Lessons of Thailand's Kra Canal project

by Ramtanu Maitra

Mr. Maitra, an engineer, is the editor of Fusion Asia, *based in New Delhi. This presentation was made at the Atrato-Truandó Canal Conference in Bogota, Colombia. Text abridged.*

You may be wondering why have I come all the way from Asia to talk about the Kra Canal, when this conference is about the Atrato-Truandó Canal. To clarify this question, look at a Pacific-centered map that shows the trade flow through the Indian Ocean into the Pacific Ocean. With a bit of effort, trade among Asia, Africa, Australia, and the Americas can be made more prolific. In other words, the entire area can function as one family.

But we are restricted from functioning in this way because of the very few, inadequate waterways. We have a natural waterway, the Malacca Strait, in the southernmost part of Asia, which is overloaded and at present causing a bottleneck. This is a serious problem, since this strait is the only trade route that connects the Arabian Sea-Indian Ocean to the Pacific region. Then, we have the little Panama Canal which connects the Gulf with the Pacific Ocean. The Panama Canal is inadequate to the point of being useless. We are moving into the 21st century with 18th-century infrastructure, trying to support three times the population that existed then, and at the same time trying to think about the future. It is clear that we have to overcome these inadequacies and build the Kra Canal and the Atrato-Truandó Canal.

We have run into this problem because we have not built up such basic infrastructure for a long time, and this is taking a massive toll on the world economy. We built the Suez Canal in the 1860s, and the little Panama Canal in 1914. There is no doubt that these canals helped us over the years, but now we find them inadequate and a definite bottleneck to the increasing trade flow.

You may be wondering why I am referring to the Panama Canal as the "little canal." We are building more cost-efficient 300,000 dwt ships which cannot go through the canal, since the Panama Canal is small, even for 60,000 dwt ships.

Look how this little canal is affecting the world economy. In order to allow ships to pass through the Panama Canal, we have come up with a specification called the "Panamax," which simply means the maximum size of ship that can pass through this canal. We are deliberately building inefficient carriers, and so, for example, it comes out cheaper to lay oil pipeline across the land connecting the two oceans, than to carry oil in those small ships. The constraints on the canal also mean that ships of 200,000 dwt or more, carrying iron ore from Carajas, Brazil to Japan, have to go below Africa. This has lengthened ships' travel time and fuel consumption astronomically.

Unless we are able to implement great projects, such as the Kra and Atrato-Truandó canals, we will run down the world's economy and depopulate the planet. This is already happening in Africa. The lack of infrastructure causes stagnation in productivity and in the economic process as a whole. Lack of adequate waterways and port facilities is bleeding every nation's economy, through increased delivery and handling costs. We are generating wealth and then squandering it on delivery and handling costs.

How the Kra Canal project was revived

We in the Fusion Energy Foundation [FEF] have gone through an interesting process, in reviving the Kra Canal project, which is almost as old as the concept of the Atrato-Truandó Canal project. Let me tell you how we came upon this idea.

In 1975, Lyndon H. LaRouche, Jr. visited Iraq and proposed setting up an International Development Bank, in order to realize the potential for worldwide economic development. He was aware that a large amount of cash is sloshing around, and unless this money were channeled into building up basic infrastructure, the world's economic productivity would continue to go down and the cash would be funneled into drug production, casino building, and other disastrous investments. You can see for yourself how justified his fears were.

Mr. LaRouche's proposal set some other people thinking. In 1978, Mitsubishi Research Institute (MRI) of Tokyo, under its chairman Takeo Nakajima, proposed the establishement of the Global Infrastructure Fund (GIF)—a $500 billion fund to build large infrastructure projects. Mr. Nakajima mentioned a few projects in his initial list, which included both the Kra and Panama Canals.

In the '70s, most of the non-oil-producing developing nations had gone through economic contraction, because of the two oil-price hikes that drained these countries' economic surpluses. By the end of the decade, we found that some of the countries were again beginning to think of developmental investments.

Around 1981, the FEF began to explore with the MRI the task of bringing these projects to public notice. In 1982, a representative from the FEF visited Bangkok and met with Dr. Svasti Srisuk, former chairman of the Thailand Atomic Energy Commission. Dr. Srisuk is a strong proponent of building the Kra Canal and had studied carefully the pros-

pects of using peaceful nuclear explosions (PNEs) for digging the canal. In 1983, Dr. Uwe Parpart, Research Director of the FEF, along with Dr. Srisuk, met with K.Y. Chow of the Thai Oil Refinery Co. Mr. Chow in 1973 had financed an economic feasibility study on the canal. The study was carried out by TAMS [Tippetts-Abbett-McCarthy-Stratton], Robert Nathan Associates, and the Lawrence Livermore National Laboratory.

The Kra Canal project has a long history. It was conceived about 200 years ago by the younger brother of King Rama I of Thailand. DeLesseps, who built the Suez Canal, had done a geological feasibility study and was interested in getting the canal built. However the colonial interests in the region were too powerful at that time, and building such large infrastructure projects was politically extremely difficult. In fact Great Britain had an agreement, which remained in force until 1946, which said that Thailand would require Britain's permission to build the canal. In 1972-73, the proposed canal became a major issue in Thailand, and the Thai government was pushing the project. But in 1974, as so often "happens," a violent coup overthrew the government and the Kra Canal project was shelved again.

In October 1983, following our meetings with influential Thai individuals, the FEF held a conference, in collaboration with the Thai Ministry of Communication. LaRouche spoke at that conference and Thai Minister of Communication Samak Sundaravej inaugurated the conference. We laid out a plan for how to build the canal and discussed its importance in facilitating trade connecting the Indian Ocean economically with the Pacific region.

In 1984, we held another two-day conference in Bangkok, stressing this time the industrializing potential of Thailand that can be materialized through the building of the Kra Canal. The subject of regional participation was also discussed, and members of the Association of the South East Asian Nation (ASEAN) countries, along with representatives from Japan and India, attended.

Benefits of the canal

Now let us look at the Kra Canal project itself. What most people usually think of is the increased trade that the canal will bring into the region (**Figures 1-3**). Certainly trade volumes will rise rapidly, and unless the canal is built, there is no way that the Malacca Strait will be able to cope with this increase. With 700 million people in India, 1,000 million in China, and about 400 million in Southeast Asia, this would create a massive economic crisis from which the region would never recover.

However, the trade part is only tip of the iceberg. Because of the mileage and fuel saved in shortening the trade route, the canal will pay for itself in 15-20 years, counting only revenue earned from tolls charged to passing ships. But once the canal is built, and even while it is under construction, many other interesting things will begin to happen. Thailand has significant reserves of tin and rubber, and a surplus in food production; the canal zone will be the base for developing a food-processing industry. Opportunities also exist for a rubber-processing industry: In spite of the extensive use of synthetic rubber today, the demand for natural rubber will grow, since at least 15% of natural rubber is needed to be mixed with synthetics for the production of synthetic rubber.

A major shift will soon take place in Thailand's economic outlook. Once the canal is built, it is only a matter of years before Thailand changes from being an agrarian nation to an industrial nation. Its agriculture will be more mechanized, more productive. The canal zone would make way for the development of ship-repairing and shipbuilding industries. This will bring in the development of a machine-tool industry, which most developing nations lack. Today Japan buys a large amount of iron ore from India and ships it back to Japan for processing; but in the future, Japan could set up an iron-ore-processing plant in the canal zone, reducing the fuel costs that are incurred in taking iron ore back to Japan. The same situation could develop here in Colombia. Japan would be willing to set up an iron-ore-processing plant in the Atrato-Truandó canal area, to process the Carajas ores from Brazil. Besides this, you will see the installation of marine equipment manufacturing and associated industries, which would complement the shipbuilding industry.

To allow ships to pass through the Panama Canal, we have come up with a specification called the "Panamax," which simply means the maximum size of ship that can pass through this canal. We are deliberately building inefficient carriers, and so, for example, it comes out cheaper to lay oil pipeline than to carry oil in these small ships.

This is one side of the development. As in the Kra Canal zone, along the Atrato River, where you have almost no population, you will able to build cities and bring people in. You can do that because you are building the basic necessities that go with human settlement. You will be creating millions of jobs through productive industries. Once you have human settlements in this area, the drug-traffickers will have no other

FIGURE 1

Growth of Asian trade volume

(million tons)

	1970	1980	Change %
Eastbound trade			
Petroleum	217.5	284.5	2.7
Bulk cargo	40.5	50.6	2.2
General cargo	6.0	8.0	2.9
Total	263.9	342.5	2.6
Westbound trade			
Bulk cargo	11.5	29.7	9.9
General cargo	7.7	31.7	15.1
Total	19.2	62.4	12.3

FIGURE 2

Projected growth of trade passing through Malacca, Sunda, and Lombok Straits

Type of trade	Projected compounded annual growth (%)
Japanese oil imports	5
All other Asian nations	8
Bulk traffic (raw materials, grain etc.)	8
Cargo traffic (Manufactured goods, capital goods)	10

Figure 3

Projected trade through Kra Canal, 2000-2020

(million tons)

Year	Petroleum		Bulk	General	
	To Japan	To others	commercial	cargo	Total
2000	360	200	135	144	839
2005	418	294	172	294	1133
2010	499	432	220	428	1579
2015	561	635	281	733	2210
2020	651	934	359	1250	3194

FIGURE 4

Cost of Kra Canal by size and construction method

Canal size (dwt)	Canal type (lanes)	Construction costs (billions of dollars) Nuclear	Conventional
500,000	2	14.53	na
500,000	1	8.37	13.20
250,000	2	10.40	19.51
250,000	1	6.38	9.93

choice but to leave.

Let me tell you how the neighboring nations would benefit from the Kra Canal, even during its construction. India, which is close to Thailand, has a well-developed engineering/manufacturing sector located on its east coast. The economy of this area is weaker than that of India's west coast. Engineering facilities can be brought in to help in the canal construction, and there is a large pool of engineers and technicians available in India. These things are also useful to keep in mind, in terms of building the Atrato-Truandó Canal.

On either side of the Kra Canal, ports would be developed, and the one on the east end of the canal, the Songkhla Port, will be a deep-sea port. It will serve an area of 1,500 miles radius, developing in the process many transshipment points. How much benefit can it bring to Thailand? In order to find an answer to that, you have to know about the Europort of Rotterdam. It will surprise you that 65% of the Netherlands' revenues comes from this one port—in spite of the fact that Netherlands is a developed nation. So you see, there is no end to the opportunities that would be opened up before Thailand as well as the region.

All these points have been presented in detail to the Thai government. We have succeeded in forming a national alliance on this issue, cutting across the political spectrum. We are in the process of preparing an economic pre-feasibility study, along with TAMS and MRI, which is updating the 1973 study. This work has been commissioned by the Ministry of Communication of Thailand. The study will be in the hands of the minister by the end of September.

Recently our representative in Bangkok, Pakdee Tanapura, testified before the Thai Parliament on the Kra Canal. A 60-member commission has been set up in the Parliament to look after the project.

Last May, a Japanese delegation led by Mr. Nakajima came to visit the proposed Kra Canal site, along with representatives from Kajima, Sumitomo, Long Term Credit Bank, etc. Upon returning, they informed the Japanese government that they have formed a consortium of 20 firms to look after the Kra Canal project. The firms include Nippon Steel, Mitsubishi Heavy Industries, and Bank of Tokyo—among others.

I told you this little story to give you the concept of how such infrastructural project building is to be pushed. It must cut across the political barriers and form a hard-core nationalist alliance to look after the interests of Colombia, the region, and the world. It is important that such a process be started now, so that the canal-building can start as soon as possible.

Financing the construction

Before I conclude, I would like to touch upon the issue of financing the project. The cost, if peaceful nuclear explosions are used for blasting the last 25 miles of the mountain-

ous region, would come to about $5 billion. This is not a large sum of money, considering that it would be spent over eight years. However, it is important that Colombia not go to the commercial banks to borrow the entire sum of money, and thus become a victim of the World Bank-International Monetary Fund.

There are ways to do this. One thing that you must do, particularly in light of the capability that Brazil and Argentina have in the region, is to push for the formation of an Ibero-American Common Market. This is quite feasible, because the entire region would benefit from the canal. Every nation's transportation costs would be reduced. That is enough of an incentive.

There is another method of financing which we suggested in Thailand, and it is favored by many government people. It does not involve any foreign exchange disbursement. Colombia should contact the interested governments and ask their help for building up the area and digging the canal. These construction companies would be paid in pesos, and once the canal is built, these countries would be allowed free passage, for the equivalent amount of foreign exchange. This is simple, and I am sure both the Japanese and the Brazilians would be more than happy to come in on this basis. A good part of the project can also be done by your own people. This is important, since it would train them in the process.

Then there is the question of PNEs. There are a great number of wild allegations about them. The problem is, that this technology has not been allowed to be used, under the pretext of concern about nuclear nonproliferation. Yet the results that the Lawrence Livermore and Oak Ridge scientists have obtained from their experiments indicate that the radiation would exceed the allowable level only within a 10-mile radius, for a month or so. This figure is not quite right, since these experiments were carried out in the '60s, and since then much better explosives have been developed—which nobody talks about. Let me tell you that the Russians have carried out more than 100 PNEs during the last 15 years, and I have not heard of any population decrease in the Soviet Union. A great deal of caution is always taken in using PNEs, and that should be continued.

But one should not get fixated upon PNEs. The canal is about 115 miles long, of which only 25 miles requires rock-blasting. The other 90 miles is silty clay saturated with moisture, an extremely easy soil to excavate. The canal can be built, because of the very high-quality excavators and earth-movers that we have developed over the years, even without using PNEs. The difference is money and time. The PNEs belong to an advanced-technology blasting process, which has a much higher productivity than that of conventional excavating equipment. The increased cost, if you do not use the PNEs, has to be borne by the Colombians, and that should be kept in mind before you hastily reject application of the PNEs (**Figure 4**).

How the sea-level canal can be built

by Maj. (ret.) Rafael Convers

Major Convers, a civil engineer and retired Army officer, gave the speech which we excerpt here at the Bogota forum on the Atrato-Truandó Interoceanic Canal.

After the Second World War, the United States noted how the traffic through the Panama Canal was growing and that this route would become inadequate in the near term. It therefore took transitional measures to increase the canal's capacity, by filling the locks in less time and increasing the total number of ship passages per 24-hour period.

The U.S. Congress, in turn, appointed a team and, with the approval of the countries concerned, designated technical commissions which researched the possible alternatives and concluded by recommending a new route through Panama, parallel to the present canal, as the most economical, and the Atrato-Truandó Canal as the newest advisable one in the second term.

Meanwhile, naval architecture broke the old molds and specifications; it launched into designing and constructing new warships and merchant ships, tankers, and transatlantic ships which can no longer cross either Suez or Panama, because they don't fit within the limitations of a lock canal.

Hence we are facing a situation in which world commercial traffic needs a new canal with much bigger specifications than the Panama lock canal, and Colombia has the opportunity to build it. Added to this is the advantage that Dr. Daniel Palacios Martínez, a Representative to the House from the province of Chocó, introduced a bill in 1983 that was passed in 1984 by the National Congress of Colombia, granting extraordinary powers to the Presidency of the Republic in order to promote the necessary studies and execute the canal project. That law, No. 53/84, was passed on Dec. 28, 1984. We trust that we are not going to end up with the law and without the canal.

It is necessary to create a mixed-economy agency attached to an administrative department under the Presidency of the Republic so that it can have sufficient autonomy and can manage the development of the canal project. This would be the juridical, administrative, financial, regulatory, and executive agency to capitalize the natural wealth of the province of Chocó and the wealth which will be generated during construction, which we are lagging behind in putting into