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Identifying the Determinants of Strategic Port  
Partnership in Host Country Market, For Port  
Authority/Port Development Company  
Internationalisation Strategy: A Case Study of Port  
of Rotterdam and India as a Host Market

by

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## **Abstract**

The Port Authority (PA), as a continuous evolving entity, has been undergoing through radical changes in terms of operations and management structure due to intense port competitions, over the past 35 years. To become frontrunner in this business by creating the maximum value to their clients and themselves, currently the PA/PDC are witnessing the new trends like outward port internationalisations (PI), which has increased the arena of port competitions. Outward PI strategy consists of three forms, among them abroad strategic port partnership required highest level of commitments.

The purpose of this research is, first, to identify the determinants of the PA outward internationalisation strategy. The author has found that various driving and inhibiting (restrictive) determinants which shape the PA ambitions towards outward PI. Subsequently, the author has also evaluated the set of determinants which play significant roles in the host country market selection for strategic port partnership. It is also found that, out of 14 different listed determinants, each one is having varying effects and magnitude or role of each determinant varies from case to case, which ultimately leads to the different partnership models. In fact, in strategic port partnership business case, the author believes that there is no “one models fit for all.”

Strategic port partnership in abroad is extremely resource intensive (capital, time and soft skill) and risk generating activity, hence systematic evaluation of the host country, its domestic partners and right port selection has paramount importance for success of business. In this research, hence the author has developed a methodological framework tool, which can be used by the industry while perusing their abroad strategic port partnership objectives.

As a case study, the author has evaluated the Indian port sector as a host country market for strategic port partnership to the Port of Rotterdam. The investigator found that West coast of India (Region I) is having great potential for such development and ports like Mundra (grown field) or Vadhavan (green field port) are having the highest potential for strategic partnership. Similarly, he also evaluated that the Adani Group and the Major Port Authority are the potential good partner for strategic partnership. At the end of this research, the author has suggested two options for strategic port partnership, considering its strategic fit (w.r.t. country current regulations), financial arrangements, conflict of interest, risk etc. The mitigation measure of both the options has also been listed to overcome these issues.

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## List of Abbreviations

APSEZ	Adani Ports and SEZ Limited
BRICS	Brazil, Russia, India, China, South Africa
CAGR	Compounded Annual Growth Rate
DFC	Dedicated Freight Corridor
DMIC	Delhi Mumbai Industrial Corridor
EXIM	Export Import
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HLH	Hamburg - Le Havre range
IMF	International Monetary Funds
IPA	Indian Ports Association
ITO	International Terminal Operators
IWT	Inland Water Ways
JNPT	Jawaharlal Nehru Port Trust
JV	Joint Venture
MNE	Multinational Enterprises
MMTPA	Million Metric Tons per Annum
MT	Metric tons
MTEU	Million Twenty Feet Equivalent Unit
PA	Port Authority
PDC	Port Development Company
PoA	Port of Antwerp
PoR	Port of Rotterdam
PoRInt	Port of Rotterdam International
PPP	Purchasing Power Parity
PPP	Public Private Partnership
RoI	Return on Investments
TAMP	Tariff Authority for Major Ports
UNCTAD	United Nations Conference on Trade and Development

## **1. Introduction**

In this chapter, the relevance of topic, motivation of research and need of study, shall be explain in details. Main research question along with sub-research questions, which are framed to answer the main research shall also have presented here. The thesis methodology and chapters of research shall be presented at the end of this chapter.

### ***1.1. The Impetus for Research/Problem Statement***

Historically the port authorities (PA) have been continuously evolving from their core business functions. The journey of most of the traditional port authorities, which were primarily restricted themselves to the cargo handling operations, has started from public ports. However, currently they are clearly moving towards the landlord's ports and private ports operating models. Globalization and its associated impacts are continuously demanding for a better port performance/improvements; we believe that they are the main driving force behind these port reforms. The roles of the PA are evolving as controller, facilitator, community or cluster manager (VERHOEVEN, 2010). Presently, in most of the countries, the port authorities are no more engaged in cargo handling operations rather they are acting as landlords, wherein they lease their infrastructure to private operators (The World Bank, 2007). The PA, as a continuously evolving entity, is currently witnessing new trends like port internationalization, however such an evolution is still at a very primitive stage (Dooms, 2016).

The PA internationalization has been classified mainly into two types: (a) Inward Internationalization: allowing to attract international private players, boost investment and traffic volumes and leverage local economic growth, and (b) Outward Internationalization: outward activities (in abroad), aiming at finding and exploiting new business opportunities (Dooms, et al., 2013). The key motives of the PA outward internationalization strategies are to sell the port worldwide (customer seeking principle), control international transport network, create value for their domestic customers and/or maximize profits through involvement in exploiting market opportunity abroad (Dooms, et al., 2013) and (Port of Rotterdam, International, 2014). There are very few examples of port authorities' internationalization businesses worldwide with respect to strategic partnerships in foreign countries ports or FDI in ports (Dooms, 2016).

The port authorities' outward internationalization strategy, especially a strategic partnering with foreign ports or FDI in particular port project, is considered as the advanced level of PA internationalization business. However, such type of development is most critical, as it requires an extensive capital, a well setup soft infrastructure, and long term commitment. Strategic investments in port sectors, in comparative unknown market, generally tends to be very risky because of distinct features of port industry. Therefore, to analyze the risk in international businesses, while selecting particular country as host country for strategic port investment, has a paramount importance. Thus, the PA needs to have systematic approach while selecting any foreign market for port internationalization strategy, especially in the case of strategic port partnership(Dooms, et al., 2013).

In this research, author first aim is to analyses why PA/PDC are internationalizing and which are critical determinants play crucial roles in the PA internationalization strategy. We will also analyze, what are the driving factors and inhibitors (restrictive

factors) factors behind PA/PDC internationalizations. In the second phase, the key determinants which play crucial roles while selecting the specific host country and ports/sites in this particular country, for strategic investment, will be analyzed. Subsequently, a model (a methodological tool) shall be developed, which can be used by any port authority, who wishes or intends to have such type of PA internationalization aspirations. In this particular research, as a case study, the researcher is going to analyze the Indian market as host country market for the Port of Rotterdam internationalization strategy.

## ***1.2. Motivation of study:***

The Port Authorities internationalization strategies are very new and emerging concepts; it is believed that in coming future, there will be considerable scope for such developments. In particular, developed countries' hybrid port authorities (corporatized PA, having both public and private goals), will look towards emerging economies markets, not only for their own profit maximizations strategy but also to creates value for their home/domestic customers. Though this is one of the emerging sea port strategy, but there is hardly any academic literature available on this topic. Even within the port industry, very few PA/PDC have successfully achieved the objectives of PI. In fact, set objectives of the PA internationalisation, is varies from case to case. The motives, rationality, objectives, presented by different PA towards port internationalisation, are not uniform across industry, hence author believe that it is important to analyse what are the factors pushes or pulls port authority towards internationalisation strategy.

Presently many ports authorities in developed economies are facing a range of problems such as severe inter-port competitions, over-capacity in ports, sluggish future industrial growth trends due to saturated market which subsequently leads to the low volumes. All such developments are putting pressures on port authorities to become more innovative, which have given birth to the port authority internationalization concept. However, looking into historical port business/operating models, complexity of operations, multi stakeholder business, geopolitical factors and the current environment in which ports are operating, it is extremely difficult to get involved into massive investment in international projects without any proper homework. It is believed that for any port authority which has aspirations to go abroad under the strategic port partnership or the FDI investment, it is an immensely important to carry out detail analysis of that host country to minimize the risk in the business. Hence we believe that it is enormously important to analyse, which determinants play an important role in host country market selection process, since they play significant role in strategic decisions making. From case studies we analysed that because of these determinants no "one model fits for all" countries.

Considering above mentioned facts, we believe that a scientific methodological develop tool can help decision makers to analyse the particular host country for strategic port partnership. Author also believes that, in fact selection of particular port or site and domestic partner from host country for strategic port partnership is also challenging, hence development of particular scientific methodological tool will help substantially PA/PDC to achieve their aspirations more easily.

### ***1.3. A case study relevance and its motivation (PoR and India):***

The Year 2015 PwC report on “The World in 2050, Will the shift in global economic power continue?” projects that the world economy will grow at an average of just over 3% per annum in the period 2014–50. According to the report, shifting of the global economic power away from the established advanced economies in North America, Western Europe and Japan will continue over the next 35 years. China has already overtaken the US in 2014 to become the largest economy in purchasing power parity (PPP2) terms. India has the potential to become the second largest economy in the world by 2050 in PPP terms (third in MER terms). Similarly, new emerging economies like Mexico and Indonesia will be larger than the UK and France by 2030 (in PPP terms) while Turkey could become larger than Italy. Netherland will fall from its current 26<sup>th</sup> ranking (GDP in PP) to the 32<sup>nd</sup> in the year 2030 (PwC, 2015).

In line with the aforementioned economies trends (GDP growth), growing population age, environmental awareness and strict regulations, production cost along with other similar factors, will surely reallocate the future cargo flow to the Eastern counties (Asian countries). Hence, these growing/emerging economies are the very good markets for the future port businesses (Hamburg Port Authority, 2012), (Antwerp, 2016) and (UNCTAD, 2015).

In narratives, historically container terminal operators like HPH, PSA and DPW pushed out their business from their limited domestic growth potential market to global market to harness the new businesses opportunities. They inclined towards the emerging markets of container segments at various parts of the world. However, we have hardly seen any example of port Authorities (landlord ports) to move away from their saturated regional market to the new emerging markets. Nevertheless, looking into new corporatized port operating models, the PA/PDC (port development companies) are slowly crawling towards the similar type of ITO business internationalisation models to create values for their clients, generate additional sources of revenue, become a part of integrated supply chain and to become front runner in competitions (Dooms, et al., 2013).

The proactive PA like Port of Rotterdam is one of the Port authorities, which really went away from their regional market and formed partnership with Omani's port, Sohar. Subsequently, the port of Antwerp, Hamburg, Los Angeles, Long Beach, port of Shanghai, etc. is also planning to move towards the emerging economies to explore new business, in fact, few PA has already achieved some milestones in this business. These PA have already identified the world upcoming growth regions like Brazil, Russia, China, India, Indonesia, South Africa, Turkey and other similar developing countries, which will likely be generating the sizeable amount of cargo traffic for the sea ports developments. However, the ports of these countries are not well prepared to harness these opportunities. Hence, advanced economies PA believe that it is a golden opportunity to get engages in these markets to increase their overall competitiveness in all aspects in upcoming future. We believe that the well-established landlord (corporatized) or private ports of the developed countries will invest in these growth markets to yield economic benefits from these emerging markets.

The Port of Rotterdam has already envisaged business opportunity through internationalization and participated successfully in various port projects such as

establishing their commercial presence abroad, transfer of port specific knowhow (technical consultancy services) and equity partners in port developments abroad. The Business Plan 2011–2015 formulates the main corporate goals of the PoR; one of the main goals, under the term 'connecting with growth markets' is to extend port development partnerships to the growing economies. In the Annual Report 2011, the goals of the Business Plan 2011–2015 are stated explicitly (Dooms, et al., 2013):

The Port of Rotterdam Authority wants to build up a portfolio of ports so that the Port Authority develops and operates in partnership. This portfolio must consist of ports in growth markets with a good geographical distribution and having sufficient size with activities in the petrochemical, energy, transport and logistics sectors. The Port of Rotterdam Authority wants to build up close customer relationships with these ports in the form of participations (joint ventures) and global strategic partnerships (Dooms, et al., 2013)

The Corporate strategy vision of the port of Rotterdam is

“The Port of Rotterdam Authority is fully committed to the continued development of Rotterdam’s port and industrial complex so that it can become the most efficient, safe and sustainable in the world. The Port of Rotterdam Authority is creating value for customers by developing chains, networks and clusters, both in Europe and in emerging markets worldwide. As an enterprising port developer, the Port of Rotterdam Authority is the partner for world-class customers in petro-chemicals, energy, transport and logistics. In this way the Port of Rotterdam Authority is enhancing the competitiveness of the Netherlands” (Port of Rotterdam, 2016)

The motives of international expansions of the port of Rotterdam are:

- a. To create the values for their home-based customers
- b. To develop capabilities and resources to face the challenges in their home country
- c. Development and leverage of the PoR port management and deployment knowhow
- d. To strengthen the PoR relations with leading companies in transport, logistics and energy
- e. To generate financially attractive business opportunity for the port authority and the PoR business community
- f. To increase the volume and efficiency of trade flows through Rotterdam, (Bussem, 2016), (Dooms, et al., 2013) and (Port of Rotterdam, International, 2014)

Keeping the aforementioned motives of the PoR in mind, it is believed that among BRICS and other developing countries, India is next opportunity for the PoR internationalization business. The attractiveness of the Indian market is mainly due to the expected/forecasted higher GDP growth in coming decades. The historical GDP growth trends of India has shown a strong positive correlation with GDP growth with growth in sea-borne volume trade (ratio is ranging from 1: 1.20) (IPA Indian Port Association, 2016) and (Edelweiss, 2012). Presently Indian port industry is severely facing the problems like poor port efficiency performance, higher utilization rate, congestion problems and it is expected that it will remain as it is in coming decade because of huge demand and supply gaps. On contrary side, we found that many Dutch companies or PoR clients are interested in Indian market for their long term investment plans. Therefore, looking into above mentioned conducive environment,

we believe that the PoR has great potential opportunity to explore Indian market for strategic partnership. The investment in India will not only generate financially attractive business for the Rotterdam port authority but it will be stepping stone for Dutch firms and/or foreign firms with activities in Rotterdam to India

#### **1.4. Research question and sub-research questions**

##### **This Main Research question**

1. To identify what are the determinants of port authority internationalisation strategy and how to evaluate host country market for strategic port partnership?

##### **Sub research questions**

- a. *To assess which are the critical determinants behind the PA/PDC port internationalisation strategy?*
- b. *To analyse which are the critical determinants play important role in host country market selection for strategic port partnership?*
- c. *How to explore business opportunity in host country market for strategic partnership (development of methodological approach)?*

##### **Case study specific sub-research question**

- d. *Is India a really market for the port internationalisation business? If yes, then what are the business opportunities for the PoR?*
- e. *How to explore Indian market for strategic port partnership?*
- f. *To assess what will be the potential port business model and how to mitigation risk in the proposed port business model?*

#### **1.5. Research Objectives**

In light of the aforementioned motivation, relevance of topic and formulated research question/sub research questions, this study will able to find out the determinants of the port authority internationalization strategy. Another major objective of research is to analyse how to evaluate the host country market for strategic port partnership.

This particular research also has a case study based approach for detail market analysis, i.e. the port of Rotterdam and India as a host country market for the potential investment. However, methodological approach developed here can be used by any interested port authorities, who has aspirations of port internationalization and wanted to get involved in the emerging economies.

The research finding could therefore, provides the insight and offer valuable knowledge for executive managers of ports as well as maritime industries, while making their strategic business decisions w.r.t. port internationalization in India

The overall objectives of this study have been explained below;

- a. To identify rationality and motives behind the PA port internationalisation business.
- b. To analyse the determinants of the port authority internationalisation strategy
- c. To analyse the determinants those, play important role in host country market selection
- d. To develop the methodological tool approach, for host country market analysis for strategic port partnership.
- e. To analyse how to select particular site/port and partner, for strategic partnership in host country.
- f. To analyse the Indian market for strategic port partnership.
- g. Proposed business case development for PoR investment in India, as a strategic port partnership proposal.



- h. To scrutinize various risks and mitigation measures for specific business case.

## **1.6. A Research Design**

For this research, both quantitative and qualitative analysis methods will be used in order to reach conclusions. However, most of the research findings shall be based on qualitative data analysis; and quantitative method shall be used whenever require.

In the first stage of the research, based on the literature review analysis, and interactive session with the field experts, we will find out the global scenario of the PA internationalization strategy. The rationality, objectives and motives of the PA/PDC internationalisations shall be listed here. Subsequently, the determinants of the PA outward internationalizations strategy shall be thoroughly scrutinized in this section in the form of driving factors and inhibiting (restrictive) factors. Types of outward internationalisation mechanism also will be analysed.

In the second part of the research, the key determinants which play important roles in host country market selection for strategic port partnership will be analysed. How different parameters have play importance roles for selection of port for strategic investments within the host country market will also be scrutinized.

In the third part of research, a methodological approach tool (model) which can be used by any port authority to scrutinize the host country market for strategic port partnership will be framed. The list of variables, which needs to be considered for the analysis of host country high potential growth region, then analysis of potential port for investment in identified high potential growth region, shall be listed here. Similarly, variable which needs to be considered for the potential domestic partner selection shall be analysed.

In the subsequent phase of research, the scholar will study the Indian port sector developments. Historical growth pattern (at least last 20 years) of country maritime trade volumes shall be studied in comparison with country GDP growth pattern. A correlation shall be built in between country GDP growth rate with maritime cargo volume growth. Based on this correlation, country future cargo volume shall be forecasted and it will be related with country maritime infrastructure requirements. A SWOT analysis of the country maritime sector developments, especially port sector developments shall be carried out with respect to potential opportunity for strategic port partnership.

In the fifth stage of research, the country will be divided into four parts to carry out comparative analysis of each region to identify the high potential growth region of the country for port developments (strategic partnership). The identified determinants and variables in the section two, three and four shall be used to arrive at a logical conclusion.

In the sixth stage of the study, based on the identified high potential region for proposed port development, a detail analysis of high potential brownfields ports shall be carried out. The ports in this particular region shall be studied thoroughly along with new ports expansion projects. A comparative analysis of each port site shall be carried out and high potential growth sites/ports shall be assessed by using various parameters. Selection of parameters shall be based on the feedback given by port expert, literature review and author own subject knowledge. Based on these criteria,

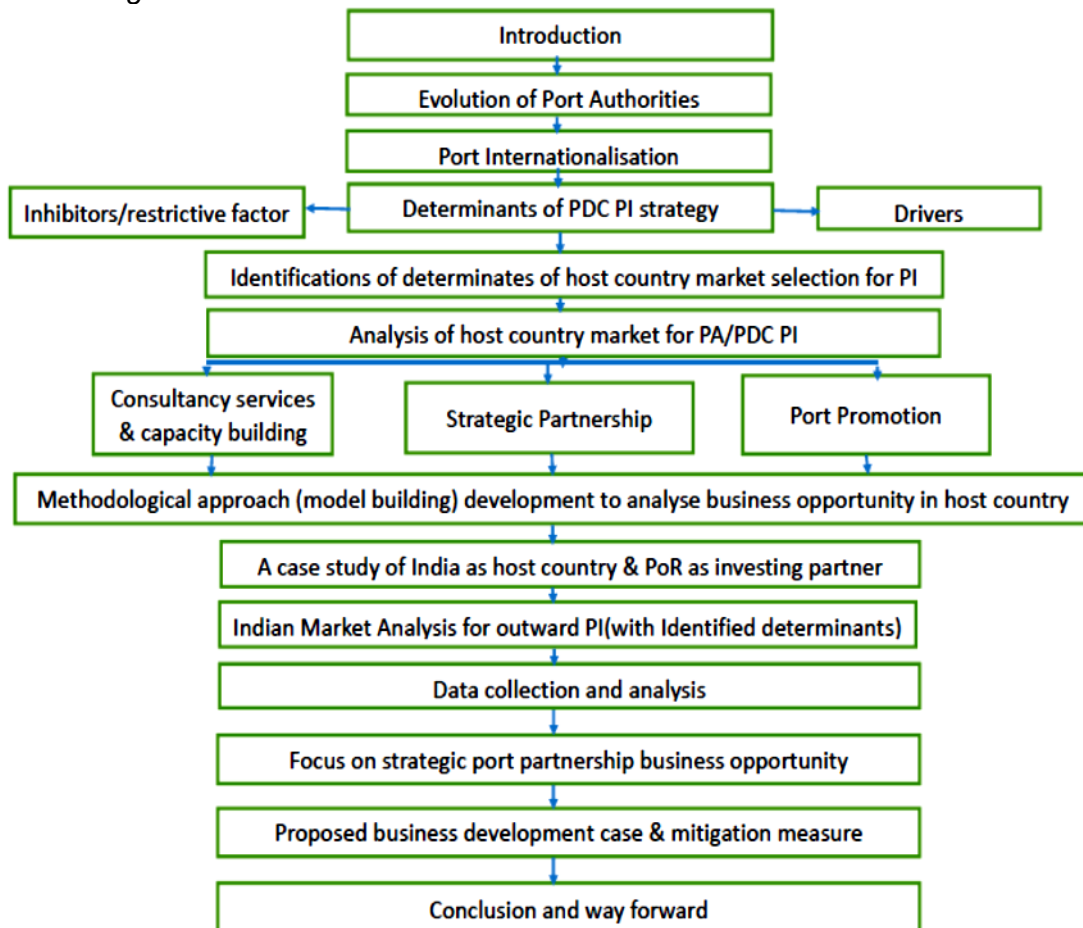
two ports shall be identified for the proposed strategic port partnership developments.

In the seventh stage, based on the information gathered from stage number four, five and six, a potential port business models shall be developed (at least two options). A systematic analysis of each options shall be carried out based on the various parameters. At the end, one or two sites (two business case options) for proposed port developments shall be finalized subsequently risk analysis and mitigation measures of site (options) shall be carried out.

In the last part of the report, a forward path of proposed port developments shall be discussed. The limitation of the study and future research requirement in this particular subject shall also be discussed

### 1.7. **The structure of the thesis**

Figure 1-1 Thesis structure



### 1.8. **Data collection**

The entire study is based on the primary and secondary data collection. Since, there is absence of very specific literature on this topic as this concept is still at evolving stage; most of the data used here are unpublished data of the port authorities. Feedback received from the port industry experts through interview and formal discussion is also considered as main source of information

### **1.9. The Chapter's break-ups:**

**Chapter 1:** Introduction to the study, with presentation of the problem statement, motivation of the study, relevance of the research topic and research question and sub research questions formulation. Thesis research objectives, research design and structure of thesis has been explained in chapter 1.

**Chapter 2:** In this chapter, evolution of the port institutional framework and rationality behind this evolution has been discussed. The various operating models of ports and port reforms have been also discussed in this chapter with respect to its linkages with port authority internationalisation strategy.

**Chapter 3:** This chapter focuses on the port authority internationalisation strategies, especially outward internationalisation strategy. The determinants of the PA/PDC port internationalisation strategy has been identified in the form driving factors and inhibiting (restricting) factors. This chapter has given the answer of the sub-research question 'a'.

**Chapter 4:** In this Chapter, various determinants which play important roles in host country market selection for strategic port partnership have listed out. As a practical example, the PoR materialised and non-materialized cases study has scrutinised to assess the importance of each of the identified determinants. In this chapter, the sub-research question 'b' has been answered.

**Chapter 5:** In this chapter, Indian market of port sector development has been analysed. The country's maritime sector growth has been analysed with respect to economic growth and cargo volume growth. The correlation between these two factors has been established and based on that future cargo forecast of the Indian port has been analysed. The operating models of ports in India, current port capacity and utilizations, sector's key challenges, issues and government initiatives to deal with these problems has been discussed in this chapter. The SWOT analysis and future outlook of port sector development also has been discussed. At the end of the chapter, the business opportunity for port of Rotterdam, in the form of port internationalisation has discussed. In this chapter, the sub research question 'd.' has been answered by the author.

**Chapter 6:** In this chapter, methodology and various methods used to analyse the host country market for port internationalisation has been explained by the author. The methodological tool (model) which has been developed to analyse the host country market for strategic partnership is described here. A long list of variables, which has identified for the analysis of top down market analysis, has been given in this chapter. Moreover, the answer of the sub research question 'c' has been given.

**Chapter 7:** In this chapter, firstly, the author has explained methodological approach for how to carry out the Indian market analysis for strategic partnership. Subsequently, the results of analysis are presented and discussed. Based on results, a proposed business model for strategic partnership has been explained along with how to manage the risk of proposed business model. Here, the author has answered the sub research questions 'e' and 'f' too.

**Chapter 8:** It is the concluding chapter of this thesis. All sub- research questions and answers shall be discussed here along with main findings. The limitations of the research are reminded, as well as forwarded suggestions for further research

## **2. Port Authorities Evolution**

### **2.1. Chapter Introductions:**

In this chapter, author has discussed the historical trends towards evolution of the port institutional framework and rationality behind this evolution. The various operating models of ports and port reforms has discussed considering it's linkages with port authority internationalisation strategy. A case of PoR corporatisation has also discussed, to analyse the impacts of port reform on port performance.

### **2.2. Historical perspectives of PA evolution:**

The port industry has been undergoing radical changes in operations and management structure due to intense port competitions, over the past 35 years. Globalisation and its associated impact of supply chain have completely changed the dynamics of the port industry. Ports are now no longer operating in an insulating environment. They have become a part of complex integrated logistic supply chain. The changing environment has forced the Port Authority (PA) to adopt themselves in the competitive world and act based on the customer's demands. However, differentiated rate of globalisation across world has also resulted in differences in the evolution of ports. Apart from globalisation, several other factors such as country, political culture, economic conditions, culture, history and many other factors have shaped different forms of port operations across different parts of the world (World bank, 2007) and (Langen & Heij, 2013).

### **2.3. Ports in the Competitive World**

Ports as part of the complex global integrated supply chain and globalisation has put tremendous pressure on ports to improve its performance in all aspects. Product fragmentation and value addition in products at different parts of the world have increased the volume of at sea ports, while they are continuously demanding the cost efficiency and reliability from the ports. This changing dynamics of global supply change has brought competition among various sea ports to perform efficiently in respect to their competitor's ports. Based on the demands from various stakeholders of the ports and governments strategic responses to these requirements, ports have adjusted their organisational and administrative arrangements. Today's ports are having some public functions and private functions too. However, these strategic shifts of the ports across maritime sector are not uniform and based on degree of the strategic responses of governments towards these demands; various types of administrative model of the ports have evolved over the time. Today we can see different operating models of the ports in different parts of the world, however there are some common trends towards increasing private sector involvements in the ports sector (World bank, 2007), (Yang, et al., 2012) and (Langen & Heij, 2013).

### **2.4. The Evolution of the Ports Institutional Framework:**

In the modern history of the world (around 50 years back), most of the ports were operated by the governments initially. These public operating controls of the ports were varying from supranational level to local municipal body level. Increased demand of the port efficiency in 1980s due to intense globalisation has resulted in most of the ports as bottlenecks to the efficient distribution chains. These issues of port inefficiencies and congestions were mainly caused due to restrictive labour

practices, centralised control of ports (causes delay in decisions making and developments) and inability or unwillingness of many governments to invest in expensive port infrastructure or the “misinvestment” in infrastructure (World bank, 2007) and (Langen & Heij, 2013). Then many governments have realised that the traditional methods of operation and the management structure would not work to cater to these demands and they started abandoning earlier operating structure. Ports have started to become more commercialised and private sector involvements were encouraged to invest in ports to reduce ports reliance on state budget and to spread the investment risks through joint ventures. However, this has raised some fundamental questions about the appropriate division of responsibilities between the public and private sectors. Since, ports are producing both public and private goods, which are equally important for the social welfare and economic prosperity of the states; this has posed challenges for the policy makers. Hence, in order to deal with these challenges at various parts of the world, different governments had come up with the different models of the ports administration. The linkages of the evolution of these models at different parts of the world are linked with number of factors such as socio-economic structure of the country, historical developments, locations of the ports and many more similar factors.

## ***2.5. Changing Role of Port Authorities and Functions***

With the evolution of the global supply chain network, port authorities are changing their functions as per business requirements. The various administration models of the ports decide the functions of the port authorities that provide to its clients. Various functions provided by the port authorities are as follows (World bank, 2007)

- Acts as landlord for private entities offering a variety of services.
- Regulator of economic activity and operations.
- Regulator of marine safety, security, and environmental control.
- Planning for future operations and capital investments.
- Land use planning of ports
- Operator of nautical services and facilities.
- Marketer and promoter of port services and economic development.
- Cargo handler and storing agent.
- Provider of ancillary activities.
- Advanced function like community manager, cluster leader etc.
- Social engagement with neighbouring communities.
- other

However, the role of port authorities is ultimately depended on the type of administrative set up they have opted as per their national motives and interests, which vary from country to country.

## ***2.6. Ports Administrative Models***

Based on the administrative activities and scope of work, four main categories of ports have emerged over time. They are namely the public service port, the tool port, the landlord port, and the fully privatized port or private service port. These models have been evolved from the initial basic model of public service port. Globalisation, political activeness, historical developments and other market factors had played important role in the evolution of these ports administrative models. Each type of port administrative model is briefly summarised below (World bank, 2007).

### 2.6.1. Public Service Port

It is one of the oldest models. It seems that other models have been evolved from service port. Still at few parts of the world, this administrative model exists and it has a predominantly public character. However, looking into today's changing competitive environment, number of service ports are sharply declining. Service port model is mostly found in developing countries, and now many former service ports are in transition towards a landlord port structure. In this port model, all port services are being offered by the public sector and similarly the infrastructure, super infrastructure and other infrastructure facilities are also owned by the public entities. In some cases, stevedoring companies are operating public company differently from the infrastructure management company. The coordination problems are very obvious in this type of operating model and these ports are very inefficient in operations. No motivation, lacking of leadership, unaccountability, innovative averseness is common in these type of operating models.

The focus of these ports is very narrow to regional and national level. Hence these ports don't have an ambition like port internationalisation.

### 2.6.2. Tool Port

In tool port model, the infrastructure, super infrastructure and other cargo handling equipment's are owned by the port authority. In many cases even operation of these equipment's is also being carried out by the port authority staff. The overall cargo handling operations are being carried out by the private players in coordination with port operations staff and shipping agents. This arrangement usually impedes the efficacy of the port operations terrifically due to conflict between the contracting parties. The tool model is much similar to service port, both in terms of its public orientation and finance.

The tool port is considered to be means of transition to a landlord port. The ports working in such model don't have aspiration of port internationalisation strategies as their foci are restricted to local or national level only.

### 2.6.3. Landlord Port Model:

It is the most famous model of today's port operations in medium and larger size ports, where both private and public entities involve in the port activities. In this model, the public entities act as landlord and lease out the port infrastructure on the long term concession agreements to the private entities, which are mostly engaged in operations activities. In larger port complexes, the port back-up land is leased out to large industrial units, and on return the PA gets annual lease in the form of fixed rent. The land lease and the revenue from the marine operations (harbour dues) are the major sources of revenue to the port authorities. In this model, both port authority and private players work together to harness the business opportunities.

This model is considered as the most successful model of the port operation, where both public and private interest is being secured effectively. Since private and public authorities' works very closely with each other to maximize their yield, it provides an opportunity to extend their partnership outside their geographical regions as well. This model acts as facilitator for the port internationalisation strategy.

#### 2.6.4. Private Port Model

This is the extreme form of reform, where privatised developer controls all the management and operation of the port, basically everything is being owned by the private players. Governments' sale the port land to private entities. Though this type of the port models is very new in concept, we can find such type of ports models in the countries like New Zealand, the UK and some parts of India. We believe that if there is a strong opportunity to have strong business case (w.r.t. returns), the private PA/PDC also easily adopt out port PI strategy.

The comparative analysis of all four basic port operation models and ownership is shown in the figure (2.1) below:

*Table 2-1 Basic Port Management Models*

Type	Infrastructure	Superstructure	Port Labour	Other Functions
<b>Public Service port</b>	Public	Public	Public	Majority Public
<b>Tool port</b>	Public	Public	Private	Public/Private
<b>Landlord port</b>	Public	Private	Private	Public/Private
<b>Privatised Port</b>	Private	Private	Private	Mostly Private

Source: (World bank, 2007)

### 2.7. Port Reform Modalities

The port reform has been initiated in past years to increase the overall performance of the ports, which was one of the prerequisite demands of globalised integrated supply chain. Reform was brought in those days because of many port managers and governments believed that the only way to increase the port performance is to restructure the traditional organisations and involvement of the private sector. The reasons for the pursuance of the port reform have been typically classified into three forms (World bank, 2007);

- i. General reasons: it mainly deals with price, efficiency, customer satisfaction etc.,
- ii. Administrative and managerial reasons: it is related to the deregulation of industry, minimization of the bureaucracy and introduction of performance-based management,
- iii. Financial reason: it is to reduce public expenditure, attract FDI, encourage private sector involvement and to trim down commercial risk for public sector, and
- iv. Employment reason for change: it is to reduce the size of public administration, restructure and retrain the port labour force, eliminate the restrictive labour practices etc. Though there is growing trend to encourage the involvement of private sector in port operations, looking into public utilities, government's involvements are still overriding in the area of land use planning, environment protection, job creations and economic stimulation of the underdeveloped area.

At various parts of the world, governments have taken several strategies for improving organizational and operational performance. These strategies have been



explained below (World bank, 2007), (Pallis, et al., 2011), (Ray, 2004), (Mahrukh, 2000), (Vaggelas, 2008), (Ecorys, 2012), (i-Maritime, 2003) and (Yang, et al., 2012).

#### 2.7.1. Modernisation of Port Authorities

The advantage of this strategy is to carry out some administrative changes in organisation to increase the accountability and responsibility of the managers without changing the national laws or policies. This process mainly involves the introduction of more suitable working system, working practices, increasing manager's responsibilities and accountabilities.

In case of the port internationalisation strategy of the PA, this system does not provide any base for such ambition of the PA towards PI.

#### 2.7.2. Liberalization and Deregulation

These reforms have been introduced to regulate the government rules and regulations and to enhance the involvement of the private companies in the port industries. However, in these types of model, in many cases, unhealthy competition occurs between the public and the private operators owing to nonexistence of level playing fields. Moreover, liberalization and deregulation form of reform is mostly restricted to the improvements of national level port performance, and we have not found any direct relationship with port internationalisation strategy of the PA/PDC as such. However, these reforms in host country provides base for PI strategy in host country market.

#### 2.7.3. Commercialization:

In this sort of port reform, public port is not transformed into a private port company, albeit more autonomy has given to the port managers with added accountability and responsibility. Hence, in this model, commercial port authority acts like a private firm with limited ways, to develop into a more customer-oriented as well as more efficient and profitable one.

Such type of port reform may act as the preliminary stage for the PA internationalisation in a very limited way. Many Chinese port authorities are working on similar principle and are showing some preliminary trends towards port internationalisation.

#### 2.7.4. Corporatisation:

Corporatisation is an advance level of port reform, where public ports authorities have been given a status akin to a private company. In this level, ports are awarded with a lot of freedom and they can act like a private enterprise in their decision making with some exceptions (public-sector still remains the final ownership of ports). Being very proactive in decision making and applying market principles, the corporatized port authority works more efficiently. Ports authority is also deemed to maintain both national and local interests. Corporatisation model also provides the PA with the greatest strength in its financial autonomy which helps them to take new decision to improve the financial performance of the company. The PA acts very closely with their clients in symbiotic relations (World bank, 2007) and (Langen & Heij, 2013).

With the greater freedom of financial decisions making, balancing the clients' private and public interest and more autonomous working culture, provide ample opportunities to corporatize port authority and become internationalise in their function. Thus, it can be said that the routes of the PA outward internationalisation are more linked with this type of reform.

#### 2.7.5. Privatisations:

Privatisation of entire port authority is a very new concept and found in a few locations. In this mode of reform, we can observe that the ownership of assets is transferred, either completely or partially, from public to private entities. The main rationales behind such type of reforms are removal of trade barriers, harness efficiency and expertise of the private sector, elimination of political interference, diminishing demand on the public sector budget and many other similar objectives.

Privatised ports authorities have a great freedom to expand themselves horizontally and vertically to harness the business opportunities. We believe that, though there is hardly any example of the private PA internationalisation, however in long run the privatised port authorities will surely go for the port internationalisations. Similar to Global terminal operators (privatised entities), these private PA/PDC can embrace PI in accordance with the lucrateness (higher yield) of business proposals.

#### 2.7.6. Summary of effects of port reforms on PA Port internationalisation strategy:

The above discussed port reforms has brought more commercialized approach in Port Authorities operations and management, since reforms has provided more autonomy/freedom to PA to become self-sufficient in competitive environment. Port reforms forced the PA and private entities to work very closely with each other to improve the overall supply chain and to create the value to themselves and their client. These reforms have also fuelled the fierce competitions between regional port communities i.e. respective ports and its stakeholder, which forced them to internationalise in order to safeguard future cargo flows, their client interest and to gather the market intelligence to adapt themselves in the competitive world and to become frontrunner in this business. All these port reforms and associated developments, forced PA towards port internationalisation.

### ***2.8. A Learnings from Port of Rotterdam corporatisation's:***

The performance of the PA corporatisation can directly be linked with its operation efficiencies and aspirations of the port Authority internationalisation. Of course, there are very few examples of such developments are available in the market. Here, the case study of the port of Rotterdam (Netherlands) corporatisation is discussed and its linkages with port performance improvements and its approach towards port internationalisation is elucidated below.

Port of Rotterdam is a public-owned entity and has been corporatized in 2004. Decision of corporatisation was intended to enhance the performance of the port and to adopt with the global business changing environment. In the process of corporatisation, routine port operation had been taken apart from the Rotterdam municipality and entrusted to the corporatized board which was also given more autonomy. Furthermore, the institutional set up of the port, appointment of members, criteria for selection of senior managers, a horizontal expansion of the organisation

has been carried out to improve the comprehensive performance of the port authority (Langen, 2016).

After corporatisation, in order to assess the performance of the port authority, a 'twelve-years' assessment has also been carried out (6 years before and after the port corporatisation) taking some selected performance indicators under consideration. The performance indicators were used to evaluate corporatisation effect (pre and post corporatisation) includes market share, turnover, operating costs, profits, and investments. The analysis has proved that each of the above mentioned indicators has substantially increased sanguinely after corporatization. Post corporatisation performance (till now) has also shown that the PA is now working very closely with their clients not only to harness the business opportunity locally but also in abroad to provide the platform of these clients (Langen, 2016)

Post corporatisation of the Port of Rotterdam (PoR) had made some structural changes in organisational set up, Port International department has been set up to harness the business opportunity abroad through strategic partnership or other similar businesses (Langen & Heij, 2013). In recent years PoR has formed successful strategic port partnership in Brazil, and many new such cases are at advanced stage (Dooms, 2016) and (Port of Rotterdam, International, 2014).

## **2.9. Conclusion**

In this chapter, it has been analysed that ports are basically evolved from service port operating model and now dominantly moving towards the landlord and private port model. In the course of time, many governments have decentralised the port governance responsibility in order to make the PA more commercialise in the competitive world. It has also been observed that the private sector's involvement in the ports sector has especially been encouraged to improve performance of global supply chain. Moreover, the analysis has also found that the port sector has been undergone through a continuous on-going reform process which varies according to time, place, historical background, socioeconomic background of country and other similar factors. Changing the organisation structure has brought more commercialisation in port operations and the PA are now no more restricting themselves in geographical boarder of a country. In order to create the value for their customers and to achieve more financial stability in long term, these PA are moving towards ports outward internationalisation strategy.

### **3. Port Internationalizations**

#### **3.1. Introduction**

In this chapter, we aim to discuss the concept and strategy of the port internationalization of various port development companies (PDC/PA). The rationality behind the PDC internationalization strategy, its history, motives and future prospects shall be analyzed in details. PI strategy determinants in the form of drivers and inhibitors (restrictive factors), which plays crucial role towards ambition of PA/PDC towards PI shall be analyzed. History of terminal operator's internationalization and FDI outflow shall also be linked with the PDC internationalization businesses to understand historical perspectives of developments. In the last section of this chapter, the author will summarize the finding of literature review, which will answer the sub-research Question (a).

#### **3.2. Different seaport strategies**

The concept of seaport strategies is not new. Ports and various stakeholders of the ports use different and distinct strategies to differentiate themselves from their competitors. Literature of the seaport strategies illustrates that the various components within the seaport strategy have received different degrees of interest in the past. Notteboom and others explain about the PA hinterland strategy; Cullinane explained the dry port strategies; van der Horst and de Langen discussed about coordination strategies in hinterlands. PA finance and governance strategy includes public-private partnership (PPP), concessions, project finance and equity finance, risk management has been explained by the Gong and Notteboom. Similarly, newly emerging environmental strategies (green port strategies), which are gaining more interest in today's world has been explained by the Haezendonck. Haralambides and others have explained the port pricing and port positioning (marketing and commercial strategy) strategies. Stakeholder management, port community system management, human resource management, R&D and innovations, ICT strategy, and port industrial cluster management have also been explained by the various researcher such as Notteboom, Dooms, Winkelmanns, Treece, Cahoon, Haezendonck, Barney and others (Dooms, et al., 2013), (Langen, 2016), (Rodriguem & Notteboom, 2006). However, the concept PDC/PA port internationalization businesses is new and emerging strategy, which has been partially explained by (Dooms, et al., 2013), however lack of academic interest in this field has been mainly seen because of very less applicability of such concepts.

#### **3.3. Port stakeholder's internationalization concept/strategy:**

Port industry is a dynamic and continuously evolving industry; globalization has fueled the international dynamism of this sector very fast in the past few decades. Development of ports and port-led infrastructure around world has been driven by most of the multinational companies, especially the terminals operator (container and liquid terminal operators) and industries from the logistic sectors (Wang, et al., 2004). The main rationality behind the port stakeholder's internationalization strategies has been deeply rooted in the limited growth potential in the home market (push factor) and attractiveness of foreign growth markets (pull factor), for example, DP World, PSA, HPH, etc. Magnitude of ports and its stakeholder's internationalizations businesses however varies from case to case (Airriess, 2001) and (Jacobs & Hall, 2007).

### **3.4. *International terminal operators (ITO) internationalizations***

The surge of international terminal operators (especially container terminal) have given momentum to internationalization processes in the ports and allied services industries. Unlike other port stakeholders, container port sector has experienced the intense process of globalization. The main drivers behind the internationalization of the ITO are the limited growth in the home market, attractiveness of the foreign market and to have better control over supply chain. Privatization and liberalization process of port operations in many countries stimulated the dramatic surge in ITO internationalizations (Persico, et al., 2015). The emergence of these ITO has fueled the port internationalization process. Today we can see the maritime industry is much more globalized. The internationalization strategies of the ITO have deeply linked with the company vision, mission, and strategic ambitions. According to Oliver (Oliver, 2005), in many cases, ITO very rapidly enters into international market to achieve their ambitions, without bothering the cultural difference and other similar factors. However, Linkage-Leverage-Learning models (LLL) and 'born-global model suggested that cultural distance, relational capabilities and market knowledge are the main determinants of the emerging ITO's entry model choices (Persico, et al., 2015)

### **3.5. *Ports authorities' internationalization***

#### **3.5.1. Port authorities and their traditional functions**

Functions of port authorities in different countries or even within the same country, where different regulations are there for port management greatly vary. Based on the governance model of ports like service port, tool port, landlord port and private port, the port authorities' functions changes significantly (World bank, 2007).

The corporatization of ports provides more operational, financial and decision making freedom to port authority. The corporatized ports are having both public and private goals. They are responsible for the management and development of the port area by constructing and maintaining infrastructure, providing this infrastructure to private companies through leases or concessions, and ensuring the development and competitiveness of the port cluster (Bozeman, 1988), (PERRY & RAINEY, 1988) , (KOPPELL, 2001), (KOPPELL, 2006), (QIU, 2008,) and (VERHOEVEN, 2010). These corporatizations also added more innovative working functions in PA portfolios like "community" or "cluster" manager (Langen, 2016) and (LANGEN, 2007,).

#### **3.5.2. Port authorities/PDC and recent insights in international business**

The roots of PA/PDC internationalization strategy are deeply linked with port commercialization and corporatization. In international business (IB) literature, firms' internationalization has been defined as "the process of increasing involvement in international operations" (WELCH, et al., 2002). The internationalization strategy of the PA/PDC has divided in to two parts: inward internationalization and outward internationalizations (Dooms, et al., 2013).

### 3.5.3. Inward internationalizations:

The inward internalization means flow of goods, capital, resources, information and or services from external world to domestic market. The inward internationalization steps include several forms, such as franchising, licensing, or turnkey projects which allow to solve the lack of commercial and/or technical knowledge (KARLSEN, et al., 2003). It has been believed that inward internationalization process traditionally preceded outward operations. It is often called to play an important preparatory role in setting the ground for a fruitful outward expansion (LUOSTARINEN, 1993), and (CHILD & RODRIGUES, 2005,). The port authority internationalizations inward operations relate to attract more foreign direct investment, attract international private players, boost investments and traffic volumes and ultimately leverage the local economic growth. The inward internationalization is very obvious phenomenon and one can find this concept almost every part of the world. However, in this study our focus is restricted on outward internationalization strategy.

### 3.5.4. Outward internationalizations:

The outward internationalization of port authorities is a new concept and very few PA/PDC are moving towards such outward strategy. The ports in the developed countries, especially PA from Europe and North America are being attracted towards such developments. However, very few large ports are making success in this field. In fact, in some countries, though PAs have ambitions towards outward internationalization, but legally outward expansion of port authorities has been restricted by domestic rules/law. The motives of the PA towards the outward internationalization are as follows (Dooms, et al., 2013), (Port of Rotterdam, International, 2014) and (Antwerp, 2016):

- a. The development and leverage of PA port management and development knowhow.
- b. Strengthening the PA relationships outside the domestic market.
- c. Become a part of complex international supply chain.
- d. Generating additional source of revenue from international operations (activities).
- e. Increase the volumes and efficiency of trade flow through home port.
- f. Geopolitical aspects.
- g. Generating financially attractive business opportunities for the home country businesses.
- h. Risk minimization by diversifying the portfolio at abroad.
- i. Attractiveness of foreign growth markets.
- j. Demands from the domestic customers.

Outward PA/PDC port internationalization strategies have been classified into three forms, the efforts required in each step varies greatly. All three forms of PA internationalization have been summarized below.

### 3.5.5. Establishing a commercial presence abroad:

Establishing a commercial presence abroad is basic and first step of the port authority/PDC internationalizations strategy. It requires least resources as compare to the other models of the PA internationalizations. Many port authorities are following similar type of model and their primary objective is to better integrate in the

global logistic supply chain. This model is mainly involving the marketing and communication strategies, which is being mainly achieved by participations in outgoing trade missions or participating in overseas trade fairs. The globalization has increased the importance of such abroad representation because of multi-stakeholder global partners of supply chain. The level of commitments of PA/PDC towards such activities has been reflected from having permanent office and staff abroad. Many PAs/PDCs have established their offices in the growth markets especially in BRICs countries (Dooms, et al., 2013)

#### 3.5.6. Transfer of port specific knowhow:

This type of internationalization strategy mainly includes providing consulting services, strategic advices to foreign port authorities, governments or any business clients. Providing a technical, operational and management training to foreign people is also part of this model. Sometimes, these activities are linked with developmental aid programs, which are being offered by the national and state governments to developing countries. In certain cases, this step acts as a preparatory stage before getting involved into the strategic port partnership (Dooms, et al., 2013) and (Bussem, 2016).

#### 3.5.7. Equity partnership or 100 % FDI investment in port developments abroad

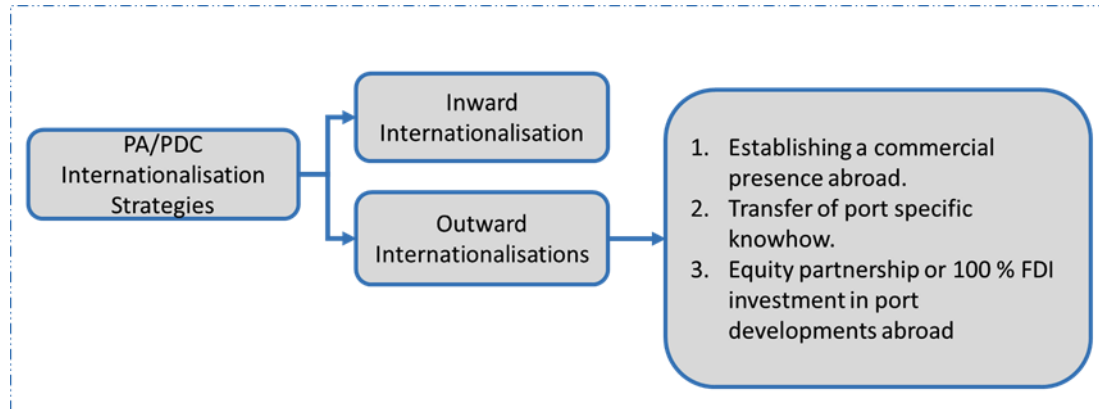
Equity or strategic port partnership is the most advanced and represents top level commitment of PDC/PA outward port internationalization strategy. Very few such successful strategic partnerships can be found in current market, like PoR investment in Sohar, Oman and in Porto Central in Brazil or SIPC investment in Zeebrugge. The port of Antwerp has also invested in similar principles in countries like India, Oman, and Ivory Coast. PoAs are also exploring the market for such strategic partnership or capital investment in Brazil and Panama (Bussem, 2016) (Dooms, et al., 2013) and (Deckers, 2016), (Port of Rotterdam, International, 2014).

In equity partner or strategic investment partnerships model, sometimes port authority/PDC acts as a landlord port in the foreign country. However, there exists no any fixed model. PA/PDC invests its financial resources, deploys its manpower abroad, sometime they maintain and operate the port infrastructure as well. The model of partnership is always flexible w.r.t. number of partners, partner's business backgrounds, percentage of equity share by each partner, operating models, revenue sharing agreements, etc. In case of PoR strategic partnership in Sohar, they are acting like landlord port operator, whereas in case of PoA investment in India, they are acting as just investment partners.

Though many developing countries are changing their policies to encourage maximum FDI in port sector by allowing 100% FDI in ports developments, however, there is hardly in any example of such 100 % FDI investments in port sector. The main reason behind such concern may be to avoid the higher risk in unknown market. Since investment in ports is very much capital intensive with inherent competition risk, PA/PDC does not want to expose themselves in unknown market place. Apart from financial investment risk, other major hurdle for such 100% FDI investment are the unfavorable foreign regulations for such investment, differences in working style, bureaucratic and political system, etc. (Bussem, 2016)(Port of Rotterdam, International, 2014).

In Europe, especially in the range of HLH region, PA/PDC from countries like Netherlands, Belgium and Germany have been actively involved in such businesses. The summary of port outward internationalization strategies has been shown below in figure 3.1.

*Figure 2-1 Port Authority outward internationalization strategies*



Source: Adapted by author from (Dooms, et al., 2013).

### **3.6. Determinants of the port authorities'/PDC internationalization strategies**

The PA/PDC outward internationalization is new and evolving strategy, currently there is hardly any scientific research available on this topic. In fact, we believe that this field will remain neglected for more research because of very little significance of such cases in practical life. However, we found that an international terminal operator (ITO) internationalization and FDI outflow philosophy has much more resemblance with port authorities'/PDC internationalization strategies. Hence based on literature review and interaction with senior port staff from PoR and PoA, we have analyzed that there are two elements in the form of drivers and inhibitors (restrictive), which shapes the PA/PDC outward internationalization strategies. Both drivers and inhibitors (restrictive factors) determinants are explained below.

### **3.7. Driving determinants:**

These are determinates, which promotes the PA/PDC outward internationalization ambitions, which are listed below

#### **3.7.1. Long term corporate and business strategies plan of PA/PDC**

Port authority's internationalization strategy is strongly and directly related with the port authority long-term corporate vision and strategic business plans. Unlike emerging ITO, where an ad-hoc involvement in international market has been commonly seen, but similar phenomenon hardly observed in the port authority/PDC internationalization (Persico, et al., 2015). By reviewing the corporate strategy and business plans of Port of Rotterdam and Port of Antwerp, evidently proves that there are strong linkages between PA/PDC internationalization with long-term corporate strategy/business plans of the ports (Antwerp, 2016) (Dooms, et al., 2013), (Rotterdam, 2016) and (Bussem, 2016).



Long term corporate/business strategies plan of PA/PDC helps institution to restructure the organization and allocate the sufficient resources on longer horizon to achieve these strategic goal.

#### 3.7.2. Limited growth potential in home market:

The limited growth potential at home country is divided in to two parts namely saturated growth markets and limitation for physical expansions.

In saturated growth markets, where sluggish future growth is expected in future traffic growth, forced PA to invest in aboard to secure a long term cargo flows. PA believes that such investment can acts as a differentiating tool from their competitors, which will leverage value to them in long run. We have seen the similar trends in the past in case of ITO, where these terminal operators pushed away from their domestic market in the search of new growth markets (Airriess, 2001).

In the case of Hamburg Le Havre Rang, we found that long-term cargo forecast is not promising, a marginal cargo growth volumes are expected in these regions (even in some particular commodities, negative growth rate is expected), which pushes the PA/PDC to search new markets for their growth (Langen, et al., 2012) and (Bussem, 2016).

Similarly, in many cases, ports are severely facing the problem of capacity expansions in existing port area mainly due to unavailability of space for future expansions. In certain cases, expansion of ports is restricted because of port and port-city conflicts, i.e. negative externality brought by ports over port city. In these cases, ports with good cash flow looks new opportunities for investments and move towards outward internationalization, if that fits with their long term strategic business plan (Bussem, 2016).

In case of PoR, it is believed that after Maasvlakte 2, there is no space available for future port expansion, which drives PoR to invest in other locations (Bussem, 2016)

#### 3.7.3. Pro-Institutional setup:

An institutional arrangement in home and host countries play instrumental role in shaping success of MNE in international strategy (Kostova, 1999). In many cases, home country institutional system encourages PA/PDC to follow PI path to safeguard their client and national interest.

The PA/PDC's own institutional set-up also play important role in order to get involved in outbound internationalization businesses. The case study of Port of Rotterdam and Port of Antwerp, who have successively participated in the advanced stage of port internationalizations are having dedicated departments/business units for exploring such activities, which shows the commitment of organizations towards ports internationalization. These types of dedicated departments bring business intelligence of the market, which helps PA/PDC take a call on outward port internationalization (Bussem, 2016) and (Deckers, 2016).

#### 3.7.4. Regional inter-port competition among seaports due to overcapacity

The roots of the PA port internationalization strategies are linked with the fierce domestic or regional inter-port competitions. Regional overcapacity and intense inter-port competitions, forced port authorities to think innovative and get involved in

international business in order to secure future cargo flows. PA/PDC believes that outward internationalization of company, especially their presence in the growth markets, will secure the future cargo flow from two contracting ports. PA/PDC also believes that it will also help them to increase their competitive position in the region (Dooms, et al., 2013) and (Bussem, 2016). We have observed that in the Hamburg Le Havre Range, ports like Rotterdam, Antwerp and Hamburg are rigorously following the growth markets, so that based on the gathered information they can a take strategic decision to increase their competitiveness.

#### 3.7.5. Home country clients or Port Cluster community demands

One of the key catalysts for the PA/PDC port internationalization business strategy is the demand from home country clients or port cluster units, who have long term business proposals to have investment in host country. These types of secure commitments from clients help PA/PDC to plan their financial cash flows and minimize the investment risk abroad. Based on the assurances from the home country clients, their future cargo flows, PA/PDC can alter the investment strategies in host country. PA/PDC also believes that such types of pavement for home country clients in the host country, in future may generate potential cargo flows between two countries. A robust case study of home country clients in host country, can potentially be a good source of revenue for PA/PDC, which drive PDC/PA towards internationalization. In case of PoR, Vale investments in Sohar, has emerged as one of the lucrative source of income to PoR. According to PDC/PA, such types of facilitation to home country clients, increase their competitiveness in the host country, which has overall positive externality. According to (Langen, 2016), PDC as a leader firms compete in international markets and lower the barriers to internationalize for suppliers, for instance, by guarantying a long-term contract for products or services abroad.

Though, any concrete literature is unavailable to prove these facts, we can compare the port of Rotterdam internationalization strategy motives, it is deeply rooted with this idea. PoR wants to generate the financial attractive business opportunities for their clients in abroad (Bussem, 2016) and (Dooms, 2016). We can also link this principle with Chinese leader firms such as SIPC, Cosco, China Shipping and ZPMC have internationalized rapidly in the last decades, and provided a stepping stone for smaller Chinese suppliers, such as heavy lift companies and maintenance companies to internationalize in global market (Langen, 2016).

### **3.8. Inhibitor (restrictive factors):**

These are the determinants, which deters the PA/PDC outward internationalization ambitions. Some determinants of it are listed below.

#### 3.8.1. Political instability of the host country:

A strong correlation exists between the political risk and FDI inflow, a high political risk country deters FDI investments (Hayakawa, et al., 2011). Looking in to very high capital intensive investments, PA/PDC tends to restrict themselves in politically unstable countries (Zepada, 2016). Political instability in a country also restricts the other industrial and consumable goods demand of the country, which has negative impacts on port growth and it acts become inhibitor factor for port internationalization.

### 3.8.2. Geopolitical aspects:

In certain cases, due to regional or international geopolitical dynamism and also for security reasons, an investment of certain countries in the host country in specific segment is not allowed. For example, in India, Chinese investment in port sector developments is not allowed on the ground of national security (Shipping China, 2008) and (The Economics Times, 2015). Much similarity has been also observed in port sector developments in Iran, due to western countries' embargo on it. Such developments partially limit PA/PDC outward port internationalization strategy.

### 3.8.3. Cultural distance:

The role of cultural differences between the two contracting countries in PA/PDC internationalization plays a debatable role; we didn't find any clear-cut literature to give strong evidence on this topic. Cultural distance means differences in languages, business practices, ethics, principles, religion, customs and traditions between two contracting countries (Barkema, et al., 1996) and (Hakanson & Ambos, 2010). Traditional IB theories claim that firms willing to expand internationally usually tend to invest first in those regions and countries, which are geographically and culturally similar (Persico, et al., 2015). A similar or common culture background between two contracting countries facilitates the easy communications and information exchange, which reduces the risk perception of the projects, and stimulates firms to adopt a high degree of control over foreign subsidiaries. In case of unfamiliar culture and institutional environment, manager becomes very much risk averse, which ultimately leads to negative impacts on the overall investments plans (Dow, 2009). In case of cultural differences, managers tend to prefer low control entry modes in order to minimize the risk and uncertainties. Companies limit their control, commitments and involvements in those countries which are culturally different from their home country, aiming to shrink their exposure to commercial, regulatory and financial risks (Persico, et al., 2015). However, this particular parameter needs to be analyzed thoroughly, to make a final conclusion.

### 3.8.4. Unfavourable Institutional system:

In certain countries, advanced level of PA/PDC internationalizations strategy (equity partnership) has been restricted by domestic regulations, examples in the case of Port of Los Angeles; strategic port partnership through capital investment is prohibited by the California State Law. Most of the North American Port Authorities are restricted through country legalized system to form such type of international adventures (Dooms, et al., 2013).

### 3.8.5. Limitation by shareholders:

We believe that in case of public shareholding PDC, there may be chances of clashes with objectives of the port internationalization. The rationality behind this argument may be the profits earned by the PDC in domestic country have to be used to increase the overall economic welfare of the home country and not the foreign country. Shareholder may miss the long-term or complete picture of the motives of the internationalizations and may resist the PA internationalization ambitions. The one of the objective mentioned by the PoR in their strategic partnership abroad is to increase trade flow between two countries. However, we

didn't find any strong evidence in case of Sohar. So in future for similar types of projects, this logic may not be useful to convince the shareholder (Dooms, 2016).

### 3.8.6. Absence good market knowledge of the host country

The familiarities or in-depth knowledge of the host country market, have influence on the firm's overall aggressive investment strategies. Internationalizing firms are proved to limit their exposure in foreign subsidiaries when lacking ad-hoc market knowledge (Erramilli & Rao, 1990). This also valid for the port authorities' internationalization strategy. The consultancy assignments carried out by the port authorities (in case of PoR and PoA) before strategies investments in host country, helps PA to take more strategic call, during the investment in abroad. In the case of PoR, before their investment in Sohar, Oman and Porto Central in Brazil, they were engaged in port consultancy services work of these countries, which provided them a good platform to get decent market knowledge of the host country (Langen & Pallis, 2007), (Persico, et al., 2015)and (Bussem, 2016)

## 3.9. Chapter conclusions:

Port internationalization is an emerging concept in maritime sector, though it has high applicability in overall market. The PA/PDC are having various motives of outward internationalization, like, to create the value for their customers, to increase their competitive positions by securing future trade flows, to gather market information, to generates additional source of revenue for PA and many more. However, there are various determinants of PDC/PA port internationalization strategy. Some are acting as drives while like acting as inhibitors and these determinates are varying from place to place. In fact, within the internationalization model of PDC/PA, there is no "one model fits all".

In this chapter we have answered the sub-research Question (a) of this study, *i.e.*

- a. **To assess which are the critical determinants behind the PA/PDC port internationalization strategy?**

Driving Determinants	Inhibiting(restrictive) determinants
1. Long term corporate and business strategies plan of PA/PDC	1. Political instability of the host country
2. Limited growth potential in home market	2. Geopolitical aspects:
3. Pro-Institutional setup:	3. Cultural distance
4. Regional inter-port competition among seaports due to overcapacity	4. Unfavourable Institutional system:
5. Home country clients or Port Cluster community demands	5. Limitation by shareholders:
	6. Absence of Good market knowledge of the host country

## **4. Determinants of Host Country's Market Selection for Outward Port Internationalizations:**

### **4.1. Chapter Introductions:**

In this chapter, various determinants which play a vital role in host country's market selection for port internationalizations strategy (for strategic partnership) shall be analyzed first. Each determinate is consisting of numerous variables and sub variables, which shall be also listed here. Then, other factors which have importance within the host country for particular strategic partnership shall be also scrutinized. At the end of the chapter, implication of these determinants shall be tested against the PoR materialized and non-materialized case studies to draw inferences on these determinants. Thesis sub research question b. shall be answered in this chapter.

### **4.2. Determinants of the port selection criteria in abroad (criteria for port selection) for the PDC/PA port internationalization strategy:**

In the previous chapter, we have discussed the concept of port internationalization, its motives and determinants of the PA/PDC ports internationalization. The only element that has been left to complete the ports internationalization discussion is to analyze the determinants of the ports selection for strategic investment/partnership. We believe that the impact or role of each particular determinant is differed from country to country. In fact, in certain cases within the same country, where different states/provinces are having different regulation for port developments, these determinants play varied role in port developments. On the basis of literature review (though a few literature is available on this topic), interviews of various port authority's/PDC officers and expert's views of this field, the determinants of the port selection criteria in host country for strategic partnership or investments are listed below.

#### **4.2.1. Market attractiveness of the host country:**

Port location is one of the single most important criteria for success of the port business as port position in the growth market has a great importance (Cruze & Pires, 2012). Four major factors, which are being used to measure the market attractiveness of the host country's dimension are the market size, market growth rate, income level and perceived market attractions. Market size and growth, usually measured in the GDP and annual growth rate of the GDP, which provides a good judgment to analyze attractiveness of the market (Tihanyi, et al., 2008).

Countries with large or middle income group population, lower socioeconomic conditions (lesser per capita income), cheap labor force, low level of containerization rate, high logistical cost and large amount of natural resources, provide very good opportunities for future trade volume generation. This is mainly due to their future demand of consumable goods, potentiality to emerge as manufacturing hub due to availability of cheap labors, export/import of raw materials, growing energy demands, opportunity to become hub for value additions etc. All such activities continuously generate substantial volume of EXIM cargo in long run, hence increases their attractiveness towards port and port led infrastructure developments. Over the past few decades, we have witnessed the substantial sea-borne trade volumes increments in Asian countries, especially in China. It is also expected that

similar growth opportunities are there in the BRICS countries in coming decades. Hence, ports of these geographical locations are more attractive for future investments (Hamburg Port Authority, 2012), (Antwerp, 2016) and (Port of Rotterdam, International, 2014).

Host country market attractiveness towards strategic port partnership is assessed by numerous variables such as positive correlation between GDP growth (higher) with country cargo volume growth rate, population of country, % of urbanizations, country open policies for FDI etc. (Port of Rotterdam, International, 2014), (Antwerp, 2016) (Hari, 2016) and (Zepada, 2016).

#### 4.2.2. Geographical location of port within the host country:

The customers' demand for the port services is derived from the demand for transportation of goods from source/origin to final destination. Demand for transportation is derived demands (Accario, 2016). In many cases, especially if the ports are serving to the land locked area and have geographical advantages over other competitive ports, they increase their competitiveness profoundly in respect to other sea ports. Strategic geographical location of the ports, helps to minimize the overall logistics cost of goods (keeping other things constant) and hence, one cannot replace the importance of the geographical location of the ports (OECD, 2011). In case of transshipment volumes, port's hinterland doesn't play any crucial role rather its prime geographical location has great importance. Therefore, geographical location of ports plays crucial role while selecting the port for strategic investments (Sannen, 2016), (Notteboom & Rodrigue, 2009), and (Wilmsmeier, et al., 2014).

The geographical locational importance of ports is assessed by numerous variables like competitive location (w.r.t. other port) from main shipping route (especially for transshipments volumes), % share in country total cargo handling, port infrastructure demand supply gap, microeconomic indicators and historical cargo volumes growth trends (Port of Rotterdam, International, 2014), (Antwerp, 2016) (Hari, 2016) and (Zepada, 2016).

#### 4.2.3. Commercial development potential:

As reviewed in the PoR and the PoA, the PA/PDC port internationalization strategy, the selection criterion of port for strategic partnership or investment is also considered as the commercial development potential of that port. The parameters that are considered in this respect include countries energy demand (coal and crude), expected or current industrial growth, urbanization growth etc. According to the PoR, the port panorama should offer opportunities for Rotterdam-based clients or companies to set up new facilities and expand their business in host country (Port of Rotterdam, International, 2014) (Antwerp, 2016) and (Hari, 2016).

We have also found that internationalization strategies for global container terminal operator also support similar type of phenomenon in their internationalization strategies (Drewry Shipping Consultants, 2003) and (Persico, et al., 2015).

#### 4.2.4. Port portfolio:

The selection of port for strategic partnership in the host country must have wider portfolio in respect of cargo handling. Even in the case of green field port developments, the proposed port site must be potential enough to develop port as

multi-commodity handling ports. The PoR strategies for selection of brown field port must have more than a handful of terminal or have the potential to accommodate/attract more than a handful of terminal (Port of Rotterdam, International, 2014). The wider the portfolio of the port provides more opportunities to create the industrial ecology in the industrial ecosystem. This provides the ample opportunities or platform to other industries to set up their business in the dynamic port ecosystem and adds value to the products in a more competitive manner (Langen, 2016), (Deckers, 2016) and (Port of Rotterdam, International, 2014).

The idea behind the selection of wider portfolio ports is to minimize certain investment risk (by avoiding too much over-dependency on certain commodities) by diversifying the port portfolio, and also to provide opportunities to multiple clients to become a part of large industrial ecosystem (Bussem, 2016), (Port of Rotterdam, International, 2014) and (Hari, 2016)

#### 4.2.5. Land availability for future expansion (for scale development):

One of the criteria set up by the PoR for selection of the port for strategic investment abroad is to have sufficient land for future expansions. The port site must have sufficient space for developing a new port's infrastructure and to accommodate new clients and activities which will be a part of port based industrial complex. According to the PoR, the obtainable area need not to be a land, it can also be a water front area, so that it can be reclaimed from the sea (Port of Rotterdam, International, 2014).

The availability of land provides with the competitive advantage over the competitive ports in the long run. The issues that are raised due to the shortage of land like congestion and other related activities can be managed effectively, if ports have sufficient land to accommodate future demands (Gaur, 2009). The availability of land at sea ports provides strong base for the industrial cluster developments. The ports and port-based SEZ (large industrial areas) in China have shown humongous success of the port-based industrializations (Kant, 2008). Therefore, in order to accomplish overall objectives of the PA/PDC internationalization strategies (providing their platform of their clients), it is prerequisite to have sufficient land resources at host country's ports (Bussem, 2016). However, exact quantity of land requirement at sea ports for future expansion is always debatable and we believe that the requirement of such land varies from place to place and proposed or existing portfolio of the port. In the case of the PoR, they usually look for projects that offer at-least 1000 ha. of area for developments (Port of Rotterdam, International, 2014) (OECD, 2010). and (Jacobs, 2016) .

This determinant is mainly measured by variables like quantity of readily land availability with PA/PDC, space available for reclamation (future land development) etc. (Port of Rotterdam, International, 2014) and (Hari, 2016).

#### 4.2.6. Maritime (nautical) accessibility and quality of infrastructure:

Apart from geographical strategic location of ports (w.r.t. hinterland), a good nautical accessibility plays a significant role in port competitions. Therefore, while selecting a port for strategic partnership/investment, the PA/PDC, now-a-days, is giving equal importance to the nautical accessibility of ports. This can be reflected from the study of Northwest Europe. Far East route, feeder services and intermodal connection are

the other most significant selection criteria used by shipping line while making a call for the selection of ports (Wang, 2011) and (Hari, 2016).

The quality of available marine infrastructure also has significant importance for selection of ports for strategic investment. A deep draft ports, with deep and widen approach channel is always desirable for overall trends of bigger ship sizes developments. In later stage of developments, augmentation of these infrastructures is highly capital intensive, hence, a careful selection is prerequisite at the beginning only. In many cases, getting regulatory approval, including environmental clearances for such type of infrastructure developments, takes substantial time and resources. In today's age of economies of scale, where sizes of vessels are continuously increasing, ports must have at least 16 meters' draft. Similarly, while selecting a port for such development, all weather ports 24/7 accessibility is essentially required in today's fierce age of inter port competitions (IL & FS, 2009) and (Rotterdam, 2016). Ports which are on the route of global shipping routes (main shipping routes) have more competitive advantage as compare to other, as it helps to minimize the travelling times of ships while serving particular geographical area (Rathnayake & Wanniarachchi, 2015) and (Hari, 2016).

This determinant is mainly measured by variables like draft availability at port, port distance from main shipping route, approach channel length and width, naturally availability of breakwater etc. (Port of Rotterdam, International, 2014), (Subbarao, 2016) and (Hari, 2016)

#### 4.2.7. Attractive hinterland and its connectivity:

A large cargo generating hinterland and efficient multimodal port connectivity to this hinterland plays crucial role in port competitiveness (Tang, 2009). Substantial amount of literature on the role of hinterland and its impact on ports development is available.

The hinterland, based on its geographical spread and comparative proximity to sea ports, has been classified in different ways like primary, secondary or tertiary hinterland. Some experts have classified as a captive or contestable hinterland, while others have classified as main hinterland and competition margin hinterland. For any port, rich and diversified captive hinterland play crucial role for its long term success, as they ensure long term cargo flows in ports. However single commodity-based captive hinterland is not deemed to be good option for port developments (off course it varies from commodity to commodity). In the past, it has been observed that, the ports which have only large share of captive hinterland without diversified commodities were more vulnerable to risk; for example, port of Taranto, Italy, where closing down of steel plants has substantially affected port growth (Accario, 2016). Hence, these hinterland characteristics play important role in selection of the port for strategic investments (Bussem, 2016) (Zondag, et al., 2009) (Horst, 2016), (Rodriguem & Notteboom, 2006) and (Hari, 2016).

An efficient, reliable, multimodal connectivity from port to hinterland has paramount importance in port competitiveness. Thus, the ports which are already having similar type of hinterland connectivity have always act as first choice of preference for port investment, which has been widely observed in the container business (Hariharan, 2007) and (Meersman, et al., 2009). Development of new hinterland connectivity is too much capital expensive and time consuming as well since land acquisition and environments clearances for new hinterland connectivity projects are also



challenging issues in some country, which sustainably delays port connectivity projects and deters port competitiveness (OECD, 2015).

This determinant is mainly measured by variables like existing multimodal connectivity available with port (quality, quantity and types), proposed envisaged hinterland connectivity projects. Distance from the contestable hinterland to port is also considered as one of the variable to evaluate port attractiveness (Port of Rotterdam, International, 2014), (Sannen, 2016), (Jacobs, 2016), (Horst, 2016) and (Hari, 2016)

#### 4.2.8. Potential for robust business case:

One of the key determinants of the port internationalization in the host country or location (within the host country) selection is that whether proposed case study should have technical, social and economic feasibility in respect of business case. Technical feasibility connects with the infrastructure development's cost and feasibility, where social feasibility relates with land acquisitions and available labor markets etc. For the large scale development, proposed location must need to qualify these criteria. In the case of economic feasibility, project should generate a positive ROI (at least 8%) plus country risk percentage. According to PoR model, the proposed JV should have an attractive and robust revenue model that includes both fixed and variable revenues, which is in the form of concession fees and port dues (Port of Rotterdam, International, 2014).

This determinant is measured by numerous variables like attractiveness of social and economic indicators in the form of RoI, land acquisitions, getting other necessary approvals, labor friendly policies, other ancillary industrialization around ports etc. However, for simplicity to measure, author is going to use "Ease of Doing Business" ranking which has published by world bank along with other variables.

#### 4.2.9. Country regulation and investment friendly policies:

The investment regulation policies of the host country have significant impact on port internationalization strategy. The ultimate model of the port strategic partnership is depended on the host country's regulations as well. These policies not only determine the PA strategic decisions but also affects decisions of the home country's other companies/clients, who has aspiration of FDI in the host country. The overall policies of the host country, such as getting the clearances from ministry (port developments, environments, and many more) or any other competent authority, play key role in the PA internationalization strategies (Rotterdam, 2016). In many countries, certain industry sectors/segments are restricted to FDI, which has negative impacts on PDC client's investment decisions on host country, which deters the ambition of the PA/PDC internationalization in that specific country as well.

In this research we have clubbed this determinant with "Ease of Doing Business". Apart from that, we have analyzed the respective State Maritime Board policies (w.r.t. India, where within India, different states are having different maritime policies) to evaluate the particular port/site attractiveness for strategic port partnership (Hari, 2016) and (Subbarao, 2016).

#### 4.2.10. Host country partner choice:

In most of the MNE business, companies enter in to joint ventures (JV) when the required task integration between the partners is high and the alliance business is characterized by uncertainty and urgency of decision making. Many companies form a JV in order to minimize the investment cost, to avoid slow and costly efforts to create new assets. The JV also helps to minimize the risk in unknown markets and to handle local bureaucratic and political system effectively (Doz, 1998). Knowledge and actions of good local partners also minimize the MNE substantial amount of time and transaction cost while setting up a business in the host country (Vocht, 2010). In the case of a green field entry into a foreign market entails building a new affiliate from scratch in a host country, which gives freedom to establish new organizational culture. However, in case of port as a complex industry, where numbers of stakeholder are required to make success of port business, it is always desirable to exploit existing community. Hence, selection of good partner in host country has paramount importance (Kogut, 1988). In PA/PDC internationalization business as well selection of right partners for port internationalization has great importance, as it ultimately affects the JV performance. Unprofessional partner without commitment in port sector development and lack of competencies deters the objectives of PDC internationalizations (Aartsen, 2016) and (Hari, 2016).

This determinant is measured by numerous variables like potential partner operating business model, business portfolio, number of operating ports in host country or abroad, Tariff fixation freedom, annual cargo handling throughput, available installed capacity, key infrastructure asset availability, financial track record, sustainability indicators, political influentially power and many more(which has listed in the appendix 4) (Port of Rotterdam, International, 2014), (Hari, 2016), (Dooms, 2016) and (Aartsen, 2016).

#### 4.2.11. Cultural difference between two contracting countries:

Traditional MNE theories of FDI investment believe that geographical distance is an important factor while investing in abroad (Werner & Tesar, 1995). Information asymmetry increases with distance. Similarly, as distance increases the cultural differences also increases which eventually affect the FDI outflow negatively. However, effect of culture on international business is not homogeneous, it depends on what strategic decision you made especially whether you are doing investment or trading. However, some studies revealed that though culture is important for FDI investment, but it is not only determinant of the international business (Mac-Dermott & Mornah, 2015). In fact, within the port of PoR international department, we found different opinions among team members. Some members believe that culture is important while other don't believe culture as much important for strategic port partnership (Bussem, 2016) (Zepada, 2016).

In this particular study, we have partially club this determinant in partner selection variables.

#### 4.2.12. Geopolitical risk:

There is a strong correlation between the political risk and FDI inflow, and high political risk country deters FDI. There are twelve political risk components, viz. government stability, socioeconomic conditions, investment profiles, internal conflicts, terrorism, corruptions, external conflicts, religious tensions, democratic

accountability and ethnic tension, which are usually applied for MNE FDI and the PA strategic investment in abroad (Kanzunobu, et al., 2011). In certain cases, due to regional or international political dynamism, investments of certain countries in the host country's specific segment are not allowed. For instance; in India, Chinese port developer's investment in the port sector industry is not allowed (Shipping China, 2008) and (The Economics Times, 2015).

Looking into time frame of study, it was extremely difficult for author to calculate/evaluate each variable mentioned above. However, considering this particular research study, author has analyzed country internal policies towards mining activities which has substantially affected the port volumes in the past (Hari, 2016).

#### 4.2.13. Future expectations of cargo flows from contracting host country:

Though we didn't find any concrete evidence or literature on this parameter but while analyzing the PoR internationalization objectives, it is found that increase in cargo flows between two contracting countries is one of the determinants for port internationalization strategy. The PDC invest in those host countries where they believe that in long run sizeable cargo trade volume could be generated with their world port network(Dooms, 2016), (Bussem, 2016) and (Port of Rotterdam, International, 2014). However, in this particular study, we have not quantified this aspect, since it is very difficult and complicated to quantify.

#### 4.2.14. Other miscellaneous determinants:

Based on the academic knowledge and some available literature, author also identified some other variables, which are listed below with it relevance

Port and Port City interphase: We believe that a good develop port city behind port (with proper planning) maximizes the synergies between them, which plays important role in port competitiveness (OECD, 2011), (Jacobs, 2016) and (Roy, 2016).

Other variables considered for research are port efficiency, sustainability indicator, past major conflicts with port and port led developments (Hari, 2016). However, we have already clubbed these determinants in the earlier section like in partner selection etc.

### **4.3. A case study of the PoR: Empirical evidences of applicability of determinants in case studies:**

#### 4.3.1. Case study (materialized and non-materialized case study):

In the past, numerous projects have been analyzed by the PoRInt. in respect to strategic partnership. In certain cases, at the beginning, the PoR acts as a consultant or strategic advisor for that contracting country and based on attractiveness of the market (or other demand) they got involved into strategic partnership. Every proposal of strategic partnership has been evaluated on the basis of various set of determinants for the partnership. From the two case studies, it is evident that though almost every determinant is important for strategic partnerships but some determinants play much more crucial role in order to take final decisions for making partnerships. We believe that cultural differences and future expectation of cargo flows in-between two contracting countries are secondary/debatable determinants (essentiality of these determinants for fulfillments of partnership is not

compulsory)), while other determinants are must essential for strategic partnership. If suggested host country unable to meet this set of demands (critical determinants) then the PDC may defer their decision of strategic partnership in that country. A case study based approach to evaluate importance of each determinant in the past business proposals of port of Sohar, Oman and Posistra port, India and its learning has presented in Appendix 1.

#### 4.3.2. Overall Learning from past proposals:

Over the last 25 years, the PoR has worked extensively on various international ports projects and has accumulated widespread expertise on this subject. The PoR has realized that foreign partnership is not a short term business rather a continuous long term strategic plan is needed to achieve desirable goals. It is necessary to have flexible proposal plans in order to adapt with foreign business regulations/standards, expectations, institutional system and culture. One prototype model cannot be replicated at other place or country and hence more flexibility and adaptability is required. Attention on partners' selection in the host country has paramount importance in this business. The reliability, financial strength, and expertise of potential partners are needed to be checked more thoroughly in preliminary stage of proposal to avoid wastage of resources and time (Port of Rotterdam, International, 2014), (Bussem, 2016) and (Dooms, et al., 2013).

#### 4.4. Chapter Conclusion:

In this chapter, based on the available literature, views from industry experts and other information collected from similar sources, a determinant of host country market selection for port internationalization has identified. Various crucial elements which play an important role within the host country for specific port selection has also been investigated. It has found that out of 13 determinants, except cultural differences and future trade flow expectation between two contracting countries, all other determinants have decisive power in formulating strategic port partnership in host country. In case of Sohar and Posistra, it has evidently proved that the PDC cannot take risk, if major criteria didn't fulfill in the host country.

In this chapter, sub research question b. has been answered by author.

#### **b. To analyze which are the critical determinants play important role in host country market selection for strategic port partnership (strategic investment)?**

1.Market attractiveness of the host country.	6.Maritime(nautical) accessibility and quality of infrastructure.	11.Cultural difference between contracting countries.
2.Geographical location of port within the host country.	7.Attractive hinterland and its connectivity.	12.Geopolitical risk.
3.Commercial development Potential.	8.Potential for robust business case.	13.Future expectation of cargo flows from contracting host country.
4. Port Portfolio.	9.Coutry regulation & investment friendly policies.	14.Other variables.
5.Land availability for future expansions.	10.Host court partner choice.	

## **5. Indian Port Sector Development:**

### **5.1. *Introduction: The Indian Economy***

India is one of the fastest growing economy in the world, in terms of the Purchasing Power Parity (PPP) it ranks third largest GDP in the world. It is going to surpass the US economy in the year 2050 and will be ranked as world second largest GDP after China (in terms of PPP) (PwC, 2015). Since last 20 years, India has witnessed the average GDP growth rate is around 7 % per annum. The various economic analysis studies conducted by the OECD, IMF, World Bank, Economic Intelligence Unit, United Nations and Indian government have predicted that for next decade Indian economy will grow at rate of around 7.5% per annum and after that till 2050 it will grow at the rate of 4 to 5% per annum (PwC, 2015) and (Knoema, 2016).

The Country is having vast population, 1.33 Billion in year 2016 and witnessing 1.25 % annual population growth rate. Country's working age population is more than 63% and hence providing an opportunity for large scale manufacturing activities in the coming years and can become a manufacturing hub of the world (Govt. of India, 2016) and (Govt. on India, 2016). The Indian economy is characterized by strong macro-economic fundamentals. It also has a well-developed financial system, young and qualified labour force, dynamic private sector and growing savings and investment rate (Monster, et al., 2014). The contribution of manufacturing sector in Indian GDP is just 24% against China is 44%, hence this scenario provides an opportunity to increase manufacturing sector contribution in Indian GDP, which will potentially increase the sea borne trade volume of India in coming decades (Planning Commission of India, 2014) and (Ministry of Shipping, 2011).

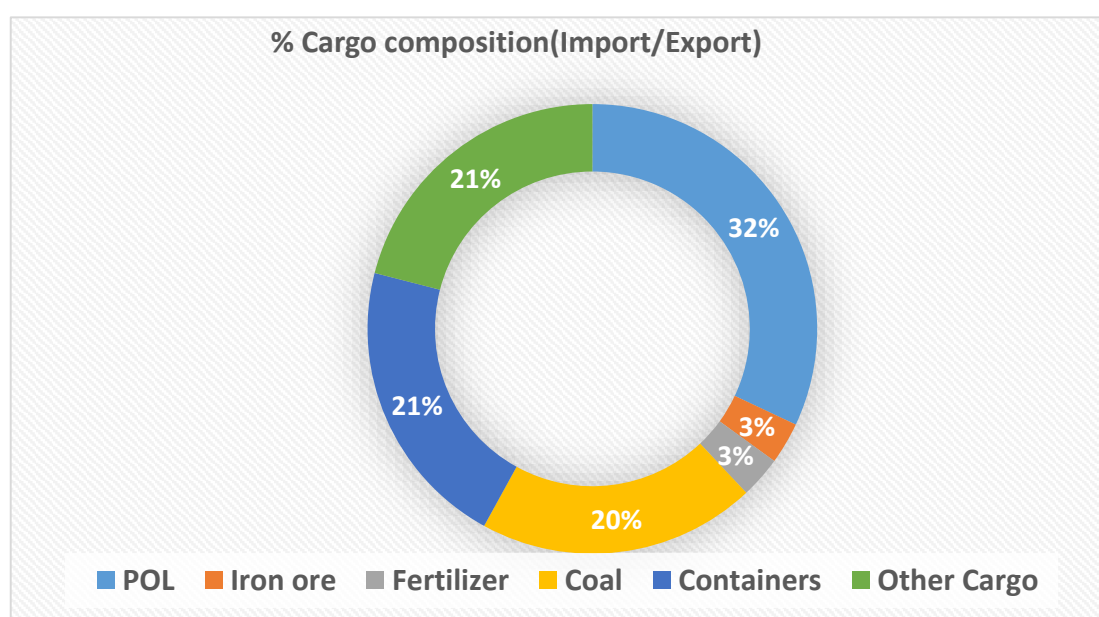
The economic reform in 1991 has inculcated a strong interest among the foreign investors turning India into one of the favourite destinations for global FDI. The country's young population for manufacturing activities, large middle class as a domestic consumer, government favourable policies, biggest democracy, strong institutional set up and other favourable conditions have been playing very imperative role in attracting the FDI in the country. The UNCTAD has recently published that India is the fourth most attractive FDI destination in the world (HOODA, 2011) and (UNCTAD, 2015). E & Y 2015, global survey of the world future (for next 5 years) FDI investments preferences, shows that India is outpacing the competitions and securing the number 1 position (EY, 2015). All Above highlighted developments making a conducive environment, for future large cargo volume generations in Indian Seaports.

### **5.2. *Maritime Transport and Port sector developments in India***

Ports play a pivotal role in the overall economic development of a country and India is no exception for that. Around 90% by volume and 70% by value of the country's international trade is carried on through maritime transport. Though India's maritime history is not very rich, but its contribution in the world maritime trade is progressively increasing. Historically, the country's maritime transportation is mainly incarcerated with short sea shipping and deep sea shipping, but now-a-days a major focus is given on the Inland waterways. Numerous initiatives have been undertaken by the government to increase export oriented manufacturing sector and increasing FDI in similar field, will likely be going to generate a large volume of sea trade in coming years (AnandRathi Reserach, 2013) (Edelweiss, 2012).

In the year 1995, total cargo handled by the Indian ports was around 240 MMTPA, which has grown up to 1053 MMTPA in the year 2015. It shows around 8 % CAGR growth rate, which is comparatively much higher than the average global rate, which is just 2.3 %. India has diversified trade partners around the globe. The imports of raw materials and energy sources in the form of crude oil and coal are the biggest contributor of the Indian sea trade volumes. The crude is imported from Saudi Arabia, Iran, Iraq, Kuwait, Brazil, Venezuela and coal is being mainly imported from countries like Indonesia, Australia etc. The other dominant import and export commodities handled through Indian ports are Petroleum products, Fertilizers, containers, minerals, etc. The Cargo composition of Indian ports is given below figure.

*Figure 5-1 Cargo Composition of Indian Sea borne trade*

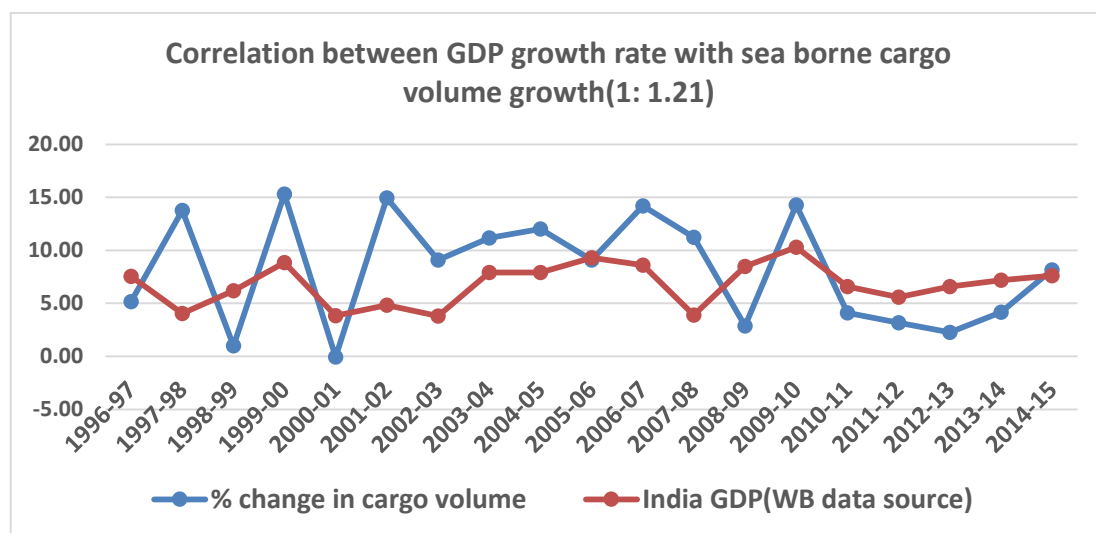


Source: Compiled by author from (IPA Indian Port Association, 2016)

### **5.3. Historical GDP growth rate vs. Cargo growth rate:**

Historical data from 1995 to 2015 have shown that there is a positive correlation between the annual GDP growth rates vs. cargo traffic growth. This signifies that ports play a vital role in the economic development of India. Hence, it can be assumed that enhancement and development of port infrastructure would be critical enablers of growth of Indian Economy. Before the financial crisis in the year 2009(from 1995), GDP growth vs. Cargo traffic growth ratio was 1:1.4 (AnandRathi Reserach, 2013). Indian annual GDP growth vs. cargo volume growth rate during the past 20years has shown in the figure 5.2 below.

Figure 5-2 Correlation between Indian GDP vs. Annual cargo growth rate from the year 1995-2015

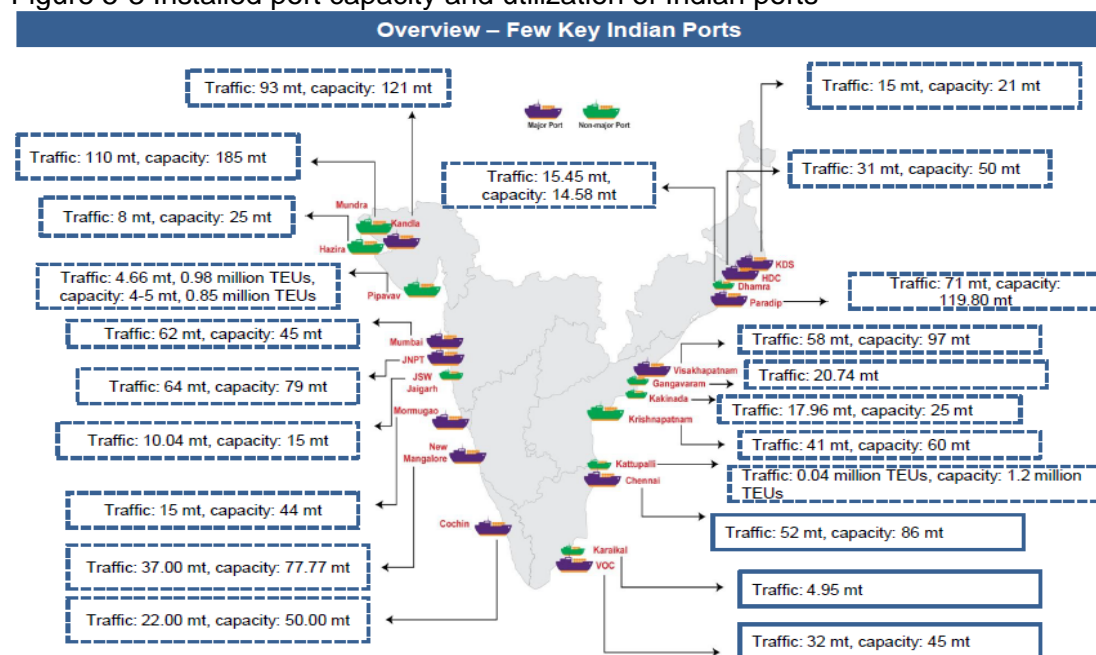


Source: compiled by author from (IPA Indian Port Association, 2016)

#### 5.4. Key Indian Ports and capacity (existing Scenario)

Though India has a large number of major and minor ports, very few ports are actually involved into international seaborne cargo handling activities, since many minor ports are designed for fishing and similar domestic activities. The capacity utilization on the average Indian ports are more than 65 %, however these capacity utilizations are varied from port to port. Some Ports are facing severe congestion problem, while others are facing underutilization problem. (India Infrastructure Research, 2016). The overall Indian ports' current installed capacity is 1531 MTPA, whereas actual cargo handled by them in year 2016 was 1053 MMTPA.

Figure 5-3 Installed port capacity and utilization of Indian ports



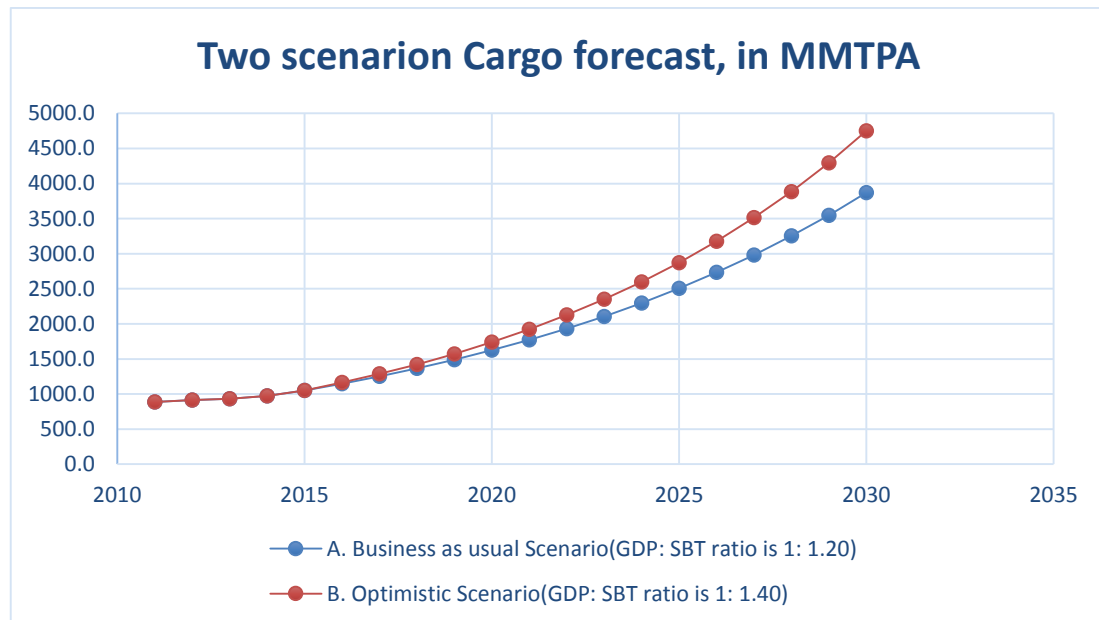
Source: (India Infrastructure Research, 2016)

### 5.5. Future cargo forecast and ports developments proposals:

In recent years, with new government in place through administrative reforms and a simplification of approval processes has contributed to improved business sentiment, which is helping India to become the global epicentre of economic growth. India is now set to become a nation of job creators rather than job seekers and massive improvements in the manufacturing sector are expected in coming years. With various ambitious economic development projects such as DMIC (Delhi Mumbai Industrial Corridor), Make in India, etc. are at advanced stages, government has also allowed the FDI in various business, which will ultimately generate the large cargo flows in coming years (EY, 2015).

Historically India's marine sector is intricately linked with its economic activity and trade, hence it is expected that India's seaborne trade is going to be increased at around 9.0 % per annum for next 15 years and it will reach around 3900 MMTPA in the year 2030 (with average annual GDP growth rate 7 to 8 %) (Ministry of Shipping, 2011). Author has also analysed the historical data of Indian seaborne trade from year 1995 to 2015 and it has been found that the correlation between Indian GDP to sea borne cargo volume growth is 1: 1.20. However, if we only study this correlation from the year 1995 to 2009 i.e. before global recession, this ratio was 1: 1.40. Therefore, based on this historical data, cargo forecast of Indian seaports has carried out considering two business scenarios A. Business as usual scenario (GDP to sea borne volume ratio is 1: 1.20) B. Optimistic Scenario, GDP to sea borne Cargo volume ratio is 1: 1.40. Both projected forecast has shown below in figure 5.4.

Figure 5-4 Future cargo forecast at Indian sea ports (two scenarios)



Source: Compiled by author from (IPA Indian Port Association, 2016)

In order to cater this forecasted traffic demand, many port developments proposals are under pipelines which consist of the existing ports expansion projects and developments of new green field projects. Proposed developments have been planned in both major and minor ports and most likely to be undertaken by the public private partnership (PPP) mode. The estimated future capacity expansion of



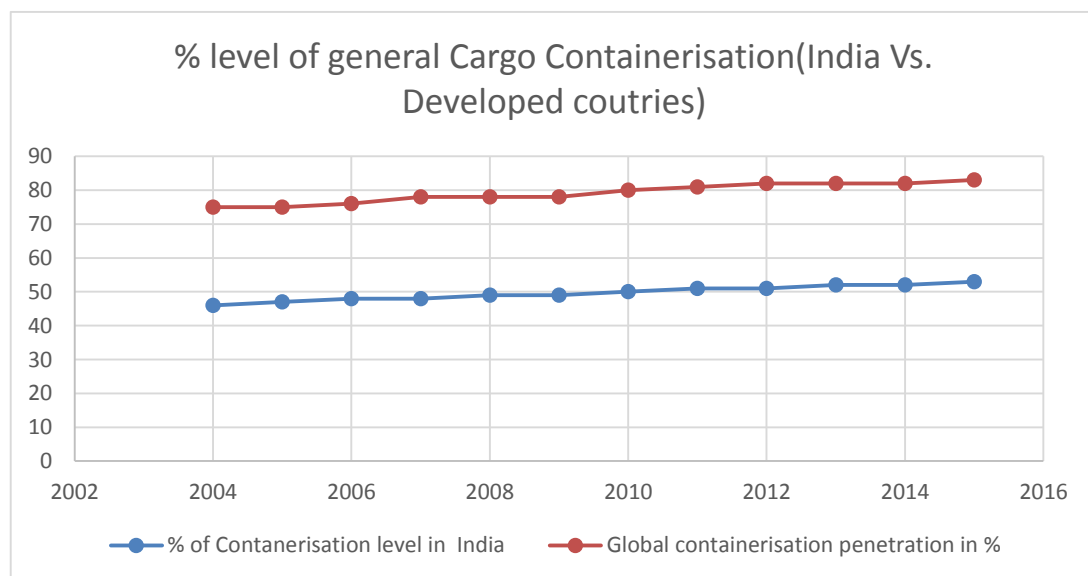
the Indian sea ports in coming decade is around 2573 MMTPA, which is way behind the forecasted traffic demand (India Infrastructure Research, 2016)

### Future potential high cargo commodities growth expectations:

Three types of cargo commodities, constitutes India's major sea borne trade volumes. It is also expected that; these commodities will dominate the future traffic as well. The identified commodities which are expected to dominate Indian market are "3C" i.e. Crude, Coal and Containers (Ministry of Shipping, 2011) and (Ernst & Young, 2012). We believe that, these commodities are having very high growth potential in future since India is lagging way behind than other developed countries in those commodities. The comparison between global standard (developed countries) with Indian standard in these 3C segments has shown below.

**Containerisation:** India is lagging way behind in the containerised cargo generations as compare to the developed part of world. TEU generation per 1000 populations of country is lowest in India as compared with other BRICs countries. If we compare theses figure with developed countries, then India is crawling too much in this field. Even if we compare the general cargo penetration rate to the containerisation, then also India is clearly trailing behind with developed world, which has shown in the below figure (Ministry of Shipping, 2011) and (India Infrastructure Research, 2016).

*Figure 5-5 % level of Containerization in India Vs, Developed countries*

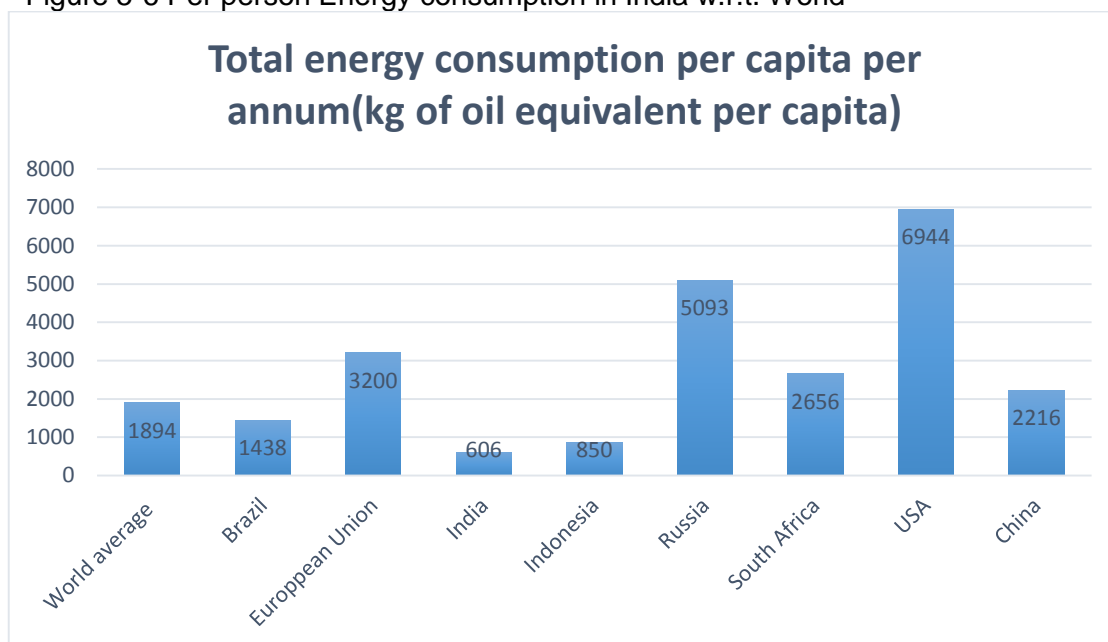


Source: Compiled by author from (India Infrastructure Research, 2016).

**Crude and Coal:** Considering more than 1.3 billion population of India (2016), we believe that in coming future there will be huge demand of the oil and oil products in India. Author has compared the per person energy consumption of Indian citizen with the global major economies including BRICs countries citizens and we found that India's stands at bottom of the table, which has shown in the below figure.

Note: Below figure is inclusive of all energy sources, which has converted into kg of oil equivalent (India is predominantly using coal as primary source of energy).

Figure 5-6 Per person Energy consumption in India w.r.t. World



Source: Compiled by author from (World Bank, 2011)

### 5.6. Ports in India and its operating model:

In India, port infrastructure development is a subject belongs to “Concurrent List” *i.e.* a domain of both the Central and State Governments. The ports are categorised as major and minor ports. This classification is made based on the controlling authority and it has not any relation with size of port operations. In fact, India’s biggest port in cargo handling is a minor port. There are 13 major and around 187 minor ports in India, though very few minor ports are directly involved with commercial cargo handling operations (IBEF, India Brand Equity Foundations, 2016). In recent past, it has been observed that these minor ports volume are increasing very hastily (CAGR 14 %) and their share to total Indian ports volume has increased from 28% (2006-07) to 45% in year 2014-15 (IPA Indian Port Association, 2016) and (Ernst & Young, 2012).

These major ports are under the jurisdiction of the Ministry of Shipping (central government) and minor ports are operated under concessions from state governments (Shukla & Raghuram, 2014) . Most of the central government’s ports are working on the principle of the landlord ports, and terminals are being developed under the PPP (Public-Private-Partnership) mode. The average concession period (lease agreements) time frame is 30 years. At Major ports, tariff in ports is fixed by the regulatory body knows as Tariff Authority for Major Ports (TAMP) (ICRA, 2016) and (Edelweiss, 2012). In case of minor ports, very few are working in accordance with the landlord principle, and most of the ports/terminals are working under the principle of captive berths. Involvement of the private players in these minor ports developments are under PPP mode or in few cases some ports are completely developed by the private port developer. In minor port developments, the time frame of concession period is varied from 30 years to 90 years (Hari, 2016).

### **5.7. Management of Ports:**

Both major and minor ports are very distinct in terms of feature of the port management. In case of major ports, every Major Port is governed by a Board of Trustees constituted by the central government. The members of the trust are, in principle, selected to represent various interests and they follow government's policy decisions within their delegated financial powers. All port dues and terminal charges have been fixed for the TAMP. For routine port expenditure and small CAPEX projects, trustees are allowed to take decisions, however for larger CAPEX projects, there is a ceiling for capital expenditure and amounts above such ceiling have to be approved by the central government (NATIONAL TRANSPORT DEVELOPMENT POLICY COMMITTEE, 2013). These ports are working on the principle of the landlord port development model.

The responsibility for the development of non-Major Ports is assigned to the concerned state government, and for regulation of these ports, respective state government has formed the regulatory Boards. For developments of minor ports, no permission is required from the central government. So far, out of 9, only 3 states have formed the state Maritime Board. It has been observed that these state governments play a very proactive role in order to fetch attractive investment in their states. These ports are working on the principle of captive ports and private ports operating models. At minor ports, tariff fixation freedom is completely lies in the hand of port promoters (private players), state government doesn't interfere in this aspect (Hari, 2016) and (Edelweiss, 2012).

### **5.8. Involvements of private sectors:**

Since 1998, private sector involvement in the ports sector development has been specially encouraged by the governments. Since then many private players have got engaged in the major and minor ports development in the form of PPP projects or port or terminal development for their captive use. In the past 15 years, domestic players, like Adani, Essar, DVS Raju, Reliance (mostly captive), JSW, have emerged as key players in ports development. The international player involvement in the port/terminals sector development activities, however, restricted mainly to container terminals. The major international container terminal developer and operator in India are the APMT, TIL (MSC), PSA, DP World, etc. (India Infrastructure Research, 2016) and (PoR, 2014)

### **5.9. Key trends in ports developments:**

In recent past, minor ports are emerging as the front runner in the port infrastructure developments and cargo handling activities. Their annual cargo handling growth rates are almost twice than the major ports (IPA Indian Port Association, 2016). Today many major ports are diversifying their business portfolio to reduce the business risk. Cruise shipping, LNG, Ro-Ro services, bunkering facilities has emerged as some new types of business opportunities. In order to improve the existing port performance, greater focus on modernisation has been given. IT solutions are being adopted to enhance transparency and increase in service provisions. Trends have been observed in the increasing FDI investments in port and based infrastructure developments and most of these projects are in the form of PPP (India Infrastructure Research, 2016).

With the ambition of developing India as a manufacturing hub for world, Government of India has undertaken lots of the proactive steps to improve the port infrastructure and port performance. The initiatives have been undertaken at policy level to encourage maritime and allied infrastructure developments. Government has shifted its focus from port development to port led ecosystem development. Under this development program, along with ports development, major focus has also been given on efficient, quick hinterland connectivity, port based industrialization, easy and efficient custom formalities etc. Emphasize is also given on the sector like port cities development, coastal community development, logistics hub development, promote coastal shipping and inland water ways transportation network etc. (India Infrastructure Research, 2016)..

#### **5.10. Key challenges in port sector development**

Though, India is a booming market for maritime trade potential considering the higher expected GDP growth rate and the associated cargo volumes (historical strong correlation between Indian GDP and cargo volume growth), there are various bottlenecks exist for the healthy growth of this sector, which needs to be addressed immediately. The risks/bottlenecks of Indian Maritime sector have been discussed below:

##### **5.10.1. Infrastructure bottlenecks:**

Many ports lack the advanced maritime infrastructure such as latest generation equipment's, cranes, IT systems etc. Looking into global trends of larger size vessels, to achieve the economies of the scale, draft augmentations at sea ports is of urgent necessity. Many ports are facing the problems of sufficient draft restrictions (India Infrastructure Research, 2016) and (Hari, 2016).

Evacuation of cargo from port to hinterland and vice-versa has paramount importance in the ports competitiveness, which has also great importance to overall country competitiveness. But in case of India, efficient hinterland connectivity is the biggest issue. Though, considering the geographical limitation of IWT, special focus needs to be given on the road and rail transportation, but many Indian ports are lacking in this aspect. Conditions of road are improving slowly and steadily but rail connectivity is lagging behind. Most of the key rail networks are operating at or beyond 100% utilization levels, any space of capacity addition to rail network is very poor (Edelweiss, 2012) and (India Infrastructure Research, 2016). India is also lacking in the pipeline connectivity network (Hari, 2016).

##### **5.10.2. Shortage of skilled manpower:**

The ports industry is also looking for skilled manpower to operate the imported sophisticated equipment's. Even though India is laden with huge manpower, an institutional setup is required to shape this manpower as per industry's requirement which is still missing (Edelweiss, 2012).

##### **5.10.3. Delay in award of port projects:**

Many existing ports capacity expansion projects and green port development projects have been severely stuck due to delay in approval from the various government bodies. The environmental clearance, land acquisitions and security

clearances are the biggest hurdles in many port projects (Edelweiss, 2012) (Shukla & Raghuram, 2014) and (India Infrastructure Research, 2016).

#### 5.10.4. Lack of single window clearances:

Development of ports projects in India requires various approvals from different government bodies. Due to complex bureaucratic system, getting such approvals from the state and central government bodies is too much time consuming. Hence, the sector needs a single window clearance, which will ensure faster project realisation to achieve the desired targets.

#### 5.10.5. GDP /trade growth strong correlations:

Though India is potential enough to emerge as a domestic market, but historically port cargo is highly depended on the global trade. Even though country is largely an import oriented market, India's growth gets easily impacted by western economic down turn (Edelweiss, 2012) and (AnandRathi Reserach, 2013).

### 5.11. ***Tariff regulations:***

In the current era of free market, market decides the tariffs, however, in case of India, the TAMP regulates the tariffs. In major ports, the TAMP has control over port tariffs, where as in case of minor ports, there is quite freedom for ports to decide their tariffs, which distorts the level playing fields (Edelweiss, 2012).

### 5.12. ***Governments' special initiatives:***

To promote the maritime sector of India and whereby increase the overall competitive position of the country, the government of India has launched a "Sagar Mala" programme in July 2015. The objectives of the mission are to support and enable port-led developments through appropriate policy and institution system, ensure time bound enhancement and modernisation of ports projects and to facilitate efficient hinterland connectivity for cargo evacuations. Various initiatives, undertaken with this program, are to make necessary changes in various policies which impede the maritime sector developments, identify green field port and ensure its development, develop the IWT, promote port led industrialisations and coastal community development. The expected outcome from the "Sagar Mala projects are as follows: (Ministry of Shipping, India, 2016)

- a. Strengthen coastal landscape and economic growth
- b. Provide platform for the projects like "Make in India"
- c. Attract investment of approx. INR 700 Billion in maritime sector development
- d. Provide with government supports for overall economic development of the country through institutional reform
- e. Generate large scale employment opportunities

### 5.13. ***Key analysis of Indian maritime sector:***

The analysis of overall maritime sector (SWOT analysis) of India has been briefly explained below:

- a. **Strength:** Good outlook for potential cargo handling opportunity, proactive government policies for maritime sector development, strategic location on world trade routes etc.

- b. Opportunities:** Focus on port-led development, opportunities in the field of coastal shipping, cruise shipping, ship building, Ro-ro services etc. Increase private sector participations, investment opportunities in constructions, dredging, operations, port infrastructure developments, port automations, soft skill developments, etc.
- c. Weakness:** Insufficient infrastructure such as draft, cargo evacuation facilities, higher logistic cost, poor productivity of ports, outdated policies and regulatory systems, etc.
- d. Threats:** Global slowdown, delays in obtaining clearances, land acquisitions, overcapacity in certain areas, uncertain government policies etc.

#### **5.14. *Opportunity for port internationalisation (For PoR):***

The PoR outward port internationalization strategy comprises transfer of port specific technical knowhow and the strategic partnership in the form of equity partnership. Transfer of technical knowhow is in the form of consultancy services offered to host country and manpower training *i.e.* capacity building. While analyzing the Indian market for future port development, there are large number of port expansion projects have been identified. The list of proposed major maritime sector development projects in the coming few years have been listed in Appendix 1. Total identified projects for consultancy services are more than 70 in number, which consist from detail engineering to strategic port planning. Out of these projects, around 15 projects are directly linked with the PoR, which include projects like new green field port developments, port led industrial developments, logistics hub developments, strategic advices to transforming all major ports towards sustainable profits and many more. Port of Rotterdam can also have opportunity to emerge as a part of capacity building by providing training to port staffs. Indian government has already exploring or having similar type of soft skill development agreements with Korean Government and the Port of Antwerp (India Infrastructure Research, 2016).

One of the major objectives of the PoR internationalizations is to provide the platform for the Rotterdam based clients in the host country. Apart from engineering consultancy firms like RHDHV, Tebodin (which have benefited from the Sohar port developments), and other wider sector of maritime industries are going to be benefited from the PoR involvement in India. Potential clients from POR network like Vale, VTTI, Vopak, Oil tanking, C. Steinweg Group Peterson SBS, Damen, Philips, and Huntsman are also exploring the long term business opportunities in India. The PoR can act as facilitator for these firms (PoR, 2014). We believe that dredging is biggest opportunities for Rotterdam based dredger companies like Van Oord, who got similar business opportunities in the case of Sohar. We found that for next two years, even within the existing ports capital and maintenance dredging projects, there is demand of 400 million cube meter dredging. However, if we consider the upcoming green field port development projects and inland waterways (river dredging) projects, there is very huge potential for the Dutch dredger companies in Indian markets. (India Infrastructure Research, 2016).

Considering the advanced level of port internationalizations strategy *i.e.* strategic port partnership/equity partnership, we believe that there is a tremendous potentiality of market growth in Indian Port sector (which has already discussed in the section 1.5 future cargo forecast). We have also crosschecked the determinants

of the host country market selection and found that India is becoming a good opportunity for the PoR internationalizations. Positive determinants found in the case of India are the long term market attractiveness (growth market), geographical location of ports (within the country and region as well), commercial development potentialities, port portfolios, land availability, maritime accessibility, potential business case, country regulations, host country partner's portfolios, cultural and geopolitical risks.

We also found that trade flows between Indian and Rotterdam are growing with CAGR 17 % (from 2001 to 2012), which will also act as an enzyme for proposed strategic partnership decision making (PoR, 2014). Considering the India's ever increasing Crude oil demand, we believe that PoR world port network (Oman and Brazil) become crucial for future cargo flows, which will ultimately increase the PoR investments yields in long term future.

### **5.15. Chapter Conclusion:**

In this chapter, we have analysed that Indian economy is at take off stage which is going to develop multiple opportunities in the maritime sector developments as seaborne trade has a strong positive correlation with GDP growth rate. In coming decade, where expected GDP growth rate is more than 7 % per year, it will likely to foster maritime trade volume by around 8 to 9 % per year and hence, Indian ports needs to improve their infrastructure qualitatively and quantitatively.

Among the major and minor ports in India, minor ports are growing much faster than major ports, and as expected, in coming year their share in total Indian ports volume will grow significantly (around 50%). In both the port operating models, private sector participating is increasing very rapidly. A large number of port capacity expansion projects are under pipeline considering congestion at ports due to limited capacity; however, simultaneously it has been also observed that some ports are facing severe overcapacity issues as well (regional imbalance).

In order to increase the overall maritime sector performance, governments are showing their commitments by putting new business friendly policies. To encourage private sector investments in business, new opportunities have been opened-up in various segments like LNG terminals, tourism, port based industrial developments, Ro-Ro facilities etc. At policy level, government are keenly sorting out the issues like land acquisitions, environmental clearances problems, private investments in port connectivity, contractual issues with governments, security clearances issues etc.

In case of the PoR internationalisation strategy, India is the right option because it is one of the emerging markets of the world and potential enough for future cargo volumes generations (India is qualifying most of the qualifying determinants for selectin of host country market). A large number of ports expansions and green field ports developments projects are in pipelines, which will offer port of Rotterdam as consultancy services and capacity building business opportunities. A large numbers of engineering consultancy services proposals are under bidding which can be opportunities for engineering consultancy firm like RHDHV, Tebodin (Dutch companies). For core maritime sector activities, the potential players who are exploring India as market for their businesses such as Vale, VTTI, Vopak, Oiltanking, Milaha, C. Steinweg Group Peterson SBS, Damen, Philips, Huntsman and Maruben, the POR can acts as facilitator to them, which is one of the motives of

the PoR. Apart from this, a large scale capital and maintenance dredging projects are under pipeline at many Indian ports, therefore the PoR involvement in Indian market will also facilitate to Dutch dredging companies. Hence we believe that strategic partnership of PoR in Indian seaports sector will not only be beneficial to PoR but also for their clients as well, which is the ultimate goal of PoR port internationalisation strategy. Presently Government of India is also giving more focus on the development of Inland waterways, ship building yards and port based economic zone developments, hence we believe that presence of the PoR in India, in long run will paved a road for other Dutch companies to explore Indian Maritime sector market.

In this chapter we have answered the sub research question no d i.e.

**d. Is India a really market for the Port internationalisation business? If yes, then what are the business opportunities for the PoR?**



## 6. Research Methodology

### 6.1. Chapter Introductions:

In chapter 3 and 4, the researcher has discussed the determinants of port internationalization strategy and determinants of the host country market selections (along with variables of each determinants) for strategic port partnership. However, the magnitude of effect of each determinant varies from country to country, as almost every country of the world is having distinct feature of port operating model with respect to various parameters like economic, social, environmental, political, and etc. Hence, a successful model of port partnership from one country cannot be exactly replicated to another country, as there is no “one model fits for all”. However, the numerous determinants, its variables and sub variables listed below in table 6.1(which has already discussed in chapter 3 and 4), ultimately shapes the proposed model of strategic port partnership. In this research, author is going to develop a general methodological framework tool, which can be used for analysis of any host country market for strategic port partnership. However as per host country market characteristics, certain determinants, its variables and sub variables can be modified, omitted or added as per requirements or characteristics of host country.

We believe that, presently there is no any standard/direct method, model or tool available, which can be easily deploy for the selection of foreign ports, while investing in abroad. Author has used balanced score card method to build a methodological framework tool.

At the end of the chapter, author has presented a proposed methodological framework tool, which can be used by any PA/PDC, while exploring abroad market for strategic port partnership. Author has also explained each step of this methodological framework tool, while analyzing the host country market.

### 6.2. Analysing the different determinants, it's variables & sub-variables:

Based on the literature review, market analysis, author own port industry knowledge and consultation with numerous industry experts, a comprehensive, consolidated checklist of the various determinants, variables and sub variables is prepared, which is presented in below table. Same has been also discussed in details in the chapter 4, which shall be used to analyzed host country market for proposed strategic partnership. Each determinant, its variable and sub-variables shall be assessing through qualitative and quantitative methods.

Table 6-1 List of determinants and its variables and sub-variables

Sr. No.	Name of Determinants	Variables	Sub-variables	Remarks
1	Market attractiveness (host country and or region selected within the host country)	GDP	% of GDP	First at international level of particular country selection, proposed host country must have a sufficient large GDP and its positive correlation with sea trade volume generations.  However, within the selected host country

				<p>for particular port selection for strategic partnership, it is more important to have this port in such a region (country's region), which contributes higher in total country's GDP and sea borne trade volumes.</p> <p>However, exception is there in case of mining as major volume generating activity in particular region which generates large volume of cargo and benefits ports (in that case low GDP of region doesn't matter much).</p>
			GDP growth rate	Higher GDP growth rate likely generate higher cargo volumes. Hence Countries or and Region (within the selected country) with higher GDP growth rate and with positive correlation with sea borne cargo volume are more desirable.
		Population	Total population	Demand of consumable goods and energy, directly dependent on population size, hence port with large population back-up are more desirable.
			% Urbanisation	Urbanised population requires comparative more consumable goods and more energy as well. It also acts as magnet for industrial growth by providing soft skill availability (skilled labour pool). Hence higher amount of urbanised population behind port is desirable.
2	<b>Geographical Location of port (location of port in selected country specific region)</b>	Proximity to International shipping route	Distance from Major shipping route (similar to liner shipping Index)	Shorter distance of port from the international main Shipping route (deviation from main shipping line route) is more desirable. Closer proximity of port to main shipping routes, helps ship owner to increase annual tonnage, hence it is more preferable to have port close to main shipping route. Strategic location of port w.r.t. international shipping route, increases the possibilities of port to become transshipment hub port, especially for container's.
		Cargo Volume	% Sea borne volume	How much % of country EXIM cargo generated from this region is more important. Higher EXIM volumes generated by regions, provides an opportunity for port developments (comparative to other regions of the country).

			Historical cargo Volume growth trends	It shows historical growth trends and provides goods estimate to analyse the future cargo volumes, which helps to plan a positive business case.
		Port infrastructure demand and supply	overcapacity or overutilization of infrastructure	This gives an idea, whether investment in that particular region port infrastructure is required or not. Overutilization(congestion) offers platform for more investment in ports infrastructure.
3	<b>Commercial Development Potential</b>	Industrial growth in region	Existing and proposed industrialisation projects	This can be assessed by looking into existing industrialisation in Region and proposed industrial developments in regions, which provides base for future port infrastructure requirements.
		PA/PDC Clients Requirements		Can be assessed by PA/PDC Clients requirements to set-up new business or expansion of existing projects. The PA/PDC client demand for port infrastructure development in specific region is the most important parameters for particular region/port selection for development (in line with PA/PDC PI strategy).
4	<b>Port Portfolio</b>	Multi Commodity handling port	Divers cargo handling port portfolio	Ports handling a multi commodities like Container, dry bulk, liquid bulk, RO-RO, general cargo, specialised cargo etc. are more desirable. This minimizes the risk by diversifying the port portfolio.
5	<b>Land availability for Future expansions or scale development</b>	Land availability in the form of readily available or can be reclaimable in future.	Land availability in hector/Acre/ Sq. Km	Land availability at Ports for future port expansions projects and or port based industrialisations is most critical. It is desirable to have more than 1000 hectares lands for scale development, which helps to build an industrial ecology and increases port cluster competitiveness. Sufficient land also important to have proper land use planning activities.
6	<b>Maritime(Nautical)accessibility and quality of infrastructure.</b>	Deep draft berth availability	In meter (all weather accessibility)	More than 16 mtr draft availability at port are desirable, considering today's and future trend of economies of scale in shipping business.
		Length of access channel		Instead of long access channel, direct approach ports are more desirables, which minimizes the OPEX and CAPEX (for future deepening projects). Later on deepening of channel is problematic due to associated higher cost and regulatory issues (approval process of channel deepening, is more

				challenging in many countries, due to environmental concerns).
		Siltation issues		Less siltation ports are more desirable to minimize OPEX on dredging.
7	<b>Attractive Hinterland</b>	Captive Hinterland		Well-developed, diverse commodities captive hinterland is more desirable, to avoid competitions and future risk.
		Existing Multimodal hinterland connectivity	Railway	Quality & quantity of infrastructure availability (to port competitiveness).
			waterways	Quality & quantity of infrastructure availability (to port competitiveness).
			Roads	Quality & quantity of infrastructure availability (to port competitiveness).
			Pipelines	Quality & quantity of infrastructure availability (to port competitiveness).
		Proposed or ongoing hinterland connectivity	Especially for contestable hinterland	Massive Port connectivity projects, provides platform for efficient hinterland connectivity and increases port competitiveness.
8	<b>Potential for robust case study development</b>	RoI on investments		Sufficient Yield on Investments is required (% of RoI depends of PA/PDC business expectations and commitments).
		Opportunity for massive industrialisation		Proposed massive Industrialisation in regions is more desirable, which likely influence the port cargo volumes positively
		Mining projects		Mining's generates large cargo volumes at ports it also provides platform for processing units. Hence expected mining projects behind ports(hinterland) are more desirables.
		Social issues		Labour strikes problems deter port and port based competitiveness, hence ports and or hinterland without such issues are more desirables.
9	<b>Investment friendly policies</b>	Ease of doing Business	setting up of business	Provide conducive climate for investments, which generates cargo volumes at ports (Provide based for port led industrialisations).
		FDI Policies		No cap on FDI investment in ports sectors and port based industrialisations is more desirables.
		Maritime Board policies		Investment friendly policies for Ports and port led infrastructure development are more desirables.
10	<b>Host country Partners selection</b>	Operating business model of partner (w.r.t Conflict of	Conflict of Interest	Among landlord, Service, Tool or private ports, a landlord port operating model is most desirable, which avoids conflicts of interest between landlord and tenants

	interest)		(avoids unhealthy competitions between them).
	Portfolio of partner (business profile of partners)		Partners with diverse business portfolio and having ability to influence the cargo flows are more desirable example partner with portfolio like trading companies, refineries, power plants, steel plants, mining area, ITO, logistical network etc.
	Number of operating ports/Terminals in India and abroad (including future ports)		Having multiple ports or terminals in host country is more desirables, for future business expansions. It also helps to increase trade flows. Partner abroad ports network are also desirables, which helps to increase cargo flows.
	Tariff fixation freedom		Freedom to change/set tariffs as per business requirements is more desirable, which helps to adapt in accordance to the market conditions.
	Key asset availability with partner.		Like privately owned infrastructure connectivity, Rail network, double stake container trains, ICD, DC, CFS etc. This increased competitiveness w.r.t. others ports operating companies.
	Financial track Record (last 5 years)		Financial track record of partners also helps to gauge the decision makings. Profit making companies more desirable.
	Sustainability Record (corporate Image)		Image of Partners as sustainable developer is more desirables since this is requirement of current changing market, clients or even shareholders in home country.
	Political Influential Group		More desirable as it helps in getting governments approvals in host countries.
	Level Playing field w.r.t. Government subsidies		Public ports mostly get subsidies for ports and hinterland connectivity developments, whereas private ports operating companies lacking in this, which distorts level playing field w.r.t. competitions.
	Availability of soft Skill in Ports and Logistic business		Desirable, since this acts as one of the competitive factors. Soft skill adds value in entire supply chain.
	Having Port infrastructure at strategic locations		Infrastructure at strategic location, helps to attract trade flows (presents and future cargo flows).
	Efficient ports		Desirables w.r.t. Port competitions

		Long term aggressive policy for port and Logistical sector developments		Gauges to seriousness of partners apart from that it gives opportunities for future business expansions.
11	<b>Cultural difference</b>	(Applicable during country selection)		Similar culture is more desirable
12	<b>Geopolitical risks</b>	(Applicable during country selection)		Not recommendable considering the higher investment associated risk.
13	<b>Future expected cargo Flows (between contracting countries and world port network of PA/PDC)</b>	Cargo between two contracting ports		More desirables, to secure long term cargo flows. It increases competitiveness at home country market
		Cargo flows between host country ports and world port network of home country world port network		This ultimately increases the revenue of the PA/PDC.
14	<b>Other Misc. factors</b>	Positive Port and port city relationship		Synergies between port and port cities are desirables.

Source: Compiled by Author

### **6.3. The statistics**

A simple statistics method i.e. summation of all variables and sub variables shall be used to identify the high potential growth region from country. Same method shall be use to evaluate high potential brownfield and or greenfield port and potential domestic partner from the host country

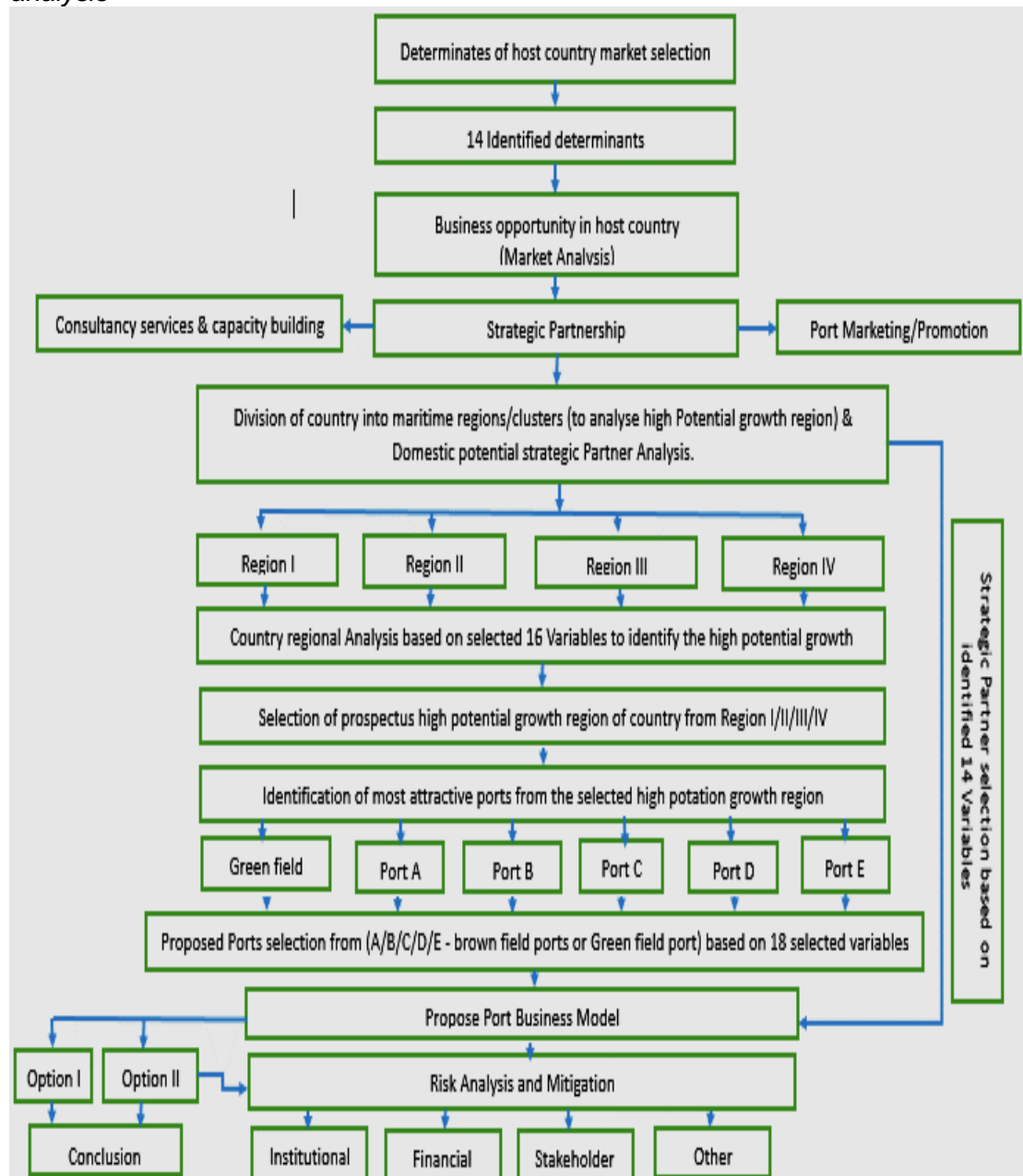
### **6.4. Data Collection**

For this entire study, qualitative and quantitative data has collected from the secondary sources like port websites, reports, government ministry websites, various consultants' reports and information published by the developmental agencies. On demand basis, primary data shall be collected in the form of interviews of the port experts.

### **6.5. Methodological tool (Model development) for host country market selection**

Based on the numerous variables listed in the table 6.1 and various methods listed above for the assessment of each variable, a comprehensive methodological tool (framework) has been developed which has been shown in the below figure 6.1

Figure 6-1 *Proposed Methodological tool (model) for the host country market analysis*



Source: Compiled by Author

In the proposed methodological approach tool, in the first stage of assessment it is suggested to carry out host country market analysis based on the 14 identified different determinants. The assessment of these determinants will give clear-cut idea to the PA/PDC, whether they need to get involve in that particular host country market or not?

If they found that the host country has potential opportunity for internationalization activity, then in that case a detail country level port sector analysis needs to be carried out. This analysis will give idea to the PA/PDC of which types of opportunities are exists in the host country. Based on long-term strategic plan, the

PA/PDC can decide their commitment to that host country which is mainly in three forms i.e. to have a commercial presence (Port Marketing), get involved in technical knowhow transferring in the form of consultancy services or capacity building or to have a strategic port partnership. However, in this framework, we are only targeting to strategic partnership/investment business opportunity.

In the next phase of the methodological framework tool, it is suggested that based on the country's geographical conditions, divide the country into various regions, which is mainly based on the serving hinterland and accessibility, geographically terrain (barriers like mountains etc.) or traditional trade pattern (flow of commodities) etc. The division of country in to various regions, can be vary with country to country i.e. in some cases, researcher can consider whole country as one region, where as in extreme cases this number may be 8 to 10 regions (totally dependent on the characteristics of the host country).

Based on the classification of the country in to various regions, in the subsequent stage, it is advised to analyze the high potential growth region of the country. The high growth potential region can be evaluated based on 16 different variables which have been explained in the table 6.1 and in the chapter 7 as table 7.2. Each variable listed or considered for regional analysis of the country has varying effects i.e. some variables are having extremely important role, where as other variable other variable are relatively less important. However, in this study author restricted himself to quantify impact of each variable, because of time availability for research and limitation to interview large number of PA/PDC to get holistic view on same.

In the subsequent stage, based on the selected identified high potential growth region of the country, it is suggested to carry out the port analysis of that high potential growth region. A number of selections of ports for this type of analysis shall be depended on the various factors and which will also be country specific like operating models of ports (landlord port/private port/public port). The consolidated list of the determinates and variables can be found in table 6.1 and in table 7.3. In certain cases, if new green field ports development opportunity exists in that region (identified by any player like state/private player) then this can be also considered for the comparative port analyses. Based on the selected ports for analysis, a high potential port shall be selected among these ports, which will be targeted for the proposed strategic partnership. Note: If identified high potential growth regions contains a large number of ports, then it is advised that filter a few number of ports at this stage for comparative analysis. The filtering of these ports shall be carried out on the basis of following set criteria like a. Port must be carrying out commercial cargo handling operations. b. Do not consider a captive port, c. Single commodity handling ports needs to be excluded from study. d. Very small cargo volume handling ports can be excluded from study, e. Close proximity ports having similar characteristics can be excluded (select one of them only), f. Ports with serious future potential growth constraints can be excluded from study, g. Physical characteristics (land use characteristics) can be also consider to filter out the ports.

One of the other most important and critical determinants in strategic partnership abroad is partner selection from the host country for proposed development. Therefore, in order to select the right partners among various domestic players, a checklist has been prepared which consists of numerous variables and has been presented in the table 6.1, which can be also found in chapter 7 as table 7.3.



Based on the above high potential growth region selection from host country, a selection of prospectus port and partner from the host country, a potential business model of development shall be worked out. Subsequently, the risk analysis and mitigation measures shall be listed out and will be taken care of during the preparation of final business case.

The development of strategic port partnership in abroad is a very long term, resource and time consuming process. Sometimes, last moment changes in decision (by any stakeholder) due to certain circumstances/elements, like partnership doesn't work-out properly or delaying in getting approvals for green field port or similar other problems, ultimately delays the entire process of proposed business case development in abroad. In such scenarios, the PA/PDC again needs to start from the scratch, to explore new business potential opportunity, which is again time, and resource consuming process and that leads to substantial delays in final outcomes. Therefore, in order to avoid such consequences, it is always recommended to work on at least two or three different options from the beginning of the process. However, the PA/PDC needs to keep certain confidentiality while exploring such options, as leakages of this plan may pose question on seriousness of the PDC/PA, which may also affect the proposed partnership process due to trust deficit between two contracting parties.

#### **6.6. Chapter conclusion:**

This chapter has presented a methodological framework tool and some market analysis steps, which can be use by PA/PDC, while evaluating the host country market for their strategic port partnership proposal. On demand basis, established methodological framework tool can be slightly alter or modify, based on the characteristics of the host country market (during market analysis of individual host country). Each determinates and its variables presented in this chapter (in table 6.1 and in methodologic tool), are having varying role(magnitude) in strategic port partnership decision making process like some determinants are extremely important, where as other as comparatively less important. However, looking into very short time availability for this particular research and limitation to contact with each PA/PDC (which are in PI business), author has restricted himself to identifying the list determinants and its variables only, hence further future research is recommended to quantifying the role(magnitude) of each determinants.

It this chapter, author has answered the sub research question 'c' i.e.

- c. How to explore business opportunity in host country market for strategic partnership? i.e. Development of methodological Framework tool.**

## **7. Results and Analysis**

### **7.1. Chapter Introduction:**

Based on the methodology explained in chapter 6 along with methodological framework tool shown as figure 6.1, author's goal in this chapter is to present the results of the quantitative and qualitative models which have been used to analyse the Indian Seaports market. Considering the large amount of data which has been used to analyse the research of this study, only final conclusion shall be presented here, as it is extremely difficult to discuss the results of each parameters/determinants here. This will be done through the presentation of graphs and summary of tables. Any figure or table that is not relevant to the discussion, but has nonetheless been used to achieve the results, can be found in the appendix 3.

In this chapter, firstly, author has presented the various maritime clusters of India, in the form of Region I (Western Zone), Region II (South West Zone), Region III (South East Zone) and Region IV (Eastern Zone). Secondly, the author, through qualitative and quantitative data analysis method, has identified high potential growth region of the country. Thirdly, based on the identified high potential growth region of the country, a detail analysis of ports from this region has been carried out to identify the potential attractive port for the proposed strategic partnership. Fourthly, a detail analysis of potential strategic partners has been carried out to assess which is or are the best potential partner for strategic partnership. All this analysis of host country market has been carried out based on the various determinates (with its variables and sub variables), which we have already discussed in the chapter 4(determinant's of host court market selection). The consolidated list of these determinants with variables and sub variables, we have also already summarised in the chapter 6 as a table 6.1.

At last, based on the results obtained from the earlier stages, 2 different business cases options have been presented and at the end of the chapter. The strategic fitness of these options, associated risk of each business option and mitigation measures of each options have been listed out.

### **7.2. Divisibility of country in to maritime accessibility regions**

On the basis of the geographical features of a country (especially mountains and hilly ranges), availability of existing hinterland connectivity linkages in the form of road, rail and pipeline connectivity, traditional cargo flows pattern, the author has divided the country into four regions. In the previous studies, to analyse the multi-layered hinterland classification of Indian ports of containerised cargo, (Thill & Venkitasubramanian, 2015) these authors have also classified the country regions on similar basis. The identified maritime regions for country analysis, along with adjacent hinterland to each region are presented below in the table 7.1 and figure 7.1. Though India is having total 36 numbers of different states and Union territories, only 25 states/UTs have been considered for this study. Decision of exclusion of these some of the states/UT has been made considering the fact that these regions have very low contribution in Indian GDP, cargo flows and in terms of total Population too. Moreover, these regions are also not having proper connectivity from mainland of India because of number of reasons (w.r.t. connectivity from coastal states).

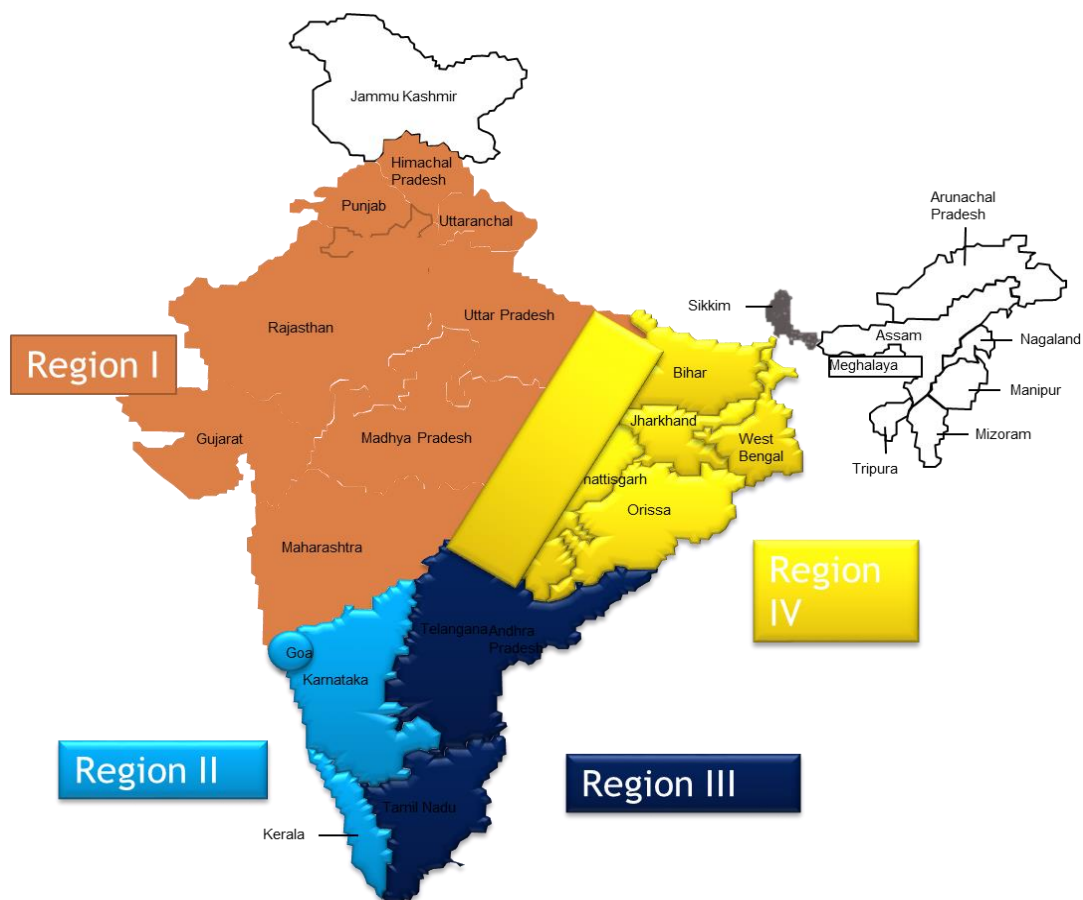
Table 7-1 Division of country in to regions

Region I(West)	Region II(SW)	Region III(SE)	Region IV(E)
Maharashtra	Goa	Tamil Nadu	Orissa
Gujarat	Karnataka	Andhra Pradesh	West Bengal
Rajasthan	Kerala	Telangana	Chhattisgarh
Madhya Pradesh(Partial)			Jharkhand
Uttar Pradesh (Partial)			West Bengal
Punjab			Jharkhand
Haryana			Bihar
Delhi			Madhya Pradesh(Partial)
Uttarakhand			Uttar Pradesh (Partial)
Himachal Pradesh			
10	3	3	9
Number of total states 25			

Source: Compiled by author

(Note: highlighted states are having ports/sea shore, while rest states are landlocked). The divisibility of regions and hinterland also shown below on political map of India.

Figure 7-1 Regions in India



Source: Compiled by author

### 7.3. Regional analysis to identify high potential growth region of country:

Based on the division of the country into four different maritime regions, each region of the country has been assessed with 16 different variables/ and sub variables, which have been already discussed in chapter4 and 7. For comparative analysis, both qualitative and quantitative methods have been used by the author to rank the region based on their maritime sector development potential. Each variable is assessed on the scale of 1 to 4, where 1= Worst w.r.t. attractiveness, whereas 4 = best in attractiveness. The results of evaluation of the high potential growth region attractiveness have presented below table 7.2

Table 7.2: Identification of country high Potential growth region for investments

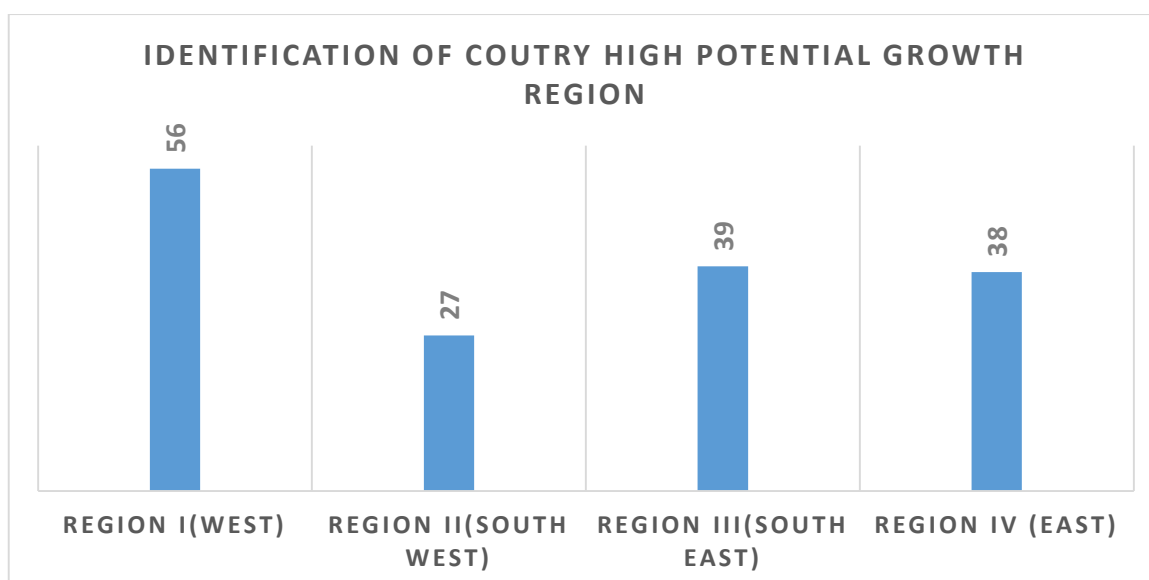
<b>Note: To the scale of 1 to 4(Comparative analysis, here 1 is worst and 4 is best)</b>						
		<b>Country has divided into four parts based on maritime accessibility</b>				<b>Remarks (Logic considered to scale each region, only summary of results described here.)</b>
<b>Sr. No.</b>	<b>Particulars</b>	<b>Region I(w)</b>	<b>Region II(SW)</b>	<b>Region III(SE)</b>	<b>Region IV (E)</b>	
1	<b>GDP contribution</b>	4	1	2	3	Region I contribution in India's GDP is 45 %, Region II 10%, region III 16 % and Region IV contributes 22% in India's GDP.
2	<b>Population concentration</b>	4	1	2	3	Region I consist of 38.5 % Indian Population, Region II 8 %, Region III 13% and region IV consist of 35.7 % Indian Population.
3	<b>% Urbanised Population</b>	4	1	2	3	Region I consist of country 34 % urban population, Region II 7%. Region III 13% and region IV 19%.
4	<b>Ease of doing Business</b>	4	1	2	3	Based on the world Bank (2015) Ease of Doing Business statistics, States in region I are most favourable for doing or setting up of business. Other region has scored accordingly.
5	<b>% of Industrialization (measured in contribution in GDP)</b>	4	1	2	3	Manufacturing sector Contribution in India's GDP (w.r.t. manufacturing) from Region I is 49%, From Region II is 9%, from Region III is 17% and from Region IV is 18%.
6	<b>Share of EXIM cargo</b>	4	1	3	2	Region I contribution in India's total Sea borne trade volume is 56%, Region II is 7%, Region III is 25% and region IV is 13%.
7	<b>Regional ports utilizations Ratio</b>	4	1	3	2	Ports infrastructure capacity utilization of Region I is 91%, Region II is 37%, Region III is 65 % and Region IV is 64%. (higher utilization means further scope in ports infrastructure developments & investments). Overcapacity (idling of port assets) in ports infrastructure does not

						generate yield on investments.
8	<b>Upcoming Mega industrialization and infrastructure development projects</b>	4	1	2	3	The country proposed Mega Industrial Parks, special Investment region and dedicated freight corridors proposal has studied and found that massive investment is envisaged in region I like DMIC and DFC projects, then region IV, then Region III and Region II (in descending order).
9	<b>Future Mining Activities and cargo volume generations</b>	1	3	4	2	This is based on the government policies to promote coal mining, iron ore mining and other mining projects. India is one of the major exporter of Iron ore. Export based mining activities will likely generate large volume of cargo at sea ports.
10	<b>Cargo composition (diversification of commodities)</b>	3	2	3	2	It has been found that region I and III are having diverse portfolio of cargo handling, whereas region II and IV are more focused on Bulk commodities.
11	<b>State Maritime Board Policies</b>	4	2	3	1	After analysing the individual state maritime board policies, it has been found that region I states are more proactive. (Maritime policies have been assessed by various indicators like, operating models, Incentives to port developers, Land acquisition for port development, state involvement in port connectivity projects, special proactive policies to facilitate the private sector investment and other misc. special initiatives).
12	<b>PoR(PDC) client's locations demand for their Investment</b>	4	1	3	2	It has been noticed PoR client first preference of investment in Region I, then region III and last region IV. No preference for the region II.
13	<b>Nautical Accessibility from main sea trade route (East West route)</b>	2	4	3	1	It has been found that Region II is having very close proximity to East West route (international shipping route), then region III then Region I and last region IV. Region I is also having proximity to middle east trade route (minor trade route).
14	<b>Multimodal hinterland connectivity (% of multimodal share in total traffic)</b>	2	3	1	4	It has been found that Multimodal connectivity (w.r.t. Individual region) is better in region IV, then Region II, then region I and last in region III. (cargo evacuation share of pipelines, IWT, Rail and road has considered for this analysis).

15	<b>Regional Cargo growth trends (last 5 years)</b>	4	1	2	3	At regional level, last 5-year sea borne cargo volume growth rate/trend has studied and it has found that Region I growth(CAGR) was 14%, region II -1%, Region III 7% and Region IV growth rate was 13%.
16	<b>Social Issues (Regional Labour disputes historical trends)</b>	4	3	2	1	Number of man-days lost in country due to labour strike and similar issues was studied (year 2007 and 2011 was assessed). It has been found that contribution of Region I in country total man-days loss was 1%, Region II was 4 %, Region III 26% and region IV was 63%.
	<b>Total</b>	<b>56</b>	<b>27</b>	<b>39</b>	<b>38</b>	

Source: Compiled by Author

Figure 7-2 Identification of high potential maritime region from country



Source: Compiled by Author

From the above analysis (table and figure), it has been found that country's Region I (W) i.e. West coast of India is having the highest potential for maritime sector growth. The other regions are lagging too much behind this region, however among rest of the regions, Region III (SE) i.e. South East region is second preferential option for development.

#### **7.4. Analysis of high potential brown field port for strategic partnership from Region I(W):**

After analyzing the high potential region of the country, i.e. Region I (W), the author has thoroughly appraised the various ports of this region for potential strategic investment. Since this region has more than 150 operating ports, the author has filtered these ports into 6 ports to carry out the detail comparative analysis of each port. The selection criteria for these ports for further analysis have explained below.

- Port must be carrying out the commercial cargo handling operations.
- Captive ports have not considered (ports handling only one industry product and operated by that particular industry).
- Single commodity handling ports are not considered.
- Very less cargo volume handling ports have not considered
- Very close proximity ports with each other has not considered (low volume ports nearby to higher volume ports has filtered out)
- Ports overall layout has considered for analysis (instead of jetty like structure, port must have immediate back-up area behind the berth)

The comparative analysis of each selected brownfield port has been carried out based on 18 different variables (already discussed in chapter 4 and chapter 6, Table 6.1), the results of the same has been presented in the Table 7.3 and figure 7.3 below.

Table 7.3: Evaluation of high potential port for strategic partnership from Region I

<b>Note: To the scale of 1 to 6(comparative analysis 1 is worst and 6 is best)</b>								
<b>Sr. No.</b>	<b>Particular/variables</b>	<b>Ports Selected from High Potential Growth Region I</b>						<b>Remarks (Logic considered to scale each port, only summary of results described here.)</b>
		<b>JNPT</b>	<b>Mumbai Port Trust</b>	<b>Hazira Port</b>	<b>Pipavav Port</b>	<b>Kandla Port</b>	<b>Mundra Port</b>	
1	Percentage share of Ports in Region I (cargo volume)	4	3	1	2	5	6	Share of each port, in total volume of region is JNPT 11%, Mumbai 10.6%, Hazira 1%, Pipavav 3%, Kandla 16% and Mundra 19%.
2	Port Portfolio (cargo Composition w.r.t commodities)	4	6	4	5	4	6	It has been found that Mundra and Mumbai ports are handling all types of cargo, where as other ports are handling limited commodities.
3	Geographical locations of ports (strategic location)	6	6	6	4	5	5	Scored based on countries industrial manufacturing hub, large urban population.
4	Land Availability for future expansion or scale development	4	1	2	3	6	5	Kandla is having highest amount of land availability (more than 100000 hectares) followed by Mundra (more than 10000 hectares, However Mumbai has no land for future expansion.

5	Maritime(nautical) accessibility from main shipping route (East-West Route)	6	5	4	3	2	1	JNPT has close proximity to East West route, followed by Mumbai. Mundra is comparatively far away from EW route.
6	Draft Availability at Port (in mtr)	3	1	4	5	2	6	Mundra is having 14 to 18 mtr draft, whereas Mumbai is having 8 to 10 mtr draft.
7	Attractive immediate(captive/primary) hinterland	6	4	5	1	4	4	Port based industrialization has studied and score has given accordingly. JNPT is having proximity to very rich industrial areas, followed by Hazira port.
8	Distance from Contestable hinterland(Proximity)	6	6	6	5	6	6	Country 10 Major cargo generating hinterland has studied and based on that score has given. Almost each port is having similar proximity to contestable hinterland except Pipavav port.
9	Multimodal Hinterland connectivity	6	3	3	2	5	4	% share of rail and pipeline connectivity for cargo evacuation from port to hinterland has studied and ports are scored accordingly.
10	Regulation for port development (Projects Approval and tariff fixation process)	4	4	6	6	4	6	At JNPT, Mumbai and Kadla tariff is set by TAMP (govt. regulatory body). Whereas at Mundra, Pipavav, and Hazira ports are having full freedom to set their tariff, since these are the minor ports and hence no restriction for tariff setting.
11	Historical Labor disputes in port operations	4	3	6	6	6	6	Mumbai and JNPT are facing the problems of labor unions, which affected entire port operations in the past. Rest of the ports are not having similar issues.

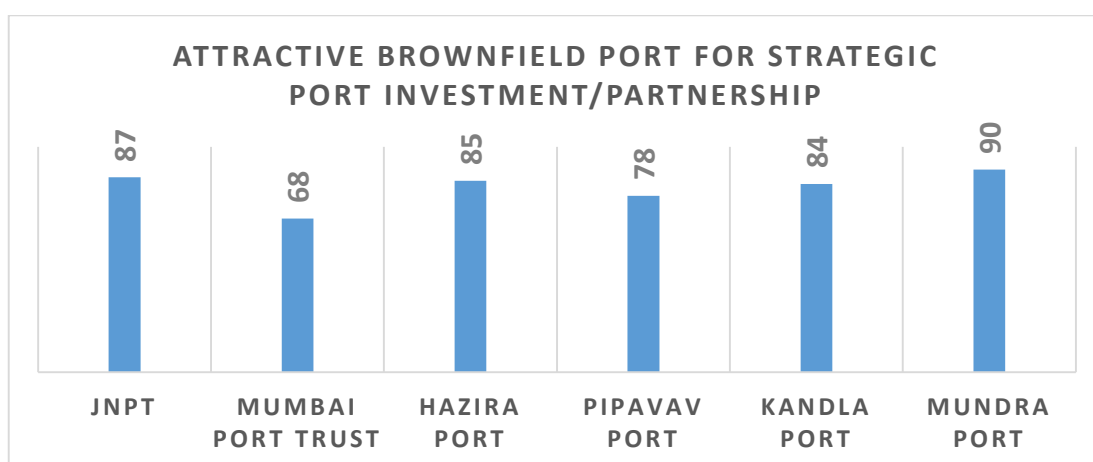


12	PoR(PDC) client's locations demand for Investment (assumed each port is equally important)	6	6	6	6	6	6	No specific port selection demand has been given by PoR Clients for individual port (only region I is their target area)
13	Port city positive interphase (w.r.t. synergy between port and port-city)	6	1	4	3	5	3	Port and Port City synergies and conflicts has been studied. Experts views has taken to scale this variable. In case of JNPT New-Mumbai urban centers acts as strong back-up for port based industrialization. In case of Mumbai there is conflicts between port and port cities for land use. In the case of Pipavav and Mundra, absence port cities, limits soft infrastructure availability for port based industrialization.
14	Ease of doing Business (ports location in state). Based on World Bank ease of doing index Year 2015.	4	4	6	6	6	6	Mumbai and JNPT ports are in the State of Maharashtra which ranks at number 8, whereas Remaining ports are in state of Gujarat which ranks at number one position (WB 2015 report).
15	Port operating Model	6	4	4	4	4	4	JNPT is landlord port, Mumbai is service port, rest all are private ports. Landlord port is most desirable since it avoids competition between tenants and landlord.
16	Sustainability Indicators	6	6	6	6	6	4	Corporate Image of Individual port has studied. Mundra port track record in sustainability is not good, since govt has fined them INR 2 billion for environmental

								damages in recent past.
17	Historical cargo volume Growth trends, pattern (last 6 years average growth rate/CAGR)	1	2	6	5	4	6	It has been found that Hazira and Mundra port, past 6-year cargo growth CAGR is more than 20 %, whereas JNPT growth rate was less than 2%.
18	Port Efficiency (berth productivity, pre-berthing delays etc.)	5	3	6	6	4	6	It has been found that Mundra, Pipavav and Hazira ports are very efficient (almost matching with top international ports standard), whereas other ports are poor in benchmarking performance.
	<b>Total of all variables score</b>	<b>87</b>	<b>68</b>	<b>85</b>	<b>78</b>	<b>84</b>	<b>90</b>	

Source: Compiled by author.

Figure 7-3 Evaluation of high potential port for strategic partnership from Region I



Source: Compiled by Author

From the above figure, it has evidently been found that the Mundra port is having highest potential for the proposed strategic port partnership compare to the other competitor ports. The second option, however, is the partnership with JNPT port or Hazira port, but the author believed JNPT has more preferential advantage over Hazira port, because Hazira is lacking with rail connectivity and land for scale development.

#### 7.5. Identification of potential domestic partners from host country:

From literature review and interaction with various experts from the industry, it has been evidently found that the selection of the right partner from the host country for

proposed strategic port partnership has paramount importance. The ultimate success of the strategic port partnership is profoundly depended on the commitment of the right partners. In order to assess the right partner from the host country, author has evaluated the various port operating companies with the help of numerous variables (which has already discussed in chapter 4 ad chapter 6 in table 6.1). Around 14 different variables have been used by author to evaluate the potential right partner. Analysis has shown in the below table 7.4 and figure 7.4.

Table 7.4; Evaluation of the host country partner for proposed strategic partnership

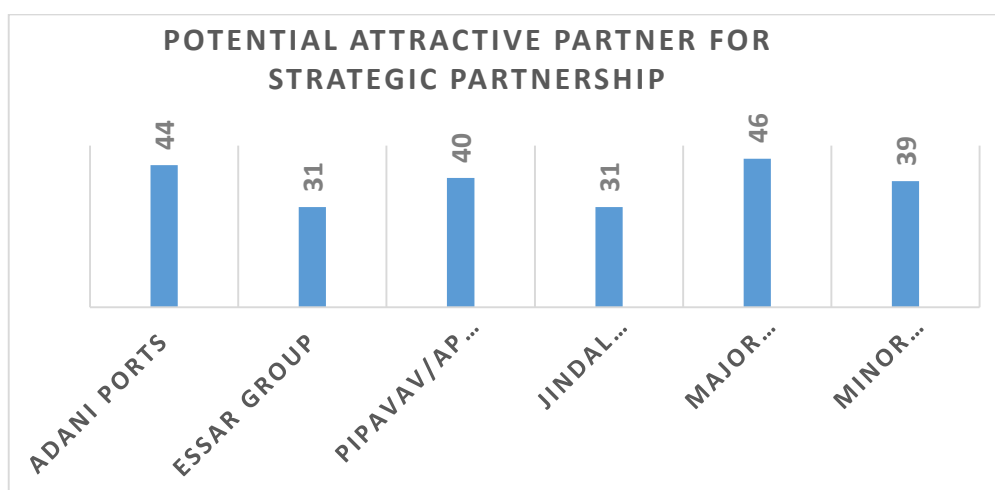
<b>Note: To the scale of 1 to 4(Comparative Analysis 1 is worst and 4 is best) w.r.t. Partner selection</b>								
<b>Sr. No.</b>	<b>Particular</b>	<b>Key domestic Potential Partners(Group)</b>						<b>Remarks (Logic considered to scale each partners, only summary of results described here.)</b>
		<b>Ada ni</b>	<b>Ess ar</b>	<b>Pip av a v/A PM T</b>	<b>Jin dal</b>	<b>Major Port Autho rity</b>	<b>Minor Port Autho rity</b>	
1	Operating business model of partner (w.r.t Conflict of interest)	2	1	2	1	4	3	This has been assessed based on port operating model. Landlord port is most desirable options since there is no conflict of interest between landlord and tenants. Here major ports are operating under the principle of Landlord, rest are having mix operating models.
2	Portfolio of partner (business profile of the port promotor group)	4	3	3	3	3	2	Partners with diverse business portfolio and having ability to influence the cargo flows are more desirable (partner with portfolio like trading companies, refineries, power plants, steel plants, mining area, ITO, logistical network etc.). Here Adani group is having most diverse portfolio like commodity traders, Thermal power generations Refineries and Logistics. Jindal, Essar, APMT group are also having certain influential power w.r.t. cargo flows.
3	Number of operating ports/Terminals in India and abroad (including future ports)	4	2	4	2	3	2	Here Pipavav Port, Adani Group and Major Ports Authority are having several number of operating ports in India as well as in abroad. Minor port authority, Jindal Group and Essar group are having very few ports and terminals in country only.
4	Tariff fixation freedom	4	4	4	4	2	4	Except Major Port Authority, other port operators are having full freedom of tariff fixations.

5	Key asset availability with partner.	4	2	3	2	3	2	Key asset availability with Group consist of privatised DS rail connectivity, Inland container Depot and container freight station. Adani group is leading in this segment as compares to other competitors.
6	Financial track Record (last 5 years)	4	1	3	1	4	2	% EBIDTA and Net Profit has analysed w.r.t Yield on investment. Adani Group and Major Port Authority are better in this aspects (especially w.r.t. Indian port operating business).
7	Working culture i.e. institutional system (similarity with PoR)	1	1	1	1	3	2	This includes the decision making process, overall objectives of port operating company and institutional system. Major port authority and are much similar to PoR in this respect.
8	Sustainability Record (corporate Image)	1	3	3	3	3	3	All groups are having good track record, but in case of Adani group environmental degradation cases and issues has been noticed.
9	Political Influential Group	3	3	2	3	3	3	It is difficult to quantify this, but all these corporate group are having strong political presence in country.
10	Level Playing field w.r.t. Government subsidies	1	1	1	1	4	3	Government of India is mainly investing in Major Port Authority Projects to increase the social welfare. Private player hardly gets such funds and are become more expensive than major ports. Major port authority is having large amount of funds for such investments as compares to minor port authorities.
11	Availability of soft Skill in Ports and Logistic business	4	3	4	1	3	3	Adani Group, Pipavav Port and Major ports are having diverse business portfolio along with that these ports are historically developed groups and hence they are having more skilled manpower, which increases is competitiveness.
12	Having Port infrastructure at strategic locations	4	2	3	2	4	4	The Adani Group, Minor ports Authority and Major Port Authority are having their ports in high potential growth region of country w.r.t to Country industrial growth regions and Urban population growth regions.

13	Efficient ports	4	4	4	4	3	3	Ports operated by private groups are much more efficient like Adani, Pipavav, Jindal w.r.t. Ships turnaround time, berth productivity, Pre-berthing delays etc.
14	Long term aggressive policies for maritime sector developments	4	2	3	3	4	3	Respective port operating companies long term corporate and business plan have been analysed w.r.t. port and logistics sector development strategy, based on that score to each partners has given.
	<b>Summation of all variables</b>	<b>44</b>	<b>31</b>	<b>40</b>	<b>31</b>	<b>46</b>	<b>39</b>	

Source: Compiled by Author

Figure 7-4 Evaluation of the host country partner for proposed strategic partnership



Source: Compiled by author

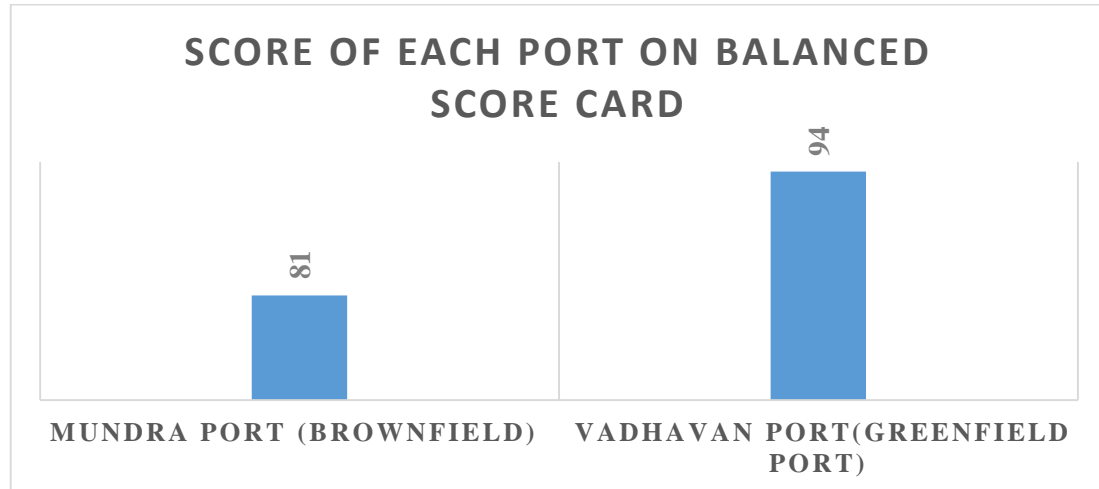
From this analysis, it has been evidently clear that, the Major Port Authority (public authority) and Adani group (private port company) are comparatively better position in the market, with whom, the PoR can form a strategic partnership, off-course further detail analysis is required on this matter.

#### **7.6. Exploitation of proposed green field port development option:**

As discussed in the earlier section, it is always advisable to explore different options at unit time, which substantially saves time if anything goes wrong with one options. Hence based on the analysis of the intra-regional brown field ports from Region I, which has been explained in the section 3, the author has found that Mundra port is having highest potential for strategic partnership. However, the author has also explored the potential opportunity to develop a new green field port in this region and its comparative advantage over the Mundra ports, which has been explained in the below figure 7.5. Since the government of India has already proposed a development of new green port in this region at Vadhavan, hence we have

considered that port for the comparative analysis. The variables used for comparative analysis has given in the appendix 3

Figure 7-5 Comparative analysis between Mundra Port (brownfield) and Vadhavan port (Greenfield) for proposed strategic partnership.



Source: Compiled by Author

From the above analysis, it is evidently unambiguous that the proposed green field port development at Vadhavan has more potential for strategic partnership than the Mundra Port.

### **7.7. Summary of the proposed final options and mitigation measures:**

International port partnership is a very long and time consuming process, which normally takes around 3 to 5 years to form a successful partnership in abroad. In the previous case studies, it has been found that the PA/PDC focus on just one options (w.r.t. ports and or partner) in host country and spend considerable time and resources on it, but many times that partnership didn't work out at the end. In that case, after spending 3 to 5 years on one case, the PA again starts to explore new ports and partners for proposed partnership, which is again a time consuming process that ultimately delays the business opportunity. Therefore, it is always advisable that, at the beginning of market analysis, the PA/PDC needs to focus on two or three different options, which will save substantial time if one proposal failed. Apart from this, in order to achieve the maximum yield from strategic partnership in abroad, the PA/PDC needs to explore 2 or 3 different options to evaluate which is the best option as per overall objective of the PA internationalisations.

Based on the above mentioned background and analysis from section 2, 3, 4 and 5, the author has suggested different partnership options for India. The strategic fit of each option as per country regulation, risk of each option and its mitigations measures has been summarised below in table 7.5

Table 7-5 Exploitation of two business options, its risk analysis and mitigation measures

Sr. No.	Particulars/Variables	Proposed Business Model options	
		Option I	Option II
		<b>PoR + Adani: Development of Mundra Port as strategic Partnership Projects</b>	<b>PoR + Major Port and minor port Authority of India: Development of Vadhavan as Green field port</b>
1	<b>Strategic fit w.r.t. country regulations</b>	1. Yes (few past examples has mentioned below)	1. Yes
		2. In the past, port of Antwerp was minor stakeholder in M/s Essar Group (ports).	2. Presently there is no any standard model available of such business case, however there is provision for such partnership as per government policies.
		3. APMT is also major stakeholder in the port of Pipavav (In Pipavav Port, APMT acting as an entire port developer and not a terminal operator)	3. Foreign port may form a Special Purpose Vehicle (SPV) in India with Major Port Authority
			4. Selection criteria set by Govt. of India for firm's selection, fits with PoR business (eligibility criteria)
2	<b>Financial commitments</b>	1. Comparative lower capital investment requirement, since port is already operational and infrastructure utilization rate less than 60 %.	1. A very high capital investment requirement is there to invest in such projects.
			2. Flexible model with respect to investment. (Multiple stakeholder participation can be assessed)
3	<b>Conflicts of Interest</b>	1. Yes	1. No
		2. Adani acts as stevedores, terminal operator, utility providers, which will distort the competition between PoR clients and Adani group core business functions.	2. Ports operation will be similar to existing PoR business model.
		3. Unhealthy competition between landlord and tenants.	3. Hence there won't be any conflict of interest
4	<b>Stakeholders</b>	1. PoR and Adani Mundra port	1. PoR, Major port Authority (Govt. of India) and or major client of PoR as a Stakeholder (depends on modality)
			2. Flexible options
5	<b>Risks</b>	1. Low Investment Risk, by limiting capital investment	1. High Capital Commitment, hence higher risk
		2. Since port is already in operations, yield can be starts immediately (no delays in RoI)	2. Land acquisition risks, many Indian ports projects are facing these problems.
		3. Competition with Kandla port (just 60 km away from Mundra Port), since KPT is also having long term investment plans in various segments.	3. Risk of getting clearances from different Govt bodies like environmental clearances, security clearances etc. (very bad track record of India in these clearances).
			4. Long gestation period of projects (construction of ports projects take substantial time) and delays in getting RoI

	<b>Other issues</b>	1. Existing port based industrial projects was delayed or on holds due to environmental clearances issues.	1. Pricing issue, since TAMP is applicable for major ports. (though government is trying to regularities this, but it will take long time).
		2. Pricing conflicts (w.r.t. tenants) since landlord is also engaged in stevedoring activity.	
		3. Differences in work culture, like Public(PoR) Vs. Private entity	
<b>6</b>	<b>Mitigation Measure</b>	1. Addressing issues of pricing mechanism at the beginning.	1. Clarity on TAMP applicability.
		2. Protection of PoR Clients from unhealthy competition with landlord	2. Commitment from government about land acquisition
		3. Commitment of private player(Adani) for proposed partnership	3. Time bound commitment from Government to get approvals like security, environment clearances etc.
		4. Careful contractual relations (legal and commercial) at the beginning of partnership.	4. Clarity on revenue sharing agreements.
		5. Coordination with PoR clients from the beginning of the partnership to avoid later conflicts.	5. Coordination with PoR clients from the beginning of the partnership to avoid later conflicts.

Source: Compiled by Author.

The author has found that both options are having comparatively better advantage over each other in certain aspects, hence both can be taken up for further techno commercial, legal and financial analysis to arrive at a logical final conclusion. However, based on the PoR other countries business model especially Sohar and overall rationality of PI, the author believes that investment in Vadhavan port is more recommendable than the Mundra Port.

### **7.8. Chapter conclusion:**

In this chapter, in order to assess the Indian Market for strategic partnership, the author has firstly divided India into four different regions based on the Maritime accessibility, hinterland connectivity, geographical features and traditional cargo flows pattern. Subsequently, a high potential growth region from the country has been identified for maritime sector developments and it is found that the Region I (W) i.e. West coast of India has highest potential for port developments. In the next phase, brownfield ports were analysed from the high potential growth region to identify the highest potential attractive brownfield port for investment. After thoroughly analysing the 6 different ports, the author has concluded that Mudra Port has more potential for future partnership (without considering the proposed green field port development in this region). In the subsequent phase the author has also analysed the potential partners for the strategic port partnership and it is found that out of 6 different potential partners, Major ports authority of India and Adani group are having highest potential for strategic port partnership. Later on, considering the expected green filed port development in this region, the author has also made a comparative analysis between high potential brown field port i.e. Mundra port and proposed green field port i.e. Vadhavan ports, to weigh up the highest potential



among these ports and has found that Vadhavan port is having relatively more advantage over Mundra Port.

However, looking into international strategic port partnership business complexity and time consuming process to entering into partnership (very low success rate), therefore over-dependency on just one option is not recommendable. Hence, the author has explored two different options for proposed partnership, i.e. development of brown field port with Adani group and development of Greenfield port with Major Port of India (both options are workout based on market analysis results obtained in this chapter). At the end of chapter, the author has assessed each option against strategic fit w.r.t. country regulations, pertaining risk and mitigation measure of each model.

In this chapter, the author has answered the sub research question “e” and “f” which are as follows:

**e. How to explore Indian market for strategic port partnership?**

**f. To assess what will be the potential port business model and how to mitigation risk in the proposed port business model?**

## **8. Conclusion, limitations and way forward:**

### **8.1. Chapter introduction:**

Based on the set motives, relevance, rationality behind this research, which have been thoroughly explained in the chapter 1, the researcher is going to briefly answer all sub research question's answers here. Nevertheless, the researcher has already answered all sub-research questions with every details in the chapter no 3, 4, 5, 6 and 7.

As the author believes that there are some limitations for this research, which shall be discussed in the subsequent sections. At the end of this chapter, the author also has recommended further research requirement in this topic, for further way forward.

### **8.2. Brief answering of the sub research questions:**

#### **a. To assess which are the critical determinants behind the PA/PDC port internationalisation strategy?**

After analysing the various literatures on this topic and discussions held with some of the industry experts, the author determined that, basically there are two forces which determine the PA/PDC internationalisation strategy; namely, driving determinants and inhibiting (restrictive) determinants. Driving determinants are those determinants which pull or push the PA/PDC towards outward internationalisations, such as the PA/PDC's long term strategic corporate/business plans towards PI, saturated domestic market, pro institutional framework, regional ports over- competitions caused by infrastructural overcapacity in a particular region, home country clients or port cluster community's demands and physical limit of expansions in existing port. The inhibiting (restrictive) determinants are the factors, which control the PA/PDC outward PI ambitions, and these determinants include political instability of the host country, geopolitical aspects, cultural variance, institutional(unfavourable) system, absence of good market knowledge of the host country and limitation by shareholders.

#### **b. To analyse which are the critical determinants play important role in host country market selection for strategic port partnership?**

To answer this, the author has consolidated both aspects, firstly, he has identified which determinants play imperative role in selection of the host country market, and secondly, within the host country, how to select the particular site/port for strategic port partnership. Since each determinant has numerous variables and sub variables, but the researcher is listing here only major determinants and not variables/sub variables. Total 14 determinants have been identified which are viz. (I) Market attractiveness of the host country, (ii) Geographical location of a port within the host country, (iii) Commercial development potential, (iv) Port portfolio, (v) Land availability for future expansion (for scale development), (vi) Maritime (nautical) accessibility and quality of infrastructure, (vii) Attractive cargo generating hinterland and its connectivity, (viii) Potential for robust business case, (ix) Country regulation and investment friendly policies, (x) Host country partner choice, (xi) Cultural differences, (xii) Geopolitical risk, (xiii) Future expectations of cargo flows from contracting host country and (xiv) Other Misc.

The author found that all the above listed variables are having varying effects, magnitude and role of each determinant varies from case to case. In fact, in strategic port partnership business case, the author believes that there is no “one models fit for all.”

**c. How to explore business opportunity in host country market for strategic partnership (Development of Methodological Framework Tool)?**

In order to investigate the host country market for strategic port partnership, the author has developed a methodological framework tool, which has been explained in detail in the chapter 6 (figure 6.1).

**d. Is India a really market for the port internationalisation business? If yes, then what are the business opportunities for the PoR?**

After analysing the Indian maritime sector, especially ports sector, the author believed that “Yes” India has great potential as a host country for port internationalisation business. The author has analysed that, presently more than 50 different mega consultancy projects are under pipelines, apart from that there is also scope for capacity building (providing training to manpower’s), which is good business potential for PoR. However, in this research our focus is only on strategic port partnership opportunity in Indian market.

The author found that in coming decade, Indian sea borne cargo volume growth is expected to raise at the rate of around CAGR 9%, which will provide an ample opportunity to the PoR to invest in Indian port sector, as currently Indian port sector is lagging behind in many critical fields such as capacity constraints (over utilization ports), poor port productivity etc. One promising feature about the Indian markets for strategic partnership is that many Port of Rotterdam clients are interested in Indian market for their strategic investment. Therefore, the PoR involvement in Indian market will acts as catalyst for PoR clients like Vopak, Vale, VTTI, Oiltanking, C. Steinweg, Dame Huntsma, CTO etc. In addition to that, based on the Sohar experience, the author believes that proposed partnership will also bring the opportunities for Dutch service sector industries like environment management companies, engineering consultancy services etc. The author believes that proposed partnership will also acts as stepping stone for Dutch dredging companies in Indian market, since huge potential is expected in this field as well.

We also expecting that there is a great future potential to increase cargo flows between Indian ports and the PoR world port network, especially Sohar and Brazilian ports, hence all this conducive environment strongly support PoR strategic port partnership proposal in India.

**e. How to explore Indian market for strategic port partnership?**

A methodological tool, presented in chapter 6 (figure 6.1), has been used by the author to examine the Indian market for proposed strategic port partnership. In short, at first, the author has divided Indian maritime cluster into four regions, and based on the host country market selection determinants and its variables, a high potential growth region has been identified. In subsequent phase, from the selected high potential growth region, an intra-regional brown field port analysis was carried out (refer table 7.2 and 7.3) to evaluate the most attractive port for strategic

partnership. The author has then made a comparative analysis between the selected attractive brown field port and proposed green field port of the selected region to identify which has the highest potential for strategic partnership. In order to select the potential right domestic partners from the host country, the author has made comparative analysis of each partners with a set of selected variables (refer chapter 7 table 7.4).

From detail analysis of the Indian market, the author has found that Region I i.e. Western coast of India has the highest potential and among brownfields ports of that Region, Mundra port has the highest potential for strategic partnership. But when Mundra Port has compared with proposed green field port (Vadhavan Port), it has been found that Vadhavan port is having comparatively better advantage over Mundra port.

Similarly, among all six domestic port operating companies, it has found that Adani group and Major Port Authority (MPA) can be a potential partner for the proposed strategic port partnership.

***f. To assess what will be the potential port business model and how to mitigate risk in the proposed port business model?***

Looking into the complexity and time consuming process of abroad strategic port partnership, it is always recommended to explore more than one business model options at a time. Based on these principles, two different business options i.e. with two different port and two different partners has been explored. Both options have been assessed with respect to their strategic fit w.r.t. Indian regulations, financial risk, conflict of interest, stakeholder, risk and proposed mitigation measures, which has been mentioned in the chapter 7 in table 7.5.

### **8.3. Limitation of study:**

Though the author has given his best to conclude the research, yet he is well aware about limitation of the study, which has been given below;

- i. Since port authority internationalisation is a new concept, there is barely any academic literature available on this topic, hence most of the conclusion has been derived from the interaction with filed experts.
- ii. To build a concrete, widespread conclusion on this topic, it is need to discuss the various concepts with multiple PA or PDC, however in this research the author has able to contact very few PA/PDC.
- iii. Most critical and significant limitation of this research is that, for analysing the host country market, the author has given equal weightage to each of the determinants and its variables. But in reality or practice, certain determinants/variables are having much more magnitude/impacts over other variables in decision making, hence one cannot give equal weightage to each determinant.

### **8.4. Way forward/ Further research requirements:**

Considering the limitation of existing thesis, further research is suggested and the researcher is recommended to conduct more in-depth and comprehensive analysis.

In that case, following recommendations are put forwarded to carry out further study on this topic

- i. Multiple PA/PDC needs to be contacted to understand their objectives, motives and rationality behind port internationalisation.
- ii. The PA/PDC determinants of the host country market selection for strategic partnership has to be thoroughly analysed by building mathematical models, instead of just taking feedback from port experts.
- iii. The weightage given to each determinant while selecting the host country market cannot be equal; hence it is need to classify these determinants as primary determinants (most important) and secondary determinants (comparatively lesser important). Accordingly, weightage needs to be given to each determinant, during market analysis.
- iv. It would be really great to listen to the potential partners or host country partner expectation, while doing the strategic partnership with foreign PA/PDC.

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## Appendixes

### Appendix 1: Role of each determinant in host country market selection, Case study of Sohar and Posistra (Compiled by author)

S r. N o.	Determinants for host country selection	Sohar, Oman	Posistra, Gujarat (India)	Remarks
1	Market attractiveness	Yes	Yes	Valid in respective of micro economies, social and demographic parameters. Last 10 year GDP growth rate per annum: Oman: GDP is 6.4 %, India: 7.4%; world GDP is 2.75 % and EU is 1.1 %
2	Geographical Location of port in the host country	Yes	Yes	Both Sohar and Posistra are strategically located in their respected Country
3	Commercial development Potential	Yes	Yes	Potentially identified growth regions
4	Port Portfolio	Yes	Yes	Though both proposed ports were green field ports developments, proposal was to develop multi-commodity handling port
5	Land availability	Yes	No	In case of Sohar, it was readily available without any obstacle. In case of Posistra, land acquisition was required, but was a little bit challenging as well.
6	Maritime (nautical) accessibility and quality of infrastructure	No	No	Maritime infrastructure was required to refurbish, since both ports were green field ports. Both identified ports were all weather ports (suitability). Oman: Liner Shipping Connectivity Index for last 10 years is around 39. India: Liner Shipping Connectivity Index for last 10 years is around 42.
7	Attractive hinterland and its connectivity	Yes	Yes	Primary hinterland was not well developed. Since both ports were green field, availability of existing hinterland connectivity infrastructure was not there.
8	Potential for robust business case	Yes	No	In Case of Sohar more commitment was there from clients, with their business plan. In case of Posistra, no strong potential commitment was there from clients.
9	Countries regulation and investment friendly policies (w.r.t. ports and allied industries)	Yes	Yes	Both countries are Liberalized Economy, but in case of Posistra, lots of issues related to approvals from Governments, especially the environment clearance from the Ministry of Forest and environment.
10	Host country partner choice (Partner credibility)	Yes	No	Strong commitments from partners in case of Sohar in the form of Govt. of Sohar. In case of Posistra, lack of commitment from partner along with that partners have limitation of capital and expertise.

1 1	Cultural differences	NA	NA	Difficult to quantify
1 2	Geopolitical risk	No	No	Both country is stable
1 3	Future expectation of cargo Flows	Yes	Yes	It case of Sohar, it was expected but didn't find any practical evidence after project formulations; In Posistra, unable to quantify this as project didn't take shape.

Source: Compiled by Author

**Appendix 2** Key Upcoming Mega projects at Major ports in India (source: (India Infrastructure Research, 2016)

Key Upcoming Mega Projects at Major Ports				
Sr. No	Stage of Development	Port	Category	Project
1	Bidding	JNPT	Others	Development of port-based SEZ
2	Preliminary/planning	Paradip	Others	Construction of offshore breakwater
3	Preliminary/planning	Visakhapatnam	Others	Development of multi-modal logistic park (MMLP)
4	Preliminary/planning	Paradip	Others	Development of Smart Industrial Port City (SIPC)
5	Preliminary/planning	Kandla	Others	Development of Smart Industrial Port City (SIPC)
6	Preliminary/planning	Kamarajar	Others	Setting up of a free trade warehousing zone
7	Bidding	Kandla	Others	Port-based industrial park
8	Preliminary/planning	Paradip	Port connectivity	Preparation of DPR for development of multimodal logistics port
9	Bidding	Kandla	Container terminal	Setting up of Container Terminal at Tuna-Tekra
10	Development of New Green field Ports	Wadhavan	Green field port Development	
11		Tadadi	Green field port Development	
12		Sagar Island	Green field port Development	
13		Colachel	Green field port Development	
14	Transforming Major ports to drive sustainable profits	All Major Ports		
15	Development of Andaman and Nicobar Islands	Port and port led developments		

### Appendix 3: Comparative analysis between Mundra Port (brownfield) and Vadhaven port (greenfield) for proposed strategic partnership. (compiled by Author)

Note: To the scale of 1 to 4( comparative analysis where 1 is worst and 4 is best)				
Comparative Analysis between two ports				
Sr. No.	Particular/variables	Mundra Port (Brownfield)	Vadhaven Port(Greenfield Port)	Remarks
1	Port Portfolio(Cargo handling Composition)	4	4	Mundra Port is multipurpose(multi commodity) handling port, similarly proposed green field port i.e. Vadhaven Port, shall be developed as multipurpose(multi commodity) cargo handling port.
2	Geographical location of port(strategic location)	4	4	Both ports are geographically located at strategic location(high potential growth region of country).
3	Commercially development Opportunity	4	4	It is assumed that both ports are having similar commercial port development opportunity.
4	Land Availability for future expansion or scale development	4	3	At proposed Vadhaven port land requirement has been identified around 1000 Hector, which is good enough for scale development. Note: At Mundra port, presently port is having more than 10000 hector of land for future developments.
5	Maritime(nautical) accessibility from main shipping route(East-West Route)	3	4	Proposed Vadhaven port is close to JNPT/Mumbai, which has closer proximity with international East-West main shipping route as compare to Mundra port.
6	Draft Availability at Port	4	4	Proposed port will have around 16 meter draft, which is similar to Mundra Port draft(14 to 18 mtrs).
7	Attractive immediate(captive/primary) hinterland	2	4	Vadhaven port is strategically located very close to country's two biggest major industrial region like Mumbai Pune industrial region and Gujarat Industrial area(Ahmedabad-Baroda-Surat). Mundra port is lacking in immediate developed hinterland.
8	Distance from Contestable hinterland(Proximity)	4	4	Both ports comparative analysis has been carried out with respect to contestable hinterland proximity and we found that both are having similar competitive advantage(w.r.t. different load centres of cargo).
9	Multimodal Hinterland connectivity	3	4	The proposed port is closed to JNPT hence the initial analysis ranking(score) has applied here, Where JNPT is comparative better position than Mundra Port.
10	Potential for robust business case	4	4	It is assumed that both ports are having similar potential business development
11	Regulation for port development(Approval and tariff fixation process)	4	3	Since Mundra port is private port, it is having more autonomy for tariff fixation and taking internal approval for port developmental projects. In case of Vadhaven port, since it is major port TAMP is applicable
12	Historical Labour disputes at ports (operations)	4	4	Overall labour dispute in both the states are much lower and almost similar(This is based on the statistics on Industrial Disputes, Closures, retrenchments and lay-offs Year 2011, published by Govt. of India).
13	PoR(PDC) client's locations demand for Investment(assumed each port is equally	4	4	Both ports are in the region of PoR clients interest places.
14	Port city positive interphase(w.r.t. synergy between port and port city)	2	4	Vadhaven is having close proximity to Mumbai, in-fact existing urban sprawl of Mumbai reached up to Dahanu(near to Vadhaven)
15	Ease of doing Business (ports location in state)	4	3	Gujarat stands at Number one in ease of doing business, where as Maharashtra ranks at number 8. This is particularly more valid for port based industrial cluster developments.
16	Port operating Model	2	4	Proposed Vadhaven Port is planned to be develop as a Landlord and PPP model port. Where as Mundra port has distinct feature of operations, which will likely generate conflicts of interest between landlord and tenants.
17	Port infrastructure demand supply gap(overcapacity or congestion problem)	2	4	The region of Mundra port is operating at optimal level(with some overcapacity);, however the Vadhaven port range ports(Mumbai and JNPT) are extremely congested ports. Hence we believe that the cargo volume of nearby congested ports shall be diverted at proposed green field port.
18	Port Efficiency(berth productivity)s)	3	4	New port developments always have comparative advantage to adopt new technology as compare to brownfield ports, which are more efficient in cargo handling and also proved to be better in less OPEX expenditure
19	Nautical Infrastructure(Direct vessel access to port w.r.t. Length of approach channel, which results in to heavy maintenance dredging cost, similarly increasing drafts on later date is also	4	4	Both port are having direct access to berths, without having long approach channel
20	Proposed new/upcoming massive industrilisation around port area(DMIC Influence area.)	2	4	Proposed Green field Port (Vadhaven) is exactly located in the DMIC influence zone, hence it has more opportunity to attract more investment and cargo flows on later date.(Mundra port as away from DMIC influence Zone)
21	Large urban Population proximity to port	1	4	In case of Mundra, within radius of 350 Km of the port, only 7 million(2 Large Urban canters)urban population is exist. However in the Case of Vadhaven port, more than 32.5 million (11 large urban canters) urban population centers exists(within 350 km radius from the port).
22	Maritime Board Policies	4	4	Both states are very proactive in maritime sector development policies( it is considered because in the proposed Vadhaven Port, MMB will be a minor stakeholder).
23	Level Playing field	2	4	Since proposed port is major port, hence for development of basic infrastructure, Govt. of India will provide the financial aid (such as rail road connectivity for public interest), where as in the case of Mundra port, private player has to invest in all infrastructure, which will distort the level playing fields.
24	New Land-use planning opportunity.	3	4	For development of new green field port projects, there is always an opportunity to carry out land use planning as per current business requirement. Hence Vadhaven port will be likely having comparative better advantage over Mundra port in land use planning.
25	Risk in delaying projects execution schedule(Delays in actual Cargo handling operations)	4	1	Since Mundra port is brownfield port, new investment in ancillary development/businesses can be taken up immediately. However in case of Vadhaven, new port development will take substantial time and hence actual cargo handling operations may get delayed.
<b>SUMMATION OF ALL VARIABLES</b>		<b>81</b>	<b>94</b>	