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The Future Sea-level Canal

Panamá, 1983.
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1962-1964. Graduate Studies at the Faculty of Law, Yale University (L.L.M.).


1979. Designated by the President of the Republic as Personal Representative before the Japanese Government, in all matters concerning studies for a Sea-Level Canal. On this mission, he had the opportunity to make the acquaintance of the Japanese First Ministers Masayoshi Ohira and Zenzo Suzuki.

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The essay published on the occasion is the valuable contribution which he made to the Maritime Symposium held in Panama City on September 20, 1982.

The Editors.
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The Future Sea-level Canal

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I. A BIT OF HISTORY

The Panama Canal is not a marine canal in the real sense of the word. It is a fresh water bridge over the isthmus of Panama, transporting annually some 200 million tons of cargo, in over 15,000 merchant vessels, between the Pacific and Atlantic Oceans. (1) It was originally conceived as sea-level canal and the Compañía Universal del Canal Interoceánico de Panamá, backed by the genius of Ferdinand De Lesseps, began its construction on February 1, 1881. (2)

In 1887 the French, in order to put the canal into operation and make its construction profitable as soon as possible, decided that it was necessary to change the original design into a locks canal which, in due course, would be converted into a sea-level canal. This change was brought about by the economic problems faced by the company. The new design made the completion of this work less costly and far speedier. The design approved then consisted of a single lane canal with five locks on the Pacific side and the same number on the Atlantic side. (3)

These locks would have a size of 180 meters long by 18 meters wide (590 feet by 59 feet). The locks would raise ships to a level of 49 meters over sea-level. (161 feet) (4)

The bankruptcy of Compañía Universal del Canal Interoceánico prevented the completion of this and its successor, Compañía Nueva del Canal de Panamá, sold its rights to the American Government in 1903, before actually beginning the construction of the locks.

Upon the American Government resuming the works on the canal, it went back to the original idea of a sea-level canal. (5)

In 1905, President Theodore Roosevelt, designated an international committee made of thirteen experts, eight American
and five Europeans, to decide what type of canal should be built. This commission recommended, by an eight to five majority, the construction of a sea-level canal.

Roosevelt, however, adopted the project of a locks canal. His decision was based on the fact that the locks canal represented savings of 100 million dollars and from 3 to 4 years in time for completion of the canal. (6)

In 1908, upon request by the US Navy, the size of the locks proposed in 1906 was increased so that its biggest vessel in its construction plans, the battleship Pennsylvania, would be accommodated and the biggest merchant ship then under construction, the Titanic, measuring respectively: 98 and 94 feet in width. (7)

The locks were designed with a length of 1,000 feet (333 meters), by 110 feet (34 meters) wide. (8)

II. INTEREST IN THE SEA-LEVEL CANAL

The United States of America has always been interested in a sea-level canal in the Central American Isthmus, considering the locks canal only a temporary solution to the communication between the Atlantic and the Pacific Oceans.

Several technical studies have been conducted since 1920, the year in which the present canal began operating. The most important ones were conducted in 1947, 1949, 1957, 1960, 1965. All of these studies had a common denominator which was to explore the possibility of building a sea-level canal in the route of the present canal, studying also other possible routes and construction methods, and investigating the possibility of using nuclear energy. (9)

All of these studies were included in the great study prepared upon request of President Johnson, as part of the American strategy in its commitment to negotiate a new relation-
ship with the Republic of Panama concerning the interoce-
nic canal. The "Commission for Studies of the Atlantic-Pacific
Interoceanic Canal" was created for such purpose on 1964,
with the following objectives:
1. To determine the feasibility and the best route for a sea-
   level canal.
2. To determine the best construction methods.
3. To estimate construction and operations costs of the Canal.

(10)
The conclusions reached by the above-mentioned study de-
termined that the best route would be Route 10, Puerto Cai-
mito-Lagarto. The possibility of using nuclear energy in buil-
ding a sea-level canal in any route was completely ruled out
and the building cost through Route 10 was estimated at 2.9
billion Dollars. This study was completed in 1970. (11)
The canal's capacity was designed for vessels of 150,000
displacement tons at low tide, and 250,000 displacement
tons at high tide. Transit capacity was estimated at 38,000
ships per year, which could be increased to 56,000 with the
addition of a detour canal, 14 miles longs. (12)

III. THE 1977 PANAMA CANAL TREATY
A. The Torrijos-Carter Treaties, signed in Washington on Sep-
tember 7, 1977, completely changed the juridico-political
structures of the Panama Canal. The "Panama Canal Trea-
ties" put an end to the American jurisdiction over the Ca-
nal Zone, and it was agreed that on the last day of this cen-
tury, the waterway, its infrastructures and operations would
become the sole property and responsibility of Panama.
The United States, however, by the "Treaty concernign
permanent neutrality of the Canal and the operation of the
Panama Canal", assumed the right and obligation to main-
tain the regime of neutrality established in this Treaty, which regime is applicable to any other international waterway constructed in all or in part in Panamanian Territory; that is to say, any other possible canal, including, of course, a Sea-level Canal. (13)

B. Article XII of the 1977 Panama Canal Treaty provides in its first paragraph, that:

1. The Republic of Panama and the United States of America acknowledge that a Sea-level canal may be important for international navigation in the future. Consequently, during the term of this treaty, the Parties agree to study jointly the possibility of such canal in the Republic of Panama and, in the event of deciding in favor of the need for same, they shall negotiate the terms which both Parties may agree to for the construction of such canal. (14)

IV. ACTION BY MIKE GRAVEL AND SHIGEO NAGANO

JAPAN’S INTEREST

The above-mentioned Article was included at the last minute by the American delegation to the negotiations, upon insistent request by the then Senator from Alaska, Mike Gravel, who, during the last years and up until 1980, when he lost his re-election to the U.S. Senate, was the main promoter of the Sea-level Canal in the United States of America. (15)

Senator Gravel always counted in Panama with the backing of General Omar Torrijos, Chief of Government until 1978. In Japan, Mr. Gravel had the support of the powerful President of the Chamber of Commerce, Mr. Shigeo Nagano, and of the Ambassador of Panama in that country, Mr. Alberto Calvo.
In November, 1979, Senator Gravel, Shigeo Nagano, Alberto Calvo and a representative of the President of Panama, had an interview with the Prime Minister of Japan, Masayoshi Ohira, in order to awaken the interest of the Japanese Government in the study of a Sea-level Canal, since both Gravel and the Panamanian Government considered the Japanese participation in this project, essential to its success. (16)

Mr. Shigeo Nagano visited Panama by the end of January, 1980, as official guest of the Government, heading a delegation made up of the Chairmen of the Boards of Directors of the most important corporations of Japan. According to the Japanese press, such a representative delegation had never been sent abroad before.

Among the delegates, were the presidents of the Industrial Bank, the Bank of Tokyo, The Mitsui Bank, the Fuji Bank, the Mitsubishi Corporation, C. Itoh, N.Y.K., the largest shipping company in the world, and Penta Ocean, the largest dredging company in the world. (17)

Nagano declared that Japan’s interest in a Sea-level Canal was widespread throughout the Nation, but that the participation of the Japanese Government was conditioned to the acceptance by the United States of such participation and, of course, to the North American economic support of the project.

In March, 1980, the President of Panama makes an official visit to Japan and one of the main themes dealt with the Japanese Government was Japan’s participation in the Sea-Level Canal Project. The Japanese Government indicates its interest in participating, if invited jointly by Panama and the United States. (18)

At the same time, the Panamanian Government takes some actions before the United States Government to begin studies
for a Sea-level Canal. Thus, upon submitting his credentials before President Jimmy Carter, on August 22, 1980, the new Ambassador of Panama before the White House, stressed this point and received a positive answer from Carter. (19)

Mr. Reagan’s triumph in the elections of November, 1980, halted the project’s progress, which had already been affected by the death of Prime Minister Ohira, in May of the same year. In addition, with Senator Gravel’s failure to be re-elected to the U.S. Senate the most forceful advocate of the project in the United States Government was lost, leaving a hard-to-fill vacuum.

In November, 1980, the Panamanian Government makes direct contact with the new Japanese Prime Minister, Mr. Zenzo Suzuki, who reaffirmed Japan’s interest in the project and ratified the position adopted by Mr. Ohira’s Government; offering also himself, to act as a link with Mr. Reagan’s Government, in order to get him interested in the project. It must be remembered that Mr. Reagan had been a public enemy of the Torrijos-Carter Canal Treaties, especially in reference to the Panamanian jurisdiction over the Canal Zone and what then called the eventual “give away” of the Panama Canal. (20)

V. PARTICIPATION BY THE AMERICAN GOVERNMENT

In March, 1981, the Ambassador of Panama in Washington sent an official note to the Secretary of State proposing that the United States, together with Panama and Japan, conduct a feasibility study for a Sea-level Canal. (21)

Mr. Nagano returned to Panama in May, 1981, invited by President Royo and General Torrijos, for the dedication of “Nagano Hill”, a hill located in the projected route of the Sea-
level Canal. Upon returning Tokyo, Mr Nagano made a stop over in Washington and came into contact with influential Republican advisers to President Reagan, who stated that the new Government needed time before adopting any decision on the matter. (22)

On the same month of May, 1981, Mr. Susuki made the traditional visit by the Japanese Prime Minister to the United States and formulated to President Reagan Japan’s interest in participating, jointly with the United States and Panama, in the feasibility study for a Sea-level Canal. President Reagan’s answer concerning the conducting of feasibility studies was positive. (23)

The decision of the Reagan Government is contained in a letter addressed by the Secretary of State to the Panamanian Ambassador in Washington on August 27, 1981.

In this note, the American Government reaffirmed the obligations of the two Governments, in accordance with Article XII of the Panama Canal Treaty to conduct jointly any feasibility studies for a Sea-level Canal before the year 2000, praised the Panamanian Government’s initiative to conduct the study with Japan’s participation and noted the U.S. favorable reaction to such an initiative, all of which had already been disclosed to Japan, who was asked, in addition, for a unilateral revision of the results of the Canal studies conducted in 1970. The note also pointed out that Japan had informally communicated to the United States Government its desire to proceed with such studies and stated, as well, that the United States had decided, in principle, to participate jointly with Panama and Japan, in the feasibility study for a Sea-level Canal, or its alternative. The note proposed, likewise, that the road to attain this objective was for the Consulting Committee to make a recommendation to both Governments as follows:
a. An exchange of Notes to state for the record that the obligation which Article XII of the Treaty imposed upon both Governments would be fulfilled with the U.S. participation in a trilateral or multi-lateral study.
b. Appropriate mechanism and the timing thereof to invite Japan and other countries to participate in such study.
c. Forming a Preparatory Comission made up of representatives of Panama, Japan, the United States and other international entities, to propose objectives and guidelines to be followed by the study. (24)

VI. RECOMMENDATIONS BY THE CONSULTING COMMITTEE

Having been taken the decision by the American Government to provide its support for a Sea-level Canal with Japanese participation, diplomatic talks were initiated to carry out the agreement in-principle by the two countries.

It was thus that on October 22, 1981, the Consulting Committee for the Panama Canal, began conversations to implement Article XII of the Canal Treaties. On January 4, 1982, a Special Sub-Committee headed by Mr. Omar Jaen Suarez from Panama and Mr. Richard Wryough from the U.S. began conversations. The conversations concluded with a draft of an agreement, adopted on May 19, 1982. The topics for these conversations were also consulted with the Japanese Government. The draft of the agreement consisted primarily in proposing a diplomatic exchange of notes to create the Preparatory Committee for the Studies and to invite Japan, formally, to become Full Member in this Preparatory Committee. (25)

On June 17, 1982, the Consulting Committee of the Panama Canal met and accepted the Sub-Committee's recommen-
dation. At this time, both Foreign’s Affairs Offices, are preparing diplomatic documents to put the agreements in force. (26)

VII. PERSPECTIVES FOR THE FEASIBILITY STUDY

The feasibility studies for a Sea-level Canal or its alternatives, which should take about four years to be completed and will cost several million dollars, shall provide adequate answers to the great number of questions posed by the construction of a Sea-level Canal in Panama at scarcely 16 miles apart from where the present canal is located, in the route known as Route 10, Puerto Caimito-Lagarto.

We can narrow down the main dilemmas to ecological and economic, since, from our point of view, the Sea-level Canal does not present any problems of a political or engineering nature which cannot, particularly in this last aspect, have an adequate solution with modern technology.

The political aspect was adequately solved by the “Treaty concerning permanent neutrality and operation of the Panama Canal.”

The Sea-level Canal must necessarily be owned, operated and protected by Panama under the principles of the Treaty already mentioned. It may not have a juridical status other than what the present canal will have upon completion of the century, in scarcely 17 and half years.

VIII. THE ECOLOGICAL ASPECT

An important part of the studies must necessarily be dedicated to examining the adverse ecological effects which could be brought about by the Atlantic Ocean coming into contact with the Pacific Ocean in the Central American Isthmus, as a result of the Sea-level Canal. It must be noted that the pre-
sent canal is only a fresh water bridge between the two oceans and is, therefore, an effective barrier against the integration of the two.

If the studies should determine the possibility of danger to the ecological stability of the oceans, then the engineering designs must search for the necessary barriers to prevent this from happening. The present developments in sciences and technology ensure that the ecological problems which could arise are no obstacle to the eventual construction of a Sea-level Canal.

IX. THE ECONOMIC CONCERN

This shall be, in our opinion, the main subject of the feasibility studies for a Sea-level Canal. The canal is nothing more than mean of transportation and should be studied as such. But the study of this mean of transportation must be profound and universal in scope, taking into account the passage of time and the implications and effects it will have.

As to the effects of the passage of time, the study must look beyond the economy of transportation itself and extend to the whole economies of the nations using the same. As to space, it must be universal, covering both continental and world trade and, as to time, it must adapt itself to the vision of the men of science, well beyond the year 2000.

If the present canal had been built as designed by De Lesseps, with limited locks of 180 meters in length and 18 meters wide, the same would have been obsolete may years ago. Roosevelt’s vision to increase the size of the locks resulted in the canal having been operating for sixty eight years and still being useful until the year 2000 and maybe even beyond such date. Roosevelt bore in mind the war and his criterion was based on the size of the largest battleship in naval plans.
The future canal must inspire itself in peace: the structure of world commerce in years to come. To express with greater propriety the magnitude of the studies which we foresee, we could say that the feasibility study for a Sea-level Canal shall, in fact, be the most comprehensive study of the world economy and of the commercial exchange between nations ever intended.

X. THE PRESENT CANAL

The main problem of the present canal is its saturation, which had already evidenced itself sporadically, but in alarming proportions, in the last three years; (27) and the future indicates that the time will come when delays in crossing the canal will be such that crossing the canal, shall cease to be an economical route. There is general agreement that this saturation shall bring about the obsolescence of the canal by the year 2000, in spite of all of the provisions being made to increase its ship transit capacity. The transisthmian oleoduct which shall begin operating in a few days, will provide great relief for the saturation problem: three great tankers per day shall stop using the canal. If there were no Sea-level Canal, new alternate routes to the Panama Canal would have to be created, or existing ones would have to be made more attractive. But since not all of them would be in Panama, our economy would be affected.

A. CANAL STATISTICS

In order to appreciate the degree of saturation of the present canal, I will provide some statistics on the use of the same:
<table>
<thead>
<tr>
<th></th>
<th>1920</th>
<th>1940</th>
<th>1960</th>
<th>1980</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Tons of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>the Panama Canal</td>
<td>7.9</td>
<td>24.1</td>
<td>59.3</td>
<td>183.2</td>
<td>201.5</td>
</tr>
<tr>
<td>Total Transit</td>
<td>2,745</td>
<td>5,943</td>
<td>12,147</td>
<td>14,725</td>
<td>15,400</td>
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<tr>
<td>80’ in Width</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>456</td>
<td>6,089</td>
<td>7,081</td>
<td></td>
<td></td>
</tr>
<tr>
<td>90’ in Width</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>146</td>
<td>3,727</td>
<td>4,354</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average in Canal Waters</td>
<td>less than 15 hrs</td>
<td>34.9</td>
<td>34.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average for Canal Transit</td>
<td>less than 7 hrs</td>
<td>9.1</td>
<td>10.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is remarkable how the number of ships over 80’ in width increased from only 8 out of 6,694 in 1950, to 7,081 out of 15,400 in 1982. It must be noted also that the number of hours spent by ship in canal waters which was less than 15 hours in 1960 has increased to 34.5 hours in 1982.

The present canal is designed to transport 38 ships daily. Its capacity may be increased up to a maximum of 48 ships per day. (28). At the present time an average of 42 ships cross the canal per day, but not with perfect cronometric regularity each day of the year. Thus, a third of the annual time is actually above average, resulting, therefore, in a situation of saturation, with lengthy delays.
Statistics show that the natural growth rate of canal transit per day shall bring the same to its average maximum capacity by the end of the century. They also indicate that the number of hours spent by ships in the canal shall necessarily increase, since everyday there will be a greater percentage of larger ships in the world’s marine and such situation might dissuade the ships from using the Panama route.

How much do shipping companies have to pay for each additional hour spent by their ships on the canal? If we look at the year 1982, during which there was a transit of 15,400 ships and the average tonnage was considered to be 14,000 with shipping companies paying one Dollar per day per ton, the savings of 20 hours spent in canal waters, per ship, would represent a total of about 180 million dollars per year for these shipping companies. (29)

B. ECONOMIC JUSTIFICATION ON THE SEA-LEVEL CANAL

The Sea-level Canal may be economically justified, but may not be financially justified with today’s data. Let's see:

The effect of a Sea-level Canal on the world’s economy, by reducing considerably the cost of the commercial exchange between countries, would ensure the cost of such exchange, opening new markets and new transportation concepts, and turning the Pacific and the Atlantic into one great Ocean, all of which more than justifies the investment.

Financially, the picture is different. If, in order to justify the investment, one must make a financial equation of invested capital, interest on capital, annual principal repayments, operations costs, payments to Panama all of which must emanate from tolls and incidental services, then the canal cannot be built—not even with interest at a rate of 10% and with a
repayment period of 100 years - since no vessel could pay a
toll high enough to repay the capital invested, being, approxi-
mately, 13 billion dollars. (30)

That is why in financing the canal, one cannot follow a
strictly commercial criterion. De Lesseps failed completely in
thinking that he could justify its investment. Roosevelt made
no mistake and justified the canal as military and economic
investment for the future of the United States.

The new canal must be justified as an investment for peace
and its users must contribute to the same as such, providing
donations, in so far as possible, by all Nations of the World.

Thus, the economic study must determine the total cost of
this magnificent work: financial cost and non-financial invest-
ment.

The latter, even if it does not pay-up or yield any interest,
shall however
would avoid the economic and social upset which would be brought about by the unemployment of thousands of Panamanian who work in there, thus eliminating the most negative aspect for Panama of the construction of a Sea-level Canal.
NOTES

2.- McCullough David, The Path Between the Seas, 1977, p. 131
3.- Id p. 194
4.- Id. p. 194
5.- Id. p. 446
6.- Id. p. 481-487
7.- Id. p. 539
8.- Id. p. 539
9.- Commission for Study an Atlantic-Pacific Interoceanic Canal Table 2-1 V-13 (Courtesy of Omar Jaen Suarez)
10.- Id
11.- Id V-225-241 as well as Table 19-1, V-215/V-216/V-217 V-218
12.- Id V-225
14.- Id
16.- The author was the representative of Panama before the Minister of Japan.
17.- The author was in-charge of the Japanese delegation during its stay in Panama.
18.- The author accompanied the President in official visit.
19.- From the records of Omar Jaen Suarez.
20.- The author was the President's personal envoy.
21.- From the records of Omar Jaen Suarez.
22.- The author was in-charge of Mr. Nagano in Panama.
23.- Information provided by the Ambassador of Panama in Japan, Alberto Calvo.
24.- From the records of Omar Jaen Suarez.
25.- Id
26.- Information provided by Omar Jaen Suarez.
29.- 15,400 ships x 20 hours — 14,000 daily - 24 — $584 x hour 584 x 308,000 — 180,000.00
30.- The 1970 studies conducted by American, add up to 2,888,000,000.00. This cost in 1978 was calculated at 8 billion Dollars. The estimate of Penta Ocean in 1979 for a canal with greater capacity (300 thousand tons) was 12 billion.
This publication was printed in the month of May of 1983 in the city of Panama.