

# The Hong Kong-Zhu Hai-Macau Bridge: Stakeholder's Perception of Future Impacts on the Greater Pearl River Delta

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**ABSTRACT**— *This research looked at the impacts of megaprojects on their host regions through a case study of the Hong Kong-Zhu Hai-Macau Bridge (HZMB). The purpose of the present study was to analyze stakeholders' perceptions of the future impacts of the HZMB' on the Greater Pearl River Delta (GPRD). The research specifically focused on megaprojects' impacts on the tourism industry and economic development in general. The research results were aimed to address the two research objectives of the study, which were to examine the future impacts of the HZMB on regional economic and tourism development, and the HZMB's potential impacts on stakeholders.*

**Keywords**— Infrastructure impact, Hong Kong-Zhu Hai-Macau Bridge, Greater Pearl River Delta, Economic impact, Tourism impact, Mega infrastructure

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## 1. INTRODUCTION

The Greater Pearl River Delta (GPRD) is the most developed region and strongest regional economy of China (China Communications Construction Company Ltd. [CCCC], 2011, Chapter 1). The GPRD region consists of three areas including the two special administrative regions of the country Hong Kong and Macau, and the Pearl River Delta economic zone of Guang Dong province (CCCC, 2011, Chapter 1). To encourage cooperation among these three regions, the central government of China has published policies that enable local governments to establish partnerships in economic development, tourism development, and immigration cooperation (CCCC, 2011, Chapter 1). Convenient commutes within the GPRD have proven to be a critical determinant of the efficiency of regional cooperation (Hong Kong-Zhu Hai-Macau Bridge Authority [HZMB Authority], 2009).

Figure 1 shows a regional map of Hong Kong, Macau, and Zhu Hai. From the map, it can be seen that the Pearl River Estuary geographically separates the eastern and western GPRD. At the present time, people have to travel around the inner side of the GPRD to get from one side to the other side and travelling time between the two sides is at least three hours. Thus, in 2003, the Hong Kong, Macau, and Guang Dong governments proposed a plan to build a bridge to connect the eastern and western GPRD. It would allow direct access to both sides of the region in order to enable efficient commutes between eastern and western GPRD (CCCC, 2011). The bridge project is named after three cities it connects, which are Hong Kong Zhu Hai and Macau. The Hong Kong-Zhu Hai-Macau Bridge (HZMB) is indicated by the yellow dotted line in Figure 1 ("China begins," 2009).

The Hong Kong-Zhu Hai-Macau Bridge (HZMB) is one of the most important infrastructure construction projects in China since the Open Policy began in 1978 (CCCC, 2011). This project will have a tremendous impact on the development of the region ("Governors from four," 2003). The purpose of the present study is to analyze stakeholders' perceptions of the future impacts of the HZMB's on the GPRD. The research will focus on impacts the project has on the economy and the tourism industry in general.

The specific research objectives of the study include: 1) analyze the perceived potential impact on the stakeholders of the HZMB on the economic development of the GPRD's regional economic development with a focus on the tourism industry; and 2) identify how the various stakeholders perceive the development of the HZMB and its impacts on their segments of the industry.



Figure 1, Map of GPRD and HZMB (“China begins,” 2009)

## 2. LITERATURE REVIEW

### 2.1 World’s Major Megaprojects and their Regional Impacts

The United States Federal Government defines megaproject as a project that is “recipient of federal financial assistance with an estimated total cost of 500 million U.S. dollars or more.” Most commonly megaprojects will cost governments and investors billions of dollars whether they be public or private projects.

The impacts of megaprojects vary due to different levels of socio-economic development within each area (Altshuler & Luberoft, 2003). While there has been research on different megaprojects, no research has combined and studied the general impacts on the regional economy of these megaprojects. The present study reviewed the literature about such projects as the Palm Jumeirah, Channel Tunnel, Øresund Bridge, and Hong Kong International Airport and their impacts on the host regions in the aspects of general economy and tourism development. These megaprojects were chosen because Dubai, Britain, France, Sweden, Denmark, and Hong Kong have strong economies with developing growth similar to China.

Palm Jumeirah located in Dubai, UAE is the largest man-made archipelago in the world, created through the process of land reclamation with an estimated cost of \$14 billion (Nakheel, 2011). Construction of Palm Jumeirah has stimulated and accelerated growth in lodging industry, inbound-tourism, and urban development of Dubai. The Channel Tunnel, the longest underwater tunnel in the world with total construction cost of \$15 billion, is a 31.4-mile undersea rail tunnel directly connects Kent, United Kingdom and Nord-Pas-de Calais, France. Though regional impacts of the tunnel were not as substantial as expected, construction of the Channel Tunnel has stimulated minor regional economic growth, inbound tourism, and social development. The Øresund Bridge is a combination bridge and tunnel connecting Malmö, Sweden and Copenhagen, Denmark with total cost of \$5.2 billion (Organisation for Economic Co-operation and Development [OECD], 2003). The bridge’s regional impacts on its host region included stimulating regional integration, economic development, tourism growth, and housing market growth (Øresundsbro Konsortiet, 2010; Øresund Statistics and Analysis, 2011). The Hong Kong International Airport (HKIA) is the world’s busiest airport in terms of both cargo and passenger traffic, with a total cost of \$6.5 billion. Construction of the HKIA has stimulated the growth of Hong Kong’s economic development, tourism industry, job market, and urban development (Airport Authority Hong Kong [AA], 2010; Census and Statistics Department [C&SD], 2013; Hong Kong Tourism Board [HKTb], 2012a).

### 2.2 Situation Analysis of the GPRD

**Hong Kong-Situation Analysis of Economic and Tourism Forces.** Hong Kong is located in the eastern part of the GPRD. It is one of the two special administrative regions of the People’s Republic of China (PRC). The total area of Hong Kong is 4.58 square miles, with a population of over 7-million (Census and Statistics Department [C&SD], 2012).

Hong Kong has always been the strongest economy of China, mainly relying on four industries: logistics and trade, financial services, producer and professional services, and tourism (C&SD, 2013). The GDP of Hong Kong was \$263.021 billion in 2012, the 36<sup>th</sup> highest in the world. The per capita GDP of Hong Kong was \$36,667 in the same year, 24<sup>th</sup> highest in the world (C&SD, 2013). According to statistics in 2013, the four main industries of Hong Kong accounted for over 58% of Hong Kong’s total GDP (C&SD, 2013).

Tourism is one of the four main industries of Hong Kong contributing more than 15% of the total GDP of the city including direct, indirect and induced revenue the industry generated (HKTb, 2012a). Hong Kong has the largest number of annual tourist arrivals among all the areas in the GPRD; the number reached a record-high of 48.6 million arrivals in 2012 (HKTb, 2013). Mainland Chinese visitors, the largest tourist market for Hong Kong, accounted for approximately 70% of Hong Kong's total visitors (World Tourism Organization (UNWTO), 2012a). Land-based transportation is the main means of transportation for visitors who travel to Hong Kong, followed by air transportation (C&SD, 2013).

There are 174 hotels with 58,344 hotel rooms in Hong Kong, while approximately 43% of the city's hotels are upscale to the lower-tier of upper upscale hotels (HKTb, 2012b). The key performance indicators of occupancy rate, ADR, and RevPAR show a strong lodging industry and environment for development. All three indicators experienced dramatic growth during the past decade despite increases in room supplies and impacts of an economic downturn as well as SARS ("Hong Kong reports," 2012).

**Macau-Situation Analysis of Economic and Tourism Forces.** Macau is a special administration region of China located on the western GPRD. The area of Macau is 11.39 square miles with a population of 591,000 (Department of Statistics and Census Service (DSEC), 2012a). The service industry is the strongest economic driving force of Macau, accounting for over 90% of the city's total GDP (DSEC, 2012b). Gaming contributes the most economic revenue among all service sectors; tax from gaming revenue accounted for approximately 88% of Macau government's income (Bank of China Macau Branch, 2012). Macau has the smallest GDP compared to Guang Dong and Hong Kong at \$44.3 billion and ranked as the 98<sup>th</sup> in the world in 2012 (DSEC, 2012b). On the other hand, Macau has the highest per capita GDP compared to Guang Dong and Hong Kong since 2006 (DSEC, 2012b; National Bureau of Statistics of China (NBS), 2011). In 2012, the per capita GDP of Macau was \$77,353 and it was ranked as 4<sup>th</sup> highest in the world (DSEC, 2012b).

As the gaming capital of Asia, gaming is the main tourist activities for Macau's visitors. Mainland Chinese visitors are the main tourist market for Macau, which accounts for 57.72% of the city's total tourist arrivals (UNWTO, 2012b). Approximately 30% of Macau's total tourist arrivals are from Guang Dong (DESE, 2012c). Hong Kong is the second largest tourist source of the city, accounting for 27.08% of total tourist arrival (UNWTO, 2012b). The gaming industry in Macau experienced tremendous growth after opening the city's gaming concessions in 2002. The numbers of casinos increased by more than three times to 35 and annual gaming revenue has increased by over 12 times to over \$38 billion in 2012 (UNLV Center for Gaming Research, 2013).

The lodging sector of the city is also very strong. The city reports growth of 30% in room revenue for two consecutive years in 2010 and 2011 (DSEC, 2012c). Room supply of the city is 25,450 and 5-star hotels account for 16,659 of total room supplies according to the latest number in 2012 (DSEC, 2012c). The average room occupancy is approximately 85% and average length of room night stay is 1.52 (DSEC, 2012c). Room revenue reached \$2.35 billion in 2011 (DSEC, 2012c).

**Guang Dong-Situation Analysis of Economic and Tourism Forces.** Guang Dong is one of the 31 provincial administrative divisions of Mainland China, located in Southeast part of the nation. Guang Dong is 15<sup>th</sup> largest province of China, with a total area of 69,400 square miles. The area of Pearl River Delta is 21.136 square miles (CCCC, 2011, Chapter 2). Guang Dong is the most populated provincial division of China, with a population of over 105 million people (Statistics Bureau of Guangdong Province (GDSTATS), 2012). The population of the Pearl River Delta is 56.12 million (GDSTATS, 2012).

According to the latest statistics released in 2013, the GPD of Guang Dong province in 2012 was approximately \$932.31 billion with a growth of 10.2% compared to the year prior (GDSTATS, 2013). Guang Dong has been ranked as the highest of all administrative divisions of China in terms of total GDP since 1989 (CCCC, 2011, Chapter 2). Whereas, per capita GDP of Guang Dong always has been the lowest compared to those of Hong Kong and Macau (DSEC, 2012b; NBS, 2011). The Pearl River Delta has the strongest economic force compared to other regions of Guang Dong and contributed over 83% of Guang Dong's total GDP (GDSTATS, 2011).

The main industries of eastern and western Guang Dong province are quite different. After the Open Policy began in 1978 and under influences of Hong Kong, eastern Guang Dong especially the eastern Pearl River Delta has relied on service sectors of the economy such as IT, tourism, and trade (CCCC, 2011, Chapter 1). Whereas, western Guang Dong has heavily relied on the secondary sector of the economy, such as manufacturing (DSEC, 2012b).

As mentioned previously, tourism is one of the main industries of eastern Guang Dong, especially eastern Pearl River Delta. Based on the year-by-year tourist arrival comparisons, the numbers of tourist arrivals to Guang Dong has been steadily increasing (National Tourism Administration of China (CNTA), 2012). The largest tourist market for Guang Dong is Hong Kong, followed by overseas visitors which account for over 20% of total tourist arrivals to the province (CNTA, 2010; CNTA, 2011; CNTA, 2012). Vehicles are the main forms of transportation for visitors to Guang Dong, accounting for 94.56 % of the total passenger traffic to the province in 2011 (GDSTATS, 2012).

Despite Guang Dong having similar numbers of tourist arrivals as Hong Kong and Macau, the lodging industry is not as strong as the two special administrative regions. The lodging industry in Guang Dong has less strict administration by the government than those in Hong Kong and Macau, because over 86% of hotels in the province remain unrated (GDTA, 2012). The lodging market in Guang Dong may be experiencing problems of surplus supply, since the number of room available has doubled during the past decade while average occupancy rates have remained at 60-69% level within the same time frame (GDTA, 2012).

**The GPRD-Situation Analysis of Current Regional Policies.** Hong Kong and Macau, the two special administrative regions of China, and the Pearl River Delta economic zone of Guang Dong are three areas of the GPRD region. The total population of this region is 64.8 million (GDSTATS, 2012), making it the most populated region in China. Since three areas that compose the GPRD are the strongest economies in China, the GPRD is the strongest regional economy of the country. The GPRD has surpassed Greater London and has become the third largest megacity in the world following New York and Tokyo (CCCC, 2011, Chapter 2). Hong Kong, Macau, and Guang Dong are under different administration systems; and any activities between each of two places are considered cross-border. Therefore, regional cooperation policies and immigration regulations significantly affect the regional economic development of the GPRD.

Closer Economic Partnership Agreements (CEPA), the single most significant cooperation policy between Hong Kong/Macau and Guang Dong, was first implemented in 2003 (Department of Taiwan, Hong Kong, and Macao Affairs, 2006). During its 10 years of implementation, the CEPA allowed more frequent activities and cooperation within the region in terms of tourism, trade and investment, and logistics industries (Department of Taiwan, Hong Kong, and Macao Affairs, 2006).

The governments of Guang Dong, Hong Kong and Macau have established joint conferences that occur annually to discuss frameworks of Hong Kong/Guang Dong and Macau/Guang Dong cooperation policies. Cooperation joint conferences set directions and instructions of cooperation among the GPRD areas in aspects of economy, international trade, infrastructure development, transportation networks, immigration policies, and sustainability (CCCC, 2011, Chapter 2).

Immigration regulations between areas of the GPRD is another essential cross-border policy of the region. Mainland Chinese residents need to hold legal travel documentation when traveling to Hong Kong and/or Macau. The major form of travel permit for mainland Chinese is the Individual Scheme. Macau and Hong Kong residents need to hold the Home Return Permit as the legal traveling documentation when visiting Mainland China. It is more convenient for Macau/Hong Kong residents to visit Mainland China than Mainland Chinese to visit Macau/Hong Kong, because there is no restriction on maximum length of stay and the number of visits within the expiration dates of the Home Return Permit. Yet there are such restrictions of Individual Scheme (CCCC, 2011, Chapter 1; Public Security of Guangdong Province (GDPSD), 2011). Guang Dong, Hong Kong, and Macau governments also allow vehicles with dual driving plates to travel between borders. Limited numbers of such driving plates are issued to eligible companies or individuals by the immigration departments (GDPSD, 2011). Macau and Hong Kong residents can visit each other's city for no more than 180 days without having any travel permits (CCCC, 2011, Chapter 1).

### **2.3 Evolution Of The HZMB Project**

**Justification for the project.** Hong Kong entrepreneur Sir Gordon Wu, first discussed the idea in 1983 of building a bridge to connect Hong Kong with the west side of the Pearl River Delta to improve and enforce the economic cooperation between Hong Kong and the west Pearl River Delta (Tan, 2008). However, the Zhu Hai government denied this idea. In 2002, Mr. Wu re-introduced the idea and the governments of Hong Kong, Zhu Hai, and Macau reviewed it and agreed about the necessity of building a bridge connecting these three cities (Tan, 2008). The expectation was to accelerate the integration of the region, so as to improve the overall competitiveness of the GPRD (Zhang, Qiu, Hu, Liu, Liu, & Hu, 2006).

**Future Use of the Bridge.** Upon the completion of the HZMB in 2016, there will be four major types of vehicles that can travel on the bridge: trucks with dual driving plates, shuttle buses with dual driving plates, private vehicles with dual driving plates, and shuttle buses without dual driving plates (CCCC, 2011). As mentioned previously in the article, Hong Kong and Macau are special administrative regions of China, using totally different political systems than Mainland China. Since, vehicles cannot travel freely between these two special administrative regions and Mainland China, shuttle buses without dual driving plates can only be driven on the bridge.

Dual driving plates enable vehicles to drive between Hong Kong/Macau and Guang Dong, but these driving plates do not allow vehicles to travel between Hong Kong and Macau. Since HZMB will be the first link road between these two special administrative regions, there is no policy to regulate and justify how vehicles can travel between them. Governments of both Hong Kong and Macau raised the concerns, and negotiations about the policies of allowing vehicles travel freely between these two cities are in progress.

**Project Overview.** The HZMB project includes constructions of a main bridge, a underwater tunnel, and four man-made islands. Upon completion, the HZMB will become the world's longest bridge-tunnel sea crossing that contains three express lanes each direction (Highways Department (HYD), 2012a). The total length of the HZMB will be about 26.1 miles, while the length of HZMB's main bridge will be 22.1 miles (HYD, 2012a). The length of underwater tunnel will be about 4.16 miles long. It will become the world's longest underwater tunnel made of immersed tube and used for transportation (Chen, 2010). The estimated cost of constructing HZMB has risen many times since December 2009 when the construction first started ("HZMB Authority" 2013). The initial estimated cost of building the bridge was \$11.66 billion in 2009, but the expected cost of construction has risen by 45% to over \$16.77 billion according to the most recent estimation ("HZMB Authority" 2013).

### **Project Timeline.**

- 1983: The idea of constructing a bridge that connects Hong Kong and Zhu Hai was initiated.
- July 2003: National Development and Reform Commission of China and Hong Kong Government completed a study about transportation between Hong Kong and the western Pearl River Delta. The result revealed desire to build a Hong Kong-Zhu Hai-Macau Bridge (HZMB Authority, 2009)
- August 2003: State Council of the People's Republic of China approved that the governments of Hong Kong, Macau, and Guang Dong could begin the preliminary work of the HZMB (HZMB Authority, 2009)
- August 2008: The method of financing method of constructions the HZMB has been set. Hong Kong, Macau, and Guang Dong government reached an agreement was to share expenses for the construction of HZMB Main Bridge (HYD, 2012b).
- October 28<sup>th</sup>, 2009: State Council of the People's Republic of China approved the feasibility study of the HZMB (HYD, 2012b).
- December 15<sup>th</sup>, 2009: HZMB had its groundbreaking ceremony (HZMB Authority, 2009).
- July 2010: The HZMB Authority was established (HYD, 2012b).
- 2016: Expected completion of the HZMB.

## **3. METHODOLOGY**

To analyze stakeholders' perceptions of the future impact of the HZMB's on the GPRD a qualitative analysis of stakeholder interviews was utilized to answer two research objectives: 1) what are stakeholders' perceptions of the impact of the HZMB on the GPRD's regional economic development with a specific focus on the tourism industry; and 2) how do the various stakeholders perceive the development of the HZMB would impact their segments of industry.

### **3.1 Interview Participants**

Interviewees were selected from various segments of the economy which the HZMB project would impact. Moreover, the HZMB affects three different municipal governments: Guang Dong, Hong Kong, and Macau so the interviewees were a mix of individuals from these three geographic areas. For the first step, the researcher contacted various members of the HZMB bridge council, and asked for permissions to conduct interviews with them. Members of the bridge council are well known and highly respect individuals from all 3 different geographic areas which the bridge affects. After explaining the purpose of the research and the interview process, a number members of the bridge council agreed to participate. A number of members also introduced the researcher to other stakeholders who were not on the council but were involved in the HZMB project who might be potential interviewees. The snowball effect was applied in the process of selecting interviewees. All interviewees were either directly involved in the HZMB project or experts in the tourism sector or other sectors of the economy.

There were eight interviews conducted. Three of the stakeholders who were interviewed are members of the HZMB bridge council including two officers of the immigration departments and the director of a tourism department. The remaining five interviewees included two of the three vice presidents of the HZMB Authority, a representative of Macau in the National People's Congress of China, the CEO of a multi-region travel agency, and a tourism professor from Guang Dong.

### **3.2 Interview Process**

Each interview conducted utilized a three-section, semi-structured interview process. Open-ended questions were asked. Interview questions were developed by a review of the literature related to issues involved in the development of other megaprojects. Interview questions fell into the following three sections as follows:

#### **Section 1. Interviewee's Knowledge of the HZMB**

- 1) How long have you known about this project?
- 2) Have you ever heard about the purpose of constructing the bridge? If so, please briefly describe the purpose. If not, what do you think is the purpose of the bridge?
- 3) Are you familiar with the construction progress of the bridge, such as starting date and expected completion? If so, please briefly describe your knowledge regarding HZMB's construction progress.

#### **Section 2. Stakeholders' perceptions concerning potential impacts of the new bridge on the GPRD's economy and tourism**

- 1) In what aspects do you think the HZMB is going to greatly affect regional economy? Please describe each aspect in detail.
- 2) How do you think the HZMB is going to greatly affect tourism? Please describe each aspect in detail.
- 3) What other aspects of the GPRD's regional development do you think the HZMB will have an impact on?

#### **Section 3. The HZMB's impacts on stakeholders**

- 1) In what way(s) do you think the HZMB will impact your segment of industry?
- 2) In what way(s) do you think the HZMB will impact your organization?

## 4. RESULT ANALYSIS and DISCUSSIONS

### 4.1 Section One-Stakeholders' Knowledge of the HZMB

**The Central government's purposes.** All of eight interviewees said that they understood the main purpose of constructing the bridge: to encourage a higher degree of integration of the GPRD and stimulate another round of economic growth after the Open Policy in the region.

*"Implementation of the Open Policy since 1978 has create numerous economic growths in China. The impacts of Open Policy are diminishing after 35 years and the central government wanted to find a new economic driving force for the country. To increase the economic power of the GPRD region and create one of the strongest regional economic in the world was another purpose for the central government to be very supportive of multi-billion project."*

**Limited Public Exposure.** Half of the interviewees expressed that there were not enough news coverage on the HZMB project. They roughly know the construction details of the bridge.

*"The governments didn't promote the HZMB enough so common people do not really know much details about the bridge besides the completion time."*

### 4.2 Section Two-Stakeholders' Perceived Impacts of the HZMB on the GPRD

**Encouraging regional cooperation and integration.** All interviewees said that the HZMB would definitely encourage closer cooperation and relationship among cities within the GPRD in the aspects of economy, industry, education, employment, tourism, and social life.

*"Completion of the HZMB will create a 3-hour transport network within the GPRD that radiates from Hong Kong as its center. Social life, economic development and traveling activities would closely tie to each other between cities in the GPRD."*

**Enabling areas to utilize each other's complementary advantages.** All interviewees mentioned, "complimentary advantages". Mainly indicated that Hong Kong, Macau, and Guang Dong could use each other's resources and expertise to further develop the local economy.

*"As known by the public, Hong Kong is an international financial and transport center. It is always very convenient for goods to be transferred to and from Hong Kong. Because Hong Kong is the financial center. Having a quality labor force with experts and specialists is a very important advantage. On the other hand, Macau has some advantages that Hong Kong doesn't have... The hotels and related facilities of Macau are the most developed in the region. People said that the world's best hotels have already settled in Macau. ... Macau has a very long and strong culture, 22 of the city's tourist spots there are rated as World Heritage sites by the United Nations. At the same time, Macau has a 500-year long history of having both western and oriental cultures. ... The western GPRD's advantages arej reflected in the various resources it has, especially free lands and cheap labor forces. The HZMB will help these three areas to better utilize each other's expertise and advantages to drive local economic development."*

**Reducing development gaps between the western and eastern GPRD.** Completion of the HZMB could help to reduce the economic development gap between the western and eastern GPRD by connecting the western GPRD to Hong Kong, because of increases in foreign investments from Hong Kong.

*"The HZMB will allow direct access between Hong Kong and the west side of the region making it much easier for sharing quality labor, advanced technology and knowledge, and capital investment between these two areas; thus, driving economic growth in the western GPRD."*

*"The economic development of eastern GPRD is very fast and saturated; the economic development of western GPRD is behind. ... As you mentioned earlier, the pace of economic growth in the western GPRD is fairly slow. Before implementing the Open Policy in 1978, economic development of both the western and eastern GPRD was very similar. But after 30 years of implementing the Open Policy, the economic growth gap (between the two sides of GPRD) has been growing. The HZMB can largely increase the western GPRD's attractiveness to foreign investment, because the bridge is going help the western GPRD to be included in the 3-hour economic circle of the GPRD. It (the HZMB) is going to improve the economic development of the western GPRD and at the same time optimize the structures of regional economy and industry. It is also going to help promote regional products to the overseas and inner Mainland China markets. Reaching the oversea market is good for balancing economic development (of eastern and western GPRD)"*

**Integration of regional tourist resources.** The HZMB would stimulate the integration of tourist resources within the GPRD and encourage promoting the region as a single destination.

Interviewee one stated:

*“ The completion of the HZMB will ease the process of cooperation among the GPRD region since transportation is much more convenient than ever before. Also the bridge is going to contribute tremendously in establishing a brand name of the GPRD as the world’s famous tourist destination.”*

**Enabling implementation of one-trip multiple-cities tours.** Interviewees mentioned the tourism concept of one-trip multiple-cities package tour, which was a part of discussions in the CEPA. They said that the HZMB would help to actualize the concept of one-trip multiple-cities.

*“The concept of one-trip multiple-cities was brought up a few years ago in the CEPA, but the current transportation network within the GPRD prevents implementation of this travel concept. Hong Kong and Macau, two main destinations in this concept, are not directly linked with each other and the ferry is the only transportation between them. Transfer transportation means makes it inconvenient to organize such a trip, because tourists’ shuttle buses have to be changed when they reach the other side by ferry and often tourist operators have to change too. With the HZMB, tourists can stay on the same bus for the whole trip and they don’t have to worry about transferring luggage between buses and ferry; one travel agency can handle the entire trip without needing to ask for help in arranging transportation on the other side of the Pearl River.”*

**Establishment of a free trade area in the GPRD.** Completion of the HZMB would accelerate the establishment of a free trade area within the GPRD. Service trade liberalization could be achieved along with the development of free trade area in the GPRD.

*“ The central government plans to establish free trade zone within the GPRD, which will consist of Heng Qin Island in Zhu Hai, Qian Hai in Shen Zhen and Nan Sha in Guang Zhou. Inconvenient transportation and lack of economic communications of these three prospective areas are obstacles in establishing a free trade zone in the GPRD. The HZMB is going to allow direct access between Heng Qin, Qian Hai, and Nan Sha and economic development will be highly integrated upon completion of the bridge. Therefore, major obstacles of establishing the GPRD’s free trade area will be overcome upon completion of the GPRD.”*

*“ Service trade liberalization is a higher form of free-trade business than goods trade liberalization. Because the bridge will tie the development of service industries of cities in the GPRD together upon completion, it will stimulate service trade liberalization between Guang Dong province and the two special administrative regions, Hong Kong and Macau.”*

**The HZMB will be an independent tourist destination.** The HZMB will become a more complete tourist destination, and will drive an increase in visitors. Interviewee 4 stated that the HZMB Authority has plans to establish tourist sites in the HZMB.

*“ Chinese tourists are very attracted by new and interesting spots, the HZMB as one of the longest bridge in the world will arouse people’s interests in visiting the bridge. But whether the HZMB can have returning visitors will depend on how well the tourist sites are established on the bridge and the management team markets it as a tourist attraction.”*

**Enlarging Macau’s influences as a platform for Portuguese-speaking countries.** Interviewee 2 stated that Macau has always been the platform for economic cooperation between China and Portuguese-speaking countries due to historical reasons. The HZMB would connect Macau to many more regions, enlarging Macau’s radiate influences as the platform.

*“The HZMB is going to help Macau to optimize its impacts as the platform of economic and international trade cooperation between China and Portuguese-speaking countries as well as accelerate the speed of establishing Macau as the world’s leisure travel center. The central government also has admitted that we are developing Macau as a platform and a center: the platform of economic cooperation between China and Portuguese-speaking countries, and the center of world’s leisure travel.... Foreign and Hong Kongese investors in Hong Kong and the western GPRD can better utilize Macau as a platform to cooperate with Portuguese-speaking countries mainly in the field of international trade, thus helping Hong Kongese businessmen to explore the emerging markets in Portuguese-speaking countries.”*

**Encouraging deregulations of immigration policies.** Completion of the HZMB would encourage deregulations of immigration policies between Mainland China and the two special administrative regions. Interviewee 6 said:

*“ All three governments understand that the HZMB’s impacts would not be as positive as expected if immigration policies constrain human and goods flows. Immigration departments of Mainland China, Hong Kong, and Macau are discussing deregulating immigration policies, especially for Mainland Chinese to visit Hong Kong and Macau. One main thought is to allow citizens from the Pearl River Delta cities to apply for a one-year-multiple-entry visa to Hong Kong and Macau”.*

### 4.3 Section Three-The HZMB’s Impacts on Stakeholders

**Expected impacts on fields of policymaking and legislation.** Interviewee 2 has multiple tasks in government: economy, regional development, policymaking and legislation. He stated that:

*“The HZMB will bring many growth opportunities in economic and regional development, but it will create many challenges in policymaking and legislation. The region has to have compatible policies and legislations that allow future cooperation between the Pearl River Delta and Hong Kong/Macau; ... Also, the HZMB will*

*provide the opportunity to establish a free trade zone in the GPRD in areas of Qian Hai of Shen Zhen, Nan Sha of Guang Zhou, and Heng Qin of Zhu Hai. Policymaking and legislation offices need to discuss details for establishing Guang Dong's free trade zone."*

**Expected impacts on field of immigrations.** All eight interviewees agree that immigration policy plays a significant role in efficiency of the HZMB.

*" The HZMB will bring opportunities in the simplifying process of applying for travel permits, dual-driving licenses, and going through immigration check. The challenges are how to coordinate immigration departments from Mainland China, Hong Kong, and Macau and overcome law-related obstacles in achieving the goal of deregulating immigration restrictions."*

**Expected impacts on field of tourism.** Interviewees 1, 7, and 8 who work for tourism fields expect significant growth in visitor arrivals in the GPRD, especially in Macau. They also agree that the HZMB will change visitors' perceptions on the GPRD from each city as an individual destination to a multi-destination region.

*" Tourist arrival to the region has been reporting double-digit growth during the past decade. With the HZMB, I expected the annual growth rate in tourist arrivals to the GPRD would experience a dramatic increase within the first few years of the bridge's services. I think the growth rate of Guang Dong's travelers to the GPRD will be around 20% and that of inner Mainland Chinese visitors to the region will be around 30%."*

## 5. CONCLUSIONS and IMPLICATIONS

### 5.1 Conclusions

Based on an analysis of the results, the following major conclusions were drawn.

1. The HZMB will stimulate the GPRD's regional economic growth and encourage regional integration by enabling efficient sharing of each area's resources in development through more convenient transportation.
2. An expected high degree of regional integration of the GPRD upon completion of the HZMB will make the region the world's largest megacity in terms of economic scale, population, and geographic area.
3. The HZMB will drive growth in logistics and international trade industries of the GPRD. The bridge will also help to link existing highways, airports and ports in the western and eastern GPRD, increasing capacity and efficiency in developing these two industries of the region
4. Completion of the HZMB will drive economic growth of each area of the GPRD as well. The bridge will help to reduce economic growth gap between developed and underdeveloped areas of the Pearl River Delta thus balancing economic development of the delta. Economic structure of the underdeveloped area of the Pearl River Delta will also transform from a secondary to a tertiary sector of the industry.
5. Hong Kong will see new economic driving forces for the city through being directly connected to the underdeveloped areas of the Pearl River Delta, where has cheap labor and land resources needed for the city's further development.
6. Macau will be able to change the city's positioning from a gaming capital to the world's leisure travel center by easily accessing to various tourist facilities such as Disney Land, Heng Qin Island Sea World, and Wong Tai Sin Temple within the GPRD region.

### 5.2 Implications

Research conclusions of the study imply important information of future developers of mega infrastructure projects , potential investors of the GPRD, and policymakers of the region.

1. The present study suggested future developers of infrastructure projects to develop supporting infrastructures to accommodate future flows due to the main project at the same time as construction of the main project.
2. In order for optimize the impact on a mega infrastructure's tourist impacts, future developers of such projects need to create greater public awareness of the project during the construction phase thus allowing potential visitors and stakeholders to prepare for travel plans.
3. Results of the study suggested growing investment opportunities in the GPRD as well. Development of the HZMB will lead to exploration of a new emerging market, western Guang Dong. There will be room and space for foreign investment especially in the service sectors of the economy in that region. Integration of markets in the GPRD will provide a wider platform for developing international trade and logistics more than any time of the region's history. Expected increases in tourist arrivals will create large demands in tourist and leisure products, such as hotels, restaurants, and shopping centers. Therefore, there are great investment opportunities in most aspects of industry in the GPRD. Investors should take advantage of these opportunities.
4. The study suggested a need to establish a free trade area in the GPRD due to the expected volume of international trade and logistic business upon completion of the HZMB. The free trade zone should be established upon completion of the HZMB to meet future market demands for international trades and the logistics industry and drive further economic growth.



5. Completion of the HZMB will lead to liberalization of China's service trade also. Service trade liberalization is an essential step for China to further develop the country's international trade industry. Completion of the HZMB will stimulate development of service trade business within the region because of more frequent flows of service production factors, making the GPRD the first place to implement service trade liberalization within the nation. Thus, investors in the service sector of the economy should be aware of various investment opportunities in service trade activities of the region.
6. Results of the present study also suggest that construction of a megaproject will strengthen regional tourism infrastructure. Upon completion, the HZMB will serve as the bridge to integrate regional tourist resources, tourism markets, and potential developers.

### 5.3 Limitations & Future Research

The present study only assessed the stakeholders' perceived impacts of the HZMB on the GPRD. The research did not analyze other megaprojects. In addition the research mainly analyzed the perceptions of the stakeholders and future research could look at how the actual impacts matched with earlier anticipated perceptions. Interviewees of the study only included stakeholders from tourism-related industry and researchers did not utilize public organizations or communities to seek for interviewees, thus the research did not analyze the HZMB's impact on the general public and industries which were not represented.

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