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Growth & Development of Indian Sub-Continent Seaports – A Strategic Container Transshipment Perspective

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ABSTRACT

A strategically located seaport contributes immensely to the overall economic development of the region. This paper studies the Indian Sub-Continent container sea borne trade and attempts to find the factors contributing to the growth and development of container hub seaports in the region. The ports of Colombo, Vallarpadam, Vizhinjam and Enayam are compared in terms of potentiality, implication and benefits. Transshipment port identification, development and selection involves a huge variety of decisions based on complex information, cognitive and social constraints. These decisions impact the economy of the nation and the regions involved. The factors that influence these decisions and ultimately operational processes are an intriguing field of study and an attempt is made to discuss their influence in the development and growth of the four ports considered in this paper. The study is visualized to provide information to all stake holders involved in the port development decision making process and to highlight the overall impact to the sub – continent.

1. Introduction

1.1 Indian Sub-Continent

The Indian Sub-Continent is the southern region of Asia, which is situated on the Indian plate and is a peninsula projecting into the Indian Ocean from the Himalayas. It constitutes the following countries: Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. The Indian Ocean represents almost 20% of world's ocean area and connects shores of three continents. The region consists of 36 countries, with the exception of Australia, all developing economies, with total coastline area of 66,526km, i.e. 40% of global coastline. Indian Ocean hosts one of the most important global maritime routes connecting Far East with Europe. It passes though the South China Sea, Strait of Malacca, Indian Ocean, Red Sea, Suez Canal and Mediterranean until Atlantic, and carries majority of the ultra-large containerships. The Indian Sub-Continent and the Middle East trade accounts for nearly 12% of the entire World container trade. The region needs to develop more ports to meet its growing cargo handling requirements.

1.2 Containerization & Transshipment

Before containerization, goods were usually handled manually as break bulk cargo. Typically, goods would be loaded onto a vehicle from the factory and taken to a port warehouse where they would be offloaded and stored awaiting the next vessel. When the vessel arrived, they would be moved to the side of the ship along with other cargo to be lowered or carried into the hold and packed by dock workers. The ship might call at several other ports before off-loading a given consignment of cargo. Each port visit would delay the delivery of other cargo. Delivered cargo might then have been offloaded into another warehouse before being picked up and delivered to

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its destination. Multiple handling and delays made transport costly, time consuming and unreliable. Containerization is a system of intermodal freight transport using intermodal containers (also called shipping containers and ISO containers).The containers have standardized dimensions. They can be loaded and unloaded, stacked, transported efficiently over long distances, and transferred from one mode of transport to another container ships, rail transport flatcars, and without being opened. The handling system is completely mechanized so that all handling is done with cranes and special forklift trucks. All containers are numbered and tracked using computerized systems.

Transshipment is a term used for shipment of goods to an intermediate destination before being shipped to its final destination. It is not restricted only to shipping; transshipment can take place through road, rail and air transport as well. Major shipping lines have services that cover almost all the ports in the world via connecting ports. These ports are known as transshipment hubs. To make transshipment viable, certain difficulties have to be overcome such as additional handling costs, port charges and extra voyage distances. Biggest reason for a port becoming hub is its location, infrastructure to handle additional cargo loading and unloading operation and tax benefits. At container transshipment hub port small feeder vessels bring and pick up containers from large mother vessels (liners), creating economies of scale and lowering the freight cost.

1.3 Influencing Factors

Geographical location and inherent potentials are undoubtedly important factors which favour the growth and development of a port. However, researchers in the past have shown that the behavioural dynamics also play a vital role by introducing biases in the decision making process. These biases represent the quality of having a systematic inclination in a distinguishable direction, typically resulting in inefficient decisions and bullwhip effect. The ubiquitous and resistant nature of these behavioral impediments in taking effective supply chain management decisions implies that sustaining a competitive advantage is difficult and suboptimal results are invariably achieved. Exploration into these related issues will help provide a more holistic picture which can be harnessed for the overall development in the region.

2. Transshipment Container Ports Of The Region – Developed, Developing & Proposed

India and Pakistan are the countries which contribute maximum towards the container volumes of the Indian Subcontinent. India is the prime contributor both for exports and imports. However, India is lagging behind in having global cargo handling efficient transshipment container hub ports. The Exporters and importers of India incur an additional charge per TEU due to extra port handling at foreign transshipment hubs, making them less competitive, adding huge costs to the economy. About 25% of India's cargo containers are currently transshipped at ports outside India mainly at Colombo, Singapore, Port Klang, Salalah and Jebel Ali which builds inefficiencies in logistics and supply chain. The trade revenue is thus invariably shared with the regions situated outside the Indian subcontinent. India is also losing out on the opportunity to become a large hub for Asia–Africa, Asia-US/ Europe container traffic trade. Thus, to further boost trade and revenue the Indian subcontinent needs to develop transshipment container hub ports in its region. The southern portion of India and Sri Lanka are ideally suited for transshipment because of strategic location in the Indian Ocean being close to the busy Suez - Far East Trade lane. The following ports are identified and are in various phases of development to be transshipment container hub ports of the region.

2.1. Colombo (Sri Lanka)

The Port of Colombo is the largest and busiest port in Sri Lanka as well as in South Asia. Located in Colombo, on the south western shores on the Kelani River, it serves as an important terminal in Asia due to its strategic location in the Indian Ocean. The harbour underwent a major transformation to handle containerized cargo in early 1980s with Cranes, Gantries and other staples of a contemporary container terminal followed by deepening the access channel in the 1990s. Today the Port of Colombo is rated among the top 30 container ports in the world. The Colombo Port currently has following container terminals: Jaya Container Terminal (JCT), South Asia Gateway Terminal (SAGT - operated by John Keells Holdings), Unity Container Terminal (UCT), Colombo International Container Terminals Ltd. (CICT). UCT mainly handles small feeder vessels. Transshipment containers are being handled by JCT and SAGT. Colombo International Container Terminals Ltd., (CICT) is a joint venture Company between China Merchants Port Holdings Company Limited. **(**CMPH**)** (Formerly known as) China Merchants Holdings (International) Company Limited (CMHI) a listed blue chip company in the Hong Kong stock exchange and the Sri Lanka Ports Authority (SLPA). A new container terminal - East Container Terminal (ECT) is under development.

About 2 million TEUs originating in and destined for India gets trans-shipped at Colombo port every year.

2.2. Vallarpadam (India)

The Kochi International Container Transhipment Terminal (ICTT), locally known as the Vallarpadam Terminal, is a container trans-shipment facility which is part of the Cochin Port in Kochi, Kerala, India. DP World Ltd, the world's fourth biggest container port operator majority owned by the Dubai government, won the 30-year contract to build and operate the ICTT in a public auction in 2004. DP World initially took over the existing Rajiv Gandhi container terminal run by the Cochin Port Trust until it constructed the ICTT and shifted operations there on 11th February 2011. Located in Vallarpadam, a scenic island on the Vembanad Lake, the container terminal was India's first international transshipment hub. The Vallarpadam terminal was expected to bring back India international cargo that otherwise was being transhipped from foreign ports.

2.3. Vizhinjm (India)

The Vizhinjam International Deepwater Multipurpose Seaport is undertaken by Government of Kerala for economic development of the region and to create employment opportunities for the locals. It has formed a special purpose Government company, Vizhinjam International Seaport Limited (VISL) to act as an implementing agency to develop the port. The port is touted to be a Greenfield port and is proposed to be located in the district of Tiruvanthapuram, Kerala. Besides container transshipment it is also being designed to cater to break bulk, passenger and multipurpose cargo. VISL and M/s Adani Vizhinjam Port Private Limited have agreed to develop the port as per landlord model under design, build, finance, operate and transfer (DBFOT) basis. This Public Private collaborative model work has commenced on 5th December 2015 and is likely to be completed by 4th December 2019. The total project expenditure is pegged at ₹ 6,595 crores over three phases. Phase I is estimated to cost ₹ 3,040 crore. Adani Group would invest ₹ 2,454 crore and has sought a grant of ₹ 1,635 crore from state and central governments. The balance amount is proposed to be raised as ₹ 1,130 crore equity from Government of Kerala and as debt through loans from banks/ institutions and through bonds.

2.4. Enayam (India)

Enayam port, is proposed and located in Colachel, Kanyakumari district, Tamil Nadu, India . This will be taken up in three phases and will involve reclaiming of 500 acres of land from the sea. Enayam, a small fishing hamlet in the southern tip of India, will get on to the international maritime map by 2020 if the Indian Government's plan to establish a global container transshipment hub here succeeds. The project cost including financial costs is ₹ 6575 crore. Private operators will invest around ₹ 2500 crore for development of terminal berths, yard and equipment. 70% of the remaining amount (₹ .4075 crore) will be funded through debt and the balance 30% would be equity invested by three Major Ports –VOC Port Trust Tuticorin, Chennai Port Trust & Kamarajar Port Limited and a few strategic partners. The project internal rate of return (IRR) for the Enayam Port is 10.8% and Equity IRR is 11%. As the IRR of the Project is lower than the expected cost of equity of 16-18%, Viability Gap Funding (VGF) estimated to be 20-30% is required to achieve the target equity IRR of 16-18.

3. Parameters & Trade Statistics

The literature review reveals that there are many parameters that are required for a port to be successful as a transshipment hub. However, for the sake of relevant importance and data availability, some of these most important parameters of the four ports are considered for comparison in this paper (Refer Table I).The total Container handling volume (Refer Figure 1) & Transshipment handling volume data (Refer Table II) of the Colombo & Vallarpadam is compared.

Table-I: Last three Years Container Transshipment Handling Data in TEUS

Port	2013-14	2014-15	2015-16
Colombo	3091321	3703515	3889321
Vallarpadam	27193	17007	21039

Source: SLPA & Ministry of Shipping, Govt. of India

Table-II: Port Parameters

Port	No. of Berths	Capacity (Per Annum in Millions TEU's)	Distance From East–West Lane (In Nautical Miles)	Terminal Cranes	Draft (In Meters)	Terminal Area (ha)
Colombo	14	12 (Proposed)	19	47	18	297
Vallarpadam	2	3.6 (Proposed)	76	6	14.5	109
Vizhinjam	5 (Proposed)	5.5 (Proposed)	25	Data Unavailable	19	238
Enayam	10 (Proposed)	9.6 (Proposed)	14	Data Unavailable	20	330 (Proposed)

S**ource**: SLPA, COPT, Live Mint, AECOM,

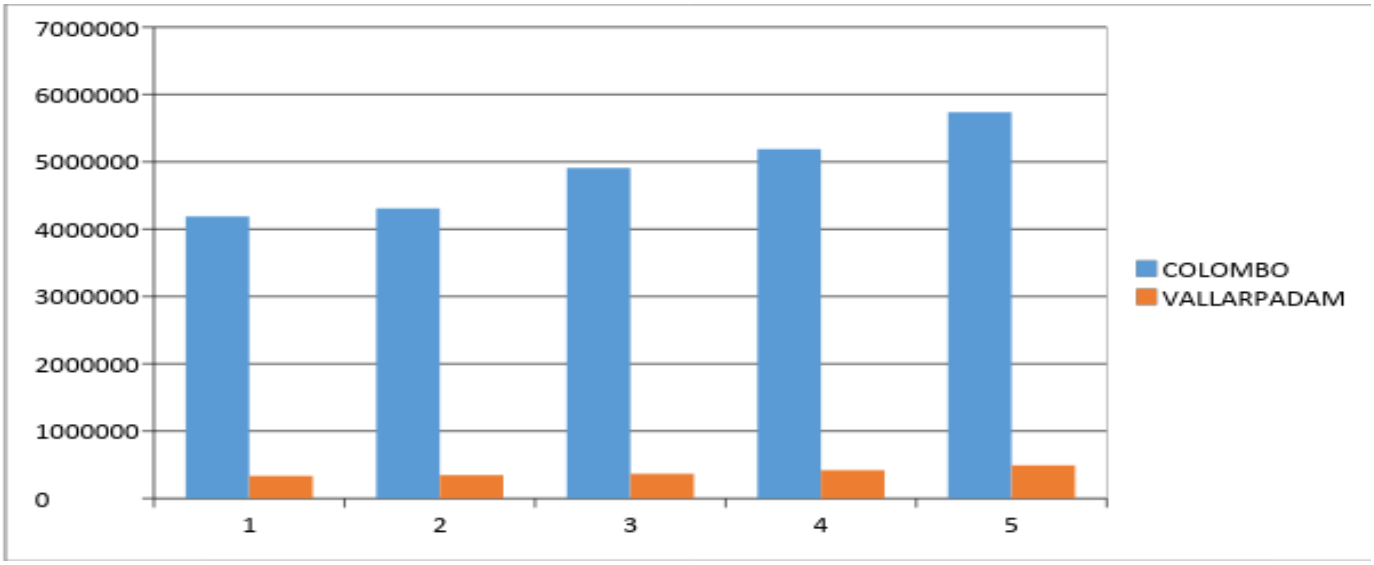

Figure 1: **Last 5 Years Total Container Handling**

Source: SLPA & Ministry of Shipping, Govt. Of India

4. Discussion on the Strategic Factors Influencing the Growth & Development

4.1. Colombo

A. The Sri Lankan government in 1978 decided to be in trend with the economic policies of other developing nations and decided to convert their economy into an "open market" form a "closed market and protective" regime. As a result, an Act of Parliament formed the Sri Lanka Ports Authority (SLPA) in 1979 and entrusted it with the promotion of the use, improvement and development of ports. This project received the highest political priority and work was expedited on a policy directive from the Government with the aim of exploiting the geographical advantage of Colombo port and to transform it into a modern container port to attract trans-shipment traffic in the region. This was the first important decision made towards commercialization of the port sector in Sri Lanka and paved the way for the success story of the Colombo transshipment.

B. In 1980 the then Sri Lanka Government took bold decision in revamping of their country's economic policies to expand and include the role of foreign investment. This was almost a decade earlier to the economic liberalization program initiated by the Indian Government in 1991. This initiative of the Sri Lankan Govt. led to investment by Japan into the development of Colombo container Transshipment facility. The Japan International Cooperation Society invested half of the 100 M $ for building of modern container terminal to meet the transshipment needs of South Asia.

C. During the period 1980-90, permission was finally granted to operate private off-dock container yards and CFSs for easing congestion. As a result, Colombo became a regional centre for trans-shipment business to the Indian subcontinent, the Middle East Gulf and even East Africa. The SLPA evolved operational systems and drew up plans to suit handling requirements and evolve best practices. To improvise their documentation procedures and enhance productivity, SLPA sent their key personnel to Singapore to learn container terminal operation and documentation. In 1987 the port ranked 38th among 337 container ports in the world. This was a significant improvement compared with its 139th position in 1980. Colombo maintained good productivity levels, was competing with the other regional hubs and proved to be a catalyst to the growth of international shipping industry and trade by providing efficiency and quality of service. This had been the result of a clear vision, innovative and commercial orientation in management policies, streamlined and flexible operations, and long-range planning which included timely investments in infrastructure according to realistic forecasts. At that time, unlike other regional ports handicapped by intractable operational and natural problems, Colombo had no berthing problems, no breakdowns of equipment and no labour unrest. Therefore, the port customers were satisfied as they could consistently control the cost of the operation and they were happy with vessel turn-around. During the decade Colombo managed to build up a captive market for trans-shipment business and the Indian ports provided the lion's share – between 40 and 45 per cent of the total transshipment volume. During this period the Indian ports were underdeveloped and most of their exports and imports were in break-bulk form during this time.

D. In the early 1990s, owing to various developments that took place in the industry, competition increased. The authorities then adopted the "Shipping/ Maritime Centre" strategy to sustain the container trans-shipment business and to attract further trans-shipment volumes moving to the Indian subcontinent. Sri Lanka dropped its long-standing policy of cargo reservation in favour of their national carrier. The Central Freight Bureau (CFB), which was in charge of freight allocation and filing freight rates, came to a virtual standstill. The national carrier (CSC), having lost government protection for lifting cargo to Asian destinations, had to operate at a competitive level. The UK/Continent trade was liberalized in 1991. The change came about because of deteriorating CSC operations in contrast to the international carriers and the strong lobbying by mammoth lines such as Evergreen. This paved the way for all lines to call at Colombo and market their services without any restrictions. Foreign lines were also allowed to invest in the local shipping lines up to a maximum share of 40 per cent.

E. During the mid-Nineties, containerization started gaining more momentum and the economic liberalization program initiated by Indian Government also contributed to the growth of Colombo port's transshipment. This was due to the fact that the Indian 12 major ports at that time were handicapped by geography, lack of finance and unreliability. Indian Government was introducing reforms gradually and corporatizing of their main ports was needed in order to change their work and management culture. This benefited Colombo as most of the Indian West Coast trans-shipment cargo was relayed through it and to attract the Indian East Coat traffic, incentives and discounts were offered.

F. With the initial momentum in its favor the Sri Lanka authorities invested back the profits into development of new terminals and infrastructure over the next 15 years till about 2010. This ensured that Colombo was undisputedly the main transshipment port of the Indian Subcontinent.

G. After the Sri Lankan civil war ended in 2009 and with the threat imposed by India in developing of transshipment container ports in South India , Sri Lanka Government turned towards China(its lone supporter against human rights violation) for further port and maritime development. The surge in Chinese investments and government lending has helped Sri Lanka to make significant progress in its infrastructure development. The Chinese government and state-owned firms have assisted Sri Lanka in the modernisation of railways, the construction of expressways and the expansion of the country's maritime infrastructure. China's interests in Sri Lanka are largely strategic and commercial in nature. This includes China's discrete strategic military interests.

H. The container handling rates are offered to liners at low and discounted rates as the economies of scale allow due to large volumes handled. This ensures loyalty of the liners and generates regular revenues and volumes to the port.

4.2. Vallarpadam

A. The Government has included the Vallarpadam terminal as a part of its major port, Cochin, to get annual revenue of 33.30% from the operator. This is not very encouraging to DP World as their profitability is compromised. The landlord port concept (whereby the ownership of the port remains with the government while the terminal operations are outsourced to private firms for 30 years on a revenue share model) is unsuitable for transhipment operations.

B. The terminal being a part of a major port its tariffs imposed on container handling are regulated by Tariff Authority for Major Ports (TAMP). So the handling charges are very high and unattractive to liners to shift their operations from more economical terminals.

C. To ensure fiscal concessions and procedural ease at par with competing international terminals the Government has considered the terminal to be a part of Special Economic Zone (SEZ).

D. The trans-shipment procedures finalized by India for the Vallarpadam facility has not been accepted by the customs department at other Indian ports with the result that India's exporters and importers continue to prefer Colombo over Vallarpadam.

E. The cabotage law imposed by the Indian Government (to boost Indian shipping) restricted foreign liners to carry coastal cargo in the initial years of operation. This resulted in low volumes for the terminal and further strengthened the transshipment supremacy of Colombo. The cabotage law was later amended stating that an existing container handling port should tranship 50% or more of the containers handled during the first year while a new port will have to achieve this level in the second year. Otherwise, the relaxation will be revoked. The container handling port whose relaxation is revoked shall not be considered for cabotage relaxation for the next three years, according to the circular issued by the Government. This was not convincing to foreign container liners as there was no long term perspective indicated.

F. Unresolved issues between the departments of SEZ and Customs results in frequent disruptions in handling procedures. This has often led to loss in time and money. This is also a deterrent factor for both shippers and liners.

G. Whenever Cochin port dropped its vessel-related charges to make it competitive with Colombo, the latter undercut Cochin by reducing its rates further.

H. The terminal is not economically viable for large volumes for liners as the draft available is 14.5 Meters and is unsuitable for berthing of large mother container ships to effectively generate economies of scale.

4.3. Vizhinjam

A. This is being developed by the Government of Kerala which has an uncanny reputation of creating controversies in its developmental projects. A lone bid was submitted by Adani Ports and Special Economic Zone Ltd. The opposition party wanted the Government to go for a re-tendering of the project, but the Government didn't relent. With the Opposition training its guns on Adani and the State Government dithering, what clinched the deal in favour of Adani was an open threat held out by Union Shipping Minister that the project might be moved to Colachel in Tamil Nadu if the political differences in the state over awarding the project to the Adani Group was not resolved fast. That quietened the Opposition's criticism and prompted the Kerala Government to give its nod for the bid submitted by Adani Ports and Special Economic Zone Ltd.

B. Adani group's closeness with the central Government resulted in the contract to be awarded for a period of 60 years instead of the usual 30 year period. The opposition party also criticise that the land Worth about 6000 Crore Rupees has been virtually given free of cost to the Adani group.

C. The Viability Gap Funding (VGF) given by the Government is a debatable issue because Vizhinjam is close to the existing terminal at Vallarpadam in the same state which is a part of a major port of the country.

D. Since the terminal will not be a part of a major port, it can set its own tariffs so as to be comparatively viable with other transshiment hub ports.

E. Economies of scale can be better achieved in comparison to Vallarpadam as the draft available will be more. This can result in India's transhipment containers to be handled at cheaper rates without incurring foreign transhipment costs. This will bring down the logistics cost for Indian exporters and importers which will further boost the economy of the country.

4.4. Enayam

A. The need to set up a new terminal at Colachel is questionable as Colachel and Vizhinjam are just 36km apart. Vizhinjam is 225 km from Vallarpadam. The justification offered by the Government states that the project will be viable because Singapore and Jebel - Ali ports have more than one transhipment terminals.

B. The proposed terminal is closest to the East – West shipping trade lane and can accommodate largest container vessels owing to its deep draft availability.

C. Since the terminal will not be a part of a major port, it can set its own tariffs so as to be comparatively viable with other transshiment hub ports

D. The port will benefit to the state government's Madurai-Tuticorin industrial corridor project and there will be good primary hinterland cargo availability.

E. The area identified for developing the terminal is prone to heavy sea erosion and building of the terminal there is debated as it will involve heavy maintenance expenditure.

F. Environmental issues pertaining to decline in fish and affecting of the livelihood of the 20,000 local fisherman families due to the terminal have to be addressed.

5. Conclusions

A. The countries in the Indian Subcontinent should have a unified vision regarding port development and transhipment needs of the region.

B. India being the major trade contributor of the region should take the lead role and provide assistance and support to Sri Lanka in developing their maritime assets for mutual benefit.

C. Sri Lanka should re-assess the projects which have been approved in the past to be developed with assistance from China and pay off the debt if the terms and conditions are detrimental to the nation and the region. The revenue generated through transhipment for the Indian subcontinent should remain within the region and should not be allowed to generate profits for China.

D. China should not be allowed to create military bases in Sri Lanka in the guise of port development.

E. Indian public sector ports should be made more consumer and investor friendly by corporatizing them and converting them into companies.

F. To ensure good profitability and competitiveness to Indian ports, they should be given freedom from the central Government and be able to set their own tariffs based on the market. Effective strategy is the need of the hour and not mere policy- tweaking on the paper.

G. Maritime boards should be set up in all the maritime states of India and a coordinated National port development policy should be drawn to meet the growth and competitiveness challenge. The three Indian transhipment ports – Vallarpadam, Vizhinjam and Enayam should cooperate and coordinate to strategically function in unity.

H. Indian Cabotage law to be withdrawn for at least 10 years without imposing any conditions. This will ensure long term horizon planning for major liners to shift from their regular transshipment ports. This may hurt the Indian shipping in the shorter time frame, which however can be overcome by giving incentives for example in new ship building, tonnage tax reduction, etc.

I. Infrastructure , hinterland connectivity , labour issues, congestion, more efficient use of port facilities, improvement in the scale of operations are also vital factors which the transshipment ports need to address to generate more volumes and attract new business.

J. The competition should be stimulated in the initial stages for a new developing port by the way of open bidding and through port policy objectives to introduce new operators as port expands.

K. Setting up more trans-shipment terminals without addressing basic issues will be sheer waste of taxpayer money. So the Government has to ensure that realistic studies are carried out initially and ensure that indiscriminate usage of VGF should be restricted.

L. Relevant environment protection measures should be taken in view of new developmental activities.

M. Transshipment is purely a cost game hence the terminal should ensure that productivity and competitiveness are provided without any disruptions.

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