Design of Transit Capacity Development Model of Amirabad Port Special Economic Zone: A Qualitative Study

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ARTICLE INFO	ABSTRACT
	This study aims to identify an appropriate model for developing the transit capacity, known as an instrument that countries use in relation to their geographical locations to diversify their income sources. In international aspects, developing transit capacity can also provide a country with other advantages in foreign affairs. Moreover, it is necessary to develop transit by Iran because of reducing economic vulnerability and increasing deterrence against hostile activities of Iran's enemies. Therefore, transit opportunities and bottlenecks were identified in addition to reviewing previous studies and interviewing the experts. Considering the semi-structured and in-depth interviews given to 13 informed transit experts, this is a qualitative study in which the grounded theory was employed. Finally, the proper transit capacity development model was proposed by extracting causal, main category, intervening, and contextual conditions and outcomes.

1. Introduction

Todays, transit of goods is one of the most lucrative trades in the world and naturally the countries that are in the path of transit corridors can benefit the most from this trade (Mullighan & Rau, 2015). The transit of goods through a country will not only generate income economically, but also show the political credibility of the country in the international community, and in terms of security and relations with other countries in various fields of great importance for countries involved in transit (Poul Hansen, 2008). If a country is on the way to reach the consumer and the amount of goods transited through this route, the country will earn the same proportion of the cost of the goods (Rodrigue, & Notteboom, 2017). In this regard, in a study entitled Assistance to Latvia's GDP in international transport examined the services resulting from the transit of goods to Lithuania. The results of this study indicate that rail, sea, land, pipeline transit accounted for approximately 6.6% of GDP for 2010 (Bulis.A, Aleksis Orlovs, Roberts Škapars, 2011). Ports are the connecting lines that enable land-to-sea transport and serve as the basis for logistics, production, information transfer, and international trade, and can serve as a

diving board for a country's economic development (SONG & Taylor, 2015)

Although it is now necessary for Iran to enter global and regional export markets and lay the foundations for Iran's non-oil exports in those markets, there are specific setbacks caused by the effects of various factors such as the unreal exchange rate, other structural constraints of Iran, and inconsistency with the governing structures of the world in different areas. In fact, the perception of these necessities and constraints highlights the fundamental importance of the tenth aspect of resistive economy policies where special attention is paid to transit and re-export of products (Iranshahi & Fakhrabadi, 2015).

The Islamic Republic of Iran is among the countries benefiting from decent transit advantages because of having a beneficial geographical location. Expanding the transportation network and reliable, efficient communications, this country can use these advantages to increase foreign exchange earnings and improve the strategic status in the region properly (Nazari et al., 2019). In other words, Iran's geopolitical status has potentially the highest capacity for intra-regional transit because of having land and sea borders with 15

countries and an approximate population of 400-500 million people in the neighboring countries (Hosseinpour, 2019). Located in the south of the Caspian Sea, Amirabad Port has tropical climate in comparison with the countries situated in the north, east, and west of this inland body of water; therefore, it can be considered the best route for the transportation of products from manufacturing countries in the East (China and the Indian Subcontinent) to consumer countries in Europe.

There is a theoretical and research gap regarding transit; in fact, there are only a few studies addressing the development of transit capacities in this region with respect to the potential opportunities for the transaction of products and services with the Commonwealth of Nations (Sayareh & Khosravani, 2019). Paragraph 4 of General Policies on the Sixth Economic Development Plan considers the importance of developing Iran's transportation transit with respect domestic capacities and potential. If the transit capacity of Amirabad Special Economic Zone is increased, the resultant earnings will definitely grow. It will then be possible to enhance countless capacities for employment in Iran by resorting to resistive economy policies in sanctions. The main research question is what will be the best model that can help develop transit capacities of Amirabad Special Economic Zone. How can this model be implemented?

2. Research Literature
2.1. International North-South Transport Corridor
After certain agreements were signed by Iran, Russia, and India in Saint Petersburg in 2000, the International North-South Transport Corridor was established. In fact, it is the most important corridor involving Iran's ports in transit. This corridor has now expanded by accepting eleven new members, namely Azerbaijan, Armenia, Kazakhstan, Kirgizstan, Tajikistan, Turkey, Ukraine, Belarus, Oman, Syria, and Bulgaria. The Islamic Republic of Iran has been selected as the country responsible for informing committed parties of new memberships in this agreement or withdrawal of each committed party. Designing this corridor, its founders decided to establish a kind of transit business communication between the markets of Southeast Asia, the Indian Ocean territory, and the Persian Gulf on the one hand and countries of Central Asia including the Caucasus and the Russian Federation as well as all of its surrounding countries, especially Scandinavia, on the other hand.

The starting point and destination of this corridor are located in Helsinki, Finland and Mumbai Port, India, respectively. Three major route have been defined between these two points; Iran is located on all three of these routes.

East of the Caspian Sea Route: Passing through the eastern coasts of the Caspian Sea and Kazakhstan, this route is divided into two branches, the first of which is older and was based on the railway network of the Soviet Union. This route passes through Kazakhstan, Uzbekistan, and Turkmenistan and enters Iran through Sarakhs. Inaugurated in December, 2014, the second branch of this route acts as a shortcut that enters Turkmenistan directly from Kazakhstan and then enters Iran through Incheboron. It is preferable to the first branch for the transit of products of Northern Europe, Russia, and Kazakhstan. This branch was developed in the Project Railway Corridor No.4 of the Economic Cooperation Organization.

West of the Caspian Sea Route: This route enters Iran from Azerbaijan; however, a part of it covering the railway between Astra-Rasht and Qazvin has not been completed yet. The other route goes from Armenia to the Black Sea; it inauguration is in progress under the Persian Gulf–Black Sea Corridor Agreement.

The Caspian Sea Route: This route is directly connected from Astrakhan Port in the north of the Caspian Sea to the northern ports of Iran, i.e. Amirabad Port and Anzali Port. However, Anzali Port has not been connected to this railway network yet.

Table 1 shows the route segments of this corridor. It takes 18 days to pass through this route which stretches for nearly 7340 km (Ports and Maritime Organization Outlook, 2018).

Table 1. Route Segments of North-South Corridor (Main Route) Outside Iran

Corridor Path		Corridor Segment
Joint routes (Railway and Road)		Helsinki – Moscow
		Moscow – Astrakhan
		Bandar Abbas – Mumbai
Maritime Route of the Caspian Sea	Via Anzali Port	Astrakhan Port – Bandar Anzali
	Via Amirabad Port	Astrakhan Port – Amirabad Port
Railway and Road Route of the West Caspian Sea (via Azerbaijan)		Astrakhan Port - Baku
		Baku – Astra
Railway and Road Route of the West Caspian Sea (via Armenia)		Georgia (Batumi) – Armenia (Meghri)
		Armenia (Meghri) – Jolfa Border
Railway and Road Route of the East Caspian Sea (via Kazakhstan-Uzbekistan-Turkmenistan)		Kazakhstan (Gano Shinko – Karakalpakiya) – Uzbekistan (Karakalpakiya – Bukhara) – Turkmenistan (Chardzhou - Sarakhs)
Railway and Road Route from the East of Caspian Sea (via Kazakhstan-Turkmenistan)		Kazakhstan (Ozon) – Turkmenistan (Barkat - Atrak) – Inchedoron

2.2. Transit Procedure Performance Analysis in Amirabad Port:
Amirabad Port was constructed in the North-South Corridor for transit development; therefore, it might face more demands for transit in the near future when Chabahar routes join the national transportation center in addition to improvements made in the regional business atmosphere.

It is obvious from Figure 1 that the transit load has an ascending trend in this port. In other words, it appears that this port is going through the early phases of transit load attraction and that its transit load share will grow gradually if other logistic systems are supportive.
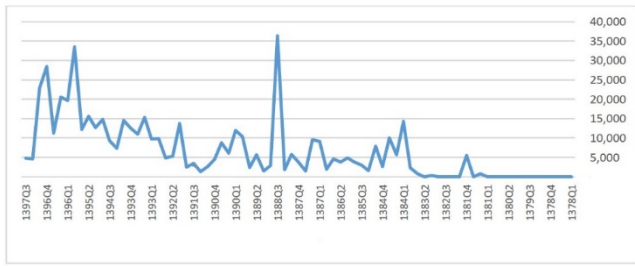

Figure 1. Transit Load of Amirabad Port from March 1999 to 2018 (digits, ton in season)

Table 2 shows the arrangement of transit load in Amirabad Port.

Table 2. Rate and Arrangement of Seasonal Transit Load in Amirabad Port from 2013 to 2018 (ton)

Container Transit		Dry Non-Food Bulk Transit		Dry Food Bulk Transit		General Transit		
Share of Container	Ton	Share of Dry Non-Food Bulk	Ton	Share of Dry Non-Food Bulk	Ton	Share of Total General Load	Ton	Season
67.81%	1‹974	1.01%	1‹828	0	0	0.33%	1‹123	1392 Q3
43.59%	1‹625	0	0	0	0	2.54%	8‹216	1392 Q4
39.04%	1‹213	0	0	0	0	1.71%	8‹579	1393 Q1
39.50%	1‹074	0	0	0	0	3.02%	14‹265	1393 Q2
42.25%	526	1.42%	2‹503	0	0	2.94%	8‹008	1393 Q3
36.15%	342	0.31%	522	0	0	6.85%	11‹727	1393 Q4
18.98%	374	0	0	0	0	4.58%	14‹140	1394 Q1
7.37%	100	0	0	0	0	3.65%	7‹288	1394 Q2
18.77%	95	0	0	0	0	6.51%	9‹228	1394 Q3
42.89%	540	0	0	0	0	16.46%	14‹292	1394 Q4
93.32%	559	0	0	0	0	9.64%	12‹140	1395 Q1
63.38%	424	0	0	0	0	8.41%	15‹220	1395 Q2
56.33%	445	0	0	0	0	13.51%	11‹776	1395 Q3
81.13%	847	0	0	0	0	19.82%	32‹664	1395 Q4
80.73%	955	0	0	0	0	12.96%	18‹706	1396 Q1
41.51%	1‹483	0	0	0.08%	453	11.63%	18‹622	1396 Q2
49.54%	1‹949	0	0	0	0	9.85%	9‹347	1396 Q3
17.13%	1‹475	0	0	0	0	23.37%	27‹006	1396 Q4
39.56%	1‹394	0	0	0	0	12.69%	21‹462	1397 Q1
49.27%	1‹514	0	0	0	0	1.91%	3‹115	1397 Q2
30.62%	1‹573	0	0	0	0	4.24%	3‹274	1397 Q3

Accordingly, the transit load of Amirabad Port comes from general and container loads. The dry food and non-food products had a key role in transit loading and unloading. In the comparison drawn between general and container transits, previous performance shows that although the largest share of transit performance of Amirabad Port came from the general load in the past five years (12867 tons of general load performance of each season compared with the performance of 975 tons of transit containers in each season), transit containers account for nearly 46% of container performance of Amirabad Port. In other words, nearly half of the containers loaded and unloaded in Amirabad Port in the past five years were transit loads. However, this ratio is only 8.41% for general loads, a finding indicating that container load attraction to Amirabad Port depends greatly on the port transit demand (Ports and Maritime Organization Operation Statistics System, 2019).

3. Research Methodology

The research method in the present study is descriptive-survey according to the research subject and from the perspective of purpose and basic category, the research is applied. Also, among the two quantitative and qualitative approaches, the present research is a qualitative research. Examples of this research also include five hundred port and maritime transport specialists, which included operator companies, owners of goods, shipping lines, special economic zone investors, experts and maritime and port managers of the Ports and Maritime Organization.

The data collection tool was an interview. For this purpose, the activists in this field were interviewed individually and continued until the data was saturated and no new data was available. In the quantitative part of this research, using grounded theory method and using open, axial and selective coding steps, the data were analyzed and 93 basic concepts, 33 subcategories, 19 main categories were extracted, including causal

conditions, contextual conditions, mediating and intervening conditions are strategies and consequences. Table 3 shows the characteristics of research participants separately:

Table 3. Characteristics of Interviewees

No.	Title	No.	Title
1	Board Member, Deputy of Port and Economic Affairs of Ports and Maritime Organization	8	Head of the Special Zone, Marketing, and Investment Office
2	Director of the Special Economic Zone and Amirabad Port	9	General Director of Amirabad Port Customs
3	Deputy of Port Affairs and Special Zone	10	Product Owner
4	Deputy of Maritime Affairs	11	Shipping Line Owner
5	Resource Planning and Development Deputy	12	Product Owner's Representative
6	General Director of Strategic Research and Analysis	13	Road Transportation Representative
7	Head of the Multidimensional Transportation and Logistics Office of Ports and Maritime Organization		

Regarding the optimal transit model, there are only a few studies worldwide having insufficient depth. For this purpose, it is necessary to employ qualitative methods. Since this study aims to propose a transit development model and identify transit challenges, opportunities, strategies and weaknesses, the grounded theory was employed along with Strauss and Corbin's systematic approach to discover the intangible aspects of the matter. In fact, this method can help propose a model based on different factors and their relationships. The causal factors are usually those events that affect phenomena. In other words, causal conditions affect the main category (Bazargan, 2016; Strauss & Corbin, 2013) and apply to the events that result in the occurrence or growth of the main research phenomenon. These conditions are prior to the main phenomenon on a temporal basis (Roshanel Arbatani et a., 2017).

4.Research Findings
4.1. Analysis
The interviews and coding processes helped identify two categories as causal factors: analysis of regional markets for the identification of potential capacities and participation in the international transit chain (See the Appendix).

4.1.1. strategies
According to experts' opinions and coding processes, the research strategies include identifying potential markets, reducing transportation and loading costs, employing multifaceted companies, synergy and coevolution of policies, futurology and futurism of markets, using tax incentives, utilizing advanced technologies, creating value-added on products, clientelism and transparency, developing and enhancing container transportation, wise diplomacy, finding optimal routes for product transit, using appropriate packaging, employing space-based technologies, transfer fund facilitation, and private sector participation (See the Appendix).

4.1.2. Contextual Factors
According to the interviews and coding processes, the contextual conditions of research include reducing bureaucracy, creating trust, homogenizing tariffs, coordinating organizations, facilitating rules, creating necessary infrastructures, enhancing transit culture, and complying with international standards (See the Appendix).

4.1.3. Intervening Conditions
The interviews and coding processes identified sanction as the intervening factor (See the Appendix).

4.1.4. Consequences
According to the interviews with experts and coding processes, the consequences were identified as enhancing domestic and foreign transit, creating income nationwide and for Mazandaran Province, establishing an attractive atmosphere for stakeholders, and removing product transit barriers (See the Appendix).

For the ultimate research purpose, i.e. designing a transit capacity development model for Amirabad Port Special Economic Zone, according to the Figure 2 and Figure 3, the grounded theory was implemented to extract a model from the extraction of interviews with experts.
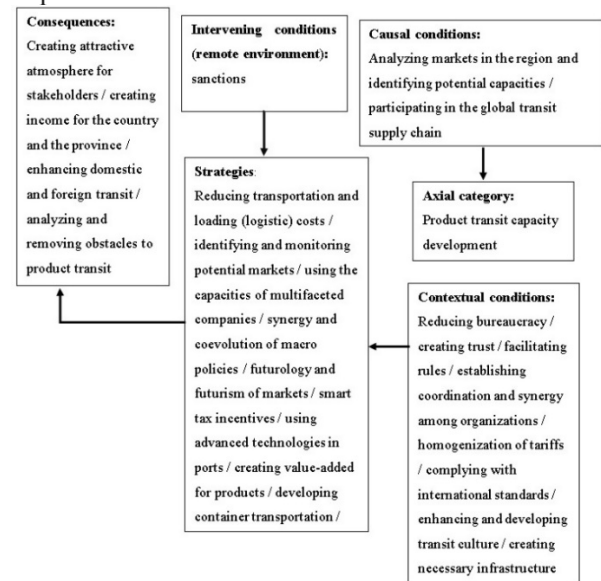
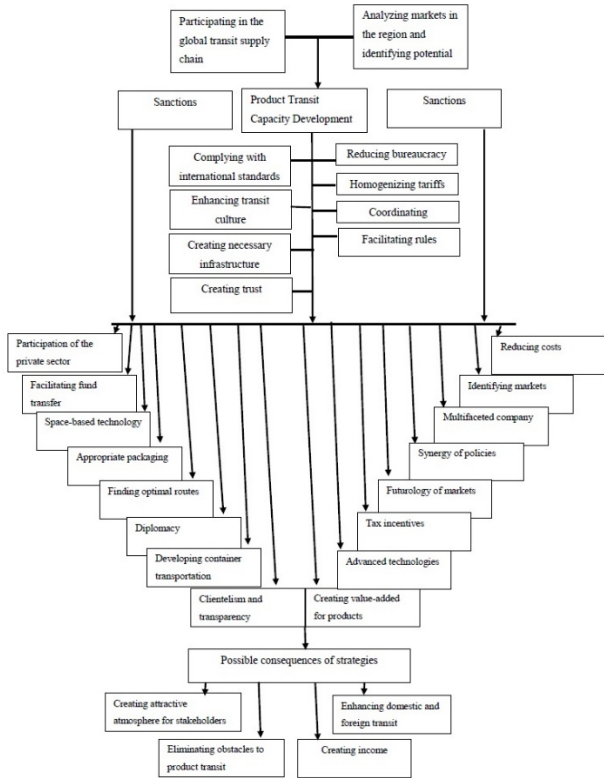**Figure2. Paradigmatic Model for Transit Capacity Development**

Figure3. Schematic Model for Transit Capacity Development

5. Discussion and Conclusions

This study tried to propose a product transit capacity development model for Amirabad Port Special Economic Zone. According to the results of coding and categorizing data in several steps, many factors should be taken into account in order to successfully implement the conceptual model of transit capacity development model. Moreover, some of these factors are related directly to other factors; therefore, the type of their relationships and effects should also be considered. The interviews indicated helped identify causal conditions, axial category, intervening conditions, contextual conditions, strategies, and consequences.

The causal conditions affecting transit capacity development include analyzing regional markets, identifying potential capacities, and participating in the international transit supply chain. The interviewees believed that finding and focusing on market potential could help develop the transit capacity. In addition, identifying the investment advantages in the Persian Gulf countries and other neighbors can provide golden opportunities for economic and commercial activists. At the same time, identifying and satisfying potential customers can help fulfill transit development. In the Caspian Sea Zone, there are only five countries meeting the sear, whereas the others are bordered by land. Hence, this constraint can be used as a potential capacity. Moreover, estimating the amount of load for Central Asia and analyzing product groups of regional countries can indicate what products these countries produce in addition to their needs and what deficits they

face in different areas. This can play a major role in improving and developing Iran's transit.

Regarding participation in the international transit supply chain, it should be stated that the third-generation ports are regarded as the logistic centers in the product supply chain. In fact, after products and raw materials are unloaded from stripes along with supplementary processes performed on them by repackaging and loading the stuff, they are then shipped to distribution and consumption centers. If economy globalization, supply chain management, logistics, use of modern technologies in production factors and commerce between productions, processing, or product consumption production sites, and minimization of manufacturing costs are for the final producer and consumer, then the role of ports as the input and output bases of products are become more important every day than the last.

The sanction problem was identified as an intervening factor. In fact, sanctions can be considered one of the most important factors preventing transit development and reducing national income through the transit industry because international sanctions are now the most important obstacle to product transit by Iran. The relevant consequences include creating an attractive atmosphere for stakeholders, creating income for the country, enhancing domestic and foreign transit, and analyzing product transit obstacles. According to the experts, adopting appropriate strategies and developing transit can increase the foreign exchange earnings of Iran and local incomes in Mazandaran Province. Therefore, inbound and outbound transit affairs thrive; as a result, it is possible to create an attractive atmosphere in the port for product owners, businesspeople, and investors.

The contextual conditions include reducing bureaucracy, creating trust, facilitating rules, complying with international standards, infusing coordination and synergy into organization, providing necessary infrastructure, and enhancing and developing transit culture. Regarding the existing bottlenecks and setbacks, the interviewees talked about the bureaucracy of organizations and defined bureaucracy reduction and facilitation as an opportunity for organizations to accelerate the transit process. In addition, lack of occupational trust and honesty is another factor preventing container transportation and causing problems in transit development. Furthermore, there are cumbersome rules in transit affairs. If these rules are modified or facilitated, it will be possible to develop transit. Given the existing conditions, some of the rules can be localized and customized for specific ports. At the same time, changing some rules based on the political relationships of countries can help businesspeople select more reliable paths for their transit routes. It is recommended that rules or their intervals should be determined. Furthermore, product standard consistency of other countries with Iran can lay the foundations for product transit development.

For instance, product standard inconsistency between Russia and Iran resulted in the return of many agricultural products such as citrus or even chickens sent to Russia; thus, traders and businesspeople incurred heavy costs because they were not acquainted with the standards of the destination country due to the lack of proper market research.

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