

Development of Port Logistics Center: Bangladesh Perspective

Md Ibrahim¹ and Wang Xuefeng²

¹Student, College of Transport & Communications, Shanghai Maritime University, CHINA

²Professor, College of Transport & Communications, Shanghai Maritime University, CHINA

¹Corresponding Author: rana.ibrahim00@gmail.com

ABSTRACT

Seaports as multi-dimensional transport node and integrated logistics center are the key components of the global transport system. Logistics and supply chain processes have high efficiencies in terms of increasing port performance. With regard to ports performance, an integrated port logistics center plays an important role in promoting economic development to absorb the value-added demand of local and international customers. Seaports are developing because of its multi-functions and multi-modalities, which focuses on expanding their services. This development of seaports allows them to cope with up growing demands of the trade. This publication presents subject matter concern with the development of seaports in Bangladesh as integrated logistics center. The objective of this research is to identify existing technological issues, challenges and impacts regarding the development of seaports as logistics centers in the maritime logistics system in Bangladesh. This study is a qualitative research and both primary and secondary data have been used. Based on the findings, some strategies and actions are suggested to the port authority; local logistics service providers and other stakeholders towards developing an efficient port logistics center in Bangladesh.

Keywords— Port, Development, Logistics Centre

I. INTRODUCTION

Maritime transport is the most efficient and most popular global transport system, connecting national and global trade. It is considered as an important and vital tool for national, regional and global economic growth. Maritime transportation systems comprise of transport links and transport nodes. The seaports of the world play vital role in maritime transportation system. As an essential link of transport networks seaports have a tremendous impact on the world economy. The seaports should therefore be evolved and designed to accommodate demand and supply[1]. The performance of seaports largely depends on its competitiveness. Competitiveness in turns depends on effective logistic management and value-added services facilities. Effective logistics and supply chain management contribute significantly towards seaport's productivity[2].

Evolving technologies, work practices and the business environment has changed the roles of seaports. Port services are no longer limited to cargo handling only: logistics services have become a core component of the port services[3]. Third-generation port development model (Shown at Appendix E & F) proposed by 'United Nations Conference on Trade and Development (UNCTAD)' suggests tighter and more sophisticated connections between service providers, facilitators, operators and end-users. In this global supply chain era, the roles of the seaports have shifted to global supply chain management from its traditional roles. As such seaports need to work and cooperate with its supply chain partners in order to provide value-added services with due emphasis on integrated logistics services to enhance port competitiveness. Over the past decades, ports operators and managers have implemented ports as center of competitive output, distribution, logistics services. The continuous development of logistics chains and their network is possible due to the developed node-link system, where the most important nodes are seaports and integrated logistics centers. Sea ports develop distribution and logistics functions that are distinguished by a range of operational approaches and logistics services[4,5,6]. Seaport enhancing their competitiveness and productivity by establishing logistics facilities such as 'Port Logistics Center' and extend their services.

European seaports have evolved through the adaptation of their operations to the external environment for centuries. Advancements in manufacturing and trading mechanisms have restructured the entire transport and distribution sector, pushing for further restructuring of the market, greater integration and closer cooperative management among the various actors in the transport and logistics chain. The advent of global manufacturing systems wherein raw materials, parts, and finished products are sourced assembled, transported, and delivered internationally has prompted a significant transformation of the logistics sector, with shipping and port facilities at the forefront of these changes and improvements. European ports are embedded in ever-changing logistics and economic systems. Ports are competing intensely in Europe to attract business, and an increasingly important source of competitive differentiation is port-centered logistics that can drive efficiency in the supply chain.

Port of Rotterdam is indeed an example of a modern port with a high degree in the form of logistics centers providing value-added services. The first logistics centers were set up in old port basins in Rotterdam, next to the existing container terminals in the Eemhaven area. This continued the construction of the Botlek Distriparks. In the 1980s, as container trade began to grow significantly, Maasvlakte, a large port basin originally developed in the late 1960s but remained empty due to stagnation was redeveloped by the Port of Rotterdam. In attracting European Logistics Centers (ELCs) and associated economic activities in the port area the port of Rotterdam has been outstanding success. For this reason, given the highly competitive environment in the European market, the Netherlands has managed to maintain a relatively high economic growth rate. For Bangladesh seaports are main gateway for international trade as well as nodal point for logistics activities. Almost 90 percent foreign trade is conducted through seaports. But the extent of logistics services offered by Bangladeshi seaports not yet efficient and well developed. Many experts, professional and industries urges for restructuring port logistics system in Bangladesh for better performance. Many countries develop extensive logistics facilities such as port logistics center with their port to widening their logistics service and optimize performance and gain competitiveness. They developed their ports more logistics oriented by developing extensive logistics facilities such as port logistics center. But Bangladeshi seaports yet not developed such logistics facilities which cause inefficiency in cargo distribution and lack value added logistics services. However, the economy of Bangladesh has significant growth and the trade with other countries emerging day by day, inefficiency in logistics performance remains constraints for it. Due to inefficiency in port logistics system Bangladesh losses her potential of greater international market reach Development of effective port logistics center could unleash potentials of Bangladesh in foreign trade by enhancing the performance of port logistics system.

With this backdrop, the purpose of this study is to examine the development of port logistics of Bangladesh with a view to recommend a way out for establishing an effective port logistics center.

II. LITERATURE REVIEW

The key variable for this topic is 'Port Logistics Centre'. Effort has been made to conceptualize the variable.

Tsamboulas, D. A. in his work "Appraisal of investments in European nodal centres for goods: a comparative analysis" defined a logistics centre as an "integrator" of various transport modes, able to promote

intermodal transport". He also point out logistics centres with "an intermodal terminal, which is the principal component of the intermodal transport chain, constituting the node where the transshipment of goods from one mode to the other takes place"[7, 8]. This definition focuses only transportation and nodal aspect. It does not include functional, geographical coverage or comprehensiveness of characteristics of the logistics center. This study was not adopted this definition. Du and Bergqvist in their paper, "Developing a Conceptual Framework of International Logistics Centres" looks into the development and characteristics of logistics centres through an extensive literature review. They analyze different aspect of logistics center to characterize its attributes by factors; geographical coverage; transport modes and corridors, third party logistics services, value added logistics, commercial and public services, customs and administration, marketing, horizontal collaboration & networks. Their analysis identifies three clusters of logistics centres; dedicated for production and trade development, specialization in logistics and cargo handling, and comprehensive logistics centres. They opined, In order to react on the ongoing process of restructuring of the transport and logistics industry leading to a higher degree of concentration and internationalization, a logistics centres need to be either specialize in goods handling and trade development; or become more integrated and comprehensive. Based on their analysis of different clusters and evolution process of logistics centres (Shown at Appendix D)[9]. Their study provides a theoretical framework for developing international logistics center by assessing evaluation process, the service ranges of logistics centre. But it didn't identify the infrastructure and other components of logistics center from development perspective. Also this paper didn't give adequate framework how this logistics center integrated with seaport function. This gap creates conceptual ambiguity for developing integrated port logistics center in countries like Bangladesh.

Notteboom et al in their paper "A taxonomy of logistics centres: overcoming conceptual ambiguity manuscript aims to disentangle the conceptual ambiguity around the notion of logistics center" proposed an overarching framework that categorizes different types of infrastructure and identifies their distinctive components. Their study show the lack of concrete conceptualization of logistics centres originates from the variety in temporal and spatial approaches. Their study combined prior fragmented works and identifies convenient classification criteria for logistics centres. They proposed the functional criterion as a cornerstone for built appropriate conceptualization of these infrastructures focusing on seaport as nodal point. By considering the distinctive characteristics of each type of logistics centre, their paper proposes an original and comprehensive taxonomy, which

emphasizes generalities and specificities of different infrastructures. In their study, they show logistics centres focused on storage, deposit and warehousing to VAS and soft/light manufacturing[10]. This study aligned spatial and infrastructural view point along with functional attributes.

Nijdam et al in their study “The Changing Nature of Logistics Centres: Implications for Ports and Terminals” shows the role of ports in global logistics chains and the opportunities to attract new economic activities in logistics. In their paper, they argue that the port's function as a location for logistics is evolving through the advancement of logistics concepts. Their paper showed that ports have always attracted logistics activities, due to the need for ports to stock goods, the emergence of central distribution concepts has made ports highly attractive to locate global distribution centers. In their paper temporal evolution of logistics concepts and the enhancing roles of ports as place for value added logistics activities were discussed after an extensive literature review and observations in Europe, especially the Netherlands. They assumed that the role of ports for value-added logistics services could be influenced by the high pace of global manufacturing and logistics firms' advances towards sophisticated supply chain systems and the capability of ports to place themselves as attractive partners in this evolving supply chains system[11]. The study underlies the role of seaports in logistics system and suggested to expand their services traditional to VAS as an integrated logistics center. But their study didn't provide any guideline, strategies or insight for transformation of seaport as logistic center.

Meidutė in his work, “Economical Evaluation of Logistics Centres Establishment” presents a method for assessing the financial viability of a new logistics centre financed by private and public investments. He proposed a method for economical evaluation model comprises four distinct phases, namely; location selection and traffic forecasts, definition of services offered and corresponding dimensions, estimation of investment and operation costs and evaluation of investments. Furthermore, the model produces financing scenarios, based on combinations of public and private funds[12]. This article shows that an easily to be applied specific evaluation method for new logistics center. Study didn't consider funding practices (whether public or private or combination of both), government interference and market structure compatible with countries like Bangladesh for evaluation of financing. The literatures reviewed have no doubt made significant contributions to the field of study. However, none of them have discussed complete guidelines for development of port logistic center in the context of developing countries like Bangladesh. Therefore this study aims to bridge this gap by examining the existing logistics systems capacity in

order to develop effective port logistics center in Bangladesh.

III. ASSESSMENT OF PORT LOGISTICS CENTER DEVELOPMENT IN BANGLADESH

With the birth of Bangladesh in 1971 the trade of the port expanded greatly. To cope with the rapid development and expansion of the port, the Government of Bangladesh promulgated the Chattagram Port Authority. This Authority consists of a Chairman and three other Members. Containerization in shipping industry created breakthrough in the world's trade and it introduce intermodal transportation with optimized logistics performance. World's business started to seek competitiveness through logistics performance. Leading countries started to develop their port not only for cargo loading unloading but also enabled other logistics facilities to attract MNCs and other's business entities around the world. An Inland Container Depot (ICD) at Dhaka, Kamalapur was established in 1987 to facilitate container movement to and from Dhaka-Chattagram. As containerization made revolution to optimize the SCM for many industries around the world, the other countries port's focused to develop their infrastructure and other facilities to provide value added logistics services to gain competitive advantages. This trend has significantly affected container ports, leading to the development of logistic centers, free trade zones and other similar actions in order to obtain and sustain their overall attractiveness or competitiveness. But the rapid growth of containerization has surpassed all the projections for Bangladesh. The infrastructure and facilities have become inadequate. Other hand, poor management structure, inadequate inland distribution facilities, complex stuffing and un-stuffing of LCL, FCL containers, complex operation of container handling, insufficient storage capacity, poor truck management, inadequacy of information system, labor and employment problems create constraints in port performance. CPA was a service port owned and operated by government until in 2007, 'SAIF POWERTECH' a private entered as Terminal Operator for Chattagram Container Terminal. Now, CPA also allows private companies to invest in infrastructure and superstructure in small extent. But still CPA couldn't convert itself as a landlord port, which enacted by almost all successful port in world to enhance their port efficiency and compete with global logistics network.

From 2010, development of Chattagram port got new pace. To help ease congestion at Chattagram port, facilitate quick clearance of FCL (Full Container Load) cargo by allowing un-stuffing/delivery from outside the port area, and facilitate trade, Government encourages the

establishment of Off-Dock facilities in the form of private container freight stations (CFSs) or inland container depots (ICDs). Eligible private sector operators are licensed as CFSs/ICDs to store selected low risk import items and empty containers, and conduct Customs clearance formalities and allow un-stuffing/delivery of selected categories of import consignments. These private ICDs/CFSs require obtaining permission from the National Board of Revenue, Ministry of Shipping, Chattagram Port Authority, Department of Environment and other relevant government agencies. They also need to fulfill certain conditions to get warehouse license from Customs House. Due to security and risk of corruption customs only allow 37 low duties items in ICDs[13]. Currently, 18 of private ICDs operate their services around Chattagram city[14]. Bangladesh Inland Water Transport Authority (BIWTA) and the Chattagram Port Authority (CPA) jointly built an inland container terminal (ICT) near Dhaka at Pangaon.

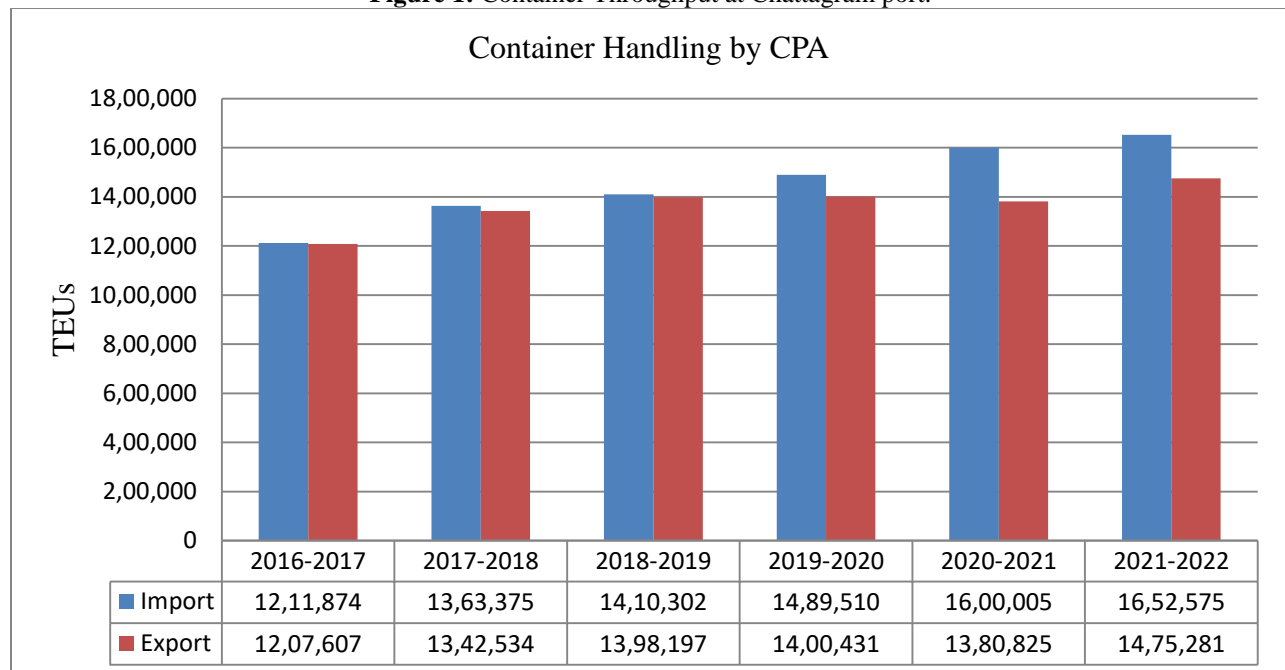
For the containers that are exported from Chattagram, 90% are stuffed in the ICDs and 10% at the EPZ. About 10% of imported containers are un-stuffed at EPZs. 20% of the containers are moved to the ICD for un-stuffing; Rest of 70% of the import containers are unstuffed in the port premises and duties collected. This is to prevent loss of Customs duties if the containers are allowed to be moved out of the terminal to be unstuffed[15]. Though ICDs and ICTs reduces pressure from Chattagram port premises but customs only allows 37

low duties items, port still have to handle huge amount of import container in port premises and have to perform stuffing un-stuffing for customs procedures and others. Container dwell times at Chattagram Port are very high— 11 days for import containers and 4 days for export containers

Due to the limiting factor in accommodating larger vessel sizes and so Chattagram Port Authority intends to construct the "Bay Terminal" to improve the quality of services and develop adequate facilities and decrease the pressure on the existing Chattagram Port. Chattagram Port wants to construct new facility at Ananda Bazar, North Haliashohor. It includes construction of breakwater for about 11km, dredging construction of a multi-purpose terminal and two container terminals. After the decision of the government, Public Private Partnership Authority (PPPA) communicated with ESG and nominated PSA Singapore as terminal operator.

Along with robust economic growth of the country, demand for EXIM cargo flow increases subsequently; even more than the forecasted demand. During the year 2021-2022 Chattagram port handled over 3.25 million TEUs containerized cargo, which is around 92% of total maritime trade of Bangladesh. Figure 1 shows the container throughput at CP for recent years.

Figure 1: Container Throughput at Chattagram port.



Source: Compiled by researcher (Web. CPA)

To meet the challenges of globalization and liberalization of world trade and economy, Chattagram Port has under taken many ambitious projects to enhance its capacity, improve efficiency and quality of services and also to develop adequate facilities to turn itself into a world class regional port[16].

Although increasing the performance in cargo handling, CPA failed to achieve efficiency in terms of extensive logistics services and facilities. CPA takes several development projects to enhance its infrastructural capacity. Most of the developments are focuses on sea side infrastructure development such as navigation, berthing facilities, terminals and others. CPA gave less concentration on hinterland infrastructure, facilities and activities that are crucial for logistics performance. Infrastructure and facilities for modern distributions, consolidation and hinterland transport management doesn't get priority substantially. Chattagram port still lack of efficient hinterland vehicle terminal and management of trucks, lorry and other vehicle. Inefficient port operation, limited port and evacuation capacity, and lengthy clearance processes are some of the reasons for the high dwell times. Other inefficiencies in the logistics chain that lead shippers to use the port for storage also increase dwell times. CPA also failed to gain efficiency in logistics performance due to absence of comprehensive policies and regulations compatible with global port logistics trends and practice. Lack of collaboration between CPA and other stakeholders in port logistics system leads to logistics inefficiency. Less participation of private companies in CPA creates a monopolistic approach which is hindrance for competitive logistics market. CPA has no competitive environment to enhance its logistics services and facilities. Due to its location adjacent with city CPA also couldn't has a vast scope to enhance its facilities. For that reasons there is no logistics facilities like port logistics center was established in the port logistics system of CPA. The overview has brought out pertinent issues involved in port logistics center development in Bangladesh.

IV. STRATEGIES TO MITIGATE CHALLENGES OF PORT LOGISTIC CENTER DEVELOPMENT IN BANGLADESH

The strategies include policy and regulatory reforms focusing on logistics services efficiency, promoting competition in port logistics services market, coordinating within the public sector and with the private sector actors, expanding the capacity of logistics infrastructure and facilities. These are subsequently discussed. One of the most important flaws of the existing policies in place is that they do not focus on services. The modern national-level port policies should develop to

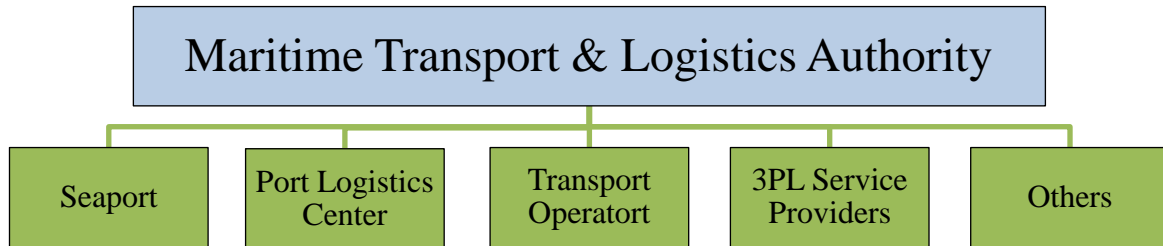
address improvement of port infrastructure, integration of various actors within port logistics network, and improvement in the quality of logistics services of port and its wider extent. Restrictive policies toward foreign private participation in the provision of logistics services should be revised. Also should be developed a robust and effective PPP framework to allow foreign financing of transport and logistics infrastructure such as logistics center. Contract enforcement mechanisms need to be strengthened. Numerous agencies regulate different aspects of the system. As port logistics center functions cover various activities involving different government agencies and logistics service providers, unified clear regulations need to achieve efficiency. Competitive market structure for port industry would provide adequate incentives for ports and service providers within port logistics network to improve the quality of their services, invest in technology and equipment, and provide integrated services as well as establishing efficient logistics platform such as port logistics center. For increasing regional inter-port competition government should facilitate bilateral and regional trade, transport and transit agreements and connectivity initiatives with regional countries such India, Nepal, Bhutan, China, Myanmar. For local inter-port competition government should develop extensive infrastructure and facilities in other seaports in the country and improve hinterland connectivity. In terms of intra-port competition government could introduce multiple private logistics operator within the port logistics system. Without a competitive market structure it would be difficult to integrate actors towards establishing port logistics as a unified and efficient logistics platform. Chattagram ports always suffer from inadequate infrastructure and facilities against the cargo flows.

It still lack intermodal terminal in port logistics system. Warehousing facilities are not also adequate to support Val's services. A modern intermodal terminal with IT based vehicle management system should be established to develop port logistics center. One of the defining characteristics of port logistics center is the large number of public institutions and private logistics service providers are involved. Port logistics center development would require close cooperation between the public and private sectors as well as with port city authorities. An efficient port logistics center requires effective coordination in the planning, development, operation, and regulation of infrastructure and facilities. The extent of institutional fragmentation, coupled with overlapping mandates across public institutions has led to poor coordination of Bangladesh's port logistics sector. The limited effective capacity and integration of the infrastructure and its poor quality are consequences of this institutional structure. Government should take all the

institution under one umbrella, such as forming regulatory body 'Maritime Transport and Logistics Authority'

following the example of other countries .

Figure 2: Proposed 'Maritime Transport & Logistics Authority'



Source: Compiled by researcher

In the planning and development of ports logistic centers, all beneficiaries (central and local governments, port authorities, shipping lines, logistic companies, etc.) should participate in all decision making processes and therefore, coordination and interaction between them should be ensured. Common interest of all parties involved should be ensured by policies and strategies adopted.

V. CONCLUSION

The seaports play vital role in global maritime transportation and logistics system. As an essential link of transport networks seaports have a tremendous impact on the logistics and supply chain performance. Evolving trends in global supply chain, logistics services have become a core component of the port services. For Bangladesh seaports are main gateway for international trade as well as nodal point for logistics activities. But the extent of logistics services offered by Bangladeshi seaports not yet efficient and well developed. Many countries develop extensive logistics facilities such as port logistics center with their port to widening their logistics service and optimize performance and gain competitiveness. They developed their ports more logistics oriented with port logistics center by forming sophisticated policies and regulations, unifying institutional structure, promoting competitive port market, building their infrastructural capacity to support value added logistics service and integrating public private actors. The study identified the unsophisticated policies and regulations, absence of port competitions, inadequate infrastructure and facilities for value added logistics service provisions, lack of collaboration between actors, spatial limitation are some of the challenges militating against developing effective port logistics center in Bangladesh. Outdated and unsophisticated policies that leads to governance and institutional fragmentation, creates administrative red tape, discourage the entrance of foreign logistics service companies, prevention of private investments in

infrastructure and facilities such as intermodal terminal, warehouse and other component that facilitate establishment of port logistics center. Absences of both inter and intra-port competitions are works as a negative driver for ports in Bangladesh for not developing competitive port logistics system with extensive facilities like port logistics center. The study proffered strategies to mitigate the challenges militating against the development of effective port logistics center in Bangladesh. These strategies include formulation of comprehensive port policy, promotion of competition in port logistics services market, formation of maritime transport & logistics authority, expanding the capacity of logistics infrastructure and facilities and spatial analysis and developing logistics corridor. Formation of policies should be focused on objective aligning of different institution, set unified regulatory body to better control on port system and remove administrative red tape. Government should promote inter and intra-port competition to create a competitive market structure which will drive the development of logistics center and actors collaboration by activating related regulations. Public private actor's collaborations should be ensured by policies and strategy. To overcome spatial constraints best proximate location and logistics corridor setup could be a way-out while establishing port logistics center.

RECOMMENDATION

Based on the findings and learning from literature review, it is recommended that:

- Government of Peoples Republic of Bangladesh should formulate a comprehensive 'Port Policy' focusing on logistics services efficiency.
- Government of Peoples Republic of Bangladesh should promote port competition by allowing MNCs directly and control competition by activating "Bangladesh Competition Commission" in port logistics industry.

- c. For local inter-port competition Government of Peoples Republic of Bangladesh should develop extensive infrastructure and facilities in other seaports in the country and improve hinterland connectivity.
- d. Government of Peoples Republic of Bangladesh should allow as well as encourage private sector to invest in port logistics infrastructure development along with public sector.
- e. Government of Peoples Republic of Bangladesh should form a unified regulatory body 'Maritime Transport & Logistics Authority' for better coordination and control.

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