company said it completed 3,304 box moves — loading and unloading — in the 24-hour period, its best performance ever. KFTL took control of the Kingston Container Terminal in July 2016 under an arrangement with the Port Authority of Jamaica. The standard-setting performance was recorded in working the postpanamax Cosco Beijing. In the process, 1,464 containers were unloaded and 1,840 reloaded. KFTL reported an average crane productivity of 36 moves per hour and average berth performance of 136 moves per hour. In its development plans for the Kingston terminal, KFTL has announced plans to upgrade or replace 15 building structures at the terminal.

Saint Lucia: Second Cruise Port Mooted

With only Castries now able to receive large cruise ships, Saint Lucia’s Prime Minister, Allen Chastanet, has been talking about building a second cruise port in the South. A cruise ship port in close proximity to the Hewanorra International Airport could make Saint Lucia attractive for European cruise lines seeking to home port in the Caribbean. From reports, Prime Minister Chastanet has been talking to cruise lines, including Carnival. One (unconfirmed) report [Cruise Industry News, January 29, 2019] stated that an agreement was reached with Carnival Cruise Line for the construction of a cruise ship port in Vieux Fort. [See also Castries on page 13]

Sustainable Energy: Renewed Interest in Wind

Interest in wind propulsion technology in feverish efforts currently to reduce fuel costs and carbon emissions is on the increase. Interest is being driven by regulatory action by local, regional and multilateral groups and organizations; higher prices for carbon fuel; and, a growing consciousness and awareness about the effects of emissions on climate change. That same interest is being pulled by technological advances, one of which resurrects an almost century-old engineering design: the rotor sail. Anton Flettner’s rotor, a smooth cylinder mounted on the deck of a ship greatly assists propulsion and is now attracting new interest thanks to the engineers at Finland’s Horsepower. The 880-cabin/2,800 passenger cruise ship and ferry, the M/S Viking Grace, now has a rotor sail installed, extending upwards like a giant white tube standing on end. Eight rotor sails have been installed in the past year and more are on order, stated Gavin Allwright, Secretary of the International Windship Association, based in London, England. Wind propulsion is a credible, viable and increasingly profitable option and the industry is taking notice, he stated.
**LNG: USE EXPANDING EXPONENTIALLY**

With less than a year before stricter global restrictions on sulphur emissions come into force, use of the cleaner burning liquefied natural gas (LNG) for ship propulsion has expanded exponentially. The new regulations, set by the United Nations International Maritime Organization (IMO) comes into force on January 1, 2020. For ships operating outside designated Emission Control Areas, the limit for sulphur in fuel oil used on board ships is 0.50% mass by mass (m/m). This restriction is expected to drastically reduce the amount of dangerous sulphur oxide emanating from ship exhausts. Growth in the world fleet of LNG-powered vessels, slow at first (no doubt because of the high costs associated with retrofitting) is accelerating as the IMO deadline draws nearer. In 2018, the number of LNG-powered ships (according to one usually reliable source) grew by over 20%, from 118 in 2017 to 143. There are about 135 LNG-powered ships currently on order.

**LNG: A FIRST FOR CARNIVAL**

Carnival Corporation took possession of the world’s first cruise ship to be 100% powered (at sea and alongside) by liquefied natural gas (LNG). The M/S AIDAnova is 337 metres in length; draught 8.8 metres/29 feet. It was launched on August 21, 2018 and ceremonially handed over on December 12, 2018 in Bremerhaven. It has been placed in the AIDA fleet. Built by Meyer Werft, the 183,000 GRT AIDAnova is the largest cruise ship ever built in Germany. Carnival reportedly has LNG-powered ships for Costa Cruises, P&O Cruises, Carnival Cruise Line and Princess Cruises on order. The 20 ships that the corporation has on order include 10 that are LNG-powered.

**CRUISE: NEW TERMINAL FOR PORT CANAVERAL**

Florida’s Canaveral Port Authority has selected a contractor to build its Cruise Terminal Three (CT3). The two contracts (total 108.51 million USD) comprise the award include the building of CT3 at a cost of $78.98 million; and, an adjacent parking garage (with capacity for 1,800 vehicles) at a cost of $29.53 million. The 188,000-square-foot terminal will be the homeport for Carnival Cruise Line’s XL-class cruise ship, M/S Mardi gras, (now under construction in Finland) when it goes into service mid-2020. At that time it will be the first cruise ship based in the US that runs 100% on LNG. Measures employed by the port to minimise environmental impact include close monitoring of the pile-driving process with seismic measuring devices. For financing, the port commissioners approved the issuance of bonds, intending to raise 117 million USD via this strategy. Carnival will provide 50 million USD as part of a long-term agreement between the port authority and the cruise line. The port is also expecting grants from the Florida Department of Transportation for project infrastructure work of $6 million.

**ENVIRONMENT PROTECTION: AN OCEANIA-VERO PARTNERSHIP**

Oceania Cruises has made public its collaboration with Vero Water that the two brands expect will help to keep millions of plastic bottles made for selling water out of ocean. The line explained in January 2019 that this initiative is the newest facet of the brand’s OceaniaNEXT ‘enhancements’ and part of the company’s larger Sail and Sustain environmental programme. Outfitting of ships with Vero Water’s (still and sparkling) water distillation systems will begin in April. Installation of the systems is calculated to eliminate an estimated three million plastic bottles per year. The Vero Water service will be installed in two stages: (1) availability in suites, staterooms, restaurants, lounges and bars, to be completed by mid-June; and, (2) coupling the Vero Water service with guests’ shore experience. The line stated that each guests will be provided with a personal, their own re-useable Vero Water bottle – theirs to keep and to take home. Phasing in of stage two is expected to begin during the second half of 2019. Oceania calls on St John’s, Antigua; Hamilton, Bermuda; Puerto Limon, Costa Rica; Fort de France, Martinique; Acapulco, Mexico; Castries, St. Lucia; and, Roseau, Dominica.
No-one on a cruise wants to wake up to find dead or injured birds scattered on deck. So, following a dramatic but catastrophic incident of this sort in New Zealand last year (2018), conservationists have become increasingly concerned with the effect of bright lights of cruise ships on sea fowl. It is now felt that action is needed to address what could be a ‘huge problem’ — young seabirds being lured from their habitats by the lights of cruise ships passing in the night. On May 22/23 about 60 seabirds ended up on the deck P&O’s M/S Pacific Jewel in Auckland, attracted by the vessel’s bright lights. The ship’s environmental officer placed the birds in cardboard boxes and kept them there while alerting and awaiting the arrival of port officials. Once in port, quarantine officers alerted the Department of Conservation (DOC) but, when they arrived, many of the birds were already dead. It is understood that 20 were already dead when DOC staff arrived because of the fighting and the stress of locked in such close confines with other birds. The surviving birds were taken ashore where they were tube-fed and allowed to recover, and finally 37 buller’s shearwaters were subsequently released.

Conservation scientist Graeme Taylor said seabirds have better night vision than humans and this means they are likely to be dazzled and confused by a cruise ship’s lights. Young seabirds are most at risk, he said. First solutions discussed included the idea of cruise ships dimming their outdoor lights while in port.

The Bahamas Maritime Authority (BMA) announced that its lowest number of detentions following port state control (PSC) inspections was recorded in 2018, when only 24 ships were detained. PSC is an internationally agreed regime for the inspection of foreign ships in ports other than those of the vessel’s flag state. The ultimate objective is to preclude the operation of sub-standard ships on the world’s oceans. PSC Officers are required to inspect a ship for compliance aligned with the requirements of the international conventions, such as SOLAS, MARPOL, STCW, and MLC 2006. [See also Training, — Protecting the Caribbean Environment on page 32.]
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The Caribbean Sea covers less than 1% of the world’s ocean area yet contributes up to 27% of the estimated value of the global economy and generates an estimated 407 billion USD in gross revenue.

This recent (2016) assessment by the World Bank pointed not only to the global significance of this maritime resource called the Caribbean Sea but also to its economic value to more than 40 million inhabitants in the dozens of nation states and territories that it supports.

Most of the revenue reported in the World Bank study was generated by maritime trade and the operations of ships and various seacraft that daily traverse the Caribbean Sea.

“It is IMO’s belief that because of the international nature of the shipping industry, action to regulate and improve shipping operations would be more effective if carried out at an international level. Such an improvement cannot just be based on making more rules. More emphasis should rather be put on the importance of implementing existing rules. In that regard, the adoption of measures at IMO should be just the beginning of a process, not the end, because IMO measures are only worth anything if they are effectively and universally implemented.”

This statement from Colin P. Young, the International Maritime Organization’s Regional Maritime Adviser (Caribbean), Technical Cooperation Division, presented a rationale and context for a recent event in Port of Spain, attended by 40 participants from 13 Caribbean states and four Dependent Territories.

The regional Caribbean Ship Inspector Training (CASIT) course, implemented by the International Maritime Organization (IMO), lasted from October 29 to November 16, 2018. It was organized by the Trinidad and Tobago’s Maritime Services Division (of the Ministry of Works and Transport).

The objective of the course was to prepare ship surveyors to function in a Caribbean maritime administration. In this regard, course content included topics on: international treaties, port and flag state regimes, Recognized Organizations (ROs), conventions on maritime safety and pollution prevention and the regional safety codes. It covered the technical aspects of shipping, inter alia; ship stability and loadlines, dangerous cargoes, machinery installations and hull constructions. It also included training on International Labour Organization (ILO) matters related to working and living conditions on board ships as prescribed by the Maritime Labour Convention 2006 (MLC 2006).
“Major role of ship inspection is to ensure that shipping takes place securely, safely and efficiently on clean oceans.”

“The course was comprehensive and consequently intense. A part of the course was of a practical nature, introducing the participants to the actual conduct of ship inspections,” the IMO representative stated.

Trainees were empowered so as to be able to effectively perform Flag State Inspection (FSI) on all vessels under 24 metres in length; and, annual and renewal surveys on vessels of up to 500 gross tonnes (GT). They will also have the ability to carry out Port State Control (PSC) inspections and the inspection of documents on those ships.

In order to deliver the workshop, the IMO engaged five highly experienced persons in the field of port and flag state inspections — Ricardo Boke, Port State Control Officer, Gobernacion Maritima de Valparaiso; Luc van Osch, Netherlands Shipping Inspectorate, Caribbean Region; Sukhjit Singh, Deputy Director and Technical Head, University of Trinidad and Tobago; Courtney Lange, Naval Architect, Tsunami Marine; and, Imanol Bastarrechea, Prefectura Naval Argentina, Viña del Mar Agreement.

Shingo Miyake, Labour Law and International Labour Standards Specialist, ILO Decent Work Team and Office for the Caribbean and Ms. Jodi Munn-Barrow, Secretary General, Caribbean Memorandum of Understanding on Port State Control (CMoU) also made significant contributions in the delivery of this training event.

“Given that a major role of ship inspection is to ensure that shipping takes place securely, safely and efficiently on clean oceans, the participants were encouraged to urge their governments to implement the Instruments to which their countries and territories are party so that they would be fully supported in their roles to further ensure the economic sustainability of the Caribbean Sea,” the IMO representative stated.

1 World Bank Report Toward a Blue Economy: A Promise for Sustainable Growth in the Caribbean [Report no: AUS16344, September 2016].
The story of Octopi: Designing an effective TOS for regional ports

BY MILES VARGHESE

When the port at Bridgetown changed its terminal operating system (TOS), it found a solution that was flexible, readily accessible and which greatly assisted the decision-making process. The system allowed for greater efficiencies at the port by allowing access to real-time information to a larger group of stakeholders.

The TOS now driving Barbados Port Inc. is Octopi. It was developed by Cetus Labs, a relatively young software company with roots in the Caribbean.

Portside Caribbean sought to hear the story of how this young company with a still-small but growing clientele garnered such a glowing reputation in so little time. We wanted to know its history but more importantly, what makes customers, like Barbados Port Inc., satisfied with Octopi. So we turned to Miles Varghese, the company’s Head of Sales and pitchman for Octopi for much of its existence. Miles tells the story here.

The story of begins in the heart of the Caribbean – Port-au-Prince, Haiti.

Our founder, Luc Castera, grew up in the country’s capital. He loved computers from a very young age. He eventually attended the University of Virginia and obtained a Master’s degree in Electrical Engineering at Georgia Tech. It was during this time that Luc started ventures such as www.job509.com and www.htmlsig.com. It was then that he met and established a work relationship with Guille Carlos, ultimately co-founder and CTO of Octopi.

In 2014, Luc Castera was gainfully employed at an Atlanta-based technology company, Intellum, that built Software-as-a-Service (SaaS) platforms for innovative, Fortune 500 companies, including Facebook, Google, Snapchat, G4S, Cora-Cola, AT&T and others. This unique background would eventually prove invaluable in the founding of the brand.

JP Baussan, now Vice President at Caribbean Port Services (CPS), Haiti, originally reached out to Luc to lend some software consulting hours in search of a terminal operating system. After a global vendor search, Luc concluded that there wasn’t a system that would satisfy those needs that were unique to CPS and port terminals across the greater Caribbean. These terminals needed a system that would effectively meet the challenges of a disaster-prone region with slow Internet connectivity.

SOLUTION
The solution needed to be lightweight, easy-to-use, reliable, and cost-effective.

This meant that the system should be easily learned; operate on a 3G connection; and, deliver 99.9% uptime, all through the year and especially through the hurricane season.

There was no solution available in the market that was built to handle small to medium, mixed-cargo terminals and especially the tough conditions often found at Port-au-Prince and other Caribbean ports.

This market need is not unique to the Caribbean. It exists globally, a fact that has driven the international growth of the brand.

Instead of recommending any of the existing vendors he had found, Luc convinced JP Baussan to allow him to build a terminal operating system (TOS) from scratch. He gave himself six months to complete the task.

Guille and Luc had worked together previously. They had developed web-based software and both had quit their jobs so as to pursue this venture. The story of Octopi began.

Fast-forward to 2018. Octopi now serves nine clients on four continents.

The Caribbean region has become pivotal and significant, not only to the founding of the company but also in the development and improvement of the product itself.

Port-Au-Prince, Bridgetown and King Ocean were early customers.

SUCCESS
Unlike the traditional legacy-based terminal operating systems, the beauty of a web-based application such as Octopi are the abilities to respond quickly to client needs and release new versions of the software faster than traditional providers.

A good TOS should manage all of the operations at the terminal – gate management, stevedoring, automated tariffs and billing. With our software, the port employees can access the software platform using existing PCs, Macs, and smart devices. Sometimes, terminals also have customers such as shipping agents, importers/exporters and liners logging into their TOS so as to get updates on their cargo or operational productivity.

Barbados Port Inc. trusted us as a young company and Bridgetown became our third client overall and second in the Caribbean. We were expected to replace an operating solution that had been in use at the port for more than 10 years. It was a solution with which every functionary as well as many customers and partners had become quite familiar.

A successful implementation in Barbados required extensive change management. We started by outlining an implementation timeline (of four to six months duration). A part of the challenge was to transition from nine separate applications to a more comprehensive TOS that satisfied more of the terminal’s needs. These applications included cargo management...
“Through working directly with our Caribbean clients, we have added warehousing functionality to allow better control of warehousing operations and to speed up delivery of cargo like personal effects for private citizens.”

Improvement

Through working directly with our Caribbean clients, we have added warehousing functionality to allow better control of warehousing operations and to speed up delivery of cargo like personal effects for private citizens.

Plus, in our resolve to remain up-to-date and relevant, we also strengthened the Application Programming Interface (API) so to allow connectivity to third-party applications in Barbados, such as accounting software. This has facilitated data-sharing and improved workforce productivity.

Modern software development demands that client needs are constantly administered and addressed. We acknowledge this and understand that, like a garden that’s not constantly tended, today’s productivity solutions, as beautiful as they now may be, will quickly wither with neglect and uncaring administration.
The accelerated growth of containerization, that is the system of intermodal freight transport using containers, has expanded the role of container terminals. Consequently they have become crucial links in intercontinental supply chains. The sustained growth of the container market therefore demands higher levels of operational efficiency from container terminals. The dynamics of international trade and logistics demands flexibility and adaptability of ports. As a consequence the port industry is under pressure to upgrade, provide cutting edge technology and to improve terminal efficiency and productivity.

Container terminals play a critical role in a port’s infrastructure as they facilitate the economic development of a country. The year ahead therefore presents several challenges for Caribbean ports. Among these challenges is management of the triple constraints: cost, space and time.

These constraints must be regarded as strategic issues for port management. They are more formidable at ports with an aging infrastructure, archaic labour restrictions and resource limitations. In some countries, the redevelopment of ports and the reduction of their container storage space have exacerbated the triple constraints.

To effectively address these constraints, organizational change is required. That is always a difficult thing, but in ports it is made even more challenging. This is due primarily to the public service function of ports, political influence in management and a strong unionised environment.

**TERMINAL OPERATIONS AND THE WORKING PORT**

The globalization of production and consumption and the advent of containerization have revolutionized the way that cargo is transported and handled. Ports serve as the main cargo transportation gateway for countries and are pillars of the national economy. The working port is therefore expected to facilitate trade logistics – keep operating costs low – while improving service quality and the effectiveness of operations.

The aim of ports should therefore be to optimize their terminals by determining the best mix of operating strategies for crane control, stacking area, handling area and resource management for every system load that can be handled by the terminal.

It helps to be reminded that a container terminal is a complex system with three subsystems: seaside operations, yard operations, and landside operations. All three interact.

*Seaside operations, which include the berthing operations and the loading and unloading of containers, interact with yard operations via internal transport equipment used to transport containers both to and from the ship and the storage yard.*

*The yard operations manage the containers during the transfer between landside and seaside.*

*Landside operations are characterised by activities for receiving and delivering inbound and outbound containers to and from the storage yard. The landside operations are broad in scope and include the gate, parking, office buildings, customs facilities, container freight station with an area for stuffing and stripping, empty container storage, container maintenance and repair area among others, depending on the terminal.*

While each of the three subsystems can be viewed as an independent entity, the interlocking nature of
the relationship is unavoidable and plays a crucial role in the efficient management and operation of a container terminal.

Effective management of these three subsystems is fundamental to the success of port operations. Port management therefore must conduct a holistic overview of their terminal operations and continually seek to develop strategies to improve efficiencies.

YARD MANAGEMENT OPERATIONS

The research area of yard management has attracted the attention of academia and industrial practitioners. Experts have argued that the decisions made at strategical, planning and operational level in yard management have an impact on a port’s operational performance.

Efficiency of yard operations can be used to measure or assess a terminal’s competitive strength because it directly affects the performance of the entire terminal. Yard management is the beating heart of terminal operations. It bridges the gap between quay side and gate operations.

In yard operations, three types of container flows are distinguished: import containers (that arrive on vessels and leave on inland transport modes); export containers (that arrive on inland transport modes and leave on ships); and, transhipment containers that arrive and leave on ships. Typically, empty, refrigerated (also known as reefers) and containers with hazardous materials are assigned to specific areas within the yard. As a result of the improvement in quay side equipment and technologies, the bottleneck of operations has shifted from quay side to the yard.

Yard management influences the financial as well as the operational well-being of a port. Acquisition of the right equipment and appropriate technologies is therefore critical.

THE CHALLENGE OF COSTS CONSTRAINT

Ports are exposed to uncontrolled equipment costs in the container retrieval process and the restacking of the yard. The cost of port operations, are often hidden but are manifested by uncontrolled and unproductive activities. Managing costs and scope of operations remain the challenge of operations managers. There are costs associated with the stacking problem and there are equipment costs that are associated with spatial management.

Stacking creates a time-consuming problem if the aim is not to properly store incoming containers so that the time spent in future handling (relocation or pre-marshalling) is kept to a bare minimum. Thus direct costs can be significant since the number of moves that are involved in the shifting of containers have an impact on the cost of operations.

Yard management undoubtedly has an impact on a terminal’s bottom line.

Terminal operations face many other operating costs, including the cost of discharge by the crane; the transportation costs between quayside and the storage area; and the retrieval costs.

Cost management is a concern when the equipment and operators are engaged in non-earning time.

Cost management strategies must be employed since the constraint of space is a further limitation to the operations. The size of most Caribbean ports limits the storage space that is available. This limitation impacts the retrieval of containers post vessel operations to facilitate the delivery. Ports must confront the maintenance costs of equipment and yard infrastructure. These factors contribute budget variances due to their unpredictability.

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