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IFC's quarterly journal on public-private partnerships

In this issue:

SEAPORTS: From containers to concessions

AIRLINES: Saying goodbye to Swissair

TRADE LOGISTICS: Liberian reform

INTERVIEW: Virgin's Sir Richard Branson

DEBUT COLUMN FROM *INFRASTRUCTURE JOURNAL*:

London's Olympic-sized infrastructure woes



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Editorial

Tanya Scobie Oliveira • Alison Buckholtz

Art & Design

Jeanine Delay • Victoria Adams-Kotsch

Outreach

Chrysoula Economopoulos

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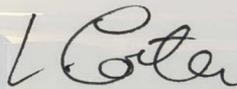
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Letter from IFC

Air and sea transport power the global economy. Since the vast majority of trade is physical, it must travel by plane or ship to reach its market. In fact, high value, time-sensitive goods usually fly through at least two airports, and almost every container passes through at least two seaports. When ports are efficient, people receive the goods they're waiting for, sellers receive payment, and global economic development is strengthened. Public-private partnerships (PPPs) push this development forward with greater speed and richer benefits.

In this issue, *Handshake* turns its attention to air and sea transport (expect a companion issue on road and rail in October 2012). In the air, we deconstruct myths surrounding airport PPPs, learn brutally honest lessons from experiences in airline privatization, and revisit the liberalization of African skies. For seaports, we examine private investment, glimpse the post-concession era, and witness the PPP evolution. *Infrastructure Journal* editor John Kjorstad takes us to London, narrating the U.K.'s race toward a winning logistical support structure as the summer Olympics approaches. And Sir Richard Branson reminds us that sustainability must be at the forefront of our thoughts, no matter how high stakes the race, when he outlines Virgin Atlantic's progress with biofuels. "I've always loved a challenge," he tells *Handshake* editors. Olympics or not, the world craves that competitive spirit more than ever.



Laurence Carter, Director



Tanya Scobie Oliveira, Editor

IFC Advisory Services in Public-Private Partnerships



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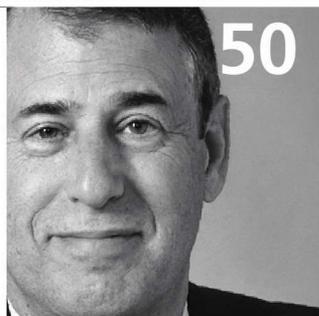
Contributors



Waleed A. Youssef



John Crothers



Robert Aaronson



Decontee T. King-Sackie

Georgina Baker

is the Director of IFC's Trade and Supply Chain.

Christopher Boyce

is an associate in the Projects (Finance and Infrastructure) Group at international law firm Gide Loyrette Nouel.

John Crothers

is a senior partner in the Projects (Finance and Infrastructure) Group at international law firm Gide Loyrette Nouel, leading the PPP team.

Vickram Cuttaree

is a Senior Infrastructure Economist and Public-Private Partnership (PPP) Coordinator for the World Bank's Sustainable Development Department—Europe and Central Asia.

Jeff Delmon

is a Senior Infrastructure Specialist in the Financial Solutions Unit of the Finance, Economics and Urban Department and a member of the Global Expert Team on PPPs at the World Bank.

Victoria Delmon

is a Senior Counsel in the World Bank Legal Vice Presidency.

Katherine Downs

is a Principal Equity Specialist in IFC's Manufacturing, Agribusiness, and Services Investment Division; she was formerly a Managing Director at the AIG-GE Capital Latin American Infrastructure Fund where she made equity investments in ports and shipping companies.

Alexander N. Jett

is the Task Team Leader of the Private Participation in Infrastructure Database, focusing on transport PPPs in the Finance, Economics and Urban Development Department of the World Bank.

Marc Juhel

is the Sector Manager for Transport in the Sustainable Development Network of the World Bank.

Brad Julian

is Principal of Julian Associates LLC, an independent consulting firm providing operational and financial analysis, management consulting and transaction advisory services to port infrastructure, maritime and transportation industries around the world.

Decontee T. King-Sackie

is the Assistant Minister for Revenue in the Liberian Ministry of Finance; she was formerly Commissioner of Customs and Excise of Liberia.

John Kjorstad

is the Editor of *Infrastructure Journal*, a global online news and data resource providing information and analysis across key sectors within project and infrastructure finance.

C. Bert Kruk

was Lead Port Specialist at the World Bank until his retirement in 2008; he is now a port consultant.

Michael Kurdyla

is a Trade Finance Analyst in IFC's Trade and Supply Chain Department.

James Morley

is an Investment Officer at IFC, based in Hong Kong.

Andy Ricover

is an independent air transport specialist with experience in air transport economics, privatization, aviation policy, traffic forecasting, regulation, due diligence, and valuation.

Brian Samuel

owns Island Boats Limited, a tourism and consulting business based in Grenada. In 2007 he retired after 20 years with IFC, where he specialized in aviation financing and privatization.

Charles E. Schlumberger

is the Lead Air Transport Specialist of the Transport, Water and Information and Communication Technologies Department of the World Bank.

Jordan Z. Schwartz

is Lead Economist for Sustainable Development in the World Bank's Latin America and Caribbean Region and also serves as the Head of the World Bank Group's Global Expert Team on Trade Facilitation and Logistics.

Heidi Stensland Warren

is a Private Sector Development Specialist in the Investment Climate Department of the Finance and Private Sector Network of the World Bank Group.

SPECIAL THANKS TO

Alexandre Leigh

Investment Officer, Advisory Services in Public-Private Partnerships, IFC.

Ramatou Magagi

Senior Investment Officer, Advisory Services in Public-Private Partnerships, IFC.



Of ports & profits

Photo © Teunissen Dries/istockphoto

By Jordan Z. Schwartz

If there were a Prayer for Competitiveness, it would go something like this: “May your imports arrive safely and your exports flow forth. May your ports turn vessels and cargo around with the speed and of summer lightning.”

This plea is now echoing across the developing world. As tariffs and quotas have dropped, the physical barriers to the movement of goods remain the greatest bottleneck to trade. Global trade now accounts for nearly 50 percent of global economic output, according to the World Bank’s *Global Development Horizons* (2001). Unclogging those barriers is crucial for countries to connect to the global economy.

In contrast to decades past, trade is no longer defined by cheap inputs for industrial production in Organisation for Economic Co-Operation and Development countries in one direction, and wealthy country exports to the developing world in the other direction. Bilateral trade flows between low income countries (LICs) and the major emerging economies have tripled since 1990 and are now greater than LIC trade with industrialized countries. In fact, the ability of most of the developing world to weather the last global financial crisis and to rebound quickly was greatly aided by that trade.

SEAPORTS AND AIRPORTS: KEY TO COMMERCE

Since the vast majority of trade is physical, goods must pass through gateways on their way from farmgate and factory to markets and distributors. These gateways are primarily seaports and airports. In fact, over 70 percent of the world's trade by value and 80 percent by volume travels by ship. Nearly every ton of the world's commodities, and every container in global supply chains, must pass through at least two ports—and often three or four—before reaching its country of destination. Similarly, the highest value and most time-sensitive goods move by air—again, passing through at least two airports on the way.

Increasingly, these movements are defined by the growing share of developing country trade in global trade. According to International Monetary Fund data, 13 out of the top 25 bilateral maritime and aviation trading pairs involve at least one developing country. According to a Pricewaterhouse Coopers LLP forecast, that ratio will grow to 21 out of 25 by 2030. By then, the value of China's maritime and airborne trade with Nigeria will be greater than trade between the United States and the United Kingdom.

With developing country trade growing at nearly 14 percent per year, the efficiency of port and airport activity becomes key to unlocking commerce. While these services were traditionally viewed as public infrastructure, concessionaires and private terminal operators are increasingly being called upon to induce change. The speed

with which cargo is securely moved from a vessel or cleared from a plane, the ease and accuracy with which it is tracked, and the turnaround times of the ships and planes carrying that cargo together define the economics of the maritime and aviation industry. Private operators, spurred on by the profit motive, have changed the standards of acceptable performance for these crucial gateways to trade.

ON A CRANE AND A PRAYER

We have already seen what progress in this sector can mean to entire economies. For example, Latin America got its first container crane 20 years ago. That same year, an entrepreneur in Cartagena, Colombia bought a piece of waterfront property across from the public port, purchased a used gantry crane from the Port of New Orleans, shipped it to Colombia, reassembled it, turned the parcel of dirt into a small private container terminal, and sent a shockwave through the region's maritime industry. Not long after, the public ports of Colombia were concessioned to private consortia so they could provide competitive services with faster turnaround times for both cargo and vessels. In three years, vcontainer movement productivity increased nearly 70 percent and the loading and unloading of bulk materials improved five-fold.

Success stories like this prove that innovative public-private partnerships can in fact improve seaport and airport efficiency, changing the way commerce is conducted. Maybe this is the answer to the Prayer for Competitiveness. 🙏

Up, up, and aweigh: Port & airport PPPs

By Jeff Delmon

Against my better judgment, I have been asked to provide some substance related to the topic at hand, rather than the usual opinion unfettered by plebian concepts such as facts or actual analysis. So in this issue's column, we will discuss financing airport and seaport public-private partnerships (PPPs); the companion column next quarter will examine PPPs for roads, bridges, and rail. Read together, both entries will parse the most pressing elements of the transport PPP trinity, breaking down the public, private, and partnership elements.

But first, it's important to note some basic points about ports and airports, which offer a complex commercial context with a variety of services and sources of revenues. They are more of an asset on the corporate finance model—looking at existing demand and revenues as well as future revenues—compared to roads and rail, which tend to focus on future revenues and have a far more limited scope for associated commercial opportunities. For example, airports are often

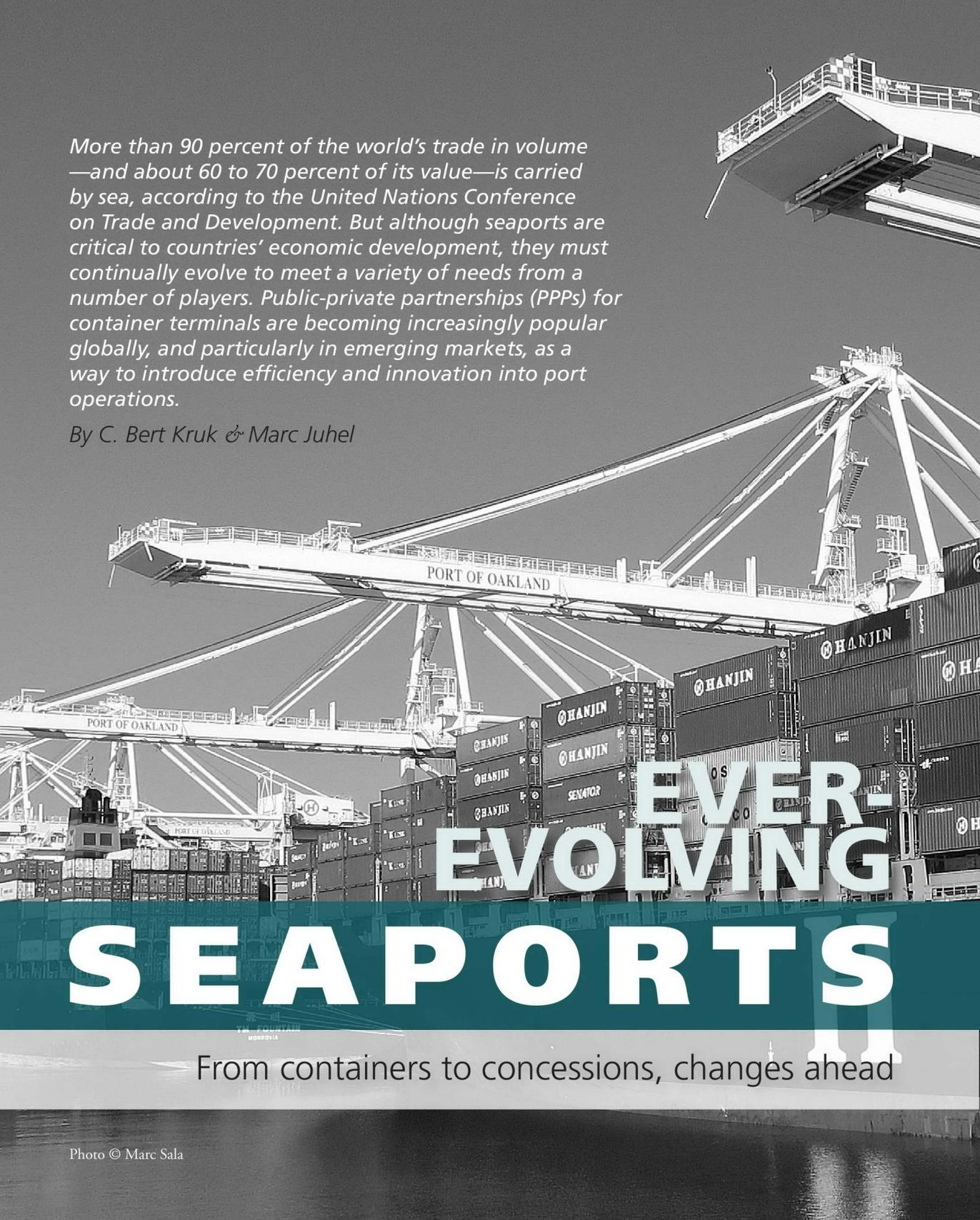
considered “shopping malls with airplanes,” a moniker unfamiliar to toll roads.

Airports and ports also offer a largely dollar-based revenue stream (at least for international services), facilitating access to global financial markets and foreign currency debt. This reduces or eliminates the need for government to help mitigate foreign exchange risk.

That understood, we can now delve deeper into the implications of this subset of transport PPPs.

“PUBLIC”

Like roads and rail, government usually provides or pays for certain project assets. For airports, government often provides runways and taxiways (“airside” assets) that are also used for other purposes, such as military, police, or rescue. The private sector tends to focus on landside assets, like terminals, parking lots, and hotels. In ports, governments tend to provide marine services (pilotage, tugs, mooring), hinterland links (roads, heavy and light rail, pipelines, telecoms) and



More than 90 percent of the world's trade in volume—and about 60 to 70 percent of its value—is carried by sea, according to the United Nations Conference on Trade and Development. But although seaports are critical to countries' economic development, they must continually evolve to meet a variety of needs from a number of players. Public-private partnerships (PPPs) for container terminals are becoming increasingly popular globally, and particularly in emerging markets, as a way to introduce efficiency and innovation into port operations.

By C. Bert Kruk & Marc Juhel

EVER-EVOLVING SEAPORTS

From containers to concessions, changes ahead



One of the most spectacular developments in the international transport of goods was the introduction of the container in the 1950s. Containers are boxes (most made of steel) that come in standard dimensions of length, width, and height. The first container vessels could carry up to a few hundred containers and maintained services among a number of United States ports, Hawaii, and some Caribbean destinations. Containers caught on fast because they drastically increase cargo handling capacity (in terms of tons per hour), and also protect goods from damage and pilferage.

THE SECOND REVOLUTION

As technology progressed, containers grew in form and function. By the 1970s, the maximum vessel capacity reached 3,000 TEU (a TEU represents a box with the standard dimensions of a 20 foot container). Capacity was limited by the vessels' width, or beam, which remained at 32.2 meters to allow passage through the Panama Canal locks. This earned them the name Panamax container vessels.

In the mid-1980s, the shipping line APL designed a number of vessels with a width of more than the Panama beam. This was successful

WHAT IS A SEAPORT?

Seaports carry a weighty burden. They must be able to safely receive and handle ocean-going vessels, ensuring that the vessels can be loaded and unloaded as fast and efficiently as possible. Most critically, they provide the facilities for the transfer of goods to other maritime transport, road, rail, inland waterway, pipeline, conveyor belt, or air transport.

To do this, ports must provide deep enough water in the entrance channel and the port to guarantee the safe navigation of vessels, including guidance (pilotage) and other marine services such as towage (or tugging) and mooring and unmooring facilities. The loading and unloading must be executed in the shortest possible time since vessels have high daily operational

costs and, as the saying goes, "vessels in port lose the money they make at sea." These operations require heavy and very expensive equipment and a skilled labor force.

The port must also have sufficient land area to store or process the import and export goods during the transfer period in port. This also requires heavy equipment and skilled labor, including the efficient provision of all kinds of services such as customs, inspections (physical or scanning), and safety and security services.

As seaports fulfill all of these requirements, they must also act as good stewards for the environment. Because ocean-going transport and port operations take a toll on the environment, the Green Port concept, a collection of initiatives, aims to reduce pollution created by ocean-going transport and port operations.

because APL's main trading area was the Pacific Ocean, moving among a number of Asian and U.S. West Coast ports, with no need to transit the Panama Canal. Many of the larger shipping lines followed suit. By the end of this year, Maersk Line will launch the first 18,000 TEU vessel, known as the Triple-E Series.

Even amid such progress, however, the maritime transport world also faces significant problems, such as:

- Over-capacity in container vessels;
- Piracy in a few regions of the world resulting in higher insurance premiums;
- More severe environmental constraints;
- The financial crisis, leading to decreasing trade flows and shifting of countries of origin and destination;
- High fuel prices, resulting in vessels moving with lower speeds ("slow sailing"); and
- The new Panama Canal, which allows the transit of larger vessels, forcing smaller vessels that currently transit the Canal to shift to other trade routes.

All of these elements impact ports, providing a glimpse into their further evolution. For example, as very large carriers (which will mainly sail the Asia-Europe route via the Suez Canal) will call at fewer ports and load and unload more boxes per call, a certain percentage of these containers will have to be transported to regional ports (this is known as transshipment) already handling containers arriving from regional ports. The high costs of these large vessels will pressure the ports to have state-of-the-art handling equipment and systems, along with the required depth

and required quay length to allow the vessel to berth immediately upon arrival. Following this, a number of larger ports on the Asia-Europe route may see much of their transshipment cargoes shift to other ports in the region and thereby be "demoted" to feeder ports status. Ultimately, the smaller ports will then be faced with the arrival of larger vessels.

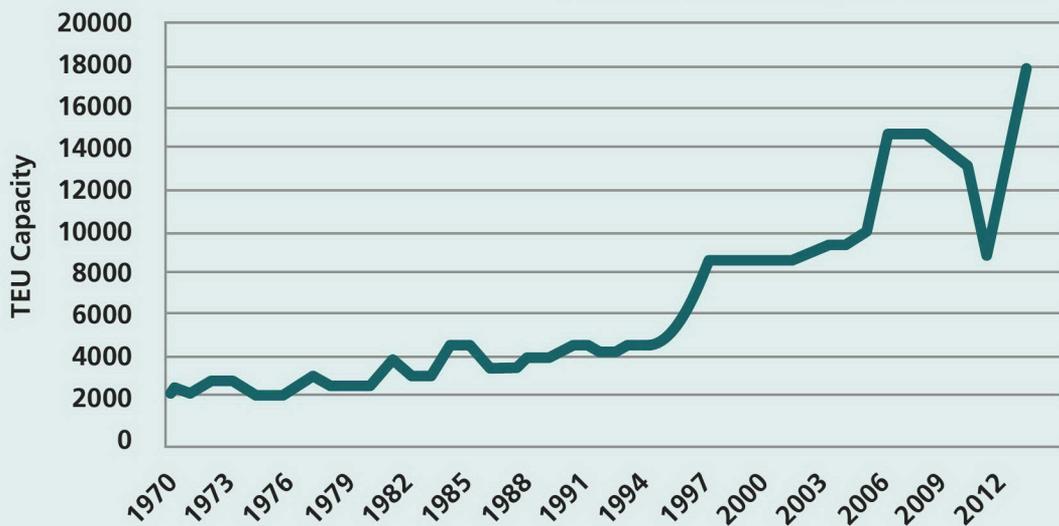
These shifts and changes will affect the Caribbean basin, Arabian Peninsula, Southeast Asia, the Mediterranean, and Western Europe. In many of these regions there are short run threats of terminal overcapacity from the slowed momentum of terminal expansion and investment plans resulting from the global recession. In some cases, regional terminal utilization may reach over 90 percent by 2016.

MOVING FORWARD

In the face of these changes, one fact remains clear: ports and terminals that wish the very large container vessels to call will require top-of-the-line facilities and services. This not only requires huge investments in port facilities, quay walls, equipment, and systems, but also the right skills and management. Excellent trade facilitation systems such as customs, inspection, e-commerce, safety, and security round out the new list of must-haves.

But it's unlikely that traditional ports in many countries can provide these. For this reason, most of the larger (and some smaller, with a throughput of 50,000 TEU) and efficient state-of-the-art terminals are now managed and operated under PPP contracts. With these partnerships, port authorities have adopted a new landlord role focusing on infrastructure assets

Container vessel capacity development: Maximum capacity built each year
(Clarksons 2004, Wikipedia, and others)



management and market regulation, in addition to their regular statutory functions.

Recent container terminal concession contracts have yielded a number of lessons about this latest leap forward for the industry. For example, limiting the number of variables on which potential bidders base their bid to about two or a maximum of three makes the bid evaluation easier, faster, and more objective. In addition, pre-bid conferences and road shows can help inform and develop the market of potential bidders. Self-regulating contracts protect the private investor and the transaction from the whims of a national regulator. Finally, yearly tariff adjustments for inflation (using a national index or a basket of major international indicies) avoid long and difficult negotiations.

More recent contracts (such as in the Port of Rotterdam) include Bonus-Malus conditions.

These terms relate to obligations to decrease hinterland road transport, increase rail and barge transport, increase throughput performance over time, and decrease pollution. Failure to achieve these obligations results in penalty payments from the concessionaire to the landlord, and reaching or surpassing them results in a reduction of charges levied on the concessionaire.

These and other iterations of PPP contracts will continue to change the way port operations are conducted. But even as new technology and global realities require port operations, policies, and partnerships to evolve even further, these islands of world trade will continue in their age-old role: shaping regions economically and culturally, and connecting countries with nothing more in common than the body of water between them. 🏰

DESTINATION PORTS are historical ports made more efficient by concessioning terminals to private operators.

SANTOS, BRAZIL

IFC is providing financing for a new container terminal in the Port of Santos—Brazil’s main port and the largest in Latin America—that will help address congestion and strengthen Brazil’s port sector. This is critical for competitiveness because about 90 percent of Brazil’s international trade is handled through ports. The new terminal will help address capacity constraints and will remediate an existing landfill at the project site. The company that will develop and operate the new container terminal, Brasil Terminal Portuário S.A. (BTP), will employ around 3,000 workers during construction and is expected to create about 1,500 direct jobs and 9,000 indirect jobs during operations. IFC structured the financing and is providing a long-term loan of \$97 million to BTP, and also mobilized \$582 million for the \$908 million project through its syndication program. The financing represents IFC’s largest syndication and port investment globally. BTP will spend about \$105 million to clean up the landfill at the project site, providing a significant environmental benefit to the area.

Brazil granted the first private container concession in the Port of Santos in 1997, and today there are six private operators with container concessions. Volumes have grown from 772,313 TEUs in 1996 to more than 2.9 million TEUs in 2011.

KARACHI, PAKISTAN

As part of the Government of Pakistan’s ports privatization program, in 2002 the Karachi Port Trust (KPT, the Port Authority) awarded a 21-year Build-Operate-Transfer (BOT) concession to Pakistan International Container Limited (PICT) for the development and operation of a container terminal at Karachi Port. IFC financed the three phases required, as well as a fourth phase driven by higher than anticipated growth in container traffic. IFC provided total loans of about \$33 million and assisted in raising the remainder of the debt financing. PICT was the second container terminal to be built in Karachi, after Karachi International Terminal. The two facilities compete directly with Port Muhammad Bin Qasim, Pakistan’s original container port, located only 35 kilometers to the east. Karachi Port Trust terminals now handle roughly 60 percent of traffic between the two ports.

When the market is large enough to support sustainable operations, this multi-terminal approach can provide competition so users have several options, and the private operators are compelled to provide good service to retain customers. Multi-terminal operators also ensure that there is price competition, and often this diminishes the need for the government to regulate prices, since the market can accomplish this instead.



TRANSSHIPMENT PORTS result when private concessionaries take advantage of locations on major trade routes.

MANZANILLO, PANAMA

Manzanillo International Terminal-Panama S.A. (MIT) operates the Manzanillo container terminal, adjacent to the Colon Free Trade Zone on the Atlantic side of the Panama Canal, under a concession agreement. Prior to MIT's entry as a container terminal in 1995, the former U.S. seaplane base was utilized as a storage facility for handling cars for distribution in Panama and Latin America. MIT's investment and management transformed the facility into a key transshipment hub for shipping lines. MIT's efficient operation allows shipping lines to concentrate their calls at Manzanillo and use smaller, less expensive feeder vessels to transport cargo from Manzanillo to their final destinations. The resulting hub-and-spoke system provides greater market coverage and lower transportation costs, critical components to increasing trading activity. IFC provided long-term financing with a back-ended repayment schedule that was not available from the commercial market at the time.



COLOMBO, SRI LANKA

By the mid-1990s, growth at the large deep water port of Colombo was slowing due to inefficiencies and delays caused by outdated systems and equipment. Projections showed traffic volume leveling off, and estimates at the time indicated that around 40 percent of west-to-east traffic was being diverted from Colombo Port to more competitive ports outside of Sri Lanka. Colombo Port was slowly losing its competitive edge to newer, more modern port facilities.

To remain competitive, the South Asia Gateway Terminals (Private) Limited (SAGT partnership) was created by the Sri Lanka Port Authority and several private companies to improve, expand, operate, and manage the Queen Elizabeth Quay (QEQ) terminal through a 30-year BOT concession. IFC and three other institutions financed \$144 million in loans, and construction for the expansion of QEQ was completed in August of 2003. Throughput for QEQ increased by 350 percent from 2000 to 2004, leading to a 30 percent increase for Colombo Port.

Colombo's geographical position boosts its usefulness as a transshipment hub because it is located on the trade lanes between China and the Middle East/Europe. It also serves as a transshipment hub for India because Indian cabotage laws prevent non-Indian shipping lines from carrying intra-Indian cargo.

SPECIAL ECONOMIC ZONES AND SIMILAR PORTS can anchor economic development.



AQABA, JORDAN

The Aqaba Special Economic Zone (ASEZ), established in 2001, includes 27 km of coastline that borders Egypt, Israel, and Saudi Arabia. It includes a main seaport, a container terminal, and an industrial port, along with an international open-skies airport, land resources, water supplies, and tourist attractions. The ASEZ Authority gives the SEZ autonomous powers, regulatory independence and controls, customs, taxation, business registration, environmental regulation, land use, and building regulation. It reports to the Prime Ministry with five commissions (Administration and Finance, Revenue and Customs, Investment and Economic Affairs, Land Infrastructure and Services, and Environment and Health Control). The seaport alone has attracted nearly \$235 million in expansion investment and directly employs over 700 personnel.

SUAPE, BRAZIL

In 1978 the government of Brazil's State of Pernambuco embarked on an ambitious multi-year plan to develop a new port and industrial zone. In 1999, IFC was engaged to bring in a private firm to finance and manage a dedicated container terminal in the port. The successful transaction attracted \$98 million in investment, and TECON Suape, the

container terminal, is now an efficient operator that employs over 400 people and contributes \$9.4 million annually to the government. The container terminal contributes to the productivity and competitiveness of the firms in the area; without it, many firms would have to send containers overland 800 km to the Port of Salvador, adding around \$1,900 to the cost of each container shipped.

Annual movement capacity at TECON Suape has increased from 75,000 to 400,000 containers in seven years, transcending predictions, and in 2006, Suape was certified as one of the safest ports in the country. In this case, a well-structured public-private partnership has profound economic development effects when conducted as part of an integrated plan: the port was critical for bringing in raw materials for the manufacturing industries and for their export. 🏆



Private investment in seaports

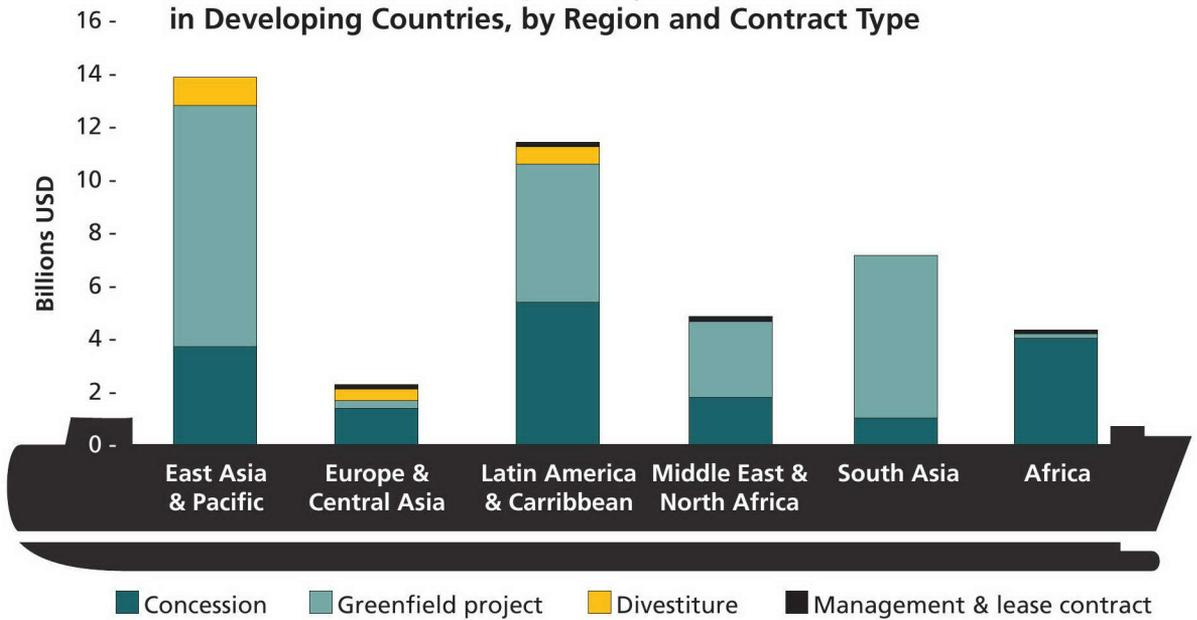
Greenfield growth

By Alexander N. Jett

Private investment commitments (hereafter, investment) in seaports in low and middle income countries has increased significantly from 2000 to 2011, peaking at \$8 billion in 2007 and averaging \$4.2 billion per year. Most of the growth was due to investment in greenfield seaport projects. In the last 11 years, greenfield projects accounted for 55 percent (\$23.8 billion) of private investment in seaports, followed by brownfield projects at 39 percent (\$17.1 billion).

This is in contrast to the previous decade (1990-1999), when brownfield projects accounted for 58 percent of investment in seaports. (Concessions as defined by the PPI databases are commonly referred to as “brownfield projects.”) In fact, by number of projects, there were still more brownfield projects (49 percent) than greenfield projects (43 percent) in the last 11 years, indicating a trend toward large greenfield seaports.

**Private Investment in Seaport Projects (2000-2011*)
in Developing Countries, by Region and Contract Type**



*Only First Semester data available in 2011

Courtesy: World Bank and PPIAF, PPI Project Database

For an investor, the risk profile of a greenfield project is usually considered higher than for a brownfield project, where a revenue-generating asset already exists. A closer look at the data by region reveals underlying trends that explain how greenfield projects have become the most common form of public-private partnerships (PPPs).

REGIONAL INVESTMENT

The majority of investment was concentrated in two regions: East Asia and Pacific (32 per-

cent, \$13.8 billion) and Latin America and the Caribbean (26 percent, \$11.4 billion). In East Asia, China accounted for 70 percent of regional activity, while Brazil accounted for 38 percent in Latin America. Development of seaports was also strong in South Asia, with \$8.6 billion. Approximately 63 percent (\$20.5 billion) of the investment in these regions was in greenfield projects.

On a global scale, the most active countries were the emerging economies of Brazil, China, India, and Nigeria. China led with 20 percent

of new projects, India with 13 percent, Nigeria with 10 percent, and Brazil with eight percent. The large amount of activity in Nigeria was due mostly to a program in which Nigeria's Bureau of Public Enterprises (BPE) tendered 19 brown-field seaport concessions in 2005. For the other top countries, greenfield contracts were in the majority.

global activity. The UAE's Dubai Ports (DP) World invested in 19 of these projects, making it the second most active sponsor of the last decade. DP World's projects during this period had investment commitments of \$3.8 billion. DP World closely followed Denmark's AP Moller Maersk, the top sponsor, with 21 of Denmark's 22 new projects. Denmark at 10 percent

The goals of the private investor do not always match the goals of the government when developing greenfield seaports.

SOUTH-SOUTH INVESTMENT: CHINA TAKES THE LEAD

The top six sponsor countries (Brazil, China, Denmark, Philippines, Singapore, and the United Arab Emirates) had at least 15 percent of the equity in 57 percent of global seaport projects. Perhaps not surprisingly, following the number of seaport projects in China, Chinese sponsors were the most active globally with a market share of 16 percent, investing in 35 seaport projects (again, mostly in China). Hong Kong's Hutchison Whampoa Ltd. was involved in 13 of these deals and was China's top sponsor.

As with China, the top sponsoring countries had a single pre-eminent sponsor with the exception of Brazil, which had many strong local players. The United Arab Emirates (UAE) followed China with 24 new projects and 11 percent of

was followed by the Philippines and Brazil with seven percent each, and finally by Singapore with six percent of new projects.

PACIFIC PORTS IN LATIN AMERICA

Investment in greenfield seaports in Brazil, China, and India could perhaps be explained by their growing economies, but other countries in Latin America have also experienced increasing investment in greenfield seaports. A need by Asian exporters to bring their goods to market without passing the Panama Canal has spurred investment in ports on the Pacific coast.

Notable among such ports is the 830,000 TEU Callao South Dock Terminal in Peru. This greenfield seaport was developed by DP World and had a total investment of \$439 million; it

became operational in October 2010 and was financed entirely by DP World and a group of private banks. Other Pacific greenfield ports include Colombia's TC Buenaventura, a \$224 million greenfield port financed by IFC and Lazaro Cardenas in Mexico.

CHALLENGING TIMES

Plans for such ports are not without their challenges, however. In 2006, the Ecuadorian port of Manta awarded a tender for a \$523 million deep water seaport with a \$55 million contribution from the government. With a natural depth of 30 meters, Manta could accommodate

Post-Panamax vessels, and the government intended it to become the main entry point for Asian companies. However, in February 2009, Hutchison Ports Holdings pulled out due to disagreements with the Ecuadorian government regarding investment obligations, and the project was canceled.

As this example demonstrates, the goals of the private investor do not always match the goals of the government when developing greenfield seaports. There can be synergies in PPPs, but the public and the private sectors need to have well-defined goals in order to seal an effective partnership. 🏛️

TOP INVESTORS IN SEAPORTS BY SPONSOR COUNTRY (2000-2011)

16%



Hutchison Whampoa Limited, China

11%



Dubai Ports World, United Arab Emirates

10%



AP Moller Maersk, Denmark

7%



ICTSI, Philippines

7%



Santos Brasil Participações, SA, Brazil

6%



PSA Corp, Singapore

Ports: Legal and policy issues

By Victoria Delmon

Private investment in the port sector is as old as ports themselves, starting with the port and land concessions granted to private companies under treaty by colonial powers. Today, the range of typical public-private partnership (PPP) models in this sector is broad, though most countries adopt a landlord port approach. This refers to a port where the public sector owns the port and retains responsibility for common facilities such as the breakwater and entrance channels, utilities, and road and rail access. The public entity then enters into PPP contracts for a number of individual terminals within the port. This may take the form of a concession or Build-Operate-Transfer agreement for a new terminal, or even a management contract for existing assets.

Exceptions to this approach include ports in China and Indonesia, where it is common to have public-private joint ventures for developing ports, and in Turkey and the U.K., where privately run and financed multi-purpose ports are common. It's not surprising that with so many models, legal and policy considerations in port PPPs span a range of issues.

LANDLORD PORTS

A port is a busy place with many different activities and competing interests. In a landlord port, where there are likely to be a number of private operators as well as public workers, the

private operator must guarantee that its land parcel is clearly defined and that there are clear rules established about responsibility in the case of interference or disruption due to a third party. Each of the operators will likely need specific rights of access over common land or each other's land.

More broadly, investors and financiers in new port facilities need to ensure they have sufficient title to the land on which the facilities are to be built, to give them ownership—or at least security interests—in the new assets. On the public side, government needs to have title in the land (or acquire it) and be able to grant sufficient land title to the operator prior to commencement of work under the contract.

ACCESS AND INTERFACE

Overall, port turnaround times are critical for a port to maintain its competitive edge. Times can be subject to a number of other factors outside the operator's control, like customs processing, efficient pilotage and towage services, and stevedoring efficiency. The operator will always seek assurances from government on the process times, along with the most important issue: access to and from a port.

This access is the key to competitiveness and will have a significant impact on the operator's return on investment. Ships need to be able to get into

the port in a timely manner; for this to happen, dredging of the port and maintenance of the breakwater and channels is key. Cargo must then be transferred inland, so road and rail access needs to be sufficient to avoid congestion at the port. The operator will seek clear guarantees from the port landlord that this infrastructure is in place and is maintained.

COMPETITION AND REGULATION

Tariff regulations

In countries with healthy competition among ports, there is limited regulation of tariffs because it's assumed that market forces will take care of this. However, in the case of country or regional port monopolies, government will as a matter of policy wish to regulate tariffs. Potential investors will need to be sure that these tariff restrictions do not cause the port operation to fail to meet revenue forecasts.

Space and turnaround

A number of ports in developing countries have huge space and turnaround problems because the ports function as container storage depots. While some of this is due to access issues, low pricing at the port can also result in customers using the port as a convenient storage facility. Government can manage this risk by ensuring that tariffs are properly balanced, and by looking at storage alternatives such as inland container depots which can divert some of the activities from the port and reduce congestion.

Competition and customs duties

Governments must carefully consider whether to allow new ports that compete with each other. This is a key challenge that requires careful navigation. For example, imagine an operator

investing in a new oil and gas terminal on the understanding that all the oil and gas would be channeled through that terminal. If the operator were then to find that a rival terminal was being built a short distance away, this could undermine the commercial viability of the project. Although the operator seeks exclusivity, it may be in the interest of the government to promote competition, so it may decide to grant exclusivity for a defined period and only within a certain area. At a regional level this becomes more difficult for operators to manage, as ships may be willing to travel to a neighboring country to use new or improved port facilities there.

If the port is serving a region or landlocked countries beyond the coastal country, the level of customs duties levied on goods is bound to be another contentious issue. In some countries, the political risk may be so high that operators may seek some form of guarantee from government on this issue.

LABOR

Labor is a sensitive issue in port PPPs because many existing terminals have unionized workforces and restrictive working practices. Investors may therefore prefer to look to greenfield solutions where there is no existing workforce. Where labor transfer arrangements need to be put in place, the operator will typically look to the government to undertake any restructuring prior to the PPP, have transferred to it only the number of staff required, and have the government retrench any remainder. This allows for flexibility in retention and retrenchment of staff. Another option is to accept limitations on firing staff in exchange for a reduced lease fee. 🍷

More information at www.worldbank.org/ppp.



Photo © APM Terminals

To SHIP or TRANSSHIP

A realistic strategy for port PPPs

By Katherine Downs & Brad Julian

Some governments see the large volumes handled by transshipment ports and believe that converting their port into a transshipment hub will bring economic benefits in the form of high concession fees and royalty payments. But transshipment cargo may not be very good business for either a government or for a private port operator. Transshipment only makes sense for ports located in places with ideal geographical and natural conditions where the ports can succeed with a “supermarket” approach: very high volumes at a low price together with very high efficiency, which can generate an attractive return on investment despite low revenues per move.

When governments first consider the concession of an existing or new port terminal to a private operator, they often look with envy on a port like Panama’s Manzanillo International Terminal. Manzanillo, located on the Atlantic mouth of the Panama Canal, grew from approximately 160,000 TEUs per year in 1995 to 1.6 million TEUs per year over 15 years by focusing on

“transshipment” cargo. (A TEU is a twenty-foot-equivalent unit, an industry standard measure of shipping containers.) In this context, transshipment is the transfer of containers between a large ship, usually coming from or going to a major port, and smaller ships, usually coming from or going to smaller ports. Transshipment makes sense where a large ship may not be able to

enter small ports due to water depth or because it would be uneconomical for the large ship to make a series of stops at the smaller ports.

Governments may see the large volumes handled by transshipment ports (many upwards of 1 million TEUs per year) and believe that converting their port into a transshipment hub will bring economic benefits in the form of high concession fees and royalty payments. However, what they may not realize is that transshipment cargo may not be very good business for either a government or for a private port operator. By positioning their port as a transshipment hub in a concession auction, a government may risk actually scaring off many private operators. They may be concerned about opposing views on developing the business, or the potential for unrealistic goals. Those operators who do bid may offer less in the form of an upfront payment or revenue sharing than if the port were positioned to handle primarily local “destination” cargo.

CONDITIONS ARE IMPORTANT

It’s counterintuitive that large volumes would not translate to high revenues, profits, and return on investment. But most ports simply do not meet the requirements to become a transshipment hub. Shipping lines choose a port to transfer containers between large and small ships for a variety of reasons, including:

- Low handling and ports fees.
- Location on a major shipping route so there is little or no deviation between the cargo origin and destination (time is money in the shipping business).

Defining transshipment strategies

Transshipment strategies typically come in two forms: “hub-and-spoke” and “relay.” The hub-and-spoke strategy consolidates cargo onto large mainline vessels which then connect with smaller vessels, often called feeders, to make the final leg into the individual destinations. This strategy is often deployed when individual destination or export market volumes are not large enough, or their ports do not have channels deep enough to accommodate the large mainline vessels. The relay type of operation is used when two or more mainline services intersect and can be used to connect cargo from origin to destination. This allows shipping lines to economically offer long-haul service while rationalizing the number of ships they employ. In either strategy, the end goal for the shipping lines is to cut system costs, thereby putting constant pressure on ports to offer rates that will help them accomplish this.

- A deep harbor and entry channel to accommodate today’s large vessels (Maersk’s new Triple-E class ships carrying 15,000-18,000 TEUs need a minimum of 15 meters of channel depth when fully loaded).
- Extremely high productivity in the form of ultra-fast loading and unloading through

the use of large, modern, expensive container cranes and a very efficient workforce.

Transshipment ports must have the ability to fight off competition, either by offering very low tariffs or having a location (such as the entrance to the Panama Canal) that gives a major competitive advantage.

Even if a port can meet the requirements to become a transshipment hub, this may not be the best economic strategy for a government or a private port operator.

Unlike cargo that is destined for areas near a port—for which a port has a natural monopoly—transshipment cargo is highly discretionary and can be transferred at many different locations along a shipping route. Shipping lines are notorious for seeking the lowest tariffs for transshipment (not surprising, as the shipping business is itself extremely competitive) so they regularly change their transshipment locations to ports that can offer the best prices and service.

Even for ports that are able to meet the requirements to become a transshipment hub, this may not be the best economic strategy for a government or a private port operator. Because of the intense competition for transshipment cargo, the rates to move one container may be as little as 25 percent of the rates typically charged to move a “destination” container. This means the port must move four times the volume of transship-

ment containers to make the same revenue it would handling only destination cargo.

In addition, the capital costs for the equipment to compete for transshipment cargo may be significantly higher than for equipment needed to handle destination cargo. For example, a port with natural destination cargo of 200,000 TEUs

per year may be able to provide good service with mobile harbor cranes and other equipment costing less than \$30 million in total. If that same port decides to pursue large scale transshipment volumes, it may need to spend an additional \$60-80 million or more for Post-Panamax gantry cranes, sophisticated

landside equipment and IT systems, and potential dredging of the harbor and access channels to accommodate larger ships.

Ultimately, the return on investment to pursue that highly volatile transshipment business may be negative, and the terminal operator (government or private) may find that the only way to break even is to increase tariffs for destination cargo to subsidize the transshipment losses. This could undermine one of the key objectives of a port PPP, which is lower tariffs and improved service for the country’s importers and exporters.

A NATURAL FIT

Transshipment does make sense for some ports, especially in places with ideal geographical and natural conditions—like Dubai; Manzanillo,

Panama; Port Said, Egypt; Singapore; and Tangier, Morocco. Here, the ports succeed with a kind of “supermarket” approach: very high volumes, which together with very high efficiency can generate an attractive return on investment despite low revenues per move.

Other ports with a large destination cargo base, such as Colombo, Sri Lanka and Manzanillo, Mexico have become successful transshipment centers because the large local cargo volumes require the same modern equipment as a transshipment hub. Those ports can use transshipment business to fill in unused capacity without having to make additional investments, thereby generating a good return on the incremental transshipment volumes. Shipping lines also prefer to transship at ports that have a large local cargo base as it means less deviation from their natural cargo routes, saving them money.

In considering a port PPP, it’s critical that governments be realistic in what they have to offer and what will best achieve their objectives. If their objectives are better service and lower costs for the country’s importers and exporters, they should think carefully about whether it is the right strategy to meet their country’s goals. 🏰

Does transshipment GENERATE JOBS?

Big volume numbers may move a port to the top of the industry league tables, but evidence suggests that transshipment operations create fewer jobs than similarly-sized ports that focus on destination cargo. Destination ports require more staff for functions such as checking trucks at the entry and exit gates, customs inspections, local billing, customer service, and equipment operators. Here, more staff are needed for loading containers off and onto trucks than are needed for loading containers off and onto ships using today’s high-technology gantry cranes. Destination ports may also generate jobs outside of the port in value-added businesses such as warehousing, redistribution of cargo, and container repair.

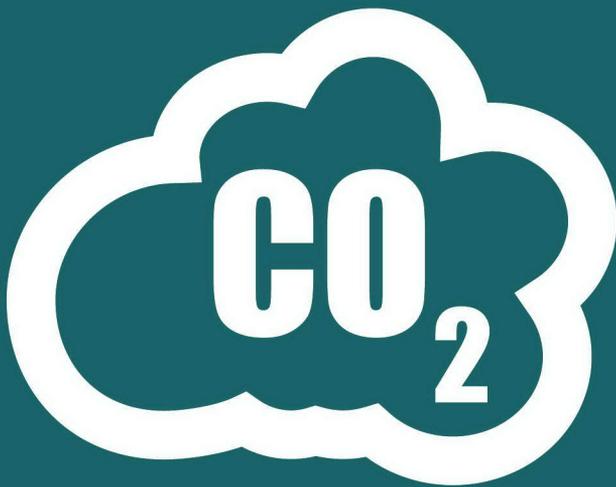
A comparison of two Caribbean ports shows that Freeport, Bahamas (about 99 percent transshipment), employs about 700 people to move 1.1 million TEUs per year—a ratio of more than 2,000 TEUs per employee. The port of Caucedo in the Dominican Republic, which handles primarily destination cargo, employs about 1,000 people to handle 1 million TEUs per year—a ratio of 1,000 TEUs per employee. Both are highly efficient operations under private concession to two of the world’s top port operators (Hutchinson Port Holdings in Freeport and Dubai Ports World in Caucedo). However, due simply to the nature of their business, the transshipment port needs significantly fewer employees to move the same volume of containers.



ANCHORING SUSTAINABILITY

Photo © Maersk

Globalization, climate change, and escalating energy costs are a strategic nightmare for shipping companies and they all have one thing in common—fossil fuels. Martin Stopford, Clarksons



The shipping industry has been slow to respond to climate change, remaining reliant on bunker fuel, a highly polluting and dirty fuel. Because of this, just 16 of the largest ships can produce as much sulphur pollution as all of the world's cars.

Without limits, carbon emissions from shipping could triple by 2050. But more efficient engines could reduce emission by 30 percent. Recent laws also now require emission controls on ships. Other ongoing initiatives are showcased below.

Improving fuel efficiency

- **Liquid Natural Gas (LNG).** Quebec's passenger ferry service, Société des traversiers du Québec, recently announced the construction of two LNG ferries. The technology makes optimal use of LNG, using diesel fuel only to ignite the main charge of gas and air. The new technology will reduce greenhouse gas emissions by 25 percent. Other environmental features of the ferries include energy-efficient lighting, a heat recuperation system, low-flush toilets, and garbage-separation facilities for onshore recycling.
- **Windpower.** The University of Tokyo recently unveiled a new cargo ship with sails that would reduce fuel use by at least 25 percent. A prototype will be ready by 2016.
- **Fuel efficiency.** Maersk believes its forthcoming 'Triple-E' vessels (Economy of scale, Efficiency and Environment) will set new standards for size, fuel, and cost efficiency, as well as reduce CO₂ emissions. The vessels are scheduled for delivery between 2013-2015.
- **Optimal trim.** Finnish shipping support system provider, Eniram, has devised an automatic ship-based application known as DTA (Dynamic Trimming Assistant). This system monitors a ship's position in the water, informing the crew of the optimal trim for their vessel. Fitted ships can trim fuel costs while curbing emissions.

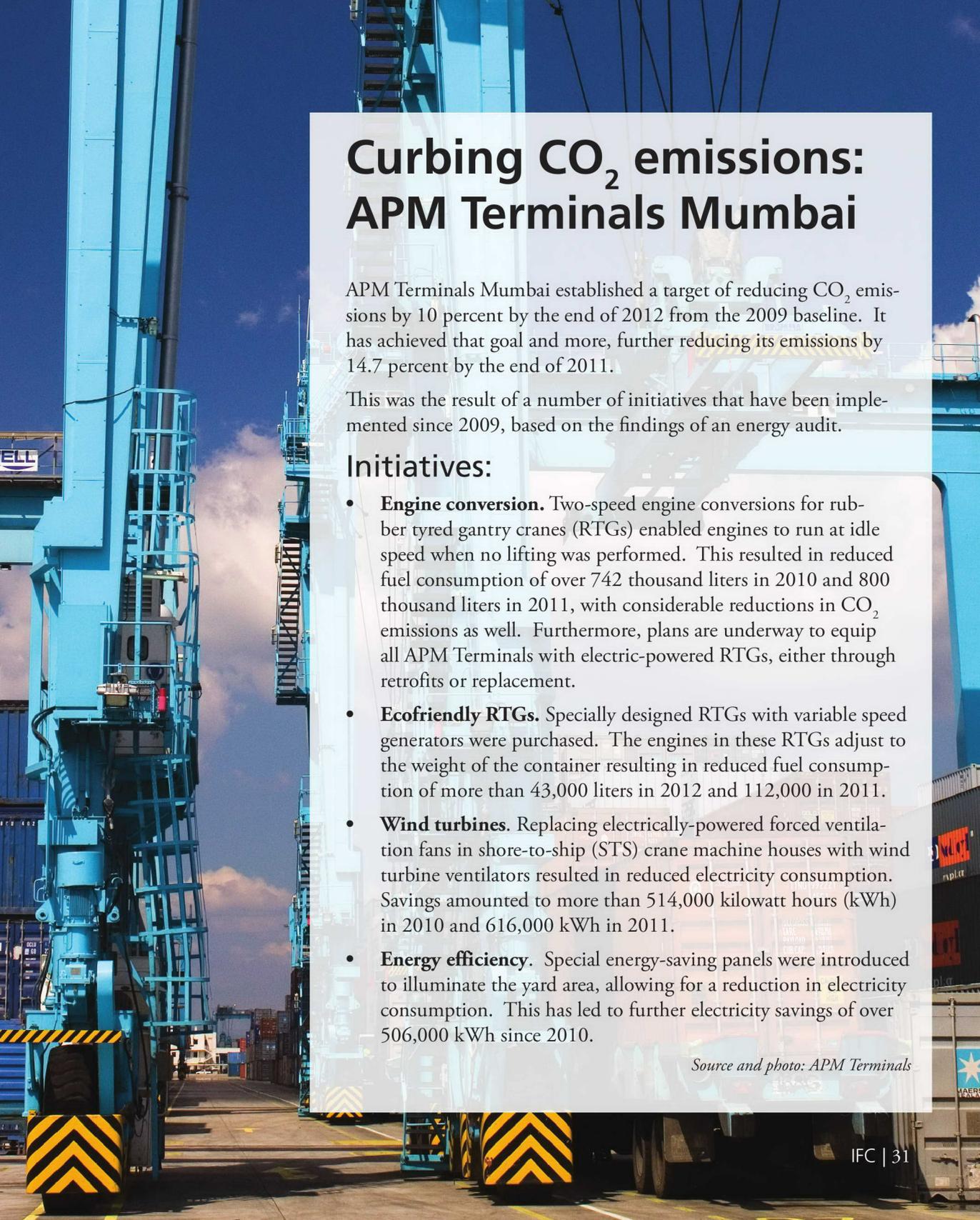
Sources: Sustainable Shipping Initiative, *The Case for Action, Forum for the Future*; Green Marine, Alliance Verte, January 23, 2012; Focus Finland 2011; Mail Online, Daily Mail UK, "How 16 ships create as much pollution as all the cars in the world," November 21, 2009.

Making ports SUSTAINABLE

Cold ironing. Plugging in ships is a big focus in port sustainability efforts. Many ports around the world have implemented shore-to-ship power, or are planning to do so soon. These include Antwerp, Barcelona, Bremen, Busan, Civitavecchia, Copenhagen, Gothenburg, Lübeck, Marseille, Oulu, Rotterdam, Stockholm, Venice, and Zeebrugge in Europe, Los Angeles, Long Beach, Juneau, San Diego, San Francisco, Seattle, and Vancouver in the rest of the world. Cold ironing systems allow savings of over 30 percent of CO₂ emissions and 95 percent of nitrogen oxygen and particulate. This system also reduces noise pollution and improves air quality. According to James Corbett from the University of Delaware, the worldwide death toll from ship emissions is calculated to be about 64,000 a year. Plug-in ships could remove the emissions equivalent of 5,000 cars per year.

Green energy. Several European ports have converted their power supply to CO₂ neutral, wind-generated electricity sources. Among these are the ports of Algeciras, Rotterdam, and Zeebrugge. In the United States, the Port of San Diego recently completed the installation of solar panels to power its administration building, part of an overall goal to reduce the port's operational energy use by at least 170,000 kilowatt hours per year.





Curbing CO₂ emissions: APM Terminals Mumbai

APM Terminals Mumbai established a target of reducing CO₂ emissions by 10 percent by the end of 2012 from the 2009 baseline. It has achieved that goal and more, further reducing its emissions by 14.7 percent by the end of 2011.

This was the result of a number of initiatives that have been implemented since 2009, based on the findings of an energy audit.

Initiatives:

- **Engine conversion.** Two-speed engine conversions for rubber tyred gantry cranes (RTGs) enabled engines to run at idle speed when no lifting was performed. This resulted in reduced fuel consumption of over 742 thousand liters in 2010 and 800 thousand liters in 2011, with considerable reductions in CO₂ emissions as well. Furthermore, plans are underway to equip all APM Terminals with electric-powered RTGs, either through retrofits or replacement.
- **Ecofriendly RTGs.** Specially designed RTGs with variable speed generators were purchased. The engines in these RTGs adjust to the weight of the container resulting in reduced fuel consumption of more than 43,000 liters in 2012 and 112,000 in 2011.
- **Wind turbines.** Replacing electrically-powered forced ventilation fans in shore-to-ship (STS) crane machine houses with wind turbine ventilators resulted in reduced electricity consumption. Savings amounted to more than 514,000 kilowatt hours (kWh) in 2010 and 616,000 kWh in 2011.
- **Energy efficiency.** Special energy-saving panels were introduced to illuminate the yard area, allowing for a reduction in electricity consumption. This has led to further electricity savings of over 506,000 kWh since 2010.

Source and photo: APM Terminals

GREEN SEA



*Stewards
of the sea*

Coral relocation during port construction

When Dubai Ports (DP) World began planning its port at Caucedo in the Dominican Republic, the required environmental assessment revealed 300 colonies of coral in the spot the company needed to dredge. Community outreach also indicated that the area was popular with divers, drawing significant tourist income to a region with a high unemployment rate and little potential for other development. Though coral relocation was not an obligation or precondition by the Environment Ministry for the issuance of the environmental license, Caucedo developers arranged to move the coral in the safest manner possible—floated in underwater air balloons—before port construction began in 2001. The coral colonies were flourishing in their new location by the time operations began at Caucedo in late 2003. The delicate operation to transfer coral was a first for the Dominican Republic and DP World.

The successful replanting has spawned new species of coral, which is now visited by over 1,500 divers annually. “We have set an example for other companies, showing that you can protect the environment while doing business,” said Morten Johansen, Executive Director of DP World.



Photo © Nash World

Replanted coral colonies now flourish.



Photo © National Ocean Service

A diver attaches coral to create a new colony.



Photo © Fer Figueras

Port of Caucedo, Dominican Republic.

Photo © Nash World



Photo © Andrejs Zavadskis

Airport PPPs MYTHBUSTERS

By Jeff Delmon, Andy Ricover, & Vickram Cuttaree

The myths surrounding airport public-private partnerships often distract policymakers from the opportunities that these transactions can offer. But an open mind, commercial awareness, and the use of experienced advisers can cut through the clamor.

“IN TIME OF NEED, SELL THE FAMILY JEWELS.” 

When fiscal space is tight, government budgets are stretched and the economy has seen better days, there is a temptation to “sell” high value state assets in an effort to “release” value. An airport is a prime target with good revenues, access to foreign exchange, and a golden future. It is tempting for decision makers to want to sell off an airport. This may not be the wrong decision, but this is the wrong reason to make that decision. Careful analysis is needed. In particular, would the government be better serviced by a

share in revenues instead of an outright sale (not to mention control and incentive issues)?

Buy low and sell high: the same logic applies to privatization. The analysis needs to be done in a dispassionate, careful manner, considering whether to sell now when improvements are needed, or share in the profits later.

“THE MYTH OF THE HOSPITAL PASS.” →

In the great game of rugby, a “hospital pass” involves chucking the ball to a teammate seconds before experiencing a near-fatal tackle by the opposing team. (The tackle is likely to result in a hospital visit.) Some see airport PPPs as the “hospital pass” of the transport sector—a way to offload the difficult and expensive challenges of an airport to the private sector. While PPPs are a good way to get more help resolving such issues, it is worth remembering that the government never steps out of the airport, it merely brings in a partner (hence the name “public-private partnership”). Or, PPP might stand for “preparation, preparation, preparation,” requiring careful thought and analysis before commencing the bid process. The government needs to know exactly what it wants, where the risks lie, and how those risks will be allocated before starting a dialogue with private investors.

“BUILD IT AND THEY WILL COME.” ↑

It is commonly believed that after the airport terminal expansion is completed, passenger traf-

fic will increase. But this belief is not necessarily related to capacity concerns. It is a response to wishful thinking: that because there has been an investment, a return may follow. Traffic will increase only if an investment solves an operational restriction on the airside (runways, taxiways, and apron). Stylish new terminal buildings will not alone increase traffic because passengers are not motivated by an airport to travel, but rather by business, tourism, or a visit to friends and relatives. The traffic is the response to the market needs, and it exists apart from the airport infrastructure. Investments in airport terminals are driven primarily by the need to provide a good level of service to users (passengers and airlines), and at the same time they serve as a source of national pride.

“LEAVE WELL ENOUGH ALONE.” ↑

Private involvement is a huge undertaking. It is expensive to prepare, and requires bravery (to address entrenched interests and those less keen to use transparent, competitive procurement). Therefore, some would prefer to avoid private involvement and continue to muddle along. But it is a myth that these difficult decisions can be avoided. When ignored, they grow worse, and more costly. Whether PPP or public reform, these difficult issues need to be addressed.

“IT’S ALL ABOUT AIRPORTS.” →

Public sector airport authorities are often specifically focused on airport functions and

their management. This may limit attention to the commercial returns available for airports and associated businesses. Yet PPPs leverage heavily off of these commercial revenues. Developing the commercial side of the airport is important to improve the quality of service for the passengers, and to mobilize finance for infrastructure. Decision makers need to understand this dynamic, the detail of how those revenues will be made, and when they should be shared with the government.

“IT HAS NOTHING TO DO WITH THE AIRPORT,” a.k.a. “IT’S JUST A SHOPPING MALL WITH AIRPLANES.”

The potential for non-aeronautical revenues can transform a marginally profitable airport into a gold mine, but beware the tendency to focus on hotels, conference centers, car parks, or property development. The government needs, first and foremost, a well-run airport. The investor needs to be looking at operating the airport first and making this extra money later. A focus on non-aeronautical operations—in particular during the bidding criteria—can result in the selection of less proficient airport operators, or bids that have not planned well for high-quality airport services.

“IT WILL BE A HUB.”



Policymakers and airport managers often claim that they will attract more traffic to their airport by making it a hub. But an airport does not become a hub just by being blessed with a

privileged geographical location, or by investing heavily in infrastructure. To be a hub, an airport needs to be chosen by an airline that wants to base its operations there. For that to happen, an airport needs an important concentration of origin and destination (O&D) traffic of high-yield passengers to subsidize the lower yield connecting traffic. In other words, passengers have the option to take direct flights, and choose routes connecting through hubs due only to lower fares. Passengers are generally willing to pay a premium for the convenience of direct flights. Airlines cannot operate profitably by transporting the majority of their passengers connecting between points other than its base. The large network of routes generated by the demand of the O&D traffic makes it an ideal connection center for passengers coming from other airports. Without a great deal of the traffic generating or ending at the airport, and without an airline arriving to exploit that traffic, the airport will never be a hub.

“IT WILL BE A CARGO HUB.”



Another common belief is that any available runway (even an abandoned airport) can be converted into a cargo hub. The great majority of world air cargo is shipped in the belly hold of passenger aircraft. It is actually the passenger network system that allows cargo owners and shippers to distribute goods to a variety of destinations. The economies of scale required to make a cargo-only airport feasible are present at a handful of airports worldwide—most of which process cargo that is mainly origin and destina-

tion. While some perishable goods are often air shipped in large volumes, generating substantial full freighter activity, this is not enough to support the operation of an entire facility. Unless there are substantial levels of imports or exports originating from or destined for a particular airport, the presence of better infrastructure is not enough to develop a cargo airport.

“IT WILL BE A LOW COST CARRIER AIRPORT.”



Another elusive, golden egg-laying goose is the low cost carrier (LCC) airport. The LCC formula is based mainly on short haul flights, low cost facilities, high volumes of traffic, and minimum time on the ground, among other features. For example, flights over five hours create problems for LCCs due to longer turn-arounds, the need for in-flight catering, and in particular crew requirements (such as the need to station crew at one end of the segment). Unless they come in large volumes, LCCs are not great clients to airports: they need low cost facilities because they spend little time on the ground, they don't spend on aircraft parking fees, avoid using boarding bridges, and hardly consume in-flight catering. Their passengers do not spend much money at the airport, and there is limited dwell time since they don't connect. Ultimately, LCCs need a defined market—passengers traveling between city pairs—on a high load factor basis throughout the year. Unless the airport can offer large volumes of traffic, the derived revenues from hosting a few LCC flights may not be significant.

“WE WILL ATTRACT MROs (MAINTENANCE, REPAIR, AND OVERHAUL)”

Among the diverse fantasies many policymakers have is that the development of an airport will be financed by MROs. This is grounded in the belief that dormant airports or airports with very low activity can be used as maintenance facilities to repair airliners. Airlines use MRO facilities to perform maintenance and repair for aircraft. Airlines prefer to repair their aircraft at airports where they normally fly, so they don't have to ferry the empty aircraft for repair. Of the four different types of repair checks, only the most comprehensive (that occurs once every five or six years) may justify flying an empty aircraft to separate MRO facilities. Equally, MRO operators prefer to be based at active airports where they can also take care of unexpected repairs of scheduled flights, a line of business that can be very profitable. Most importantly, an MRO will be based where highly skilled workers can be easily found and trained, alongside laws favorable to import duties and custom bonded inventories. Available space and good infrastructure, while useful for an MRO, is not enough to attract MRO operators. They need natural traffic activity, a concentration of home-based aircraft, and a good location close to skilled staff, services, and other potential customers. ✕

Adapted from the forthcoming Airport development through public-private partnerships: A practical guide for policymakers (Ricover, Delmon and Cuttaree, PPIAF and World Bank).



GOING FOR

GOLD

The U.K.'s quest for a winning logistical support structure

By John Kjorstad

Efficient, functioning ports and airports depend on strong relationships between the public and private sector. *Infrastructure Journal's* editor-in-chief explains what happens when this relationship becomes strained at a most inopportune time.

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Anyone flying into the British capital in the months before the London 2012 Olympics could be forgiven for believing that the games had already begun.

Politically, they have. The drive for austerity and controversial cuts to border agency staff have kicked off a political football match ahead of the United Kingdom's summer in the spotlight. Transportation and global connectivity are key issues as the country's long established status as an international hub for business and tourism is on the line.

The issue is simply one of trade and competitiveness. The problem is that the U.K. wants it both ways, and on its own terms. The country wants to be an international hub, but it doesn't want to increase runway capacity at its existing airports. Britain wants to attract tourists and international businesses, but it also has some of the tightest border control restrictions in Europe. As a result, the U.K.'s logistical support structure is under stress and testing itself with the whole world watching.

Cracks have already appeared. Passport control queues at all of London's four major entry points have been horribly congested, with travellers from outside the European Economic Area at the city's flagship Heathrow Airport enduring the longest waits. The worst, according to BAA, the airport's private sector owner and operator, occurred on April 30 when arrivals at Terminal 4 waited up to three hours to clear the border control. Politically and economically, this is an

unacceptable failure well beyond the 45-minute target set by the U.K. Border Force.

What's happening in the U.K. underlines the economic importance of efficient and functioning ports and airports—as well as the critical need for partnership between the public and private sectors. Although not technically public-private partnerships (PPPs) by concession, Britain's privately-owned airports certainly operate at the mercy of public departments like the U.K. Border Force and the political policies set by government. If this relationship becomes strained, everyone suffers.

The free worldwide movement of people and goods is critical for global economic growth. However, the challenges facing ports and airports to unlock that potential are not easily or cheaply overcome.

With the upcoming Olympic games, the U.K.'s logistical support structure is under stress—and the whole world is watching.

Capacity constraints—either too few runways to handle growing demand, or runways that are too short for the next generation of jumbo jets—threaten the viability of established routes and airports unable to grow and adapt. New terminals, new runways, and improved local connec-

tions are necessary to compete in a new century of aviation. Airports that fail to deliver risk being overtaken by those that do.

Sustainable development, energy efficiency, and environmental concerns must also be considered. As global air travel increases so do greenhouse-gas emissions, and the aviation industry must adapt to the changing climate (pun forcefully intended). But it's not just in the skies. New strategies on the ground and better designs for infrastructure—such as energy-efficient and LEED certified new buildings or retrofits of existing buildings—must also be adopted.

There are also national security issues to consider, and of course passenger safety. All of this costs money and with many global economies suffering, scarce capital—notably debt—could be the most difficult challenge of all. The increasing cost of funding projects is a serious threat undermining many new developments.

In early 2011, *Infrastructure Journal* (IJ) published a special report on global airport infrastructure. Among the findings, IJ noted the vast appetite and potential for investing in airport infrastructure—particularly in emerging markets. It also highlighted the challenges governments all over the world face in attracting private capital. Some countries—like Brazil and India—have internal capital market capacity able and willing to invest in airport infrastructure (with mixed results); others, like Nigeria, are cur-

rently seeking foreign capital investment for their projects. Sourcing capital, structuring transactions, and finding the right business model are critical.

Since the financial crisis escalated in September 2008, there have been success stories like Pulkovo Airport, which serves St. Petersburg in Russia. The rehabilitation of an existing airfield was a pathfinder within the former Soviet Union and hopes to be a model for airport PPPs worldwide. Private sector sponsors were awarded a 30-year concession with financing support from development banks—including EBRD, IFC, Vnesheconombank, Eurasian Development Bank, Nordic Investment Bank, and Black Sea Trade and Development Bank. With this much multilateral muscle in play, commercial project finance banks also stepped in to provide financing despite difficult debt markets.

What Pulkovo illustrates best is that given the right business model, financial structure, sponsor group, and political willpower, deals can still get done and potentially have a huge impact on the local or even national economy. It may take years to measure, but the success of financing efficient and effective airport infrastructure is an achievement worthy of Olympic gold. ✈



Photo © curt

Contract matters: Legal considerations in airport PPPs

By John Crothers & Christopher Boyce

International law firm Gide Loyrette Nouel, based in Paris, has worked on airport concessions for Malé International Airport (Maldives) and Bamako International Airport (Mali), as well as airports in Tahiti, Tunisia, Congo, Saudi Arabia, and Mauritius. As is the case in most public-private partnership (PPP) projects, the legal issues encountered fall into two broad categories: legal and institutional framework requirements, and contractual aspects of PPPs. This article examines these issues with a particular focus on airport concessions.

Airport projects offer lawyers different perspectives from the average traveler. Boutique shops in the airport terminal are observed from a revenue stream perspective; passenger volumes and flight schedules are observed for competing airport routes and growth potential; existing infrastructure and airport practices are observed so that comments can be fed into general project discussions. In short, with each visit to the project

location, there is the opportunity for the lawyer to be observant. Ultimately, the more observant the lawyer, the more informed they will be at every stage of the project and the more capable they will be of providing creative solutions to problems that will inevitably arise.

LEGAL AND INSTITUTIONAL FRAMEWORK REQUIREMENTS

In addition to being familiar with the aviation sector, legal advisors entering into discussions on airport PPPs will need to be capable of advising on a variety of legal areas, including public procurement and PPP laws, company law, project finance, property, and arbitration. Depending on the jurisdiction, it is common for international firms to partner with local firms so that they can advise on local law issues, such as land, foreign investment, and securities legislation.

The starting point for any project is asking: “What is the legislative framework required to enable a PPP project?” If none exists, the grantor may ask: “Do we need a PPP law?” Several approaches can be adopted, depending on the political and commercial climate. These vary from drafting a general PPP law, to including PPP in a sector-specific law, or using existing public procurement legislation (even if not best adapted to PPPs). In some jurisdictions a special law to allow the single specific project may be necessary.

Another question that often arises is “Do we need a PPP agency?” The purpose, establishment, and competence of an agency are all important considerations. Such agencies serve as the “institutional memory” of a well run PPP program, providing resources, best practice, and general expertise. However, because every project is unique, the discussion must be customized to the individual project, and the sector-specific experts (ministry of transport, airport agency) must be on board.

KEY CONTRACTUAL ASPECTS

The more observant the lawyer, the more informed they will be at every stage of the project and the more capable they will be of providing creative solutions to problems that will inevitably arise.

Several key structuring issues need to be considered by the grantor prior to launching a PPP, none more so than the concession versus privatization issue. On the one hand, and in favor of the concession model, is that delegated management of a strategic national asset leads to an improved level of service and guarantees a continuous revenue stream. On the other hand, a strict privatization may result in a cash windfall, which can be very attractive to developing governments for obvious reasons. The problem is that the proceeds go to the government and not to the project. In the concession versus privatization discussion, it is advisable to adopt a flexible approach and not remain wedded to a strict either/or scenario. One viable alternative for cash-strapped governments is a concession with an upfront payment and a profit-sharing mechanism.

In any event, the legal framework must allow for a fair and transparent procurement process. Effectively, the legal advisor’s first concern should be to create the proper legal foundations for a PPP project to be successful from the pre-procurement phase through the lifetime of the project.

For both brownfield and greenfield airport projects, environmental issues must not be neglected. For brownfield projects, environmental audits are recommended to establish a baseline to cut off responsibility between the Grantor and the new investor for pre-existing environmental liabilities. For greenfield projects, there are numerous other issues that must be addressed at the start. Who owns the land on which the airport is to be constructed? Are there rights of way that need to be considered? Indeed, both of these questions raise the issue of whether ownership of land by a private investor is possible, or even necessary, in an airport project.

From an operational perspective, there are certain key issues that need to be considered. First, the key performance indicators must be clearly

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In many developing countries, the international airport is the access point to the rest of the world. Reputations are made or broken based on the perceived airport experience.

.....

stated (and must be attainable). Secondly, the penalties must be well calibrated to ensure that they incentivize and do not punish too harshly.

Or, if the airport concession is an extension of an existing airport or certain functions are being transferred from one airport operator to the other, what provisions should be contained in the concession contract to ensure stability of operations and to provide for management of disputes? Finally, the usual issues of termination and compensation on termination, change in law, and *force majeure* will need to be carefully considered and negotiated.

Of course, financial provisions must also be understood by the legal team. From the outset of the project, aviation and non-aviation charges need to be clearly identified and allocated. Provisions for the charging, payment, and collection of fees need to be included in the project contract. In addition, to what extent should expansion and development costs be covered by air side and land side fees or by way of an “airport development charge”? Is such a charge even in compliance with the constitution? Who should pay the charge (the passengers, airlines, or grantor)? And who should receive the proceeds, the grantor or the operator? Clearly, these are commercial issues to be discussed with the relevant project advisors, but the legal team should be aware of, and should be willing to advise on, each of these issues from kick-off to completion.

Other key legal/financial issues to be considered from a contractual perspective include:

- Adjustment of aviation fees for inflation.

- Triggers for capacity investment and hand-back requirements with sufficient capacity at the end of the concession period.
- Government support and guarantees.

WHY IT MATTERS

In many developing countries, the international airport is the access point to the rest of the world. Reputations are made or broken based on the perceived airport experience. Grantors need to create multidisciplinary teams made up of public sector experts and PPP agencies (if available), as well as financial, technical, and legal advisors to best structure successful airport projects. The team will structure the transaction, create the bidding documents, and draft the PPP contract.

Legal and financial aspects of PPPs are a foundation for something much larger. Airports are not just buildings, but a source of national identity and pride: they are a returning citizen's first taste of home and a tourist's and business person's first glimpse of a city's riches. ✈



Crowning GLORY

Queen Alia International
Airport reigns in the region

In 2007, Jordan's Queen Alia International Airport was named Deal of the Year by Euromoney Project Finance International and Airport Finance Deal of the Year by Jane's Transport Finance 2007. It was the first successful airport public-private partnership (PPP) project in Jordan and the Middle East and remains the largest private sector investment in Jordan to date. It continues to serve as Jordan's model for launching a full-scale PPP program in infrastructure.

Queen Alia International Airport, Jordan's principal domestic and international airport since its construction in 1983, accounts for more than 97 percent of the country's air traffic. But from 2000 onward, it has been unable to meet the sustained growth in air traffic of 7 percent per year because of capacity constraints. To remedy this, the government invited private sector participation to expand and rehabilitate the airport, including the construction of a new 900,000-square foot terminal. This decision was part of a broader strategy by the government to liberalize air transport policies, restructure the civil aviation sector, and improve the competitiveness of Jordan's airports. IFC was the government's lead adviser for structuring and implementing a balanced transaction.

The key objectives for this project were to:

- Increase the airport's capacity to handle long-term traffic growth.
- Develop and enhance Queen Alia's position as a regional hub airport.
- Improve operations and service quality standards in line with international best practices.
- Maximize the value of the project for the government, both in terms of financial proceeds and quality.
- Eliminate government budgetary support to the airport.
- Conclude a successful PPP project that could serve as a model for other infrastructure projects in the country.

Through the prequalification process, six bidding consortiums comprised of more than 25 international investors were qualified. The bidding was structured in such a way that financial bids were evaluated based on the payment of annual concession fees as a percentage of gross revenues to the government. The bidder with the highest financial bid would be declared the winner.

All bidders knew they would have to raise their own financing within six months of the bid award. The centerpiece of the project would be the construction of a new 900,000 square foot terminal based on preliminary designs by Foster+Partners. The bidders were also asked

to undertake certain predefined improvements to existing airport infrastructure, demolish the existing terminal once the new one is built, and manage all airport services.

RESULTS

- The competitive process led to a winning bid that was nearly double that made by the party the government had previously been considering for a sole source award.
- Of the total original project cost of \$675 million, IFC committed \$120 million for its own account and helped mobilize up to \$160 million in funds from commercial banks.
- The government will accrue significant concession fees and benefit from considerable fiscal savings by no longer having to subsidize airport operations.
- A larger terminal will help promote the country as a regional economic and tourist destination, as tourism accounts for more than 10 percent of Jordan's gross national product and nearly 45,000 jobs.
- The project is expected to generate more than \$1 billion in foreign direct investment and lead to the creation of 23,000 new jobs over its lifespan. ✕



Preparing for **PILGRIMS**

The unique challenges of running Medina Airport
Interview by Alison Buckholtz

Dr. Waleed A. Youssef is Director of the Gulf Cooperation Council Region for TAV Airports Holding, which operates Medina Airport in the Kingdom of Saudi Arabia as well as 10 airports in Turkey, Tunisia, Georgia, and Macedonia. Prior to joining TAV Airports as Chief Strategy Officer five years ago, Dr. Youssef served as Director at Abu Dhabi Airports Company and as Aviation Specialist at IFC. He is immediate past Chairman of the World Economics Standing Committee at Airports Council International (ACI) and a member of the Committee on Airfield and Airspace Capacity and Delay at the U.S. National Academy of Sciences' Transportation Research Board.

On the uniqueness of the partnership behind Medina Airport:

The project is the first full fledged public-private partnership (PPP), not only in the Kingdom of Saudi Arabia but in the entire Gulf Cooperation Council, which comprises several countries in this region. It is also the first infrastructure project undertaken on a non-recourse finance basis.

On the challenges of running Medina:

The passenger mix is highly seasonal, since the airport caters to temporal pilgrimage traffic. A large proportion of traffic is handled during a period of 50 or so days each year. Also because of pilgrimage requirements, passengers who arrive in Medina depart from Jeddah, and vice versa, which could have a potentially adverse impact on traffic and capacity. The sponsors have also voluntarily agreed to hire all Saudi staff in order to mitigate social impacts. Lastly, there are output-based performance requirements that translate into high service standards for passengers.

On the wider implications for private sector engagement in the development of core infrastructure in the Kingdom of Saudi Arabia:

The successful financial close and immediate visible improvements in airport service standards will undoubtedly encourage the grantor to consider other airport and infrastructure PPPs. Overall, the project was very well structured, with IFC's assistance, and the bid process was efficient and highly transparent. ✕



Medina Airport is the first airport privatization in Saudi Arabia. The initial investment phase of the project, valued at almost \$1.5 billion, will double the airport's capacity from 4 million to 8 million passengers per year through construction of a new terminal building and the renovation of the runway, apron, and taxiway systems. Phase two is planned for the next decade and will increase capacity to over 20 million passengers.



Photos © GMW Architects

AIRPORTS

Robert Aaronson has 40 years of experience in the aviation sector, most recently as Director General at Airports Council International. During his career, he has had executive responsibility for the management and development of six major U.S. airports, and he also served as the top official in the U.S. Federal Aviation Administration responsible for nationwide airport standards, safety, and development. He has been President and Chief Executive Officer of the Air Transport Association of America and Executive Vice President and General Manager of Lockheed Air Terminal, which became Airport Group International and was one of the first firms engaged in worldwide airport development and operations.

Interview by Alison Buckholtz



What limits airport operations in the U.S. when compared to airports overseas?

National legislation limits what American airports can and can't do, and this discourages innovative efforts to create new financial structures. U.S. government financial assistance for capital development requires that airports re-invest net revenue back into the airport. This not-for-profit model does not incentivize airports to invest heavily to maximize profits. But governments in other parts of the world have been open to alternative revenue models, including airport concessions, as long as certain concerns are taken into account and protections are put in place.

So what can U.S. airports gain by looking outward?

There are various non-financial benefits to being involved in the global airport business; you can give your staff more experience and training and really open their eyes to how people conduct business. For example, the Houston airport system, which has years of experience working outside the U.S., has found a way to segregate income so they could make some use of it outside of the nonprofit model.

Airports seem to be a source of national pride. How does this affect operations?

National pride is absolutely linked to airports, so they are often built to be gateways, to be monumental. This can be a source of conflict with the airlines, which understandably are concerned with cost and efficiency. A focus on monumentalism leads to overbuilt, inefficient airports that charge high costs for usage and don't meet airlines' needs. There needs to be a middle ground.

What's the middle ground?

The ideal global model is an airport that operates as a successful business without creating a burden on taxpayers. In the 1970s, when I was involved in negotiations with the airline industry about a new terminal, we tackled this challenge. We wanted to build something that was more than what they wanted. We worked it out by dividing the financial structure of the project into layers, like a cake. The airline costs were structured on the base costs of the airport—the bottom layer. The government provided subsidies for the top layer, and this functioned as a one-time contribution to cover the cost of a glamorous gateway. Both sides were happy.

On the other side of the equation, is there an argument for airports in developing countries to stay small and not aspire to be hubs? Should they remain limited in their services in order to be manageable and efficient?

The answer is more market-driven than strategy-driven. We've seen in the last five years that there is a real limitation on how many hubs the airline industry can support. For a small airport to aspire to be a hub, it must be in a relatively undeveloped part of the world, have the right geographic position, and have the room on the ground to successfully develop as a hub. Panama City is a great example of that. Unless you have some particular geographic advantage going for

you, in general the only way to try to build up a hub without it happening as a result of natural advantages is subsidizing it—and then the economic benefit of having a hub doesn't exist!

What sorts of questions should private investors or government entities seeking to privatize an airport ask before they start the process?

The kinds of questions that usually come from the entities driving privatization are about the marketplace: who's out there, who should we work with, what are the major pitfalls. My biggest advice is that it is not productive to get involved in a privatization initiative without very strong political will and leadership. Without it, you're wasting your time, because there are too many barriers. All of the successful and failed privatizations bear this out. Second, it's very

“ It is not productive to get involved in a privatization initiative without very strong political will and leadership. ”

important to do due diligence on the individuals who actually carry out your project. The name of the company is not enough: it depends on their experience working in different environments, the expertise they have available to devote to an effort in another country, and who will be on the team that implements the project.

lots of resources. Also, most of these really great airports overseas were built with the very strong participation of consulting and advisory teams from the U.S. and Europe. They used western technology and experience to design great airport terminals, learning from past efforts.

“ A focus on monumentalism leads to overbuilt, inefficient airports that charge high costs for usage and don't meet airlines' needs. ”

You've long been an expert on the airport industry, but you're also a passenger. As a passenger, what are the signs to look for in a well-run airport?

First of all, there should be a sense of cleanliness, orderliness, and safety, which in today's world translates into security. Beyond that, there's physical attractiveness, clarity, and simplicity as you make your way through the airport, along with the availability of information and help. There is no substitute for uniformed airport personnel who are friendly and helpful. With these criteria, every global traveler's favorites are Hong Kong, Singapore, Beijing, and Shanghai. These have the advantage of starting with a clean slate, rather than being built up over decades, and they have

What's your personal favorite?

The airport closest to my home in White Plains, New York. It's small and convenient, with good parking. ✈



DARE *to* FAIL

*& other lessons learned
the hard way*

Across the world, many a fortune has been lost on airlines—most of it consisting of taxpayers' hard-earned money. Given the abysmal record of state-owned airlines the world over, consensus has finally emerged that governments have no business being in this business. Many countries have been exploring private sector ownership of their national airlines, and IFC Advisory Services in Public-Private Partnerships has worked on nearly a dozen such transactions. Some of these deals were successful; some failures; all were extremely difficult. The upside of IFC's vast experience at the sharp end of airline reform is that we can share the lessons learned.

By James Morley & Brian Samuel

WATCH THE BOTTOM LINE (SLIP AWAY)

The joke goes like this: How do you make a small fortune from airlines? You start with a large one. For a variety of deep-seated structural reasons, airlines have an amazing capacity to lose money. Some of the biggest problems include:

- **High fixed costs:** The vast bulk of airline costs—fuel, staffing, capital costs—are fixed in nature and largely beyond management’s control.
- **Overregulation:** Bilateral agreements between governments prevent competition from functioning normally.
- **Leverage:** National airlines invariably have excessive debt due to the exorbitant cost of purchasing aircraft plus years of unprofitable operations.

In 2004, 70 percent of Samoa’s budget deficit was due to losses at Polynesian Airlines. This served as a motivation for reform, but also a warning that success would not be easy.

LESSON 1

USE YOUR POLITICAL CAPITAL

Throughout the world, airlines are viewed as national treasures that deserve special prestige and a prime spot in a nation’s heart. Working at an airline is seen as an honor, and government-owned airlines invariably become over-staffed by political appointees. With their fleets of old and uneconomical aircraft, most national airlines share three common characteristics: they are unprofitable, unreliable, and unsafe.

In attempting to privatize under these circumstances, it is essential to have key champions within the government, and earn the confidence of the airline’s management.

LESSON 2

CHEAP FLIGHTS MEAN MORE TRAVELERS

Empirical evidence suggests that when a low-cost carrier (LCC) enters a market, prices fall by an average of 20 percent over the first four years, resulting in traffic increasing by about 50 percent over the same period. What does this mean for reforms?

First, if reform brings competition to the aviation market, tourism numbers should grow, creating a powerful incentive for government to complete the transaction. In Samoa, although several hundred jobs were lost in the restructuring of the airline, an estimated 2,000 new downstream jobs have been created by new tourist arrivals—in a country with a total population of only 180,000. In three years, this transaction has taken several percentage points off the national unemployment rate—a significant impact. Enlisting support from other players in the tourism sector (hotels, travel operators, and the like) is an important way of mobilizing support for reform.

The second lesson is that sometimes the most important consideration is not the price at which the national airline is sold, but to whom. The strategic airline partner must bring more to the table than just money—otherwise, the transaction may be completed, only to see the privatized airline go bankrupt a few years later.

LESSON 3

COMPETITIVE BIDDING MAY NOT ALWAYS BE POSSIBLE

It is international best practice for governments to implement reforms through competitive tenders. However, in the aviation sector there may be justification for suspending this rule. In airlines, the key objective is often finding a strong airline partner that can provide access to global networks and a lower cost base. The detailed terms are often more significant than the price paid, and are too voluminous and complex to encapsulate within a competitive bidding structure. In such situations, the country's interest may best be preserved by a process of “competitive negotiations” rather than by an outright bid.

LESSON 4

DON'T BE AFRAID OF FAILURE

Given the inherent economic difficulties of the global airline sector, plus the irrational attachment people and politicians have toward airlines, it is not surprising that more than half of all attempted airline privatizations globally have ended in failure. This is due primarily to a lack of “acceptable” buyers. Inevitably IFC has had its fair share of failures, even after customarily going above and beyond the call of advisory duty. We all have failures; the important thing is to learn from them.

In Cameroon, IFC learned from its experience advising on the privatization of the chronically loss-making Camair. Against all the odds, IFC brokered a \$15 million investment by SN Brussels to create a new national airline. The government ratified the deal; statements were released; everyone was happy. Well, not quite everyone: at the very end, the anti-reform faction within government played its trump card, cancelling the deal for a variety of trumped-up reasons. And so the cash cow Camair stumbled along, leaving a trail of missing millions under suspicious circumstances in its ever-widening wake. Lesson learned: without a home-grown desire for reform, and a strong political champion, don't waste your time.

LESSON 5

Spread the **GOOD NEWS**

There have been many shining successes; all is not doom and gloom. Two of IFC's ground-breaking airline deals include:

Kenya Airways

Year	1995
Structure	Sale 26% to KLM, subsequent IPO on Nairobi Exchange.
Results	Kenya Airways frequencies grew by 61%, developing Nairobi into a regional hub. Tourist arrivals grew 42% over 10 years. The airline has consistently been profitable, and is universally regarded as Kenya's number one corporation.

Poly Blue

Year	2005
Structure	Sale 49% to Virgin Blue, 2% to local business.
Results	\$7.5 million government subsidy (2004) turned into \$6.6 million profit (2007). Tourist numbers increased 15% annually (historic trend 4%), with similar increases in tourism revenue.

The airline business is among the worst performing of any industry. In the last 10 years in the U.S., for example, the airline industry has cumulatively lost over \$50 billion and numerous carriers have disappeared, either by bankruptcy or merger. Internationally, the picture is similarly gloomy, especially in mature markets like Europe. However, many countries around the globe continue to protect and support failing flag carriers that are often absorbing substantial amounts of public funds. Switzerland is a notable exception, with lessons to teach the rest of the world.

By Charles E. Schlumberger



*If the **SWISS** can't...*
Lessons on letting go of a national carrier

Following the post-9/11 economic turndown, Swissair's assets lost value dramatically. The Swiss national carrier was grounded in October 2001 and bankruptcy proceedings followed shortly thereafter. Most Swiss citizens and creditors were certain that the Swiss government would bail out the national airline—because that's what proud governments do, right?

However, the Swiss government kept Swissair alive only until March 2002, when liquidation was initiated. After that, the government funded the creation of the successor airline Swiss International Air Lines ("Swiss"), which saw a former regional airline take over most of the former Swissair's routes, airplanes, and staff. Three years later, the new Swiss carrier was sold to Lufthansa, where it became the most profitable airline within the group.

even when compared with the financial loss (not to mention the emotional sting) from the sale of Swiss to Lufthansa.

LETTING GO

Most state-owned or legacy carriers that face financial troubles should not be considered for restructuring and/or privatization. They often have a complex history with many legal and moral obligations toward staff, clients, the host country, or passengers. Liquidation is usually a better solution. It averts the problems that can come from existing generous benefits and pension schemes for senior staff, the discounts and free tickets gifted to those close to the carrier or its owners, and especially the notion that the airline serves the country and therefore must fly



The Swiss government chose to let go of its national carrier because of the huge losses it generated as a result of its complex and bulky business structure. Swissair owned multiple loss-making carriers, employed a complicated legal structure, and had taken on massive debt to support its operations. Restructuring such an entity was considered far too complex, risky, and expensive. The fresh start that liquidation afforded the government was more attractive

to distant destinations, generating losses.

But although liquidation makes the most sense economically, there continue to be numerous examples of failed privatizations or prolonged funding of money-losing, state-owned carriers that absorb millions of dollars of public funds—money which could be put to good use in other sectors. The Swiss government, faced with a failing carrier, gave it wings to fly away, charting a course others should follow. ✈

Liberalizing

African skies

A look back at the airline experiment

By Charles E. Schlumberger

In Africa, poor roads, ports, and railway infrastructure often constrain the rapid and efficient transportation of export goods, as well as the movement of passengers. The promise of air transport includes a potential for growth and a role for the economic development of the continent by fostering trade and foreign investments. Though the intra-African market represents less than one percent of the global market, African air traffic—with a potential market of more than 12 percent of the world’s population—is expected to grow at 5.7 percent. But despite strong expected growth and a landmark liberalization agreement, some intra-African markets still lack a true competitive environment.

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Prior to gaining independence, most African countries’ air services were based on European relationships and agreements. It was only in the early 1960s, when many former colonies became independent countries, that African states began to negotiate and conclude their own agreements on air services. During that time, most of the newly independent African states also created their own, mostly government-owned, national air carriers, many of which failed.

Most of these African national carriers pursued a business model which consisted of using profitable international routes to and from the territories of their former colonial masters to cross-subsidize their costly yet extensive domestic route network. This often resulted in the maintenance of strict bilateral relationships on intercontinental routes, where capacity was limited and controlled, in order to maximize profitability. The development of regional air services was seen as secondary, especially when a costly domestic network had to be maintained.

Nevertheless, following the international example of the time, intra-African air transport services also became regulated by the traditional framework of bilateral air service agreements (bilaterals). The typical bilaterals of the 1960s were based on the traditional-predetermination model, under which market access and capacity was predetermined. This model controlled the market by effectively restricting competition. But although liberalization of air services has been actively pursued in the U.S. and Europe since the 1970s and 1980s, African air services have remained generally restrictive, costly, and inefficient.

FINDING ITS WINGS

In the early days of African independence, air transportation was considered essential because the existing road and highway network was broken down into sectors that were distinct from each other. The road network was designed mainly to channel raw materials from the interior to seaports, rather than being part of a network among countries to service regional development.

However, also early on, the promise of African air transport was threatened by dominating carriers from Europe and especially the U.S. This was because the main focus of African carriers in international air transport remained on intercontinental traffic, while the intra-African network remained far less developed.

Gradually, the Economic Commission for Africa, part of the United Nations' Economic and Social Council, recognized that a new policy was needed to support the development of Africa's air transport sector. This eventually resulted in the Lagos Plan of Action, which addressed the declining economic environment and the role of the air transport sector in Africa.

This in turn initiated a stronger focus on the development of intra-African air services and measures focused on closer cooperation among African carriers, which later became the core of the Yamoussoukro Declaration. Main tenets included a joint financing mechanism, coordination in scheduling air services, a centralized databank and research program, and the promotion of the creation of sub-regional carriers. But

the focus on liberalization gradually degraded. Finally, the much stronger Yamoussoukro Decision was adopted in 1999, and African ministers responsible for civil aviation agreed to liberalize access to air transport markets in Africa.

However, only a few cases have been observed of the exercise of new air traffic rights resulting from the Yamoussoukro Decision. The reasons why range from non-implementation of certain elements of the decision (for example, establishing competition rules, a dispute settlement mechanism, and an operational monitoring body) to simply ignoring it by continuing to agree to traditional restrictive bilaterals.

In retrospect, the stated strategy of cooperation and integration of African carriers was driven more by the need for pan-African cooperation than the need to create a more competitive market environment. Further, the stated objectives and schemes aimed at full integration of the African air transport market (comprising at least 40 of the 53 African states within eight years) was an overly ambitious goal. But despite the overreach and weak likelihood of implementation, the Yamoussoukro Declaration set in motion further initiatives aimed at liberalizing the African air transport market, and generally enforced the notion widely held today: that liberalization for the air transport sector in Africa was inevitable. ✕

Excerpted from Open Skies for Africa: Implementing the Yamoussoukro Decision (World Bank, 2010).



SUSTAINABILITY TAKES OFF

The aviation industry has a disproportionately large impact on the climate system given its size: it accounts for four to nine percent of the carbon emissions responsible for climate change. The industry grew tenfold in the past 40 years, and according to the International Air Transport Association's (IATA) *Vision 2050*, in the next 40 years the number of passengers flying is expected to rise from 2.4 million to 16 million. Clearly, action is urgently needed to mitigate the impact of climate change. Some promising initiatives are showcased below.

LOWERING CO₂

- **Biofuels.** According to IATA, sustainable biofuels for aviation could reduce CO₂ emissions 80 percent on a full carbon lifecycle basis. The focus is on biofuels sourced from second or new generation biomass, particularly algae. These fuels can be produced sustainably to minimize impacts on food crops and fresh water usage.
- **Technology** has the best prospect for reducing aviation emissions. The industry is making great advances in this area, including revolutionary plane designs, new composite lightweight materials, and radical new engine advances. The most recent example is Airbus' new A380 jetliner. The most environmentally-friendly commercial jetliner in operation today, it has 20 percent less fuel consumption per seat, the result of a new wing design and composite materials.
- **Efficiency.** Southwest Airlines is the U.S. Environmental Protection Agency's Blue Skyways Collaborative Partner and operates one of the most efficient fleets in the world. Over 90 percent of its fleet is equipped with winglets, and Southwest is in the process of retrofitting its fleet with advanced avionics to support Required Navigational Performance, the cornerstone of the U.S. Federal Aviation Administration's Next Generation Air Traffic Control System. Southwest also recently unveiled the "Green Plane," a test environment for the latest environmentally-friendly cabin materials. The focus is on materials that contain a high percentage of recycled content and lighter-weight products. This translates into reduced fuel consumption and increased fuel efficiency.

Source: IATA, Airbus, Southwest

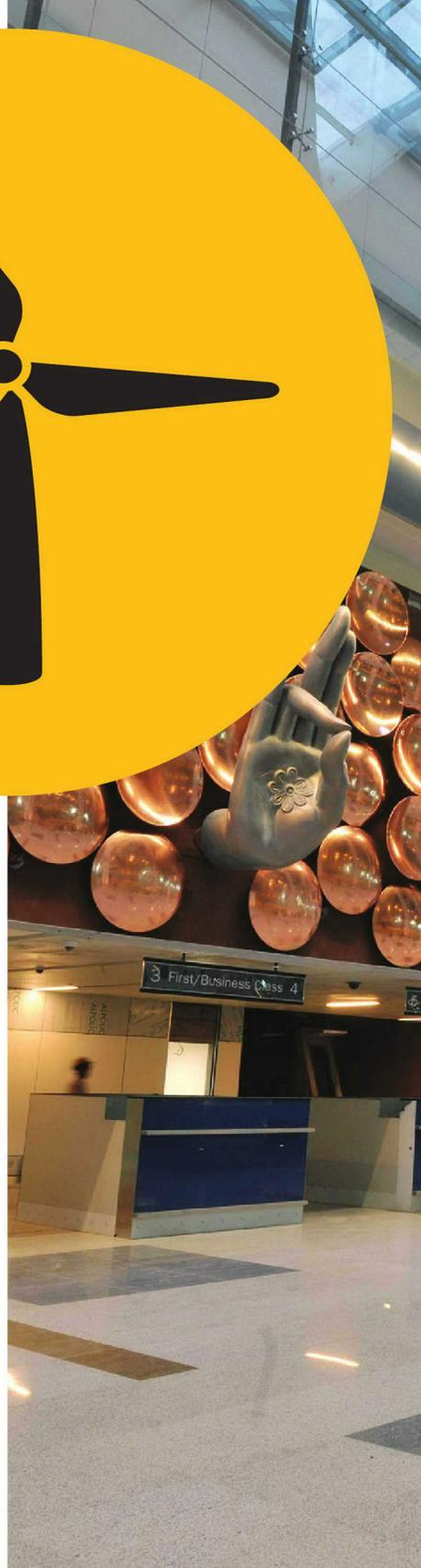


CAN AIRPORTS HELP FIGHT CLIMATE CHANGE?

Findings from a 2012 U.S. Department of Agriculture study indicate that airports possess unrealized potential for the production of alternative energy. Airports are often surrounded by vast, empty areas of land where limits to wildlife preservation are not only acceptable but also necessary as wildlife pose risks to aircraft. There are over 44,000 airports in the world, many of them with substantial land available.

Several airports have already implemented renewable energy technologies to offset their own energy demand. At Fresno Yosemite International Airport in California, for example, 12,000 solar panels produce 4.2 megawatts of power, or 60 percent of the annual electricity consumption of the airport. And in Europe, Gatwick International Airport just became the first airport in the U.K. to install a solar array. The 50 kilowatt photovoltaic system installed just 150 meters from the main runway includes 212 panels that are expected to save 25 tonnes of CO₂ a year with the electricity generated being used at the airport.

Source: "Airports offer unrealized potential for alternative energy production," Environmental Management (2012); Treehugger.com.



Delhi airport LEEDs

Terminal 3 at Delhi's Indira Gandhi International Airport, which opened in July 2010, is the first airport terminal to earn a Leadership in Energy and Environmental Design New Construction (LEED NC) gold rating.

A cutting edge construction, the terminal is the eighth largest passenger terminal and 24th largest building in the world. It has the capacity to handle 34 million passengers annually.

The terminal consolidates under one roof the services previously offered at two different terminals. This will enable Delhi to complete as an international hub.

Features that allowed Terminal 3 to win the certification include:

- Energy efficiency and reduced CO₂ emissions through a design that allows natural light to illuminate the center of the building, and decentralized cooling units.
- Electric vehicles for moving travelers among terminals, and 215 electric charging stations installed in the parking facilities.
- A water management and treatment program featuring more than 300 rainwater harvesting pits, which recharge Delhi's aquifer.
- Use of materials with high percentages of recycled content.

Delhi International Airport Limited (DIAL) is a consortium of the GMR Group, Fraport AG and Malaysia Airports, India Development Fund, and the Airports Authority of India. HOK and Mott MacDonald designed the project, which included renovating and extending the existing international and domestic terminals.

The project has won several awards, including the Airport Service Quality Award from Airports Council International, Best International Project from the British Construction Industry, and Most Noteworthy New Terminal Design from Passenger Terminal World.

Source and photo: HOK, Mott MacDonald

Branson on BIOFUEL

Innovator outlines the future of sustainable air travel

Sir Richard Branson founded Virgin in 1970 as a mail order record retailer. Since then, the Virgin Group—200 companies in over 30 countries—has expanded into leisure, travel, tourism, mobile, broadband, TV, radio, music festivals, finance, and health. Branson's vision to transform the airline industry by enabling planes to fly on renewable fuels prompted 2008's history-making Virgin Atlantic flight, when a commercial jumbo jet powered partly by biofuel flew from London to Amsterdam. Through the Virgin Green Fund, the company continues to invest in renewable energy and resource efficiency.



VIDEO



In 2008, a Virgin Atlantic jumbo jet made history as the first flight by a commercial airline to be powered partly by biofuel. Why are biofuels important to you, and why is sustainability important for the airline industry?

There are a number of clean technologies and clean business solutions that I'm passionate about, but with regards to transportation and air transport specifically, the options for reducing the environmental impact are somewhat limited. With airplanes, it's important we make air transportation more efficient but we also need sustainable biofuels since we won't have fuel cell or electric planes any time soon.

You have invested heavily in biofuel initiatives worldwide. Last year, you said that you aimed to have 100 percent clean burning fuels by 2020 and that the airline industry could become one of the cleanest sectors. How close are you and the industry to achieving those goals?

The advanced biofuels industry is ready to take off. The economic crisis has slowed and now the key challenge is the finances needed to build commercial scale production capacity.

How do you respond to those concerned that biofuel production will have a negative impact on the environment and food prices worldwide? How sustainable are the initiatives you are pursuing?

There are real sustainability concerns around biofuels, which is why Virgin Atlantic is working with the Roundtable on Sustainable Biofuels to require that the biofuels they purchase be certified sustainable. Some of the more advanced technologies are enabling the production of fuels from waste. Virgin Atlantic is working with a wonderful company called Lanzatech, which produces fuels from steel mill emissions.

People often say that your ideas are far-fetched. What keeps you motivated when others say it can't be done?

I've always loved a challenge. We absolutely have to transition away from fossil fuels. There are huge challenges facing advanced biofuels, but also huge opportunities. Our airlines, the Carbon War Room, and all our companies and partners are working hard to ensure the success of the most promising and sustainable technologies. ✈

Photo © Virgin Atlantic



The logistics of **TRADE**

By Jordan Z. Schwartz

Photo © Dominic Sansoni

Economists and business analysts have employed every methodology imaginable—from gravity models to general equilibrium models, from freight flow simulators and regressions to supply chain analyses—to understand the impact of logistics bottlenecks on trade. The results are unambiguous: trade is impacted by logistics.

The term “logistics” encapsulates the hard infrastructure in the transport networks—ports, airports, roads and rail, as well as the soft services needed to move goods—shipping, trucking, freight forwarding, warehousing and inventory management, customs clearance and border crossings—over that hard infrastructure. The hard and the soft elements of logistics are bound together by a third, more ephemeral, but equally important element: the rules and regulations

that govern the use of infrastructure and services. These rules range from weight restrictions for trucks to customs clearance procedures, border inspection, phytosanitary requirements, and port tariff regulations, along with competition and anti-trust rules that govern land and ocean shipping and cargo handling practices. But still: when there are so many basic challenges to development, why spend time worrying about logistics?

In many challenging markets, there is no access to finance for trade. This creates a gap between the funding needs of entrepreneurs and small business owners and what they are actually able to obtain in the market. Trade finance can fill this gap and facilitate global commerce at all stages of the supply chain, especially in developing countries.

Logistics matters because of firms' competitiveness and the ultimate impact on the poor. For years, the World Bank and other development agencies have sought to understand the sources of economic growth and poverty alleviation to help client countries improve opportunities for employment and citizens' quality of life. Intuitively, we recognize some factors of development—education, health, basic service provision—as pillars of this struggle. Other factors are more subtle, but also create the foundation for growth and poverty alleviation. Logistics is just such a factor of development.

A CLOSER LOOK

Logistics impacts firm productivity, drives economic competitiveness, and determines the cost of delivered goods. A recent World Bank analysis found that the logistics costs of delivered food products represent 20 percent to over 50 percent of the delivered price of food, depending upon the product and the trade route—about seven times greater than tariffs on imported foods.

In fact, as traditional barriers to trade—tariffs and duties—have steadily declined across the developing world in recent years, the physical cost of moving products has risen as a share of the final price of goods. Small companies—which are the engines of growth and the primary drivers of employment—are disproportionately

punished by inefficient logistics costs. The Centro Logístico de Latinoamérica found that firms with turnover of less than \$5 million per year spend 42 percent of their income on warehousing, inventory management, transportation, and distribution costs, while larger firms spend closer to 18 percent.

Firms in developing countries spend two to four times as much as firms in Organisation for Economic Co-Operation and Development countries on logistics as a share of the final price of goods. Logistics costs function like a regressive tax in cases like these, hurting the poorest consumers and smallest firms the most. So for a variety of businesses of the developing world, a reduction in logistics costs would translate into productivity gains and greater room for growth and employment.

Now let us return to the question of why logistics matters. For the poor, who may spend up to 70 percent of their income on food, a reduction in the logistics burden equals disposable income. As food imports soar as a share of consumption for the poor, logistics bottlenecks often center around ports. This is where road meets rail and both meet the ocean. At these ports, customs, phytosanitary, and security inspections cross with bonded warehousing, storage, and cargo handling. At these ports, trailers find chasses and containers are stripped, stuffed, and sent on their way to the people in need on the other end. ✕



TRADE FINANCE

By Georgina Baker & Michael Kurdyla

In many challenging markets, there is limited access to finance for trade. This creates a gap between the funding needs of entrepreneurs and small business owners and what they are actually able to obtain in the market. Trade finance can fill this gap and facilitate global commerce at all stages of the supply chain, especially in developing countries.

Trade is the lifeblood of economic development: countries import and export food, raw materials and finished products, capturing the value of their financial, economic, and human capital in the process.

When companies trade, they grow. And when they grow, they reinvest in the communities around them by hiring new employees. But in many challenging markets, access to finance for trade can be hard to come by, leaving a gap between the funding needs of entrepreneurs and small business owners and what they are actually able to obtain in the market.

Without adequate financing to support their international trade, the small and medium enterprises that account for as much as 99 percent of jobs in many emerging markets face serious working capital limitations, challenging their growth—and even their survival.

WHY TRADE FINANCE?

In the developed world, most goods and services are paid for after delivery. However, in emerging markets, exporters demand third-party verification of creditworthiness and payment up front as soon as goods are shipped. Too often, though, banks are hesitant to provide financing to little-known companies in distant, riskier markets.

“When you are in Africa, no one wants to work with you without a confirmed letter of credit,” says Ashu Gulati, group finance director at Synarge Group, an auto-parts importer in Dar es Salaam, Tanzania. The reluctance of banks to extend credit to successful businesses like Synarge dampens trade volume and stifles opportunities for expansion—both at the firm level and throughout the entire economy.

Emerging market businesses that locate new customers overseas and find themselves short of export financing often have difficulty filling large orders and paying for international shipments because of their working capital constraints. Many local commercial banks have limited or no tailored financial products for suppliers and exporters to finance sales not backed by letters of credit.

IFC has stepped in to fill this gap through its Global Trade Finance Program, which since 2005 has grown to include nearly 500 confirming and issuing banks in its global network. Through this initiative, which issued \$5.9 billion in trade guarantees in fiscal year 2012, IFC is expanding access to financing for emerging market firms to promote job creation and spur economic development.

FUTURE PROSPECTS

Developing countries, especially those with less-diversified economies, face growing threats to the supply of credit provided by global banks. A recent International Monetary Fund report noted that European banks, which provide almost 80 percent of global trade finance for commodities, may sell off as much as \$3.8 trillion in assets by the end of 2013 to meet stricter capital requirements under Basel III. As belts are tightened, trade loans and emerging market portfolios are among the first assets cut, separating local firms from opportunities abroad.

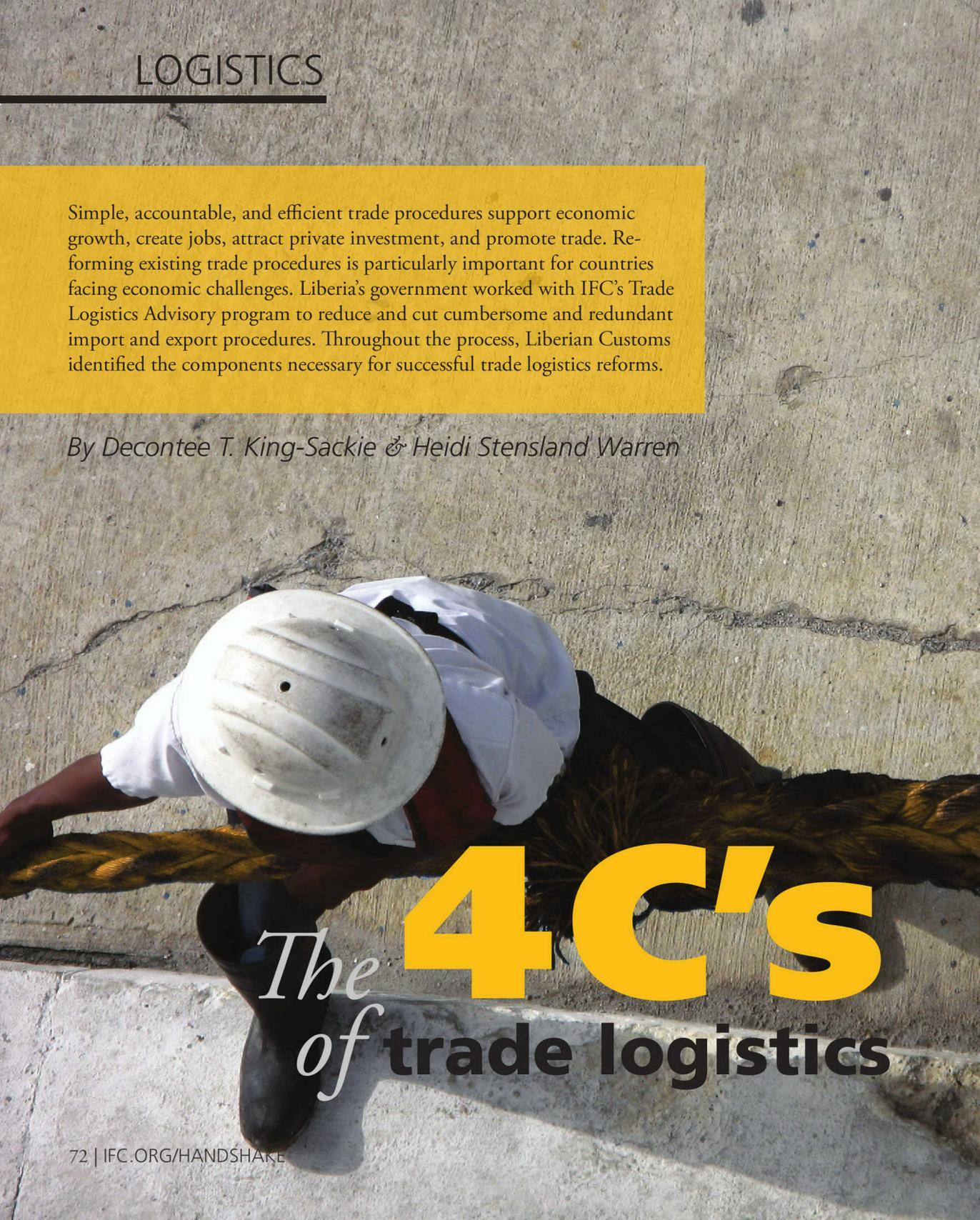
But while European banks are withdrawing, economists and politicians are looking at these same markets to lead the way back to sustained global growth. The most effective way to stimulate these economies is to ensure the continued availability of trade finance.

As a group, developing countries have led global trade growth in each of the past three years – in many cases by looking to one another as trading partners. The World Bank projects that within 10 years, goods shipped from one emerging market to another will represent up to half of all global trade, up from less than a quarter of global trade in 1997.

Trade finance is the engine of an estimated \$14 trillion in annual global commerce and is fundamental to the movement of goods at all stages of the supply chain, especially in developing countries. Trade helps increase the size of the economic pie, providing the most direct route to growth and prosperity—whether for individual firms or for entire economies. Trade finance is essential to make that happen. ✕

Simple, accountable, and efficient trade procedures support economic growth, create jobs, attract private investment, and promote trade. Reforming existing trade procedures is particularly important for countries facing economic challenges. Liberia's government worked with IFC's Trade Logistics Advisory program to reduce and cut cumbersome and redundant import and export procedures. Throughout the process, Liberian Customs identified the components necessary for successful trade logistics reforms.

By Decontee T. King-Sackie & Heidi Stensland Warren



The **4C's** *of* **trade logistics**



Fourteen years of civil conflict has devastated Liberia's economy, as well as its public finance and physical infrastructure. Now, the country depends on food and fuel imports, but is currently increasing its exports of natural resources. International trade accounts for over one-third of the Liberian economy, and it is essential for the country to continue to find ways to attract foreign direct investment and stimulate local growth. To support these objectives, officials have undertaken the following reforms.

Between 2008 and 2011, Liberia's government

reduced:

- Customs user fees by half, from 3 percent to 1.5 percent.
- Economic Community of West African States trade levy from 1 percent to 0.5 percent.
- Luxury taxes on vehicles.
- The number of security agencies at the main port.

abolished:

- Vehicle import permit clearance.
- Collateral requirements for vehicle imports.
- The tallying of container discharge with ship manifest.
- Ministry of Agriculture import/export permits.
- Forestry Development Agency export licenses.

introduced:

- Shift work for customs officers, and new extended hours for its main port.
- Document approval at the port and not the ministry, requiring fewer signatures.
- Single location clearance for cargo preliminary risk-based inspections, doing away with 100 percent import checks.
- Border cooperation with the Guinean customs service.

Through simplification and harmonization of procedures, introduction of risk management, and automation and improvement of border clearance procedures, the number of days to export from Liberia was reduced from 20 days to 15 days from 2008 to 2012. The time to import to Liberia was reduced from 17 to 14 days during the same period.

The 4C's

COMMUNICATION

As with any change, clear communication is essential for a successful reform process. It is particularly important in trade reforms, given the many agencies involved in import and export processes. Communication campaigns that highlight the benefits and possible savings from reforms will minimize resistance to change. Lack of clear and concise communication may lead target audiences to assume negative consequences of the reform and increase their resistance to change.

Communications outreach is not a one-time, one-size-fits-all undertaking. Continuous training and ongoing campaigns to raise reform awareness in the business community will ultimately ensure adaption of and commitment to new processes.

COMMITMENT

Successful reformers typically share a common characteristic: strong political and financial commitment from the highest level of the government, which drives the reform process in partnership with private sector stakeholders and trade practitioners. These approaches must bring together actors from across the political spectrum, as well as from the industry and trade sectors, in order to ensure sustained momentum for reform across administrations.

In Liberia, sustained political support from key senior government officials, including the minister of finance and key regulatory ministries and agencies, has been key to reform success. The public and private sectors were mobilized through the creation of the Trading Across Borders Working Group. The group identifies and implements reforms, meets regularly to discuss timely and efficient implementation of trade logistics reforms, and helps ensure stakeholder commitment.

CONSISTENCY

Consistent application of laws, regulations, and procedures is necessary to build trust and promote compliance in the private sector, while enhancing transparency in trade transactions processes. Compared to large firms, small and medium enterprises are more affected by inconsistencies and lack of transparency in systems and services. Information technology solutions can help make trade logistics processes more consistent and transparent, as well as more efficient.

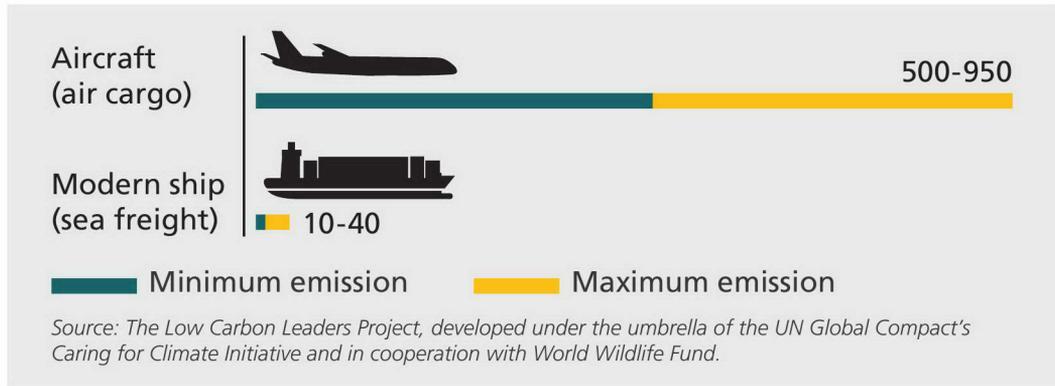
COLLABORATION

Common standards and removing barriers to cross-border and interregional trade translates into new or more open markets for trading goods and services. Traders that deal with border crossing procedures in several countries with little harmonization are faced with particular challenges. For example, in Rwanda, cargo moving in and out of the country usually passes several border crossings before reaching its final destination. Regional and international collaboration may contribute to improved logistics infrastructure and services which will attract investments and improve trade.

Although trade logistics reforms can be challenging, the potential benefits are significant. According to recent research, even a 10 percent reduction in time to export and import potentially increases trade in Sub-Saharan Africa by over 6 percent, and in South Asia by just under 6 percent. It can also enable significant savings for private firms through reduced charges, lower inventory levels, and fewer incidents of pilferage and damage.

FAST FACTS

CO₂ (in grams) emitted per metric tonne of freight per km of transportation



23% of global CO₂ emissions are created by transport with **2%** created by the airline industry.

90% of world trade is carried by the international shipping industry.

One large ship emits as much sulphur as **50** million cars.

Average lifespan:

11 YEARS 

30 YEARS 



Sources: A.P. Moller Maersk Group, Dailymail.co.uk, IATA, International Energy Agency, International Maritime Organization, and Wired.

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“Transport is one of the key sectors that play crucial roles in achieving goals in poverty eradication and sustainable development. The transport sector is very much linked and influences development in other sectors of the economy. Indeed, it affects attainment of all eight Millennium Development Goals.”

—United Nations Economic and Social Council for Africa



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