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Marine Policy 30 (2006) 483–495
MARINE POLICY
www.elsevier.com/locate/marpol

Port privatization in Panama

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Received 30 April 2005; received in revised form 8 June 2005; accepted 26 June 2005

Abstract

In previous papers we have looked at open registries, the Panama maritime sector and Panama Canal operations and management. No maritime study of Panama is complete, however, without a detailed look at the Panama Canal's main port system, which has enjoyed remarkable growth since the privatization of the terminal ports of Cristóbal and Balboa in 1995. This paper looks at the evolution and development of the Canal's port system; its stewardship, initially by the American authorities governing the Canal and, post-transition, by the Panamanians, and includes a study of the driving forces that led to privatization. We will conclude by looking at the results of the successful reform of the system, currently considered a primary model for other Latin American countries.

Keywords: Panama ports; Port development; AMP

1. Introduction

As seen in one of our earlier papers [1], since its discovery, Panama has had a singular role to play in international commerce thanks to its strategic geographical location. The first two ports established on the isthmus were connected overland

> a land transisthmian route called the 'Camino Real' which, following the meridian, connected the cities of Nombre de Dios—a port on the Caribbean Sea – and Panama City, on the Pacific, both founded in 1519. Seventy kilometres of mountain ranges and rain forests separate these two cities in a straight line… … …. thus establishing a new route. In the same year, Cruces was founded, a fluvial port 50 km upstream from the mouth of the river on the Caribbean coast. The Camino de Cruces, some 30 km long, departs from that point through hills and plains reaching Panama City" [2].

In effect, due to the commercial interests of Spain in the Colonial era, Panama was the focal point of Spanish trade with the Americas for 200 years, becoming the largest nucleus of world trade of its time [3]. The two seaports of Panama and Portobelo became key trading hubs with links to the Indies [4]. Merchandise and treasures from Peru would reach the Pacific coast and be forwarded overland via the "Camino de Cruces" to the Caribbean coast from where they were loaded and shipped to Seville in the Old World. In a similar manner, European merchandise arriving to supply Spain's colonial markets would be conveyed in the opposite direction. Indeed, the *Real Audiencia* owed its existence primarily to the judicial business arising from the dispatch of fleets [5].

The Bay of Portobelo was discovered by Christopher Colombus on the 2nd November 1502, on his fourth voyage to America. Subsequently, with a view to preparing a defence plan for the continent, and in 1586, the Spanish Crown sent Field Master Juan de Tejada and the engineer Juan Bautista Antonelli to the New World. They chose Portobelo as the centre of the Caribbean for its advantageous topography and

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doi:10.1016/j.marpol.2005.06.017

favourable harbour conditions unlike any yet found along the Central American coastline. This determined the transfer of Nombre de Dios to Portobelo.

On the 20th March 1597 Ciudad de San Felipe de Portobelo was officially founded by Francisco de Valverde and was to become one of the most important centres in the transfer of gold and silver with its system of trade fairs and galleons. At the height of Spanish trading, the fairs would last for 30 to 40 days at a time and in times of decline for between 10 and 12 days. Available figures allow us to estimate that 45 fleets of galleons set sail between 1574 and 1702, each one carrying at least 30 million persons on board. This necessitated the fortification of the city with three defence levels to protect against pirate attacks.

Throughout this study, we will seek to show how the growth of the Canal's terminal port system matured around the enduring idea that the fledgling ports of Panama and Portobelo, connected by the Camino de Cruces, could constitute a primitive intermodal transport system. With the passing of the centuries, this system has developed and become synonomous with a country that is itself one large port with Cristóbal and Balboa, gateways to each Ocean, interconnected by a cohesive transport system comprising the Canal, the railroad and the transisthmian road.

2. The terminal Ports: Cristóbal and Balboa

2.1. Cristóbal

The port of Cristóbal, on the Atlantic side, was the first of the two ports to be built at either end of the interoceanic waterway. Construction works on the railroad began in the Isla de Manzanillo area in May 1850, but it was not until the following year, 1851, that the first wooden pier of the port was put in place. The choice of location was attributed to the first director of the Panama Railroad, Colonel George W. Hughes, after much controversy at the rejection of Portobelo, which was considered to be a better situated and more sheltered site [6].

The waters of the Limón and Manzanillo Bays were to determine the shape of the port, which from the outset was plagued by a series of disasters including hurricanes, fires and flooding. Between 1857 and 1906, 10 severe Northerly storms hit the area with disastrous consequences in 1862, 1873 and, particularly, 1885 when a great fire also devastated the area, destroying 10,000 homes and leaving 6 million dollars worth of damage in its wake.[1] In 1905, during the visit of the Isthmian Canal Commission (ICC) members to the Canal engineering works recently initiated, there was such a terrible gale that the green light was immediately given for the construction of two large breakwaters.[2] These breakwaters continue to provide excellent shelter in the port and mooring grounds today [7].

Since its construction, Cristobal had been a well-used port and during 1904 to 1914, particularly, received large numbers of passengers so that

> Fifteen hundred passengers and three ships is not unusual for the Port of Cristobal around midday, and exceptional diligence may be observed in the loading and unloading operations. 300 tonnes of cargo and 400 to 800 passengers are frequently known to pass through in two hours…[8].

As the port grew, due partly to the arrival of workers and equipment for the construction of the Canal, and partly to the passage of gold prospectors on their way to California, the port facilities built by the Railroad Company continued to improve. Wooden piers were placed at perpendicular angles to the land to maximize protection from Northerly winds and bad weather. Of the three large docks in port, one was for the exclusive use of the Panama Railroad Company, the other two being used by the Panama Mail Company and Pacific Mail Steamship Lines Company [9].

Indeed, from its earliest days as a port, and thereafter for over half a century, Cristóbal became a regular port of call for some six large shipping companies, both sail and steamships serving regular lines to Europe, the United States, Central and South America. Its most productive period was undoubtedly during the years of the Californian "gold rush" and "*despite its ups and downs, it was always more frequented than Balboa*" [10]. During the French period, at the beginning of the Canal construction, large-scale dredging works were carried out, with the material extracted later being used to fill in the port.

The ports of Cristóbal and Balboa reverted to Panamanian hands in 1979 in accordance with the terms of the Torrijos–Carter Treaties. Extending south from Cristóbal Dock, the port occupies the dredged area leading down to the old French canal. It consists of three piers jutting out in a South-easterly direction from Cristóbal Dock, which measures 365 m in length. Piers 6, 7 and 8 are 290 m in length and 61 m wide with drafts of 10–12.2 m. Pier 9, parallel to the others

[1] The local newspaper, the "Star & Herald, called it the terrible gale of 1885, and reported the sinking of 14 ships, the destruction of the main pier and a death toll running into hundreds.

[2] The ICC Engineering Committee, in its report of January 1905, remarked that

> if the construction of the Canal were simply a commercial enterprise, the protection of one of its port terminals, subject to occasional storms, would not be justifiable. But this project is a public interest matter for the government of the United States.

Table 1
Cargo throughput in thousands of metric tonnes and TEUs from 1988–1990 in Cristobal and Balboa

Port	Cargo	1988	1989	1990
Cristobal	General cargo	99.4	206.9	108.1
	Bulk cargo	—	4.2	15.9
	Containerized	378.3	505.1	548
	Total	447.7	616.2	672
	TEU	82,448	102,703	123,264
Balboa	General cargo	20.5	13.5	29.6
	Bulk cargo	191.7	189.5	243.4
	Containerized	52.4	82.9	55.3
	Total	264.6	285.9	328.3
	TEU	9971	14,085	10,724

Source: APN.

has drafts of 8.5 to 12.2 m and is connected at right angles to the shorter Pier 10 which is 130 m in length and shallower than the rest at between 7.9 and 9.1 m deep [11,12].

Cristóbal port is situated at the entrance to the Panama Canal (Latitude 9°21′ North and Longitude 79°55′ West). It offers easy access to the railroad and the road with connections to most other Panamanian ports, especially to Balboa, thus facilitating transhipment operations. A further advantage is its proximity, at only 3 km, to the Colon Free Zone, considered the largest free zone area in the western hemisphere by annual value and volume of goods handled. [1]

At the end of the 1980s, Cristóbal was considered Panama's largest port, handling over 50% of the country's imports and exports. It offered a large container storage yard and approximately 6000 m^2 of covered surfaces specially designed for the consolidation and separation of goods. The port was also equipped with two 40t gantry cranes, two 30t container handling cranes and load lifts of varying capacities. It was generally, however, considered an expensive and inefficiently run port. [13]

A range of services provided by 47 companies operating out of the terminal included ship bunkering, vehicle transhipment, container storage and other supply services. The companies were granted 10 to 20 year renewable operating concessions, monitored and controlled by the National Port Authority (APN) [14]. In 1990, containerized cargo represented 81.5% of all throughputs in Panamanian ports which recorded a total of 2.7 million metric tonnes and 4058 international visits from ships. See Table 1.

2.2. Balboa

The port of Balboa is not by rights a natural harbour. Works began on the port, originally known as Ancón, in the late 1890s by the Panama Railroad Company in the area known as La Boca. Construction continued during the period of Canal works, between 1907 and 1914, and some of the facilities seen today date back to this time. Works on the terminal construction commenced in June 1912 [15,16] with the relocation of the town of Balboa and what was left of La Boca to the foot of Sosa Hill. The first two piers to be built were Piers 15 and 16 alongside the Industrial Division workshop area, and were completed in 1914. Pier 18 was completed in 1916, and all works were concluded by 1917.

The French Canal Company, in the course of its dredging works, was to modify the harbour at La Boca to accommodate deep draft vessels and build Pier 7 in the mouth of the Rio Grande. For some time, the port of Balboa was considered an unsuitable choice of site given the practical difficulties in approaching its shores due to the tides which necessitated flat bottomed wooden pontoons for embarking and disembarking [17].

One of the main elements characterising the port of Balboa is the 3.3 mile long Amador breakwater extending out into the Pacific and linking the port entrance to the Isla de Naos. The breakwater came into being largely as a result of works being carried out on the Canal rather than on the port itself. The construction of the causeway became one of the most difficult works in the construction of the Canal due to the inordinate amounts of spoil required for its construction, largely obtained from the excavation of the Culebra Cut. The dredging coincided with improvements to the section of the Canal between the Miraflores locks and the Pacific. The result was *"a port with characteristics to match any of the largest world ports with a maximum 42 foot depth at low tide"* [18]. With a surface area of 7000 acres, the greater part in external mooring points, the port served as a base for a substantial section of the United States Navy in the period between the two World Wars. During the 1990s, the mooring area to the East of the port provided over a mile of berthing space, with 17 piers of between 150 and 350 m each and drafts from 7.9 to 12.2 m [19].

The port of Balboa is situated at the Western end of the Panama Canal (Latitude 8°57′ North and Longitude 75°34′ West) at just 4 km distance from the City of Panama. Mean high tide is 3.96 m. By the late 1980s the port had a 30t container handling gantry crane with 20- and 40-foot spreaders; a 30t load lifter and tractors capable of moving 20- and 40-foot platforms. There was a container handling crane on Pier 15, managed and run by a private company. Pier 16 was equipped with a conveyor belt system and suction hoses for the handling of bulk cargo. Pier 18 was equipped with a 14,500 m^2 covered storage area commonly used for general cargo. With a 1300 container holding capacity as well as vehicle storage facilities, 96 companies monitored and controlled by the APN held concessions to operate in the

port, offering a wide range of services to the maritime sector.

Table 1 shows cargo movements between 1988 and 1990. As can be observed, total cargo movements increased by 24.4% in this period, in particular the bulk cargo sector, which represented 73.8% of total cargo in 1990.

3. Evolution of port administration in Panama

Prior to the transfer of the terminal ports of Balboa and Cristóbal to Panama, they were governed by the Marine Director of the Panama Canal and his superior, the Canal Zone Governor [2]. Direct responsibility in each port was held by the respective Port Captains whose functions included the boarding of vessels, control of navigational regulations, supervising ship entry and exit, map and chart maintenance, providing fire-fighting assistance, investigating maritime accidents, search and rescue, floating equipment and other matters [20,21].

In 1971, port administration was transferred to the Ministry of Commerce and Industry through a minor department, the Department of Special Projects, a precursor to the APN. It is worth noting that in 1972 the Panamanian government signed an agreement under the United Nations Development Programme (UNDP) through which the Port Management and Administration Programme came about, providing great assistance in the creation of the new port administration. Prior to the application of the Torrijos–Carter Treaties, the ports of Aguadulce, Bocas del Toro, Colón, Pedregal, Mutis, La Palma, Armuelles, Almirante and Bahía Las Minas were already under national jurisdiction. Almirante and Bahía Las Minas had been under the control of the Chiriquí Land Company and primarily used for banana export traffic, coming into Panamanian hands in 1976, although they continued to operate under contract to the company.

Under Law 42 of 2nd May 1974, the APN was created as the body responsible for the operation of the maritime ports on a national level. An institution with its own assets and independence in its internal arrangements, it was subject to general government policy through the Ministry of Commerce and Industry. Its functions included the development, planning, administration, construction, maintenance and operation of the national port system as well as the development and execution of port policies.

The entry into force of the Canal Treaties forced the APN to improve its management systems in response to the sheer number of new functions assumed as a result of the reversion of the ports of Balboa, Cristóbal and Coco Solo Norte. Prior to the 30th September 1979, the APN employed 345 officials of whom 42% worked at the Central Office, and the rest at the port terminals. As of 1st October 1979, a substantial number of employees were transferred and this necessitated changes in the existing structure of the organization. During the last quarter of 1979, 2104 officials were incorporated into the APN, of which 1260 or 60% were 'reverted', that is to say, had come over from the now defunct ICC. In conclusion, the reversion of Balboa and Cristóbal resulted in a huge increase in the number of port employees, approximately 610%. In addition, the impact of the reversion of Balboa, Cristóbal and Coco Solo Norte translated into a 100% increase in shipping traffic through the national port system during the transition period (1979–1991) [22].

The highest authority in the new port administration was held by the General Director (article 8, Law 42). Immediately under this figure, within the central organization, came two Deputy General Directors, technical and administrative, respectively, to who reported the directors of the Planning, Maintenance, Port Operations, Legal and Administrative Departments. The highest authority in the ports of Cristóbal and Balboa, was the Administrator, assisted by a deputy, who reported to the Director of the Port Operations department. Among the functions of the General Director of the APN was that of "*enforcing the agreements and resolutions of the Executive Committee*" (article 10.5). The Executive Committee was the highest governing body made up of representatives from the Ministry of Commerce and Industry, who held the Chairmanship, and the Ministries of Public Works, Finance and the Treasury, and Economic Planning and Policy, as well as a representative of port workers and users, respectively. (Article 6).

When in 1988, the new IMO/UNDP Programme to support the Panamanian maritime sector was created [23], it made the modernization of the port system a priority. This was a matter of grave concern in both the public and private sectors, themselves in a permanent state of conflict, which was exacerbated by the national crisis of the time [1]. The idea of autonomy in port management [24,25,26] would require the incorporation of representative elements into management bodies, in other words, would require the direct participation of the port authorities, the merchant marine, ship owners, ship agents, the companies operating in the ports, customs officials, merchandise consignees, road and rail transport companies, customs and health authorities. This was considered an especially difficult task given the existing rift between public and private institutions [27,28].

One of the first decisions to be taken following the political crisis that ended on the 20th December 1989 with the occupation of Panama by the Unites States Army was to consolidate the maritime sector and privatize the ports of Cristóbal and Balboa. The latter

became an essential requirement of the international financing bodies, given the interest shown by several international companies. Port activity had clearly fallen alarmingly, in the case of Balboa registering a 50% decrease in traffic. The need for adequate planning prior to privatization also became evident in view of the fact that the modernization process would be tightly controlled by international bodies such as the IADB and the UNDP [29].

In our opinion, the high level of investment required would probably lead to demands for a high degree of autonomy in port management. In earlier studies [30,31] we explained the means by which we prepared, in collaboration with the national authorities, the basis for unifying the various maritime jurisdictions of Panama, which subsequently enabled the statutory creation by public and private consensus of the Panama Maritime Authority (AMP) by Decree Law 7/1998 [1]. The AMP, an autonomous State body ranked alongside the Ministry of Maritime Affairs[3] was to co-ordinate the management of the merchant marine, coastal areas, marine resources, maritime training and ports [32]. The aforementioned Law 7/1998 also created the General Direction of Ports and Auxiliary Maritime Industries whose main functions was to propose and coordinate the plans for development of the national port system and to construct, improve, expand and maintain the ports and their installations (the works could be carried out by contractors). The AMP would also be responsible for operating port services and monitoring and controlling ports that it did not operate directly; administering and controlling concessions for the operation of the existing national ports or others which may be constructed in the future.[4]

4. The privatization of the ports

4.1. Port costs at the end of the 1980s

At this time several major consulting organizations[5] and international organizations[6] were undertaking a number of studies on port operation costs in Balboa and Cristóbal. As part of our research, we analysed these reports as well as financial data relating to the APN, and figures relating to cargo and ship movements for each port from 1981 to 1988. In addition, we analysed a variety of ship types to include all those regularly operating in Panamanian ports in order to calculate cargo handling costs including wharfage, container handling and gantry crane hire. The costs of services such as lights and buoys, tug boats, docking and anchoring, berthing costs, demurrage, water and electricity were also recorded. From this study, we obtained an average handling cost per container for Balboa and Cristóbal (unloading and loading) as well as values obtained from four other rival ports, including the Panamanian Bahía Las Minas, run at the time by a private company [33].

As can be seen in Table 2, Balboa and Cristóbal's average container handling cost (unloading/loading) was 65% higher than Kingston's and 80% higher than San Juan, emerging as the most expensive of the ports included in the study. The lowest costs were seen in Bahía Las Minas, another Panamanian port. That is to say, within the same country, a terminal in private hands was able to reduce handling costs by half, clear evidence, if needed, of the inefficiency of public sector port management [34–36].

Based on the data collected, we prepared a comparative analysis for unloading costs for 400 containers in the ports of Cristóbal and Puerto Limón (Costa Rica). The results were as follows:

- Total unloading costs for the same ship were 160% higher in Cristóbal and the cost per container was calculated at 2.6 times more expensive. Container handling costs from the pier to the container yard, an area where the discrepancies between the two ports were at their largest, were 8.5 times higher in Cristóbal than in Puerto Limón. In terms of cargo handling charges, Cristobal was 192% more expensive than Puerto Limón.

In order to determine which factors could help resolve these problems we undertook a further study on global port costs for Balboa and Cristóbal, based on a comparison between revenue and expenditure in both ports. The following results were obtained:

- Personnel costs had risen dramatically in Balboa. In 1981, they represented 33% of total costs but by 1988 this figure had risen to 78%.
- In 1983, private crane operators in Balboa handled 20% more containers per hour than was the case in Cristóbal in 1988, where the cranes were managed by the APN.
- From 1986 to 1989 losses increased in Balboa. The revenue generated was eventually insufficient to cover personnel costs and led to the deterioration of piers and other installations, turning off potential investors. Suffice it to say that in the previous 7 years a meagre annual average of 6% of total costs had been earmarked for maintenance and by 1988 maintenance spending was as low as 3%.

[3]Dr. Rubén Arosemena, Vicepresident of the Republic, was named Administrator of the AMP following the general elections in May 2004.

[4]Chapter V, artícle 31 Decree Law No. 7 1998

[5]Liverey Henderson, 1980, López Moreno y Tams, 1980. Robert Nathan, 1980. James Buckley Inc., 1984 and PRC Engineenring, 1986.

[6]World Bank, 1987. PNUD/OIT, 1988 and OMI/PNUD, 1989.

Table 2
Unitary cost in dollars per container and number of moves per hour per crane in different nearby ports in 1989

Port	Unloading	Loading	Average	Transhipment	No. of moves per hour per crane
Martinique	90	160	125	242	20
Kingston	229	176	202	284	13
S. Juan PR	198	171	184	258	23
Las Minas	185	153	169	236	22
Cristóbal	351	311	331	463	14
Balboa	363	316	339	470	12

Source: [23].

The data obtained clearly pointed to an urgent need for institutional reform in order to enhance the efficiency of the Canal's terminal ports. Our study highlighted two areas that needed particular attention: employee productivity and personnel costs. It became clear that the APN should be relieved of its operational responsibilities and focus more on general supervision and port sector planning. Cargo handling operations and other services should be handed over to private operators, which is subject to a regulatory framework yet to be defined. Most importantly, the awarding of concessions was to be informed by transparency and objectivity, designed to prevent monopolies and encourage the participation of the major international operators. In 1990, containerized cargo reached 864,000 t representing a 65.5% increase on similar figures for 1980 [37].

4.2. Discussions on the best management models

Several port management models were considered including public sector, private, and autonomous models in order to obtain a wider perspective on the advantages and disadvantages of each model as applicable to the regional setting of Panama. At the time, from a legal point of view, the doctrine of public ownership dating back to Roman Law, prevailed in Latin countries whereas the Natural Rights argument for private ownership of coastal lands and commercial use of ports was popular in Anglo–Saxon countries [25,38]. The diversity of functions implied in the jurisdiction of ports under the control of different ministries and other government bodies, as well as the variety of management models proposed, would require a long and comprehensive debate on the matter.

The concept of the "autonomous" port favours a management approach that would seek not only legal corporate independence from government but which would seek to bring together common interest groups, such as the chamber of commerce, port-users and unions and include them in the administration of port affairs. As an option, this was debated and considered alongside a "centralized" management model which defended the predominance of governmental control based on public interest and majority shareholder arguments as well as on the principle of public ownership as mentioned above. In the end, a decentralized approach (centralized policies but port-level management) was considered, by and large, to be the best choice. It hoped to combine the essence of entrepreneurial action (requiring managerial freedom and financial independence) with the guarantees provided by a central authority resulting, in other words, in public assets being operated according to sound business principles. Its management as a commercial enterprise would be governed by private law whereas where the government was concerned (its internal organization guaranteeing accountability and public control) it was also bound to fulfil certain requirements related to minimum traffic, port charges and concession-raised revenue which was to cover costs and result in reasonable profits [28].

The 1980s saw a boom in specialized traffic which led to the development of superports in an effort to meet the demand for larger reception and distribution areas which traditional ports were unable to provide. These port complexes requiring large investments encouraged the awarding of concessions. Where traditional concessions were still based on simple construction agreements, superport concessions were beginning to envisage the provision of services. In order to attract private capital to these concessions, minimum installation capabilities were to be in place and the following starting criteria was established: project financial viability, comprehensive technical blueprints and the creation of a national company for successful foreign bidders. Fiscal benefits and preferential treatment in the forced expropriation of land were added incentives. International public tenders would be required to submit a breakdown of pricing structures describing the component elements and their relationship to operating costs in order to determine the extent of any repercussions resulting from variations in bids [23].

4.3. The privatization of the port terminals

The Panamanian authorities agreed that operation by the private sector, which it considered better equipped to respond to market requirements, would result in an enhanced efficiency of commercial activities and

services. There was also an overriding belief that public institutions would continue to be run by bureaucrats and characterized by inflexibility. This would hamper any attempts to satisfy client needs. There was a growing interest in privatizing a number of services which had traditionally been state-managed. It was also becoming increasingly obvious that the privatization process could result in benefits to the economy by encouraging investments and creating job opportunities as well as reducing the State's financial responsibility, generating profit for government instead. Port management has long been the subject of debate, controversial at times, on the need to free port management from excessive State intervention and allow space for diversification in port activities, opening doors to investment and outside financial resources and experience [39].

If it is true that the privatization process in Latin America was slow to take off [40], government policy, as seen above, was increasingly aimed at attracting private partners with a view to reducing superfluous bureaucratic interference in operational, financial and labour matters, with its proven record of inefficiency [41]. Panama was no exception and its government began to promote initiatives for the privatization of its ports as a means to enhance the ports' efficiency, given their importance to the national economy. The concept of privatization was not actually new to the APN, given that its legislative framework, seen above, permitted the awarding of concessions and even the outsourcing of certain services [42]. Specialized ports, such as Petroterminales de Panama, specialising in oil, and the banana export terminals of the Chiriqui Land Company were strictly operated by private companies and generated substantial profits. APN activity there was limited to certain aspects of navigational assistance.

Apart from these particular examples, however, the port system was generally government-run, and showed all the signs of inefficiency in management. There was no financial or budgetary independence, for example, and any revenue generated by ports went straight to the public exchequer. Their ability to respond to day-to-day operational problems was slowed-down by interminable red-tape which hampered decision-making on the procurement of equipment, say, or other maintenance matters. [43]. An oversized APN staff was typical of a public institution, which had been allowed to grow unchecked due to an unprofessional approach to management. These problems had resulted in little or no investment from the private sector which conceived of no government support, and had little or no trust in the stability required to guarantee the profitability of its investments given the competitive margins of the industry at the international level.[7] Reform efforts focused on maintaining government ownership of port infrastructures but reducing the administrative functions of the State to regulating, planning and creating new concessions. In order to prepare for the transfer of port operations to the private sector, among the first measures to be taken was the preparation of a Law of Concessions, to be applied to the ports of Balboa and Cristóbal, in which particular attention was paid to the wording on financial matters and the labour force [44].

With the support of the Inter-American Development Bank (IADB), a set of technical, legal and financial requirements were drawn up as guidelines for international maritime companies wishing to bid for concessions. This technical cooperation would assist greatly in the formulation of a Master Plan for the development of new port areas, providing assistance in developing contract requisites and recommendable institutional structures, considering both private and governmental levels of participation. Development plans were also created for new port complexes in Colon, mainly involving the island of Telfers at the entrance to the Canal, which was under the control of the PCC [45].

In July 1991, the Chairman of Evergreen, one of the largest containerized cargo ship owners in the world, advised the President of the Republic of Panama of his interest in investing in the island of Telfers for the construction of a new container terminal and transhipment centre.[8] The privatization process was taking off, thanks to the determination of the government, and a manifest will on the part of the private sector. Port employees also favoured their guaranteed employment by private companies. APN's continued financial and budgetary controls, however, were to hold up the modernization process required by ports if they were to be in the best possible shape to be eligible for concession. The Telfers plans, needless to say, generated a high level of expectation in the Panamanian private sector. They quickly became involved, lobbying for the adoption of these corrective and modernising measures, supervising the privatization process, proposing solutions and participating in specially created committees to meet their objectives.

The new model of port management came into being in April 1995 with the privatization of the port of Manzanillo under concession to Stevedoring Service of America for the development of Manzanillo International Terminal (MIT) (Law 31 of December 1993); the construction by Evergreen Marine Group of the Colon Container Terminal in Coco Solo Norte (Law 12 of 5th January 1996) where operations began in October 1997 and the privatization of Balboa and Cristóbal under concession to Hutchinson Port Holdings through the Panama Ports Company (Law 5 of 16th January 1997) which began operations in March 1997.

[7]LA PRENSA: "APN Directors in favour of Privatization", 29th September 1991. p. 19A.

[8]LA PRENSA, July 1991.

4.4. Port development

Progress in global commerce is closely related to major technological advances in the shipbuilding industry. In containerized shipping, a system has been developed which provides safe, speedy and economical distribution of goods from production to consumer centres, using the container as a common unit of transport, resulting in a significant reduction to cargo handling costs within ports. This system would eventually come to replace a large number of traditional general cargo ships *''since a container ship can undertake the* functions *of seven conventional general cargo ships''*[46].

The spectacular growth in the use of container ships is nothing less than significant and according to the figures in 1984 there were 731 such ships with 824,945 TEUs; in 1989 there were 1122 ships with 1.4 million TEUs and by 2004 these figures had risen to 3054 ships and 6.4 million TEUs. Containerized tonnage, also for this year, stood at 90.5 DWT, representing 10.6% of world DWT [47]. The average capacity for container ships has also increased so that in 1984 average capacity was estimated at 1128 TEUs whilst during the 1990s this figure rose to over 4000 TEUs. In 2004, several units of more than 8000 TEUs were ordered requiring the establishment of larger shipping lines served by mother ships with feeder vessels to supply smaller ports. With the arrival of the container as a common unit of transport for goods, port authorities were suddenly faced with having to reform existing port infrastructures or build new ports as well as having to upgrade facilities for the handling of the new cargo using specialized equipment.

Containerized traffic, and the specialized techniques required for handling containers, was a concept born from the inherent need to keep up with world trade. Countries have had to respond to these changes in transportation methods by establishing new services to take advantage of the new system. Technological innovations have caused changes in the layout and construction of ports, cargo handling equipment, manpower requirements and even the location of ports. New and restructured ports are built away from towns and cities because of the need for more space which is a consequence not only of the increase in goods traffic but also of the appearance of new transportation methods. The size of ships has increased to take advantage of economies of scale and, consequently, longer and deeper berthing is needed. The unitization of cargo requires ports to have large container terminals, specialized layouts and container handling equipment offering specialized maintenance services and a small but highly qualified work force. At the same time, containerization has allowed the expansion of transhipment services in certain ports. In view of these facts, Panama took advantage of its privileged geographical situation to provide the international maritime community with a series of specialized installations for handling containerized cargo.

Another major change has been the transformation of ports into distribution centres. The basic idea consists of extending the role of ports from mere cargo handling centres to terminal points for a particular mode of transport, becoming a link in a process that includes storage and distribution. New services offer logistical support to the import and export industry providing information, documentation, distribution and storage services. The support offered by ports in terms of information technology is available to all its clients and can include notifying loaders and shipping companies of the arrival of goods, reports on quantity and quality control, stock taking, organization of lots for dispatch, issuing statistics, customs documentation, commercial statistics, etc. [48]

The growth of port activities to include distribution services has had a considerable effect on ports and their users, as well as on national economies. The main objective of distribution centres is to coordinate the collection, delivery, transhipment and storage of general cargo. The basic idea is to organize the transport chain so that each link in the chain may be executed by the most adequate method thereby optimising the use of all modes. At the same time, manufacturers could be freed from having to undertake a range of activities, such as storage, not directly related to their respective production processes [46]. The creation of distribution centres has had a considerable effect on the port, its activities and regional economic growth. Wider services have now been introduced including the filling and emptying of containers, product consolidation and storage. Distribution and ancillary services in ports have had a considerable effect on a port's added value and led to increased revenues [48].

In order to stay competitive, shipping lines have chosen to use larger ships where economies of scale reduce the costs per transport unit. Larger ships are easier to operate in terms of loading and unloading, requiring little manpower, and fewer stops on route. Tight schedules have led to ports being chosen for their strategic geographical location, efficiency of service and limited delays. A reduction in the number of stops has also been the gradual trend, now limited to strategic transhipment centres. As mentioned, these changes to routes have led to a drastic reduction in demurrage.

The trend to use fewer but larger ships has led many ship owners, particularly those serving the Pacific route, to consider providing services across the world. This new service would consolidate the three main markets of Asia–North America; North America– Europe and Asia–Europe into one single route, through the Panama Canal. An interest was created around the possibility of establishing one single intermediary cargo centre—or

centerport—between the South Californian and East Coast USA cargo centres. As a ship on such a route would be obliged to navigate through the Canal, this offered great opportunities for converting Panama into this intermediary cargo centre. Putting its privileged geographical situation to good use has been a constant challenge throughout Panama's history. And yet the concept of a geographical vantage point is not in itself a constant, or unchanging, immutable, but a dynamic reality subject to transformations in the market. The Centerport plan represented a rare chance to reinvent the role and potential of this great Panamanian resource [49].

Such a plan would consolidate Panamanian port development strategies. Best use of the Canal zone's unique concentration of transport services for strengthening container transhipment capacity would have to be made. Here was a chance to rationalize containerized cargo services through a distribution centre to take advantage of traffic agglomeration. Because of the nature of the Canal as an inevitable crossing point for many trade routes, this would not imply a detour or lead to unproductive journeying time. Transhipment operations could be completed whilst ships awaited their transit and far from causing delays could provide a healthy alternative for optimizing carrying capacity and operating costs.

The proposed developments would allow the creation of a highly specialied system for container transhipment operating at the Atlantic Ocean terminal (Cristóbal) and the Pacific Ocean terminal (Balboa) which, linked by the railway, would become a single port. Containers would be freighted to either terminal by means of specialized trains. A ship arriving from Asia or West Coast North America would unload its containers in Balboa, and return home after collecting a full load previously supplied to the terminal from other markets. From here, the containers heading for West Coast South or Central America would be loaded directly onto other feeder vessels. Containers heading for East Coast South or Central America would be transported by train to Cristóbal and arrive eventually at their final destination, again, via feeder vessels. Having unloaded and reloaded its container cargo, a main line ship could also choose to transit the Canal and continue uninterrupted to its first North American stopping point.

The marketing potential for transhipment should stress the following advantages: firstly, a system of cargo exchange between shipping lines which would take advantage of the concentration of cargo traffic in Panama for dropping off and picking up containers in a single location, thus extending market reach and making better use of ships' conveyance capacities. This is the primary market potential for the project [50]. Secondly, through the use of feeder vessels, a main shipping line transporting cargo between 'high volume' destinations could transfer its cargo to a smaller vessel delivering smaller loads to ports further away from the main routes. This system would allow optimum use of the opportunities offered by economies of scale, as is the case in the ports of Kingston, San Juan and Miami. The possibilities open to shipping companies could be:

- One-stop, for loading or unloading to or from: West Coast Central America, East Coast Central America, West Coast South America; East Coast South America, North Coast South America and Caribbean Islands.
- The opportunity to establish relations with national-flag liners of Caribbean and Latin American countries for arranging feeder services to or from Panama.
- To continue trade whilst awaiting Canal transit; participate in the national cargo market; consolidate and distribute cargoes destined for Latin America via Panama; establishing a dealing centre for Latin America.
- Maximize revenue for the shipping lines transiting the Panama Canal.
- The opportunity for all-maritime routes to compete more effectively with overland routes, landbrigde routes and mini bridges in the United States and Mexico.

The studies showed that the greatest benefits of using the routes incorporating transhipment in Panama would be reaped by international liners exchanging cargo in Panama, a practice known as "interlining". An example of this would be a carrier serving the Japan to New York market, via Panama. This carrier would agree with another carrier serving the Europe-West Coast South America route, for instance, to exchange containers in Panama. In this way, the Japanese company could widen its market to include Europe and so too could the European company reach the Japanese market. As both firms would now be able to compete more effectively on their routes and even offer new services, this would result in larger conveyance loads. Larger cargo loads would justify the use of bigger ships with the added advantage of economies of scale. In addition, ships could arrive and depart from Panama at full capacity which better use of on-board capacity would undoubtedly yield larger profits [51]. At the time it was estimated that in order to reach handling targets of over a million containers a year by 2000, an investment of over 220 million dollars in infrastructure and 110 million dollars in equipment would be required. The financial analysis of the project showed positive results. Conservative estimates based on a basic charge of 120 dollars per container move and an effective interest rate of 12% would yield net profits in the region of 84.5 million dollars in 1988.

5. Conclusions

The spectacular take-off of activity in Panamanian ports is based on the same idea as it has been for many centuries: connecting a network of ports on each side of the isthmus via a canal, a railroad[9] and a transisthmian road. The administration of such a national port system had been out of Panamanian hands, managed as it was by several United States federal agencies, until the entry into force of the Torrijos–Carter Treaties in 1979. The body then created to manage it, the APN, showed over time to be unable to create the right environment to exploit the strategic location of its ports, despite the optimum conditions present at the time: ships transiting the canal, the quality of life in the country and the dollar as legal tender, to name but a few. Prior to the transfer of the Canal, the crisis at the end of the 1980s led to a decision to develop the maritime sector and particularly the port systems located close to the entrances to the Canal. This was considered a prudent and decisive requirement by the international financing institutions, as the first step towards privatization. The privatization process initiated in 1995 has led to dramatic growth in containerized moves from 486,701 TEUs that year to 2.4 million TEUs in 2004. Operations at MIT, PPC and CCT are showing excellent results. See Table 3.

MIT is ranked among the 10 most efficient terminals in the world. It has 1240 m of container berths and 200 m of Ro-Ro berth with space for 6 postPanamax and 2 super postPanamax vessels. A year after operations commenced it received 914 ships, moving 351,900 TEUs and 5406 vehicles with a productivity rate nearing 29 containers/h. Figures for 2004 indicate that over 2000 vessels were received, moving more than 1.47 million TEUs with a productivity rate as high as 42 containers/h and some 50,000 vehicles. Investment has exceeded 300 million dollars and there are new proposals for expansion into distribution of equipment and vehicles in Central America and the Caribbean as well as strengthening cargo transport from Brazil to New Zealand and Australia. This will require some 35 million dollars of new investment in 2005 [52–54]. A new logistical centre is also planned (Fig. 1).

PPC operates the ports of Cristóbal and Balboa hoping eventually to develop them into major hubs to serve the Atlantic and Pacific trade routes. The port of Cristobal offers 2940 m of berths and 11,800 m^2 of storage area. A modernization programme will include the refurbishment of 320 m of quay, 8.5 hectares of container yards and the procurement of 4 rubber-tyred gantry cranes (RTG). This terminal also makes use of an advanced computer system in its vessel and terminal operations providing information through EDI links (Fig. 2).

The port of Balboa offers 610 m of berths and 14.2 hectares of container storage areas, complete with 6 super post-Panamax cranes. Phase III of the development project with an investment of 200 million dollars has itself created an extra 270 m of quay, 3 new super post-Panamax cranes and 24 RTG, and included the dredging of a 13 m access canal. Currently the whole of the Balboa's capacity has been engaged by Maersk Sealand [55]. Investments in 2005 are expected to reach 100 million dollars [53]. PPC's two terminals are connected via rail link (Fig. 3).

CCT with an initial investment of 100 million dollars and expansion projects estimated at a further 50 million, offers a 25 hectare terminal with 612 m of container berths 14 m deep, and is equipped with 5 Panamax gantry cranes, with a capacity to service 2 Panamax ships or 4 feeder ships simultaneously. Its container yard can handle up to 500,000 TEUs [56]. Investment estimates for 2005 are expected to reach 20 million dollars [53].

The concessions awarded to the above firms vary only slightly in scope and length. MIT, for instance, has a 20-year concession, renewable for a further 20 years, for the construction, operation, administration and management of the container terminal, its infrastructure and facilities in the Port of Manzanillo, Coco Solo. CCT has a 20-year concession, subject to automatic renewal for a similar period, provided that the Company has met its contractual obligations in the development, construction, operation, administration and management of the container terminal in the Port of Coco Solo Norte. PPC's concession is for 25 years, renewable for a further 25 years, for the administration of the ports of Cristóbal and Balboa, where the existing infrastructure is under lease and tax benefits have been awarded for port activities such as container cargo handling on Roll-On/Roll-Off Ferries, Passenger ferries, Bulk Cargo and General Cargo vessels.

If it is true that there are risks associated with a privatization process similar to that undertaken in Panama, which could lead to foreign monopolies effectively controlling the maritime industry, it is no less true that the dynamic effect on the national economy has been spectacular. Panama has become one of the most efficient economies in the region, enjoying a significant increase in its GDP. In addition, foreign controls are kept in check by the AMP's statutory controls [32].

It is important to highlight the active role of the concessionaires in the national maritime sector, not only in generating substantial employment at all professional levels but also as members of the Panama Chamber of Shipping (PCS), an institution involved in the

[9] In 1998 the Panama Canal Railway Corp, a subsidiary of Kansas City Southern Railway, and Mi-Jack Products were awarded a concession to build a modern 80 km long railway at a cost of 80 million USD. In 2004 it transported an average of 1000 boxes/week.

Table 3
Container operations in Panamanian ports in thousands of teus between 1997–2004

	1997	1998	1999	2000	2001	2002	2003	2004
MIT	582.2	759	876.1	1016	948.6	943.1	1125.8	1473.2
PPC			139.4	134.3	399.6	411.9	496.9	513.5
CCT		282	202.5	180	210.4	280.5	335.1	420.1
Other private	194.8	114.3	50	29.4	32.8	36.8	33.9	22
Total private	777	1155.3	1268	1359.7	1591.4	1672.3	1991.7	2428.8
Total públic	32.5	0.16	0.33	0.03	0.08	0.08	0.09	0.09
Grand total	809.5	1155.4	1268.3	1359.8	1591.5	1672.4	1991.8	2428,9

Source: Autoridad Marítima de Panamá.

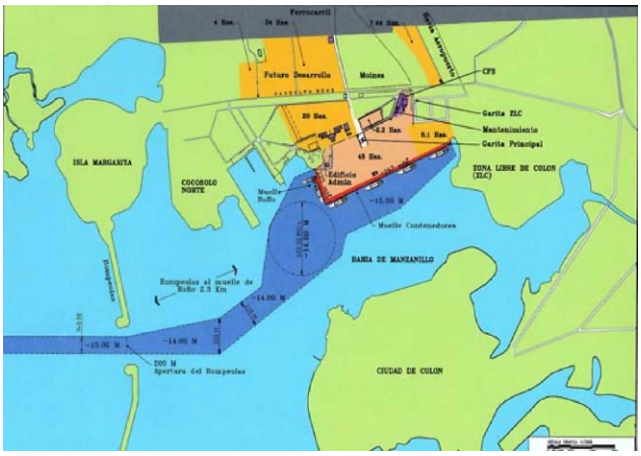

Fig. 1. Manzanillo International Terminal. *Source*: [54].

decision-making process at board level within the AMP, ACP and other government organizations. The PCS has over 70 active members including Evergreen, Maersk Sealand, P&O Nedlloyd, Coscos and APL and among its strategic objectives is the development of the country as an international maritime centre.

Official figures for 2003 indicated a total throughput of 25.8 mt representing a 21.8% increase on 2002 with the following breakdown: 10.5 mt to bulk cargo, 14.5 mt to containers and 0.83 mt to general cargo. Private ports moved a massive 25.52 mt for every 0.28 mt moved through State ports. Annual growth in the containerized cargo segment was as high as 24.5%. These figures are significant for the impact that port activity has had on the national economy and it is estimated that over 30% of economic growth is attributed to port activity. In general, terminals are handling between 30 and 42 containers/h on a par with the most efficient ports in the world. Panama has the potential to become a multi-modal and logistical centre, reducing distribution, transport and storage costs, provided it addresses the weak points in the system, such as the Panama–Colon highway. This is particularly the case given its lack of competition, particularly on the Pacific side.

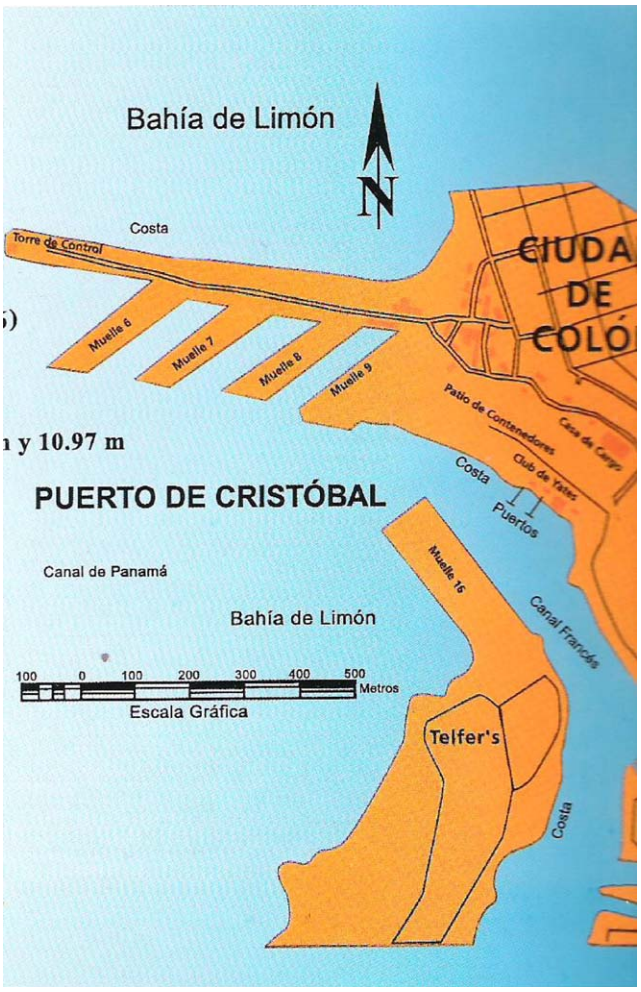

Fig. 2. Cristobal Harbor. *Source*: [55].

Undoubtedly, a determining factor in port growth has been China's entry into the World Trade Organization, not lost on us is the 10.1 million TEUs shipped from Asia to the USA, over 20% of which was destined to the United States East Coast. Conversely too, some 4.2 million TEUs were sent back the other way, boosting port expansion projects in New York, Norfolk, New Jersey and Charleston [57].

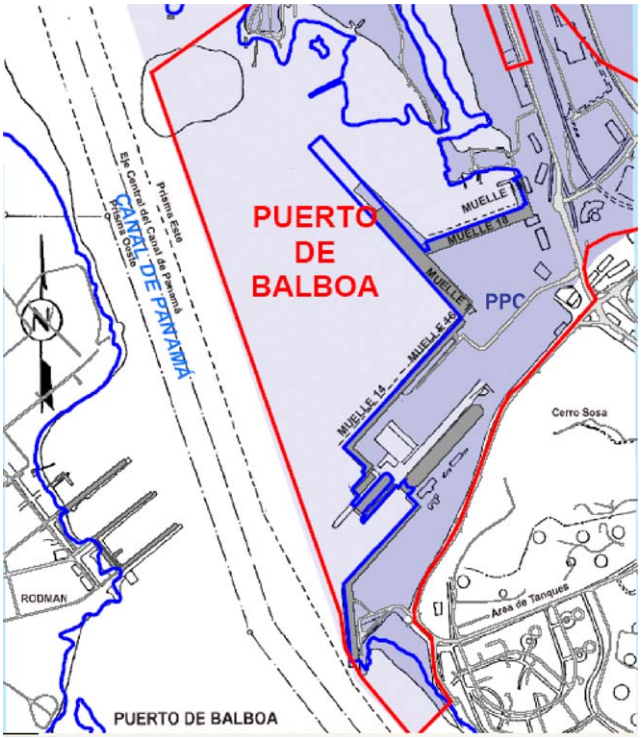

Fig. 3. Balboa Harbor. *Source*: [55].

The growth of ports and containerized traffic in Panama must, of course, be analysed from a perspective of extending the Canal and the future development of mega container ships. If it is true that in 2005 the canal authorities will be looking at proposals for handling 12,000 TEU vessels, it is no less true that there is concern about the operation of these large container ships, which would need longer stays in port and could affect current journey times. Keeping up with current trip schedules would require shorter transit times with the use of newer and faster equipment and a presumable increase in overhead costs [58].

The construction of a mega port on the Pacific coast and the port expansion projects on the Atlantic coast would cost an estimated 1 billion dollars with 12,000 new jobs generated and the capacity for handling 4 million TEUs a year. The fact that large shipping companies such as Maersk Sealand and MOL are opening offices in Panama is an encouraging sign for the future of this project. Coscos, too, with an average of 400 canal transits a year, is now beginning to operate out of Panamanian ports. This, added to the Canal Master Plan objectives to be developed over the next 20 years lead us to believe that Panama's port system is on the road to consolidating itself as the largest port system in Latin America, which added to the importance of its Canal and its open registry flag make Panama nothing less than a world-class maritime country.

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