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Prospectus of Bangladesh in Developing Intermodal Freight Transportation Network in South Asia

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Abstract
Asia is the destination of world trader because of its significance growth and sustainability after the economic downturn in 2008. In addition, South Asia is a place of development because of world giant India and renewed readymade garments manufacturer Bangladesh. Furthermore, Bangladesh is playing a vital role because of her position in the Bay of Bengal as worthwhile sea access points of the South Asia, South-East Asia and South-West part of China. Driven in particular, recent movement of business towards Asia and South Asia, Bangladesh has the opportunity to provide transport service in the region because of its lucrative maritime gateway and extensions of dry port, low cost in managing freight transport also the opportunity to build transport network of rail, road and river. Remarkably, recent development initiative by India exclusively for basically landlocked area Seven Sister or NE part of India, landlocked countries Nepal and Bhutan , additionally , development initiative by China for developing SW part exclusively by Silk Route, overall, increased the responsibilities of Bangladesh for modeling integrated transport network. This paper is trying to discuss on port reformation, intermodal freight transportation system and related infrastructure development that are required by Bangladesh to do "Transport Business" in the region. Greatly, open access policy for neighbors and international trade and public private partnership initiative for infrastructure development that will create the opportunity for Bangladesh to act as integrated service provider of intermodal freight transportation in the region extremely. However, political openness and stable government along with role of government and attitude of businessman and investors are important to create such structure of intermodal freight transportation in Bangladesh. Lastly, this paper tried to set some future directions on the basis of literature review and discussion on intermodal freight transportation.
Keywords: Asia, Bay of Bengal, Intermodal, Freight, Silk Route, Infrastructure

1. Introduction

Asia (Ng and Liu, 2010) is the final destination of world trader because of its significance growth and sustainability after the economic downturn in 2008 that affected the international trade as well as transport sector significantly. In addition, South Asia is a place of development because of world giant India and renewed readymade garments manufacturer Bangladesh. Furthermore Bangladesh is playing vital role because of his position in the Bay of Bengal as geographical advantages for sea access points of South Asia and South-East Asia. This paper is trying to focus that port reformation, intermodal freight transportation (hereinafter known as "IFT") system and related infrastructure development of Bangladesh for creating good freight transport network in the region. The author is seeing open access policy for neighbors and international trade and Public-Private Partnership (PPP) initiative for infrastructure development that will create opportunity for Bangladesh to act as integrated service provider of IFT in the region extremely. However, political openness and stable government and role of government and attitude of businessman are important to create such structure of IFT in Bangladesh. Remarkably, the growth (DeWitt and Clinger, 1999) of world population is increasing the global demand of product also increase the volume of freight all over the world automatically. Undoubtedly, in a development process, transport (Ghosh and De, 2001) has a role or pre-condition or pre-requisites of economic growth. Moreover, Dash (2008) found the possibility of a natural development of mutual interest and benefit among the South Asian countries for the interest of regional connectivity.

In general, IFT is the life line of a transport system for managing world trade in the age of containerization in lieu of conventional way of transportation through trucking or several handling of cargo in the supply chain network or during mode transfer. According to Bektas and Crainic (2007) , IFT is exhibiting its growth significantly and aims to integrate various modes and services of transportation to improve the efficiency of the whole distribution process in a given supply chain management system and denoted as total logistics solution. In here, Bangladesh is managing IFT in a limited edition because of poor infrastructure of rail, road and inland waterways. Recent development in road and highways all over the country and Dhaka- Chittagong 4 lane project, establishment of riverside inland container port Pangaon nearby capital city Dhaka and introducing double tracks rail, Bangladesh has the opportunity to improve IFT system not only for own demand but also for neighbors, SW china and Myanmar to mitigate the demand of freight transportation regionally and internationally. Remember that IFT (DeWitt and Clinger,1999)is a significant and critical factor in the successful execution from the origin to destination as full definition of logistics solution of freight. This paper aims to show

the prospectus of IFT in Bangladesh as maritime nation by taking the geographical advantages of her two major seaports Chittagong and Mongla, establishing and improving the related infrastructure, to open the door for all by designing intermodal operations model and making standard policy, specifically, to do "*Transport Business*" regionally and internationally. Truly, IFT is a new concept for Bangladesh even in South Asia where developed countries of European Union, USA, UK, and Japan are getting the fruits of IFT and managing their freight economically and timely.

The author of this paper viewed the prospectus of IFT in Bangladesh and having the opportunity to tag with the Asian intermodal activities by developing its network in South Asia. To follow the secondary research methodology like literature review, collecting base data from IFT model, this paper developed and it also faced limitation because of new concept and non-availability of literature on IFT specifically for Bangladesh and South Asia. Finally, this paper tried to set some future directions on the basis of literature review and discussion in the paper from introduction to conclusion.

2. Literature review on intermodal freight transportation

The literature review serves to demonstrate the knowledge of research area and focus the ability to evaluate critically related information's that will help to develop new concept for making the paper in useful and meaningful. Mention that literature on IFT is growing on and have minimum number of books, journal articles and others to explore in details. However, this section is trying to get interrelated literature of the title.

To sustain, by upgrading (Rodrigue, 2006) and improving the capacity, efficiency and reliability of freight distribution, integrated transport systems have become a leading paradigm. Universally, UNECE (2001: p.17) defined IFT as the movement of freight in one and same ILU(Intermodal Load Unit that may be container, swap body) or vehicle by using two or more transport modes without handling of freight themselves in changing modes. In addition, Bektas and Crainic (2007) cleared that IFT refers to the transportation of the freight from their origin to their destination by a sequence of minimum two transport modes. Furthermore, high quality of transport service and reasonable costs, less passage time are the interest of users that will contribute to the economic growth and society. To promote the IFT, it is essential to improve the efficiency of seaport and dry port, road, rail transportation and inland waterways and riverside terminals for quick connection of ILU. Consequently, Wang et al. (2014) argued that IFT is a core economic activity supporting for a large part of national and international trade. Moreover, it is therefore obvious that standardization of IFT is the basic demand of trade because of internalized and globalized of market and inter-dependency of good flows that will attract shipper, consignees, carriers and others. Mention that shipper's always concerned about speed, reliability and availability of transport where loss and damage is a best factor of shipper's demand in the passage of supply chain.

To unfold, IFT (Monios and Wilmsmeier , 2013) service is related to the domestics movements and performance of inland terminals because of different products, route and equipment characteristics. Nevertheless, responding (De Martino and Morvillo,2008) to the changing requirements of industrial and commercial enterprises, global carriers are aimed to view the intermodality and organization integration of port. State forwardly, Macharis et al. (2011) added that intermodal transport, the combination and integration of several transport modes, with the use of loading units, is in most cases more environmentally friendly than unimodal road transport for the carriage of goods. In addition, Bontekoning et al. (2004) examined that intermodal transport gets growing recognition as well from policy makers, practitioner and academics as an important alternative transport mode that can help to tackle the congestion and environmental problems caused by our traditional transport system. From the model of Hanssen et al.(2012) , it is found that IFT is cost effective where transportation (Rodrigue ,2006) has become much more integrated in the production and retailing process, enabling several corporations to establish what can be called global production networks. In this process, the conventional fragmented and sub-optimal freight transport systems have substantially been changed by intermodal transportation and the combination of several modes for managing commodity supply chains.

In fact, IFT relies heavily on container because of the safety of cargo that reduced damage or loss of the product, standard structure of handling, flexible loading of cargo and others for managing and tracking orderly and in a countable manner. Just then, Bektas and Crainic (2007) broadly defined the IFT as supply chain that made by linking several transportation modes that are more or less coordinated and interacted with the intermodal terminals (Seaport, off dock, ICD-Inland container Depot, dry port, RICT-Riverside Inland Container Terminal) to ensure door–to-door service. They stated that IFT formed as the backbone of today's world trade where Silborn (2008) identified that economic growth involves increased traffic jams and to cope with this the different transport modes that need to combine their service to create an efficient and sustainable transport system where intermodality is seen as one possible approach with a high potential to make freedom for moving sustainable and ensure economic growth and development. For cargo load and unload, trucks are used that are affected the environment significantly. The way of reducing the uses of trucks are using ILU from the origin to destination for avoiding air pollution.

In line with previous trends, literature (De Martino and Morvillo, 2008) on IFT is focused on the efficiency and effectiveness of the management of ILU and container transportation by port logistics. Remarkably, the South (De, 2005) Asian region, with its geographical contiguity, has great potential for transport cooperation within the region and it is viable only by the container transportation as well as IFT within the region. Unfortunately, lack of adequate road transportation links among the South Asian members that pose serious problems for the expansion of intra-regional trade. In addition, while most of the intra-regional trade among South Asian countries is routed through seaports, rising handling costs and operational inefficiency mean that sea trade remains sluggish. In relation to, Hanaoka and Regmi (2011) argued that because of intraregional trade and massive uses of container in freight transportation that will increase the demand of IFT in the Asia importantly.

Overall, IFT is always refers to choose rail, coastal shipping, waterways and ILU transfer by road rather that trucking by road transfer because road haulage of truck is costly, non environment friendly and factor of multiple handling and damage and loss of cargo. Notteboom and Rodrigue (2005) found the connection of gateway ports and hinterland centers that is controllable within the region or far distance by accessing in the IFT networking timely and economically. Janic (2007) calculated the full costs of a given IFT an road haulage trucking network and found that IFT decreased the cost where road transportation network is constant. In addition, IFT took less time because of quick transfer of modes directly without cargo handling. In contrast, negatively, the market (Janic ,2007) share of IFT yet not developed as per expectation and it's not good for short distance transportation from port. In Europe, Janic (2007) cited in the reference of Bontekoning et al. (2004) IFT has been seen as a potential structures competitor of road haulage and environment friendly. Mathisen and Hanssen (2014) addressed that successful promotion of IFT has been identified as the most critical action to achieve a sustainable transport system. Having in mind, Hanssen et al. (2012) refers some factors like freight market, design of transport system, cost, time, punctuality, frequency, speed etc are influenced the transport sector and IFT.

With the limitation, Mathisen and Hanssen (2014) argued that IFT has minimum literature in field of transportation. In success, Jarzemskis (2008) brought the example of EU where IFT is focused strongly to reduce road transportation by truck and cover van. In addition, DeWitt and Clinger (1999) forecasted that due to the changing requirements of global supply chain, in 21st century, IFT will be focused and will set the stage for continued growth renewal that encompasses all single bill shipments by using multiple modes of transport. IFT increased the foreland as stated by Rodrigue and Notteboom (2010) where they argued that interdependency between port's foreland/hinterland is very apparent because of recent changes in containerization and intermodality. With much talk, IFT (Jarzemskis ,2008) is the well known way to reduce transport cost and congestion. It is strongly highlighted that transshipment of ILU has need for infrastructures, equipment and inland terminals. For Bangladesh, IFT is in a small scale which is cost factor but have emerging opportunity in the South Asia.

3. Intermodal freight transportation scenario in Bangladesh

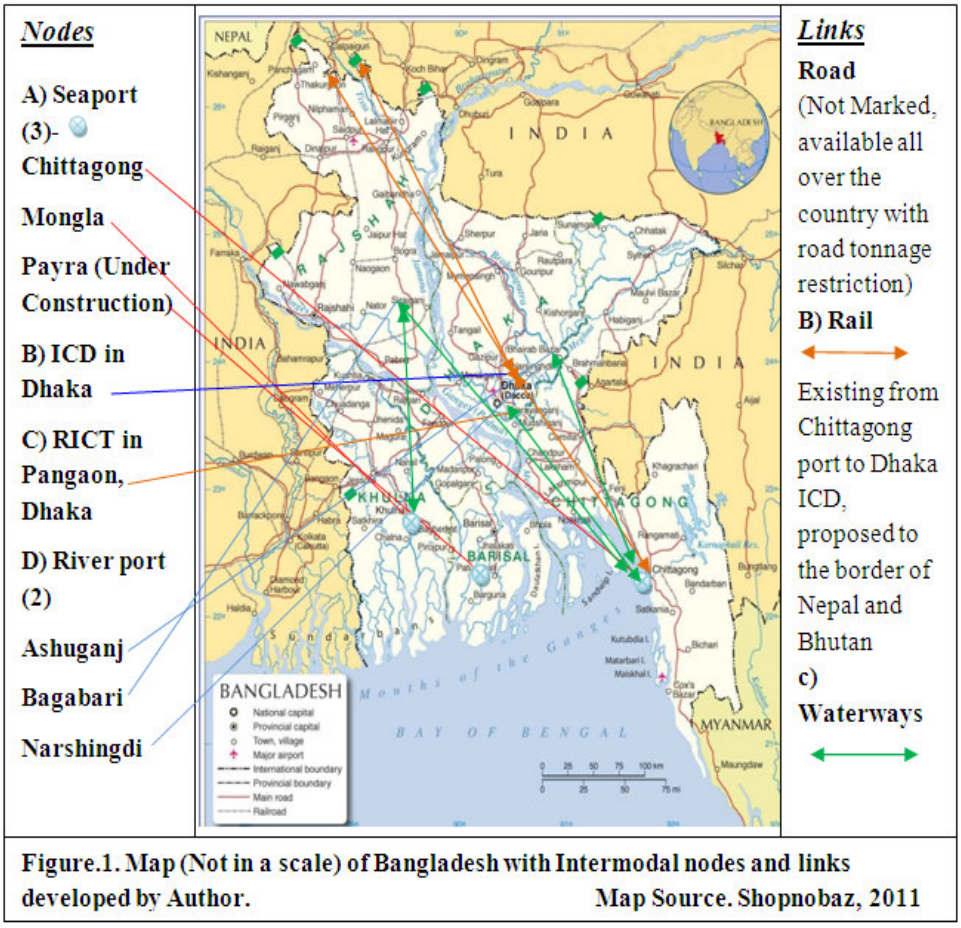

Figure.1. Map (Not in a scale) of Bangladesh with Intermodal nodes and links developed by Author. Map Source. Shopnobaz, 2011

Interestingly, Silborn (2008) stated that in Bangladesh 70% of freight is moving by road. In the scenario, at present, there are two intermodal connections in Bangladesh from Chittagong port to Pangaon RICT (Riverside Inland Container Terminal) and Dhaka ICD (Inland Container Depot) by inland waterways and railway respectively. In addition, 17 nos off-docks are operating in the port city Chittagong for taking the categorized import containers from the vessel hook directly and full responsibilities for stuffed exported containers to port. A railway (CPA, 2015) intermodal facility was started in 1987 with the help of Bangladesh Railway. On the other hand, to reduce (Dhaka Tribune, 2013) the pressure of Dhaka-Chittagong railway and highway corridors, in 2013 Bangladesh Inland Water Transport Authority (BIWTA) and the Chittagong Port Authority (CPA) jointly built the Pangaon RICT that will play a positive role in the country's economic development by opening up a new horizon in the transportation of exported and imported goods through waterways.

Outstandingly, railway IFT is cheap and minimal in Bangladesh but passage time is long (For ILU transfer from Chittagong port to Dhaka ICD, rail takes 15 days where road is only 2 days), that resulted the common moving of cargo and container through trailers/trucks that also caused the pressure on road transportation. Unfortunately, due to lack of intermodal transport facilities, huge numbers of containers are moving from port to consignee premises by road haulage/trailers for import cargo by taking special permission from port and customs with the help of shipping line and returning the container to the respective port /depot/off dock accordingly.

4. Prospectus of connectivity through intermodal freight transportation

Emerging opportunities are remains for Bangladesh to develop IFT and serve smoothly to bolster the trade of neighbors. It is obvious for a maritime nation to follow the developed countries transport system and need to learn how they are managing their freight transport also helping others for using seaports. Bellow subsections will show the prospectus of connectivity through IFT nationally, regionally and internationally.

4.1 National connectivity

To reduce the pressure on truck in road, it is inevitable to develop the IFT system which helps to change the

common scenario of taking import delivery from port/off-dock/ICD. Consignee can take the ILU to the premises directly and manage the export easily and avoid multiple handling of cargo and probability of loss, piracy and others. From the statistics of CPA (2015), to follow the vessel-yard –rail-ICD connection, in 2012, 622,501 MT containerized cargo transported where it was 93,029 MT in 1993. Last twenty years, uses of IFT by rail increased 569% from Chittagong Port to Dhaka ICD. On the other hand, in 2013, 1,541,517 TEUS handled by Chittagong Port where it was 162,360 TEUS in 1993.

Against this background and above figures are indicating the uses of IFT in Bangladesh and it is increasing by day by day. Businessman and international shipping communities are concerned for the performance of Chittagong Port and Mongla port and further transportation because of their investment and exclusively for Just-In –Time shipments of garments cargo to catch the international market which are becoming passion for new products day by day. Moreover, Bangladesh is also importing based countries not only for raw materials of industry but also for food, chemical and other products. As main corridor Dhaka-Chittagong is facing heavy traffic jam and time factor, cost is increasing for import and export. As a result, IFT system is the derived demand for enabling good transportation for developing and sustaining the growth of economy.

4.2 Regional connectivity

This subsection is exclusively for India, Nepal and Bhutan to understand the regional requirements of IFT. In a study, De (2005) suggested that regional integration is to ensure a good quality transportation system for the entire region and adopting a common transport policy in South Asia for the optimum utilization of existing utilities, as well as the expansion of new facilities in the region. In addition, Roy and Banerjee (2010) emphasized on the regulatory issues at ports of entry with in the South Asia and transport and logistical infrastructure supporting both cross-border trade as well as behind-the-border movement of traded goods, including shipping, air, road, rail, and inland water transport.

Critically, Rahmatullah (2009) analyzed that regional connectivity is behind because of non-cooperation's of the member countries that is costly to neighbors to procure transport service and to be considered in the wider context among the South Asian countries and sub regional among India, Bangladesh and Myanmar. He also argued from the wrong conception of providing transit/transshipment/ corridor facilities by some critics from Bangladesh. Overall, it is business as well as "transport service" business that will earn foreign exchange only also develop the intermodal links and nodes by PPP infrastructure development. In line with motivation, geographical (Ghosh and De, 2001) location of a port is the external factors that composed the trade orientation of the region where Kharel (2009) expressed that NE part of India so called seven sisters who have the opportunity to use the Chittagong port and river port Ashugang for their export import trade for avoiding the far distance port Kolkata and Haldia ports of India. Currently, under water protocol, coastal vessels are operating India-Bangladesh-India through Ashuganj port.

In order to secure good connection, Notteboom and Rodrigue (2005) described that port regionalization permits the development of a distribution network that helps to framed production and consumption. By following the statement of Notteboom and Rodrigue (2005), via Chittagong port and improved IFT, it is possible to serve NE part of India easily and timely. Similarly, with the help of India, Chittagong and Mongla port are able to serve Nepal and Bhutan nicely to ensure regional connectivity by IFT networks. After that, Kharel (2009) stated that Nepal and Bhutan are highly dependent on the Kolkata and Haldia ports of India that are congested and inefficient. In his study, he found that Chittagong and Mongla ports of Bangladesh potential alternative ports for them.

4.3 Asian connectivity

After serving the South Asia, there is a good opportunity to serve China in their southern part like Nepal and Bhutan, on the other hand, Myanmar can take the opportunity for using Chittagong and Mongla port for China . In addition, Myanmar can start coastal shipping and ILU transfer through road via Teknaf to trade with India, Nepal and Bhutan. In here, coastal shipping may be developed in between Bangladesh and Myanmar for win - win trade. The great opportunity for Bangladesh is to serve the SW part of China because of its landlocked position and far distance from the developed eastern seaports and not feasible to transfer the freight economically and timely. As a part of the overland and maritime silk route initiative, Chittagong port (Mrunal, 2014) is the important junction for using as intermodal freight terminal and further transportation through India-Nepal-Bhutan international corridor by using the rail, road and inland water facilities of Bangladesh

Driven in particular, there is a great opportunity to start coastal shipping trade in between Myanmar and Bangladesh and introduced IFT through Chittagong seaport and Bagabari river port of Bangladesh by India . The forum (Chakravarty, 2014) on regional economic cooperation among Bangladesh, China, India and Myanmar (BCIM), deals with issues of transport where it has immense for rapid economic progress in Bangladesh and Myanmar improved infrastructure due to road connectivity between India and Myanmar, Moreover, to facilitate the India –Myanmar through IFT, Bangladesh has the opportunity to assist by providing the access in the road

and rail transport and dry, sea and river port connection. Port (Notteboom and Rodrigue, 2005) regionalization is highly depends on the establishment of inland distribution system where structural changes are important because of customer demands to provide their cargo and container to nearby inland terminal easily for connecting with the seaports. In this connection, clear access to seaport, dry port, ICD or inland terminals of maritime load centers that are connected by IFT networks as demanded for regional connectivity.

Another factor that will influence the IFT is corridor (Notteboom and Rodrigue, 2005) development that will enhance the polarization and zoning the logistics sites in transport nodes (Seaport and Inland ports). As IFT(Janic ,2007) has less cost for far distance, it is viable for SW China to follow their eastern port to Mongla further to SW China by rail and road ILU transfer. Monios and Wilmsmeier (2013) justified the ability of ports to control or capture hinterland through the structures and integration that are port regional concepts in the view of IFT connection by foreland (Rodrigue and Notteboom, 2010)

5. Infrastructure and development initiative for intermodal freight transportation.

In the section, related infrastructure development and all kind of development opportunities are discussed to understand the position and opportunity as per requirements of good IFT network. Therefore, in present world, infrastructure is the weapon of attraction foreign traders to set industry nearby seaport for growing the Asian or South Asian connectivity through IFT system of Bangladesh that is highly depends on the performance of Bangladeshi seaports , spatial transportation and waterways where infrastructure development is the main condition to sustain in the transport management. Historically, poor (Roy and Banerjee, 2010) transport facilities and infrastructure have been great impediments to the development of international trade in Bangladesh.

5.1 Seaport development

Notteboom and Rodrigue (2005) stated that port expansion is the product of evolving maritime technology and improvements of cargo handling that also featured on hub where spoke defined to the inland terminals cargo and containers receiving and delivery in the procedures of inland distributions. With the modern equipment m technology and yard of seaport terminals are productive and helps to decrease vessel turnaround time and efficient handling of cargo and container. This type of terminal in port act as like extensive maritime hub in feeder port like Chittagong and Mongla where spoke is the increased portion of off-dock, dry port, river terminal, ICD etc or may be in shipping premises that are exclusive for inland distribution. Thus, infrastructure of seaport is highly appreciated port actors by adding modern handling equipment and will attract the port users . Seaport is the primary source of IFT system and a network, In Bangladesh, there is an opportunity to develop seaport for integrated transport network what argued by Saha (2015). Specifically, Roy and Banerjee (2010) found that most of the important South Asian seaports are inefficient and face severe congestion and delays and performance remains poor relative to ports in other parts of Asia, not just in comparison with leading hubs like Dubai, Singapore, and Shanghai. Driven in particular, seaport is the entrance point of IFT network. It is often spoken that main attraction is the performance of port and hinterland service tracking in an integrated transport chain.

In this context, to develop the existing infrastructure of seaports as expansion and adopting new technology and install modern handling equipment that will increase the foreland and hinterland by shipping line and port users respectively. In addition, Carbone and De Martino (2003) stated that maritime transport is the area of reliability and productivity are collective concept for steaming from a multiplicity of contributors where increasing (Munisamy and Singh, 2011) port completion has faced by port authority to become considerable factors by government. In this case, they suggested that for revising their strategies and set also implement commercial goals to meet customer requirements. Furthermore, inland (Tongzon and Heng, 2005) transport is a critical factor that influence the performance of a port also to the port's future potential. Overall, seaport (Saha, 2015) development in Bangladesh is the derived demand of the nation to assist the rapid economic growth.

5.2 Dry port development

Dry port (Hanaoka and Regmi, 2011 is the process of stimulating economic development and facilitating international trade. This subsection refers the establishment of dry port or land port that will play the extension of seaport for all kinds of facilities of a seaport. Due (Beresford et al.,2012) to rapid growing of container flows to main population areas or industrial sites, dry port is appearing as offshore parts to develop IFT and acts as the nearest maritime load center access by shipper/consignee and it's an integral part of trade facilitation in have played an important role in regional and economic development. To compete for hinterland access , it is necessary to set dry ports by seaports authority or government as part of the port development where actor coordination's are appreciated to minimize logistics cost, environment challenges for increasing the inland production and mitigation the domestics demand by imports for consumption. In here, connection between dry port and maritime load centers are required by rail, waterways, coastal or ILU transfer by road and highways.

To unfold, Jarzemskis and Vasiliauskas (2007) argued that lack of space at seaport terminals are growing congestion and dry port concept are recommended that would be the implementation of rail and

improved inland intermodal terminals as expansion of seaport. In here, dry port is a container and multimodal oriented inland terminal that is situated in the hinterland servicing and industrialization area and connected with several ports by rail/road transport modes and has all logistics facilities for managing import/export trade as alternative of seaport or expansions of seaports. Basically, dry ports are reducing the transportation problems to and from seaport by reducing the cost and avoiding multiple handling of cargo in modal shifting. In this connection, to create good IFT network over the country, along with river and rail terminal, it is essential to develop dry port near by the industrial area and border area to connect with neighbor's countries dry port. To (Hanaoka and Regmi, 2011) serve the logistical parts of a country, the development of dry ports could play a major role in the IFT.

5.3 Road and highways development

Road transportation is the prime and popular transport mode of the world what is featuring the speed and technology of modern heavy vehicles. In order to overcome the limitation of rail and waterways connection in the IFT, alternative method of ILU transfer is road transportation from port to terminal or vice versa. In addition, ILU transfer up to shipper or consignee premises is possible by road and it is a popular method of freight transportation and participating in the IFT system significantly. To support the general cargo loading and unloading facilities, there is no alternative to use the road and highways. In here, Roy and Banerjee (2010) argued that the development of South Asian overland points of entry, such as Benapole between India and Bangladesh and Birgunj between India and Nepal, is even more critical to regional integration than seaports where road transportation is required to solve the problem.

In the truck (Janic, 2007) transportation in road, it burn diesel fuel and caused air pollution, experience congestion, make noise and traffic accident that causes damage and property loss, even, loss of life and injury to the affected people. Despite of its high cost and bad images, it is obvious to develop the road and highways to facilitate the traditional cargo caring and alternative mode of IFT. On the contrary, IFT of rail and waterways always maintain far distance of public area for transferring ILU from port to inland terminals/ dry port/ICD.

5.4 Coastal shipping development

Coastal shipping is the important link of IFT because ILU transportation by water is cheaply and environment friendly and easy to connect with the sea-going vessel. This advantage may be taken among India, Bangladesh and Myanmar for creating the network of intermodal. In the light of Rodrigue and Notteboom (2010), foreland based regionalization with India and Myanmar can help to reduce the fright cost and examined by Chittagong-Kolkata feeder services recently.

It is urgent to develop the coastal shipping for the development of IFT. Mention that cargo from India and Myanmar is transporting via third port Singapore or Colombo, which raises freight costs and consumes time. Chakravarty (2014) informed that existing coastal shipping bilateral contract in between India and Bangladesh, Bangladesh and Myanmar, India and Myanmar may taken up in a trilateral framework that also links to road transport by IFT through ILU. In addition, India (Chakravarty, 2014) is going to build a modern inland river port at Ashuganj, Bangladesh for exposing the import and export trade of NE part by which they also tag with Myanmer and rest of the world to increase their international trade.

5.5 Inland waterways development

Probably inland water transportation is the cheapest way for transferring cargo and passenger in any part of the world. Inland (UNCTAD, 2009) waterway transport is an increasingly popular mode of transportation for goods in many parts of the world as an alternative means of transport to help relieve congestion on other transport networks. However, inland waterways only account for a small portion of goods transported internationally, especially in regions with very well-developed alternative modes of transport. In addition, Bangladesh (Rahmatullah , 2009) could also consider for designating Ashuganj as a new port of transshipment and establish facilities there to transfer containers and goods from IWT to road transport and vice-versa.

Surprisingly, inland (Wang et al., 2014) water transportation is the less studies of branch of intermodal transportation but it is gaining interest as a component of environment friendly modal shift. Fortunately, Bangladesh has river connections with sea area with permissible draft for navigating container barge, tanker, coaster vessel from seaport to the strategic river port and terminal where Pangaon, Ashugang Bagabari (As per Figure.1) are operating for container, Indian cargo and container and oil transportation respectively. By using these river ports , it is possible to link the IFT dynamically to supply the transport service domestically and regionally.

5.6 Railway development

Rail sector is the key part of intermodal freight transport system where it has a great role to decrees the pressure

on road transport and it is reliable considering other modes of transport because of its dynamics. Fortunately, Bangladesh has good railway track from the port city to all parts of the country. Now, it needs to develop only. Remarkably, Bektas and Crainic (2007) found that railways are facing the biggest challenge in competing with the road transportation by trucking as it is time factor comparatively.

However, Roy and Banerjee (2010) argued that overland railways in South Asia are also suffering from lack of regional initiatives where an efficient overland infrastructure would have allowed goods to move smoothly across South Asia. Railways (De , 2005), the lifeline of the region, have an immense role to play in fostering regional integration in South Asia. However, due to high operating costs and the cross-subsidization of services, the railways are losing market share, particularly in freight, to the roads. Rahmatullah (2009) concerned on the security can also be better ensured in Railway, where goods could be easily moved in containers.

Overall, development is essential to mitigate the demand of IFT in Bangladesh. In here, development initiative should be taken by the respective authority. In this connection, Section 8 will discuss the development initiative through PPP where it will treat as opportunity of the nation for developing their freight transport sector. Rahmatullah (2010) added that railway is also environment friendly, safer and cost-effective for long distance movement. In (Hanaoka and Regmi, 2011) the modal shift to rail transport can help to reduce emission of pollutants and environmental impacts. To follow the Map of Bangladesh, from the British Period, it has good connection from Chittagong to all over the country especially nearby the border of India, Nepal and Bhutan. By developing separate and integrate track, it is possible to connect Chittagong and Mongla port as intermodal freight connection.

6. Port performance, competiveness and sustainability in Bangladesh

Seaport is the primary source of generating IFT for importing cargo and further transportation to the consignee premises by using IFT networks. On the contrary, ILUs are stuffed to deposit in the port protected area or direct load the vessel in a specific port. Overall, role of port is important and dynamic that will attract to create the users and increasing hinterland divergently. In the long run, ports(Ng and Liu, 2014) were always an isolated set of facilities and infrastructure and nearly always maintained close connection with their foreland and hinterlands. Ports traditionally served as the economic and cultural of cities and proximate regions. Intuitively, well positioned feeder ports are vying to gain market share. The geographical (Mahmood and Rosssette,2007) location of Chittagong port, sufficient and low cost labor facilities are created the opportunities of cost effective port in the South Asia as well for Asia and considered as potential port of the region. Monios and Wilmsmeier (2013) found that port terminal operators have begun to invest in the inland terminals in order to manage their container throughputs strategically.

In order to inspire the port authority, Carbone and De Martino (2003) advised for continuing the port performance, now-a-days, port authority is not only responsible for cargo and container handling and hinterland connections but also playing linking role in the given supply chain. Thus, the port should involve in the process and managing transport links, nodes and providing effective service monitoring by all including self activity. In this connection, Carbone and De Martino (2003) recommended that port must to accomplish the demand of port users. Meanwhile, De Martino and Morvillo (2008) found that port competiveness is determined by the infrastructure, links to the transport system and service where shipping companies and manufacture have fundamental role in port competitiveness of maritime access and own hinterland respectively. In summary, Port (De Martino and Morvillo, 2008) authorities are able to enhance collaboration and coordination with the market players within the hinterland and promote the economical, relational and social connections with the port users.

To present the sustainability issue in port and transport management, Ghosh and De (2001)reflected that rising of hinterland and foreland always helps the port to sustain its growth. In Bangladesh, major port Chittagong is playing a vital in the process of port and infrastructure development with the help of ADB, UN and other international donors also from self fund. To sustain in the development of world trade and country growth , CPA is assisting to establish alternative third port in Patuakhali , another ICD and RICT in Dhaka. Overall, port (Muntean et al., 2010) reformation and port infrastructure development is appreciated and the role of port authority will not be limited to internal management and they will involve in the IFT infrastructure terminals like ICD, RICD and dry port. By these initiatives, IFT will develop that increase the port performance by getting the connection with the inland terminals.

7. Barriers on intermodal freight transportation

The dimension of the IFT is new for Bangladesh and South Asia . Naturally it has huge barriers to come in a standard shape and common factor to all as new concept of door to door service. Research on IFT barriers that are affecting the development process are stated by Silborn (2008) and applied by the author in context of Bangladesh as follows:-

- Organizational barriers
- Technical barriers

- Infrastructural barriers
- Operational, logistical and service related barriers
- Financial and economical barriers
- Political barriers

In the legislation and policy matters, barriers are the related awareness and consensus program and coordination among concerned agencies due to lack of knowledge and experience on international standard. Special barriers on infrastructure in customs station, including land customs station, weigh bridges, scanning, warehouses and other port facilities. Lack of full automation in all customs stations (software, hardware, and networking). Congestion (Rodrigue, 2006) is a conventional problem faced by many transport modes and terminals. Mahmood and Rossette (2007) found that infrastructure and communication system including information technology are still very weak due to the officials lack of transparency and responsibility.

8. Opportunity : Role of PPP

Public Private Partnerships (PPP) is great subject to the demand, opportunity identity, design, and return on investment, operational strategies, and national culture and related to the internal and external business environment. As it is the big financial matter, prospectus of the project is important exclusively PPP in the mode of transport. On the contrary, Chittagong port (Munisamy and Singh, 2011) is owned and operated by government and efficient, ownership always not necessarily has an impact on port efficiency. Connectively, Tongzon and Heng (2005) argued for port privatization to increase the efficiency of the port and reduce the burden of investment.

It is inevitable to attract the private investor in the process of further development in the transport sector especially in the infrastructure development. Roy and Banerjee (2010) argued that limited role for the private sector in transport and trade facilitation is barrier to the development. Therefore, it is important to use private sector resources and open up the ports for private investment. De (2005) stated that through PPP-Public-Private-Partnerships, efficient port network will be developed in South Asia and it would improve productivity and able to provide efficient intermodal connections to rail and road. Rahmatullah (2009) expected that full exploitation of the opportunities of trading in transport services sub-regionally, will require considerable investment in order to expand capacity of the Bangladesh Transport System. Mahmood and Rossette (2007) recommended that for the purposes of commercialization, operational activities and investment to the private management. To (Ghosh and De, 2001) involve the private parties in the port and transport system , will split the risks and cost for capital infrastructure and operational management attractively. Hanaoka and Regmi (2011) expressed that to cater the IFT, it is essential to interface between railway and other transport mode by encouraging private sector.

9. Conclusion

Economic growth is very important as population is increasing day by day as well as increasing their want surprisingly with the new types of requirement. It is not possible to supply their demand by national product only. In addition, neighbors new life style in the new age that demanded quick import of cargo because of financial stability and purchasing power due to recent industrialization. In the view of Dash (2008), South Asia offers immense scope for growth, development and cooperation. Moreover, the rise of China and India could shift the political and economic center of the world to Asia in the next decade where transport will be a great issue for industrialization and facilitate import and export trade. Without (Ghosh and De, 2001) efficient port and integrated transport system, economic development is not possible. Now, it is clear that efficient movement of freight one place to another, will bring the economic growth of a country where integration among the seaports, , inland transport network, and terminals is must. Developing (Muntean et al.,2010) countries are aware of the importance of effective and efficient national port as catalysts for international trade and essential elements in their economic development. Surface (Rahmatullah ,2010) transport networks are fragmented in the South Asia because of less cooperation and non-interested factors associated as obstacles for the development and sustainability.

Overall, this paper will help the policy analyst and decision makers to understand the current freight transportation system over the world and Bangladesh as per standard movement of cargo and container from the seaport to final destination and vice versa. In here, related infrastructure investment priorities, environmental impacts on freight trucking, adopting new technology in seaport, dry port and terminals are discussed highly to understand the IFT and approach to do “transport service” business regionally and internationally. With the voice of Notteboom and Rodrigue (2005), port authorities should act as facilitator in a transport network and constantly rethink the development of transport and broaden their role to increase the hinterland as much as possible. For Bangladesh, Chittagong Port Authority has the capacity and opportunity to do the same and direct government to create the environment and political stability in the transport sector to facilitate the IFT for serving the nation, neighbors and others as important connector in South Asia also for Asia. Hopefully, literature review and related discussion on IFT will help the reader for conducting further research on transport

management for regional connectivity and Asian trader for choosing Bangladeshi ports as intermodal gateway and place for transport investment profitably.

10. Future directions

This paper tried to show the necessity of IFT development in Bangladesh by which she will able to serve the nation fully , assist the neighbors for managing their freight by Bangladeshi seaports where Bangladesh will do transport business and earn foreign exchange , overall, will play a key role in South Asian transport network in the region arguably. However, this paper is directing the below points as future directions to the government, transport authority, port users, transport researchers, investors and others:-

1. Transport (Muntean et al.) industry is changing significantly and it directed on the port developing, port operations and management. Government of Bangladesh and respective ministry needs to take appropriate project for adopting with the industry dynamics and requirements.
2. To pay the attention of all SAARC member countries, future (Roy and Banerjee, 2010) agenda is clear: the need for proactive unilateral trade facilitation (with a focus on behind the- border issues) that is buttressed by regional initiatives (focused on the border issues that require cooperation across countries), need to discuss in the SAARC forum for opening the transport access for the interest of regional development and connectivity.
3. It (Dash, 2008) is necessary to work positively towards creating a durable institutional structure of cooperation within the framework of the objectives of the SAARC. In here, as emerging power of the world, India has to lead the region positively for the development of transport network.
4. To strengthen (Silborn, 2008) the IFT, it is necessary to include the national infrastructure scheme and under the state budget will cover the entire transport network.
5. Strengthening the road and bridge authority to clear the road and highways to control the traffic congestion effectively and reduce accident. Separate and dedicated lane to be allocated for freight transport or alternative road development from Chittagong to Dhaka.
6. A complex (Mahmood and Rossette, 2007) and lengthy procedures by Bangladeshi ports and customs that needs to make easy and convenient of port users. Policy maker will work on it and will put basic procedures of port and customs for easy documentation also clearing and forwarding of freight by all.
7. Ports (Jarzemskis and Vasiliauskas, 2007) potentiality depends on the availability of efficient intermodal connection and dry ports for global transport system. Thus , dry port establishment is guided to serve domestically, regionally and internationally.
8. Regionalization ((Monios and Wilmsmeier, 2013) occurs only when favorable commercialization and infrastructures conditions are maintained. So, concentration on commercialization is appreciated for doing " *Transport Business*"
9. Openness (Ghosh and De, 2001) of the IFT to the region will open the global trade, before that, need to strengthen port system and infrastructure development in the IFT networks. Thus, need to change the behavioral matters by providing knowledge on transport management and IFT networking, further research and feasibility study is required highly.
10. Due (Rahmatullah ,2010) to poor connectivity in the region, it is not possible to develop integrated transport networks to establish industry despite of having cheap labor all over in the South Asia. In here, approaches to be taken in the South Asian forum for IFT model by considering the gateways Chittagong and Mongla as it is most convenient access in the region.

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