

**Impacts of Transportation Infrastructure on  
Economic Development : *Subic - A Case Study***

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## **1. Introduction**

The economic growth and development in the Asia-Pacific region, notably in Southeast Asia, have considerably been increasing at a fast rate. Recently, the state city of Singapore was categorized as a fully developed economy. Several Southeast Asian economies are hoping to achieve the same status in the future, such as Malaysia, Thailand and Indonesia. The Philippines, likewise, has set in its agenda the same aspiration.

The Subic Bay Freeport, formerly an American naval base, is in the frontline of recent economic development in the Philippines, presently attracting more than 200 international and local investments. After the eruption of Mt. Pinatubo in Central Luzon, Philippines which resulted to the sudden departure of the Americans, people in the area were not able to picture what will become Subic then. Majority of the people lost their jobs, hence, having a pessimistic view (or perception) of the future. Nonetheless, the fact of the matter is that the swift economic development in Subic have been facilitated.

It is notable that the economic development was influenced by several factors, one of which can be attributed to the well-intact excellent infrastructures left by the Americans in the Freeport. As such, this study hopes to examine the impacts of transportation infrastructure on economic development. The study focuses specifically on the attractiveness of the given infrastructures on investments which would generate the economic development of the area.

This study is divided into five parts: a) Conversion of Subic from a Military Facility to an Economic Zone, b) Socio-Economic Profile and Transportation Infrastructure of Subic, c) Economic Development in Subic, d) Attractiveness of Subic for Investors, and e) Concluding Remarks

## **2. Conversion of Subic from a Military Facility to an Economic Zone**

Historically, Subic has been designed and employed as a naval facility. The Spaniards realized the importance of Subic as a strategic location for their naval operations and navigations. As early as 1885, the Subic Bay Freeport, as the American Naval Base is called now, was a Spanish arsenal. During the Spanish-American War in 1898, it was taken over by the American forces and during World War II, by the Japanese forces. It was heavily damaged before the US forces regained it in 1945. After the Philippines received its independence, the Americans retained the use and employment of the military facilities under the 1947 Military Bases Agreement

The Subic Naval Base was the largest American facility outside the US territories and considered to be one of the most valuable US military bases. During the Cold War, the Subic Base had played an important role in maintaining the balance of power, especially in the Asia-Pacific region. It had manifested its importance by providing support to the US Navy in its military operations and campaigns not only in the Asia-Pacific region but elsewhere. It not only served as a transit point but also as RNR (rest and recreation area) and maintenance and depot of US forces during the Korean War (of the 1950s), the Vietnam War (of the 1960s) and the recent 1991 Gulf War. The expansion of the US Navy Seventh Fleet made Subic Bay the busiest port in the Western Pacific.

The US presence in the Philippines meant economic benefits for the Philippine government and the people surrounding the installations in terms of employment generation, financial progress of base-dependent communities, development and transfer of skills stimulated by these bases and increase of foreign exchange brought about by the hundreds of millions of dollars spent by the Americans.

However, the end of the Cold War drastically change the situation of the Subic Naval Base. This was further aggravated by the desire of the American Government to reduce their military presence outside their territory and more so with the growing nationalism in the Philippines. When the expiration of the Military Agreement between the US and the Philippine Government was nearing, several nationalistic legislators in the Aquino Government clamor for the return of the bases to Philippine responsibility. Thus, the expiry of the 1947 Military Bases Agreement in 1991 brought the final and abrupt withdrawal of the American forces in the bases by the end of 1992.

When the Americans were pulled out from the two installations in 1991 (Clark Air Base) and 1992 (Subic Naval Base), majority of the Filipinos contemplated that the future of the Philippine economy would be gravely affected by the impending removal of these installations. Massive looting occurred in Clark Air Base immediately after the base was abandoned while the Olongapo residents, near the Subic American Naval Base, were left with lahar-laden expanse. The Philippine government, though, was not wholly unprepared for the American exodus. Studies were made to determine how these bases shall be utilized in such a way that their endless potentials could be utilized to the fullest. The former bases have substantial resources left behind - first-class infrastructure, skilled labor and facilities. Geographically, the Subic Bay is a perfect starting point for further development, given its deep waters, shelter, fringe land and climate

The Ramos Government is committed to develop the Subic Bay Special Economic and Freeport Zone into a self-sustaining, industrial, commercial, financial and investment center. The strong leadership of Olongapo City's former Mayor Richard Gordon, coupled with the energetic volunteerism of the local residents has been one of the driving forces for the transformation. The development effort commenced with the area formerly occupied by the Subic Naval Base and radiates outward to the neighboring municipalities and the city of Olongapo. Several foreign and local investors began to establish their operations in the freeport.

The transformation of the former American Naval Base into an economic zone illustrated that a former foreign military base with superior intact infrastructure and facilities can still be rebuilt and utilized to contribute to the economy of the host country. Other similar military facilities such as in Vietnam and in Eastern Europe could learn from the experience of Subic. The succeeding section shall elaborate on the general socioeconomic profile and infrastructure in the former American military base and its becoming a Freeport.

### 3. Socio-Economic Profile and Transportation Infrastructure of Subic

#### 3.1 Socio-Economic Profile of the Subic Bay Freeport

The Subic Bay Freeport is located southwest of Luzon island, the largest island in the Philippines, and approximately two hours by land transportation from Metro Manila, the national capital region of the country (Figure 1). The harbor of Subic is sandwiched by the Zambales Mountain Range at the east and the Subic Bay at the west and opens up to the South China Sea. The free port covers roughly 14,614 hectares with rich rain forest and natural contours. As a former naval base, the land use of the Subic Bay Freeport was catered toward servicing mainly the activities and requirements of naval ships and their accompanying complement and those of the base administrators and their families.

The existing land use of the freeport is principally based on the former conditions of the naval base and with the intention of preserving the natural habitat of the plants, trees and animals in the area. As such, preservation of the environment and of the rain forest is incorporated in the land use plan of the area.

The economic zone under the Subic Bay Freeport includes the City of Olongapo, the Municipality of Subic, in the Province of Zambales and the former US Naval Base at Subic. The population and area of the places covered by the economic zone are summarized in Table 1.

TABLE 1 Basic Profile of Area Covering the Subic Bay Freeport

Municipality/City	Area (sq. km.)	Population (as of 1990)
Olongapo	103.30	193,327
Former Subic Base	56.93	n.a.
Subic Bay Freeport	146.14	n.a.
Zambales Province (include. Olongapo City)	3714.40	562,992

\*\*The Freeport covers areas in two provinces (Zambales and Bataan)

#### 3.2 Transportation Infrastructure and Other Facilities in Subic Freeport

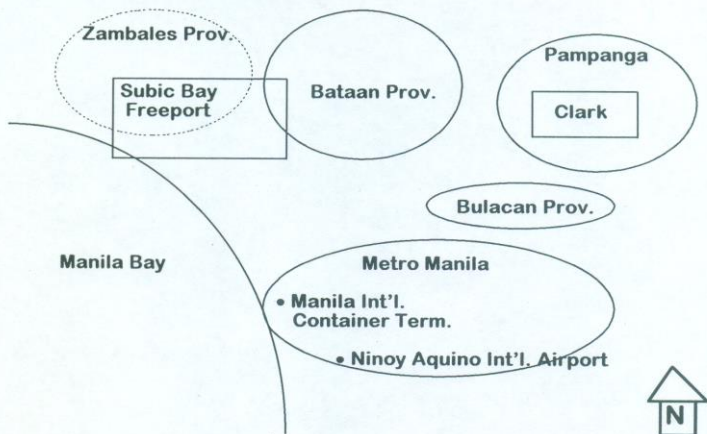
##### 3.2.1 Transportation Facilities

The existing transportation infrastructure and other facilities and utility system in the freeport include mainly those left by the American forces which could not readily be rebuilt even by the Philippine Government. These further bolstered the attractiveness of the freeport for investors. The general transport facilities include the former Naval Air Station at Cubi Point, the berthing facilities at the Naval Station (NAVSTA), Ship Repair Facility (SRF), Naval Ship Repair Facility (NRF), Cubi Point and the Naval Magazine (NAVMAG) and significantly excellent internal road network in the freeport.



Figure 1 Subic Bay Freeport

A. Proximity of Subic to Metro Manila



B. Map of Subic Bay Freeport

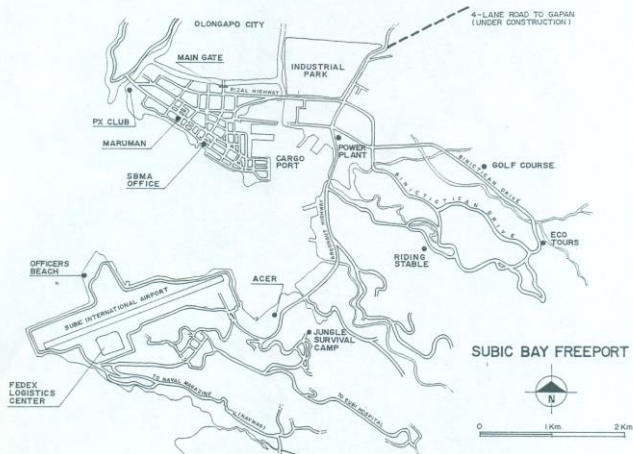


Table 2 provides a summary of both the existing and planned transportation infrastructure and services in Subic Bay Freeport. The planned infrastructure and services are expected to further boost the economic development in Subic Bay Freeport and the region in general. Likewise, they can also provide better services, thereby anticipating an increase in the number of investors venturing in the freeport.

**Table 2 Transportation Infrastructure and Services in Subic Bay Freeport**

TYPE		INFRASTRUCTURE	SERVICES
Air	Existing	<ul style="list-style-type: none"> <li>• Runway (2744 m. x 61 m.)</li> <li>• Apron Parking (216,688 sq.m.)</li> <li>• Navigation (ISL,DVOR, 8 DME)</li> </ul>	<ul style="list-style-type: none"> <li>• FedEx<sup>®</sup></li> <li>• Vision Air (3 flights/day)<sup>#</sup></li> <li>• Pacific Air (4 flights/day)<sup>#</sup></li> <li>• Air Phils. (3 flights/day)<sup>#</sup></li> </ul>
	Planned	<ul style="list-style-type: none"> <li>• Upgrade of runway pavement to 18-inch thickness so as to accommodate Jumbo jets</li> <li>• New air terminal</li> </ul>	<ul style="list-style-type: none"> <li>• Repairing hub is currently under study</li> <li>• Alternative hub is currently under study</li> </ul>
Sea	Existing	<ul style="list-style-type: none"> <li>• Fixed pier with 2 berths</li> <li>• 1 movable pier</li> <li>• maximum berthing capacity of 600 ships</li> </ul>	<ul style="list-style-type: none"> <li>• Ferry service at nearby province of Bataan (approx. 55 mins. ferry to/from Manila and 1 hour bus-ride to/from Subic)</li> <li>• Freight Service (3 times/mo)<sup>*</sup></li> </ul>
	Planned	<ul style="list-style-type: none"> <li>• None identified so far</li> </ul>	<ul style="list-style-type: none"> <li>• Direct high-speed ferry service to/from Manila (2 times/day and approx. 2-hour ride)</li> </ul>
Land	Existing	<ul style="list-style-type: none"> <li>• Excellent internal road network</li> <li>• Mixed paved-asphalt provincial road connecting Subic to Manila</li> </ul>	<ul style="list-style-type: none"> <li>• Taxi service within the freeport</li> <li>• Internal jeepney service</li> <li>• internal bus service</li> <li>• tourist bus service</li> <li>• Local jeepney service (from nearby Olongapo City)</li> </ul>
	Planned	<ul style="list-style-type: none"> <li>• Four-lane road (Olongapo-Gapan Highway, approx. 8.8 kms.)</li> </ul>	<ul style="list-style-type: none"> <li>• None identified so far</li> </ul>

<sup>®</sup>Freight Service to/from Seoul, Tokyo, Osaka, Taipei, Hong Kong, Kaohsiung, Manila, Penang, Kuala Lumpur and Singapore

<sup>#</sup>Passenger Service to /from Manila

<sup>\*</sup>Ferry Service to/from Manila, Singapore, Bangkok, Jakarta, Melbourne, Sydney, Brisbane, Ho Chi Minh, Kelang, Penang, Xiamen, Shanghai, Guanhou and Quingdao

From Table 2, it could be noted that the freight does not have Japanese cities as among its destinations to/from Subic.

### 3.2.2 Other Facilities Available in the Freeport

Power is supplied by the National Power Corporation with an output capacity of 38 MW. In addition, two other power plants located at Cubi Point and Subic Area supplements power with a capacity of 30 MW. SBF offers state-of-the-art telecommunication facilities that enable investors to link up with the whole world in a fast, reliable and cost-efficient manner. At present, the telecommunications systems of SBF include 7,000 existing digital access lines (1, 400 lines currently active) which are expandable to 13,000 lines. In preparation for the coming APEC Summit in November, the SBMA is now acquiring a new switch to complement the two digital switches already in place. They are currently upgrading its facilities with the use of fiber optics and the relatively new technology of teleconferencing. The telecommunications system in SBF is supported by local and foreign investors, among them are: Eastern Telecoms, Subic Telecoms (in a joint venture with PLDT and AT&T) and SR Telecoms, Inc. (a company specializing in repairs of telecommunications equipment).

At the main compound of Subic Bay, the former station of the Subic Naval Base Command (SUBCOM) of the Philippine Armed Forces is located on a strip of land at the Northern side of the compound. The Public Works Center (PWC), which houses Engineering services, utilities, transportation and housing is located southwest of SUBCOM. The offices and residential, commercial and recreation buildings are situated east of PWC on a 100 hectare land area. Lastly, the former Ship Repair Facility with an area of 30 hectares is located east of the former Naval Station.

The Kalayaan Area is the location of the Main Exchange/Commissary where most of the shops, banks, gasoline stations and fast-food outlets are situated. George Dewey High School is also located inside the Kalayaan Area with all the facilities a typical high school in the US would have and spans on a 24 hectare piece of land including other facilities such as sports and laboratories. Kalayaan housing project sits on an 85 hectare land with 684 dwelling units on five separate clusters of housing areas and an elementary school. The Binictican area has a total area of 228 hectares which has two prominent features : the Binictican 18-hole golf course on an area of 152 hectares and the housing project. On two housing project areas are 11 dwelling units per hectare. This gives a total of 830 hectares on a 76-hectare piece of land.

The future transportation infrastructure projects as mentioned in the Table 3 are intended to augment and improve the current infrastructure. The construction of the Olongapo-Gapan Highway will not only alleviate anticipated traffic the freeport will generate but it will also lessen considerably the travel time from Manila to Subic. This can also lessen the impact of lahar on the transport operations of the freeport during rainy seasons. On the other hand, the planned transport services will not only ameliorate the current services but likewise attract more tourists (both foreign and local) in the freeport. They will also improve the operations and services of companies inside the freeport. Finally, the other facilities and amenities present in the freeport will not only augment the transportation infrastructure but will also provide support services to the needs of the people in the area. The succeeding section focuses on the rise of economic development in the Subic Bay Freeport and factors that lead to its growth.



#### 4. Economic Development in Subic

##### 4.1 Subic Freeport as an Economic Zone

As already mentioned elsewhere in this paper, the rapid economic development of Subic Bay Freeport was brought about by the sudden departure of the American forces from their former base in Subic. A formal naval base of the Americans, Subic was quickly transformed into a thriving East Asian commercial center when the last of the Americans left the area. Maximizing the existing infrastructure that the Americans left behind, the Subic Bay Metropolitan Authority (SBMA) has developed the area into a self-sustaining transport, tourist, industrial, commercial, financial and investment center.

The economic development of the freeport is equated with the number of investment (foreign and local) poured in the area. This is principally because the amount of investment would surely contribute to the economic growth of the area and as such generate the necessary employment for the freeport and its surroundings. The Subic Freeport is one of the economic zones created by the government. This zone is one of the ten special export processing zones (EPZs) managed by the Export Processing Zone Authority (EPZA). The EPZA is a government corporation established in 1972 through P.D. No. 66 and whose main task is to operate and manage all Philippine export processing zones. E.O. No. 567 that was dated November 13, 1979 further granted EPZA the power to designate a specific plant site of an industrial firm or a group of industrial firms as a special export processing zone. Table 4 shows the present economic zones of the country.

**Table 4 Ten Special Economic Processing Zones**

	Location	Spl. EPZ Area (in Has.)
Light Industry & Science Park of the Phils.	Cabuyao, Laguna	37.46
First Cavite Industrial Estate	Dasmariñas, Cavite	37.91
Laguna International Industrial Park	Binan, Laguna	35.00
Laguna Technopark	Binan, Laguna	69.90
Gateway Business Park	Gen. Trias, Cavite	26.30
Luisita Industrial Estate	San Miguel, Tarlac	29.74
Carmelray Development Corporation	Canlubang, Laguna	28.00
Leyte Industrial Development Estate	Isabel, Leyte	424.00
Tabangao Special Export Processing Zone	Tabangao, Batangas	947.33
<b>Subic Export Processing Zone</b>	<b>Subic, Zambales</b>	<b>56.93</b>

As a special EPZ, the Subic Bay Freeport is entitled to the same incentives the regular EPZs receive from the government. These incentives include income tax holidays, exemption from import and export duties and taxes, financial assistance from government institutions and simplified export procedures. The Freeport has been declared a national priority program through Proclamation No. 50 that was dated September 18, 1992 by no less than Pres. Fidel V. Ramos. The primary goal of the government is to make use of the existing facilities at the SBF, to foster private sector participation and to quickly generate economic activity in the area.

Subic Bay Metropolitan Authority (SBMA) was given power to manage the SBF under R.A. No. 7227, otherwise known as the Bases Conversion and Development Act of 1992. SBMA is responsible for the development of the SBF as a self-sustaining tourist, industrial, commercial, financial and investment center. As the governing body of SBF, the SBMA is tasked to:

- a) administer, operate, manage and develop the ship repair and ship building facility, container port, oil storage and refueling facility within the SBF;
- b) accept local or foreign investment, business or enterprise subject to its rules and regulations; and
- c) undertake the establishment's operation, maintenance of utilities, services and infrastructure in the SBF.

SBMA follows a very stringent policy regarding investments. Any local or foreign enterprise wishing to invest in SBF has to first apply and meet the requirements imposed by the SBMA. Nonetheless, various companies have been more than willing to comply, and have been already doing business at the SBF. Section 3.2 provides a summary of the current investments projects in the freeport.

#### 4.2 Existing Investments in Subic Bay Freeport

In relation to their "export-oriented; import-dependent" stance, the Freeport has fully opened its doors to both local and foreign investments. No doubt that this has been the result of Proclamation No. 50 (dated September 18, 1992) of Pres. Fidel V. Ramos declaring the Subic Bay Freeport (SBF) a national priority, thereby giving an assurance to investors of the most stable business environment. Again (as a brief background on this), the overall goal of the government is to make maximum use of the existing facilities at the SBF, to foster private sector participation and to quickly generate economic activity in the area. Given that this once was a military base and has been transformed into several major tourist attractions, foreign investments have been coming in Subic. These foreign investments play a major role in attaining the government's goal of generating an increase in its net foreign exchange as well as utilizing its surplus labor. In addition to attracting foreign investors is the \$200 duty-free shopping privilege that strongly appeals to Filipino shoppers (At present this privilege was suspended by the government.).

As of December 1995, almost 1.3 billion U.S. dollars have been invested in the Freeport covering total of 201 projects of which 121 are already operational. Table 5 summarizes the investment poured in the Freeport by type of industry in a particular country. Referring to the Table, it could be observed that the monopoly in handling the various industries/companies in Subic are shared by both the Filipinos and the Taiwanese. This is expected of the Filipinos for the Philippines is their domain. In particular, they dominate the *retailing* and *tourism* business as well as other *service* industries like *transportation*, *warehousing* and *others*. All the industries mentioned fair well, citing *retailing* and *tourism* as the ones having a good share.. The Taiwanese on the other hand dominates the *manufacturing* industry, in particular, the *light industries*(e.g. *textile*, *garments*, *plastic*, *novelty items*, *etc.*), *appliances/electronics* and *machineries*.

Since the table shows a relatively large figure under the manufacturing, this just shows the nature of the system (e.g. *labor intensive*, *assembly line*, *etc.*) being employed in the industries found in the Philippines. Compared to other countries, Taiwan was the one who has shown strong interest in investing in Subic ever since. In an article (*Philippine Star*, 07/31/95), Taiwan's Economic Affairs Minister P. K. Chiang even described the Philippines as a very important and strategic location for Taiwan's southward expansion. No wonder that at this point, they have already invested several industries in Subic especially those under the *manufacturing*. Nonetheless, the Table implies the possibility of other foreign investors to infuse their investments in the area.



**Table 5 Subic Bay Freeport Approved Projects  
(As of December 31, 1995)**

Nationality	Manuf.			Retailing	Tourism E.g. hotels, restaurants	Services				Total
	Light Industries	Appliances/ Electronics	Machineries			Transp'n.	Warehousing	Others		
Filipino	6		1	15	17	16	15	23	93	
	(1,455)		(2,482)	(2,184)	(5,901)	(1,393)	(2,029)	(495)	(2,241)	
Taiwanese	21	21	5		1			2	50	
	(1,904)	(6,829)	(6,005)		(48,000)			(50,250)	(7,238)	
American	1	1	2			1	2	4	11	
	(500)	(5,000)	(200)			(100,000)	(53,885)	(34,350)	(31,915)	
Japanese	2	2	1						5	
	(6,375)	(1,520)	(216)						(3,201)	
Others	7	6	3		2	2	6	5	31	
	(509)	(1,615)	(1,442)		(48,152)	(586)	(386)	(678)	(3,896)	
Total	37	30	12	15	20	19	23	34	190	
	(1,771)	(5,371)	(3,121)	(2,184)	(12,231)	(6,498)	(6,110)	(7,432)	(5,569)	

Another interesting observation that could be deduced from the Table is that, on the average, the Service Industries (e.g., transportation and warehousing) seem to have more investments than manufacturing. This implies that logistics is among the priorities in the Freeport. Likewise, among the manufacturing industries, electronics and appliances seem to be the appropriate commodities to be manufactured in the region. The amount of investment and number of both foreign and local investors in Subic Bay Freeport over a short period of time would indicate that the Freeport is indeed a potential foreign investing area. The next section will examine the attractiveness of the Freeport for investment.

## **5. Attractiveness of Subic Freeport for Investment**

### **5.1 Factors Leading to the Attractiveness for Investment**

The preceding sections showed the potential of Subic Freeport as a regional economic zone and the amount of investments that have been placed in the area. This segment of the paper focuses on the factors which attracted foreign firms/companies to invest in the Freeport and the corresponding negative points of the region. The approach here is two-fold: a) examining the general features of the investment environment of the country in particular, the Freeport and b) descriptive analysis of the results of a survey conducted for the purpose of the study. The latter is mainly based on the study of graduate students of the National Center for Transportation Studies (NCTS) in Subic.

#### **5.1.1 General Advantages of the Philippines and Subic Freeport for Attracting Investment**

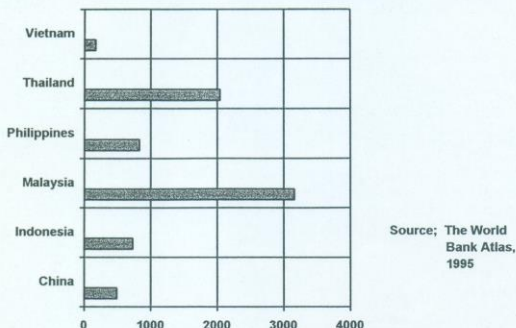
The location of the Philippines is considered as among its main enticing features to attract investments in the country. The country is favorably situated in the fast-growing Asia-Pacific region. It is accessible to the key cities in Asia, specifically in the Southeast Asian region. Although Filipino (based on Tagalog) is the national language, English is widely used in all business transactions and is mainly used as the medium of instruction in educational institutions. In fact, the Philippines is the third largest English-speaking country in the world. The support of the government to entice investment through tax incentives and promoting liberalization add to the salient points of the country for inviting foreign investments. The government is committed to put the Philippines in the world map as one of the countries having newly industrialized economy.

Other major factors are the presence of skilled labors, notably in the Subic Freeport, and the international competitiveness of labor wages in the country. As reflected in Figure 4, it could be noted that based on the comparison of GNP per capita among selected Asian countries, the Philippines is highly competitive with its neighboring countries in the Asia-Pacific region. This remark notes the advantage of the Philippines with China, Indonesia and Vietnam. Although the three countries may have lower GNP per capita than the Philippines, the latter has an edge in other factors such as location and English proficiency.

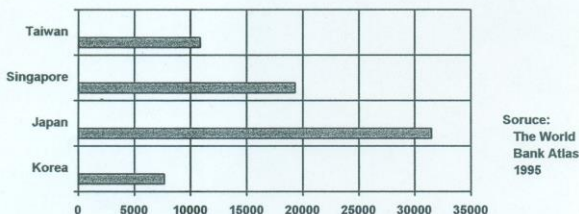
Comparing further, Asian countries have lower wages than those of selected developed countries if the GNP per capita would be used as index of wage. This justifies the investing and transferring of operations of many corporations from developing countries to Asian countries because of the lower wages in these countries.

As for Subic, apart from the prevalent advantages of the Philippines, the Filipino labor force, left by the Americans, offer skills they have acquired. This further boosts the attractiveness of the Freeport.

**Figure 4 Per Capita GNP, 1993 (US \$), Selected Asian Countries**



**Figure 5 Per Capita GNP, 1993 (US \$), Selected Developed Countries**



### 5.1.2 Attractiveness of Subic Bay Freeport as Perceived by Investors

The above section provided an outlook of the attractiveness of Subic and the Philippines in general. Another means to examine the attractiveness of the Freeport is from the perception of the investors in Subic. To achieve this, an interview survey of companies in Subic was conducted using seventeen companies as samples. The composition of the survey methodology was designed to encompass the various economic activities inside the Subic Bay Freeport (SBF) Zone. The questions covered in the interview-questionnaire were not aimed at any particular enterprise so that there will not be a need to modify them with respect to each type of economic activity. The questionnaire was designed so as to examine the contentment of the companies on the Freeport and what other requirements are needed to improve the facilities in Subic.



The data collected were then collated as per survey methodology: 1) determining the general business conditions and company profiles, 2) attractiveness of the Subic Bay Freeport Zone, 3) Transportation Services, 4) Existing infrastructure and intermodal operation of the companies, 5) Person Trip Interview and 6) Freight Movement. The data will also strengthen the concept that transport investments can affect the pace of economic development in the SBF Zone. At the opposite, the data will determine the pattern of economic development which shall play a critical role in determining the demand placed on the transport system. Thus, the data in general focused on the appropriate choice of transport plan that will be influenced by the overall economic development and in turn will also influence the said development. This implies that any comprehensive, long term transport plan in Subic Freeport Zone will need to take into account the interdependency between the transport system and the general economy as well as the system or interaction effects within the transport network itself.

Of the 17 companies interviewed, 65 % is industrial while the remaining 35 % belong to the service sector. Majority of the companies surveyed are corporations amounting to about 88% while the rest are corporation-partnerships. In terms of the company's investment in Subic, about 35% of the companies interviewed have investment cost of less than \$1 million. About 12% belong to the \$1 million to \$10 million bracket while only 6% has an investment cost of more than \$1 million. The remaining 47% of the companies regard the information as highly confidential. Around 53% of the companies have foreign investors as the majority shareholder, 12% are solely foreign, while 6% have Filipinos as majority stockholders. About 29% did not give any information on the distribution of company shares. Sixty percent of the companies surveyed obtain 100% of their raw materials from other countries and almost all of them market their finished product to other countries.

From the results of the survey, the attractiveness of the Freeport as perceived by the investors can be summarized as follow:

#### *Information Medium on Subic*

Of the 17 companies surveyed, 7 firms learned about the SBF Zone's potential as an investment site through media promotion, 1 through letters of invitation, 3 responded to the visit of Chairman Gordon while the remaining 6 firms learned about SBF through friends and forwarders.

#### *Reasons for choosing SBF Zone.*

Most of the companies ranked the potential economic growth of Subic Freeport Zone as the no. 1 reason for relocating at SBF Zone, followed by Subic's strategic location and accessibility to major trade centers. The Philippine policy concerning trade and investment, labor and taxation was ranked third together with the natural environment. The existing public utilities and transportation infrastructures were ranked as nos. 5 and 6 respectively.

#### *Attainment of Expectations*

About 70 % of the companies regarded their expectation of the SBF Zone as an office/plant site was met whereas 18% thought otherwise.

### *Supply of Skilled and Unskilled Labor*

Most of the companies believe that Subic has an adequate supply of labor, both skilled and unskilled and this accounts to about 82% of the firms surveyed. The rest of the firms however, regard labor as inadequate.

### *Confidence in Subic's Future Development*

Regarding the SBF Zone's capability for further development, 5 or 29% are very confident, 7 or 41% are confident, 1 or 6% is satisfied while 2 or 12% are uncertain.

### *Influence of Subic Infrastructure on Investment Decision*

Of the total firms surveyed, 82% think that the SBF Zone's existing infrastructure has influenced much the decision of the company to invest in it. When asked which infrastructure facilities have a bearing on their company's decision to invest in Subic, the following are their responses: 41% believe that the seaport facilities influenced much their decision in locating in Subic, 53% considered the existing airport facilities as a big influence in their decision, 70% were influenced by Subic's existing road facilities, another 70% think that the power facilities influenced much their decision to locate in Subic and 82% were influenced by Subic's telecom facilities.

### *Competitiveness of Subic with Other Major Ports of Neighboring Countries.*

Majority of the companies surveyed representing about 82% believe Subic can compete with the other major ports of neighboring countries. Only 1 company does not really think so, while the remaining 2 or 12% did not answer.

The above perceptions of the investors on the attractiveness of the Freeport indicate that the investors give more weight on the existing logistics in the area. This observation is further supported by the need to further improve the facilities as implied by the following:

### *Distribution and Transportation of Resources/Products to and from Subic.*

About 53% of the companies surveyed believe that there are problems in the distribution and transportation of resources and products to and from the Subic area while 24% believe there are no problems. The other 24% did not respond.

### *Existing Facilities Needing Improvement*

29% of the companies consider the need for improving the existing airport facilities. Twelve percent and 6% think that the internal road network and telecommunications should be improved, whereas 18% see roads outside Subic as needing improvement. About 35% of the respondents, however did not respond to this inquiry.

### *Road, Air and Seaport Improvements*

The respondents ranked the following according to its degree of importance for road improvement: (1) improved accessibility to major cities of Luzon, (2) routing, (3) networking, (4) signalization and (5) road widening. The respondents consider expansion of air terminal facilities as top priority followed by the improvement of accessibility to passenger/cargo plane operation. Finally, in improving the seaport, the following were ranked accordingly: (1) dry-docking facilities, (2) construction of

additional mooring facilities, and (3) dredging to accommodate big ships/design for improved maneuverability of ships.

### **5.1.3 Disputing Points of Subic Freeport Zone**

Thus far, what were pointed out with respect to the Freeport are factors contributing to its attractiveness; however, there are still major detrimental limitations of the Freeport. These points range from institutional aspects to the physical characteristics of the area. The institutional limitations of the Freeport are focused mainly on the indecisive economic policies of the national government. Although the government may provide economic incentives such as tax incentives, changing decisions (notable example is the suspension of the \$ 200 privilege in duty free shops in Subic) may tend to discourage investors to enter the Freeport.

With respect to physical features of the area, the proximity of the Freeport to the lahar region in Central Luzon gravely affects the operations of the Freeport, especially during rainy season. Majority of the companies still use the international airport located in Metro Manila in transporting their finished produce to their final international destinations. This is also true with the raw materials imported abroad. As already pointed earlier, much improvements are needed in the Freeport.

Hence, it is imperative that the above weak points of the Freeport be alleviated so as to further boost the attractiveness of the area. This way, the Subic Bay Freeport could really be competitive with its international counterparts.

### **5.1.4 Descriptive Analysis of the Attractiveness of Subic Bay Freeport**

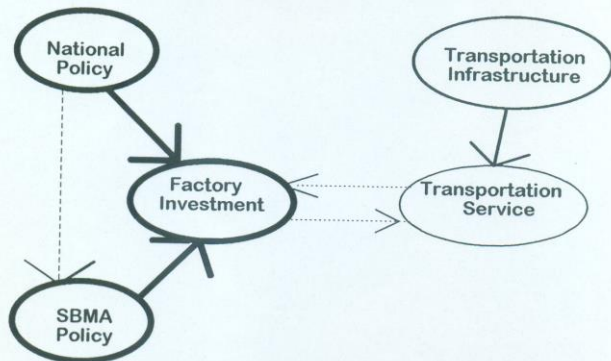
From the above discussions on the attractiveness of the freeport, it could be surmised that the case of Subic is more of the local policy decision influencing the attractiveness of the economic zone to investors rather than the national policy decision. That is, the attractiveness of Subic is rather set by a local body represented by the Subic Development Authority (SBMA). This further supported the notion that investment decisions are results of local policies not directly of national policies. Furthermore, the presence of a major transportation service provider, the Federal Express (FedEx), insinuated that the transportation infrastructure in Subic is one of the principal factors that for the company to have Subic as their hub in the region.

This is best described in Figure 2. The postulation that the independence of cities from national governments in attracting investments in their localities is evident in the case of Subic. Furthermore, the figure can be stipulated as a model depicting the relationship/s among important factors in the decision of investors to locate their operations or companies in outside their countries. The figure illustrates also the relevance of transportation logistics in the above-mentioned relationship.

Though this paper simply provided a descriptive model of attracting investments, the case of the Subic Bay can be further investigated explicitly and analytically in establishing the model. In this regard, a more interesting direction for this study is to further explore this model explicitly. In this aspect, additional data to augment the data from the Subic survey have to be collected.



Figure 2 Attractiveness Framework



## 6. Concluding Remarks

The study had looked at the relationship of transportation infrastructure and economic development with the Subic Bay Freeport as its particular case study. The focus of the study in examining the relationship was the attractiveness of the Subic Freeport given its already existing infrastructure and other facilities to investors. This was principally carried by furnishing first the general features of Subic and the country in general and then through an interview survey of the investors in the Freeport.

The fact that majority of the freight-using investors still use the Manila route means that the transport cost incurred is manageable as discussed earlier. The need to capitalize on this alternative route while building up on investor/ company population (until such time when the right investment climate would induce investors to put their stake in forwarding at Subic), cannot be overemphasized. Regularity of calls by freighters and airlines could further attract investors to locate at Subic, further triggering goods/human traffic. Overall, this would positively affect Subic's economy which translates to other potential investor confidence, most specially for prospective forwarders keenly monitoring Subic's economic performance.

On the other hand, failure to address present constraints of these land-based "alternative route" might negatively affect Subic's future growth. An economy on a standstill will make Subic unattractive to investors, further delaying entries of potential forwarders. Further, considering the progressive movements of freight charges, the alternative route's attractiveness might be affected to the point where the urgency of Subic's port services would be felt. Without the port services' main attraction, i.e., freight volume, management will be hard put in attracting movers/freighters/airlines into the area. With high cost of goods for transport, limited number of forwarders, and irregular transportation schedules, Subic's selling point, its economic growth, might be greatly jeopardized.

As such, the study provided interesting insights on Subic and its transportation infrastructure as they affect its economic development. Based on the results of the study, the primary reason of investors for relocating in the SBF Zone is its potential for economic growth. Findings also revealed that the strategic location and the accessibility of Subic to major trade centers play a major role in the company's decision to invest in SBF Zone. Other reasons cited by the investors for locating in Subic include the following: the Philippine's policy concerning trade and investment, labor and taxation, natural environment and the existing public utilities and transportation infrastructure. However, there were also detrimental limitations of the Freeport. These limitations ranges from institutional factors (indecisive economic policies) to the physical limitations of the region (such as the proximity of the Freeport to the lahar affected areas).

Considering the foregoing, we could safely conclude that transport infrastructure influences economic growth of special areas like the Subic Freeport Zone. This conclusion however should be considered with caution as generated data for some tests to validate our findings are statistically insufficient. A follow-up study should be done, specifically to consider correlation of goods/ human traffic and transport availability or investment. With the vibrancy of Subic, a flexible survey methodology is needed to capture various elements as they emerge and therefrom relate their significance to the framework at hand. This should also be required to examine the model described in Figure 2.

Likewise, it could be further surmised that the required inputs for economic development are improved logistical supports to an economic zone such as the Subic Bay Freeport. The study, moreover, provided interesting suggestions on how a former military base can be transformed into an economic zone. Thus, this study is indeed timely and useful for countries that have military bases they want to transform into more useful facilities. Among these countries are those in Eastern Europe and Asia. Even the United States which have significantly reduced their military bases abroad and inside their territories could learn from the experience of Subic.

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