

## **Geography**

### **Learning and Teaching Resources on Guangdong-Hong Kong-Macao Greater Bay Area (Greater Bay Area)**



### **Comparison between the Guangdong-Hong Kong-Macao Greater Bay Area and other bay areas in the world**

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## **1. Background of establishment of the Guangdong-Hong Kong-Macao Greater Bay Area**

“Bay area” usually refers to the coastal geographic area where the three sides are landed and the sea is recessed. If the ports and cities in the area are interrelated, a strong functional cooperating relationship and efficient resource allocation capacity will be formed. The economy is called the “bay area economy”. Due to the good transport and living conditions, the bay areas are often more populated, with various elements gathering there, and drive the development of related production.

From a global perspective, 60% of the world’s economic aggregate is concentrated in the bay areas. 75% of the world’s largest cities, 70% of industrial capital and population are concentrated in the coastal area 100 kilometers from the coast. At present, the New York Bay Area, Tokyo Bay Area and San Francisco Bay Area have become the core areas of global resource allocation and important economic centres. The Guangdong-Hong Kong-Macao Greater Bay Area (Greater Bay Area) refers to the cities at Zhujiang Estuary formed by nine Mainland cities of Guangzhou, Shenzhen, Zhuhai, Foshan, Huizhou, Dongguan, Zhongshan, Jiangmen, Zhaoqing and two special administrative regions of Hong Kong and Macao. It has a good development foundation and conditions, and is expected to become the world’s fourth largest bay area.

With the rise of China’s economy, China has gradually changed from just a member to one of the leaders in the global economic division of work. The concept of the Greater Bay Area is an important part of China’s restructuring of the new international economic order and participation in global competition. Compared with the traditional Greater Zhujiang Delta Economic Zone, the concept of the Greater Bay Area aims not only to catch up with the world’s major bay area in terms of economy, and more importantly, to play a leading role in global resource allocation and economic development.

## 2. Planning history of the Greater Bay Area

The concept of the Greater Bay Area was first proposed by the academic community. In the 12th Five-Year Plan of our country, it proposed to deepen the cooperation between Guangdong, Hong Kong and Macao, implement the framework agreement of Guangdong, Hong Kong and Macao, and build a more comprehensive world-class urban agglomeration.

In 2015, the National Development and Reform Commission, the Ministry of Foreign Affairs and the Ministry of Commerce jointly issued the “Belt and Road” action plan, proposing to deepen cooperation with Hong Kong and Macao to build the Greater Bay Area. In 2016, both the 13<sup>th</sup> Five-Year Plan of the country and the 2016 Guangdong Provincial Government Work Report elaborated on the planning and development of the Greater Bay Area. In 2017, the Central Government Work Report stated that it was necessary to study and formulate the development plan of the cities in the Greater Bay Area, and to make use of the unique advantages of the Greater Bay Area, and to enhance the status of the Greater Bay Area in national economic development and external development. It is the first time that the Greater Bay Area has been mentioned in the Central Government’s annual work report, indicating that the Greater Bay Area has become an important regional plan under the national perspective.

On 1 July 2017, the National Development and Reform Commission as well as the Guangdong, Hong Kong and Macao Governments jointly signed the *Framework Agreement for Deepening the Cooperation between Guangdong, Hong Kong and Macao to Promote the Construction of the Greater Bay Area* in Hong Kong, and officially released the six major priorities for the construction of the Greater Bay Area. Table 1 presents the development and important concepts and events of the Greater Bay Area.

**Table 1: Planning stages of the Greater Bay Area**

Year	Important concepts / events related to the planning of the Greater Bay Area
1998-2000	WOO Chia-wei: Hong Kong Bay Area (Shenzhen Bay Area)
2007	Shenzhen and Hong Kong metropolitan area
2008	‘Outline Plan for Zhujiang Delta (City clusters) (Megaregions)
2009-2010	‘Planning Study on the Co-ordinated Development of the Greater Pearl River Delta Townships’
2010-2011	‘Agreement on Hong Kong/Guangdong Co-operation’ (A world-class city cluster)

2011	Agreement on Hong Kong/Guangdong Co-operation’ (A world-class Special Economic Zone)
2014	Shenzhen Municipal Government: Economy in the Bay Area
2015	The three government departments of our country: “Guangzhou-Hong Kong-Macao Greater Bay Area”
2016	<ul style="list-style-type: none"> <li>• 13<sup>th</sup> Five Year Plan of the nation: “Guangzhou-Hong Kong-Macao Greater Bay Area”, “Platform across different provinces”</li> <li>• “The State Council’s guiding opinions on deepening co-operation within the PPRD region”: “Guangzhou-Hong Kong-Macao Greater Bay Area”, “world-class city cluster”</li> <li>• Report from the People’s Government of Guangdong Province: “Guangzhou-Hong Kong-Macao Greater Bay Area”</li> </ul>
2017	<ul style="list-style-type: none"> <li>• Government report of the State Council: “Outline Development Plan for Guangdong-Hong Kong-Macao Greater Bay Area”</li> <li>• Framework Agreement on Deepening Guangdong-Hong Kong-Macao Cooperation in the Development of the Bay Area was signed by the National Development and Reform Commission, Hong Kong, Macao and Guangzhou</li> </ul>
2018	In the government work report, Premier LI Keqiang once again made it clear that the development plan for the Guangdong-Hong Kong-Macao Greater Bay Area would be introduced and the mutually beneficial cooperation between the Mainland, Hong Kong and Macau would be fully promoted.

Source: China Development Institute (2019); One Country Two Systems Research Institute (2019)

### 3. Development advantages of the Greater Bay Area

#### 3.1 Locational advantages

Good geographical location and rich natural resources, especially port resources<sup>1</sup>, are the inherent advantages for bay area development. Meanwhile, high population and density, high population quality and skilled labour are important conditions for ensuring the continuous development of the bay area’s economy. The Greater Bay Area has excellent geographical conditions which is surrounded by mountains and three rivers. It has an extensive coastline and well-developed ports. The economic hinterland is large, and the Pan-Zhujiang Delta Region has approximately one-fifth of the country’s land area, one-third of the population and one-third of the total economic output. In addition, the Greater Bay Area is close to the world’s first golden waterway, which is the main thoroughfare for the Pacific and Indian Ocean shipping as

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<sup>1</sup> In the same economic region, the port’s openness, the complementary advantages of different ports, and their functional differences can be used to develop the bay area economy rapidly. Port resources are also the main advantage of developing the bay areas.

well as the transport hub of Southeast Asia and the world. It is an economically developed region with the shortest maritime route between our country and the Maritime Silk Road countries.

### **3.2 Transport advantages**

The highly accessible transport system in the area, including seaports, airports and mass transport systems, as well as the well-developed infrastructure are important elements for promoting the economic development of the Greater Bay Area. The shipping industry in the Greater Bay Area is highly developed. It has the world's busiest ports and airports. The passenger and freight volume of the area rank among the top in the world and is an important gateway to the open economy of our country.

The production structure of the Greater Bay Area is dominated by advanced manufacturing and modern service industries. Hong Kong and Macao are the representatives of modern service industries while the nine Mainland cities of the Greater Bay Area have perfect production systems and strong manufacturing base, giving them the title as the "world factories". These cities are currently evolving and progressing into the advanced manufacturing industries. The technology for production improves a lot. High-end service industries such as finance, information, technology, and logistics have developed rapidly, forming a production system of advanced manufacturing and modern service industries. Among them, Shenzhen is transforming into an innovative economy and has taken a leading position in the international value chain. With high production chain coverage and rapid response capability, the Greater Bay Area will have great advantages when facing the coming global high-end production competitions in the future.

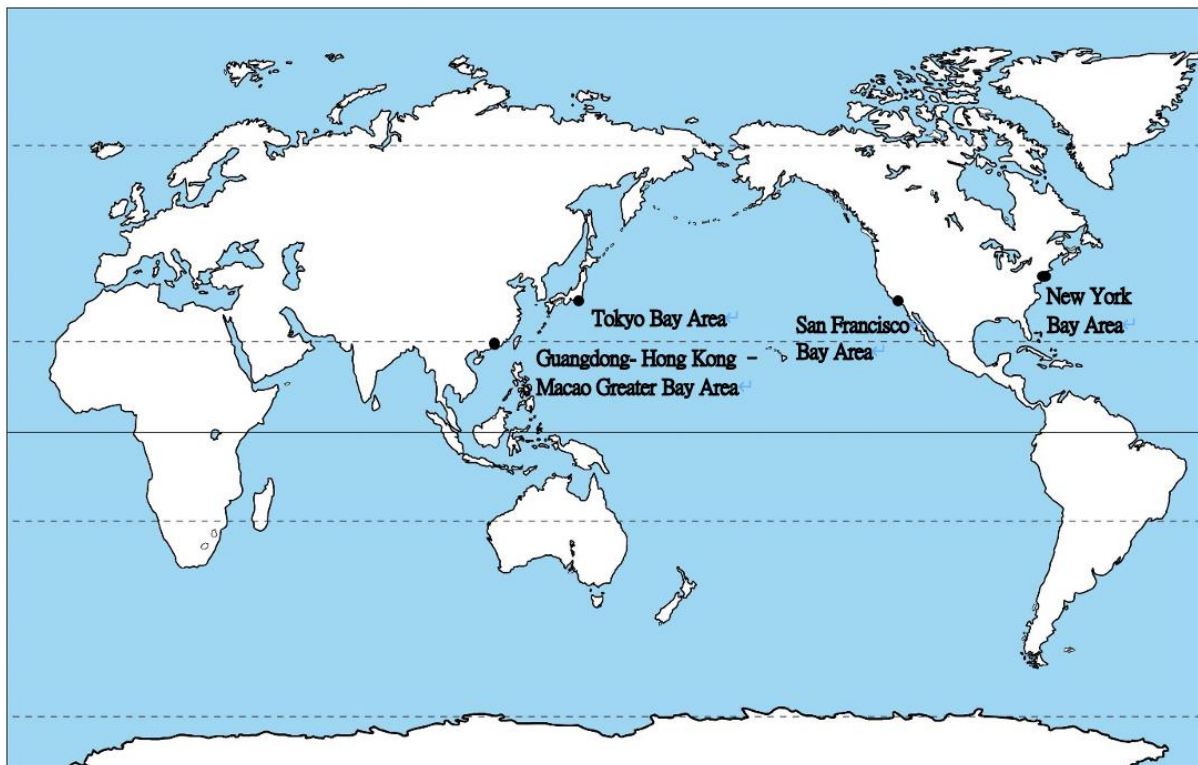
### **3.3 Institutional advantage**

At present, the Greater Bay Area has a multi-institutional structures of "one country, two systems and three customs zones". Many experts and scholars believe that "one country, two systems" is the foundation and the largest institutional advantage for the development of the Greater Bay area. On the one hand, Hong Kong, as a part of China, can catch up with and benefit from the rapid development of high technology of our country. On the other hand, Hong

Kong still retains its original institutional advantages, enjoying much freedom on the economy, an open financial market and freedoms on entering and leaving the city. As both Chinese and English are the official languages of Hong Kong, it can connect very well with the international commercial market. Therefore, the economic development in the Greater Bay Area can be greatly promoted by utilising its institutional advantages with appropriate adjustments by our country at the policy level.

#### 4. Overview of the world's three major bay areas and their successful experiences

Figure 1: Locations of the world's four bay areas



#### 4.1 San Francisco Bay Area

<b>San Francisco Bay Area</b>	<b>Characteristics:</b> World-class bay area represented by its advanced technology
	<b>Overview:</b> San Francisco Bay Area is located in the western part of the United States. It is the fifth most populated region in the United States. Silicon Valley of the area is the centre for a lot of world-known high-tech enterprises. Meanwhile, San Francisco Bay Area has the second-largest Fortune 500 companies in the United States and is an important financial centre on the West Coast.

**Geographical scope** (Metropolitan Transportation Commission (San Francisco Bay Area), 2017): San Francisco Bay Area is located in the State of California, the most populous state in the United States. In the “Bay Area Planning 2040” compiled by the California Metropolitan Transportation Committee and the Bay Area Management Committee, the area comprising the San Francisco City, San Mateo County, Santa Clara County, Alameda County, Contra Costa County, Sorano County, Napa County, Sonoma County and Marin County. The bay area covers entirely and part of 109 residential areas such as San Francisco, Auckland City and San Jose.

**Figure 2: San Francisco Bay Area**



Source: United States Tourist Office (2020)

**Successful experience:** First, the cooperation between enterprises and higher education institutions has formed a unique innovation mechanism in the San Francisco Bay Area. In the western part of the bay area, there are two famous universities, namely Stanford University and California Berkeley. Enterprises have provided research fundings to the universities and effectively raised the research capabilities of the universities. While the universities have continuously produced valuable research results and trained many outstanding talents, they provide more high-quality labour for the enterprises. Second, venture capital is an important factor in the rise of the Silicon Valley. At the initial stage of development of technology companies, venture capital can provide sufficient initial funding to help start-ups grow, build teams and develop networks. Many technology giants nowadays such as Apple and Google have benefited from venture capital. Third, efficient and convenient infrastructure is an indispensable factor in the development of the bay area. San Francisco Bay Area has three international airports, namely San Francisco International Airport, Oakland International Airport and Norman Y. Mineta San Jose International Airport. The extensive and efficient transport networks have greatly promoted the flow of people and goods in the bay area.

#### 4.2 Tokyo Bay Area

<b>Tokyo Bay Area</b>	<b>Characteristics:</b> World-class bay area represented by industrial manufacturing
	<b>Overview:</b> Located in the Pacific coast of central Honshu, Japan, the Tokyo Bay Area is an important industrial bay area in the world. Its main cities are Tokyo, Yokohama and Chiba, which constitute the world-famous industrial belts of Keihin and Keiyo. The Gross Domestic Product (GDP) of the Tokyo Bay Area ranks first among the world’s major bay areas, and its per capita GDP is just second to the San Francisco Bay Area. Steel, petrochemical, machinery, automobiles and electronic products are the major industries in the area. Famous enterprises in the bay area include Mitsubishi Heavy Industries of Japan, Toyota Motor and Sony Corporation.

**Geographical scope** (Statistics Japan (Statistics Bureau Ministry of Internal Affairs and Communications), 2019): The Tokyo Bay Area has a structure of “one city and three counties”,



including Tokyo Metropolis, Kanagawa Prefecture, Saitama Prefecture and Chiba Prefecture<sup>2</sup> (Figure 3). The Tokyo Bay Area has a total of 6 designated cities, 117 cities and 25 districts. The six cities designated by the government decree are equivalent to six special economic zones in the country, namely Saitama City, Chiba City, Kawasaki City, Yokohama City, Sagami-hara City and Hachioji City.

**Figure 3: Tokyo Bay Area**



*Source: The Hong Kong Trade Development Council (HKTDC) (2018)*

**Successful experience:** The development of the Tokyo Bay Area is mainly based on the status of the capital Tokyo and the rich port resources in the bay area. First, the Tokyo metropolitan area is an internationally important financial, transport, business and retail centre in the world. Second, the Tokyo Bay Area has abundant port resources, which contributed to the success of the bay area in its development of the port economy and brought subsequent benefits to the industry of the whole bay area. The Tokyo Port, Yokohama Port, Chiba Port and Kawasaki Port in Tokyo Bay take their respective advantages and form a port cluster with clear and efficient division of labour. Third, the connection of the two major international airports, i.e. Narita and Haneda, with the Shinkansen (e.g. Tokaido Shinkansen) in the bay area constitute an important factor in the development of the Tokyo Bay Area.

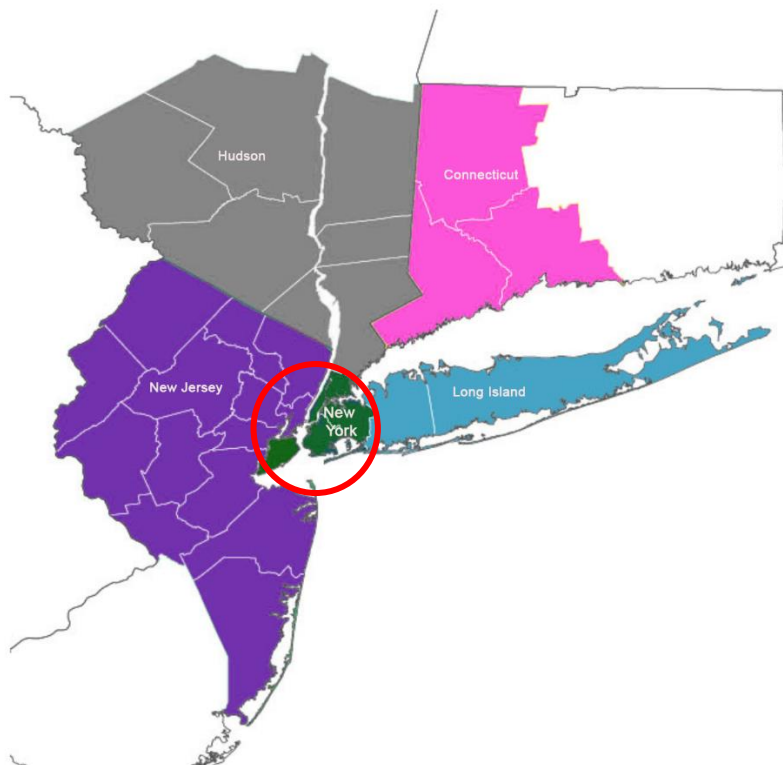
<sup>2</sup> Broadly speaking, the Tokyo Bay Area also covers the surrounding four counties, including Gunma, Tochigi, Ibaraki, and Yamanashi.

### 4.3 New York Bay Area

<b>New York Bay Area</b>	<b>Characteristics:</b> World-class bay area represented by financial services
	<b>Overview:</b> Located in the northeastern United States, the New York Bay Area is a world-class bay area represented by its financial industry. It is the core hub of world finance, with the world’s largest stock exchange, the New York Stock Exchange and the world’s third-largest exchange, the Nasdaq Stock Market. More than 90% of the world’s top 100 banks have set up their branches in New York.

**Geographical scope:** Geographically, the New York Bay Area is the New York Metropolitan Area. The region of the New York Bay Area includes New York City, Long Island, and middle and lower courses of the river valley in the Hudson Valley in the State of New York. It also includes five cities in New Jersey, including Newark and Jersey City, and six of Connecticut’s seven major cities, including Bridgeport and New Haven etc. (Figure 4).

**Figure 4 New York Bay Area**



Source: New York City Department of City Planning (2021)

**Successful experience:** The New York Bay Area is the core of the United States' economy, and there is a clear division of labor within the metropolitan area. In 2016, the financial industry is the most important production in the New York Bay Area, accounting for 15.39% of the bay area's GDP. New York has the world's largest exchange, the New York Stock Exchange and the world's third-largest exchange in market value, the Nasdaq Stock Market, and more than 90% of the world's top 100 banks situated in the bay area. Its position as a financial hub has played an important role in supporting the economic development in other cities in the bay area. In addition, similar to San Francisco Bay Area, 58 world-famous universities in the New York Bay Area, such as Harvard University and Massachusetts Institute of Technology, have provided important support for the development of science and technology in the bay area.

## 5. Comparison of the four major bay areas

### 5.1 Land area

Large land area and broad development space are the important factors for the economic development of bay areas. In 2016, the land area of the Greater Bay Area rank the first among the four major bay areas, followed by the New York Bay Area and San Francisco Bay Area. The Tokyo Bay Area has the smallest land area of merely 13,600 square kilometers (Table 2). Compared with the world's major bay areas, the Greater Bay Area has an advantage in terms of land area.

**Table 2: Land area and number of cities in the world's four bay areas in 2016**

Bay area	Area (10,000 square kilometers)	Number of counties or cities
Guangdong-Hong Kong-Macao Greater Bay Area	5.65	11
New York Bay Area	2.15	25
San Francisco Bay Area	1.79	9
Tokyo Bay Area	1.36	4 (1 metropolis and 3 prefectures)

*Source: Cushman & Wakefield (2018); Metropolitan Transportation Commission of San Francisco Bay Area (2017); Statistics Japan (Statistics Bureau Ministry of Internal Affairs and Communications) (2019)*

## 5.2 Population size

Scientific and technological innovation in a bay area is largely influenced by its population. A larger population always give rise to a larger number of talents. Compared with the world's major bay areas, the Greater Bay Area has a large population and higher capacity for population than the other bay areas. By the end of 2016, the Greater Bay Area had a resident population of approximately 68 million. It ranks first in the world's four bay areas. The population of the Greater Bay Area accounts for 5% of the national population, exceeding that of the San Francisco Bay Area (Table 3). Therefore, the population advantage of the Greater Bay Area is very significant.

**Table 3: Population and percentage of national population of the world's four bay areas in 2016**

Bay area	Population (ten thousands)	Percentage of national population (%)
Guangdong-Hong Kong-Macao Greater Bay Area	6,765	5
Tokyo Bay Area	4,383	28
New York Bay Area	2,370	7
San Francisco Bay Area	768	2

*Source: Cushman & Wakefield (2018); Metropolitan Transportation Commission of San Francisco Bay Area (2017); Statistics Japan (Statistics Bureau Ministry of Internal Affairs and Communications) (2019)*

## 5.3 Economic aggregates

Gross domestic products (GDP) can effectively measure the economic conditions of a country / region. From the perspective of economic aggregates, in 2016, the GDP of the Tokyo Bay Area ranks first in the world's bay areas, followed by the New York Bay Area. Although the San Francisco Bay Area is far behind the rest of the world's bay areas in terms of GDP, it ranks first in per capita GDP. Compared with the world's bay areas, the Greater Bay Area is quite strong that its GDP is approximately 3/4 of that of the Tokyo Bay Area, and is comparable to

the New York Bay Area. However, in terms of GDP per capita, there is still a large difference from other bay areas.

**Table 4: Gross domestic product (GDP) of the world’s four bay areas in 2016**

Bay area	GDP (trillion US\$)	GDP per capita (US\$)	GDP as a percentage of the country (%)
Tokyo Bay Area	1.8	41,070	41.0
New York Bay Area	1.4	69,307	4.4
Guangdong-Hong Kong-Macao Greater Bay Area	1.36	20,371	10.8
San Francisco Bay Area	0.76	99,802	7.7

*Source: Cushman & Wakefield (2018); Metropolitan Transportation Commission of San Francisco Bay Area (2017); Statistics Japan (Statistics Bureau Ministry of Internal Affairs and Communications) (2019)*

#### **5.4 Production structure**

The proportion of tertiary industry can reflect the optimisation of production structure in a country / region. The greater the proportion of the tertiary industry in a country / region, the better its production structure. From the perspective of production structure, the proportions of the tertiary industry in the three major bay areas of Tokyo, New York and San Francisco are all above 80% in 2016. Among them, the New York Bay Area is even up to 89.4%. However, the Greater Bay Area is dominated by advanced manufacturing and modern service industries while the nine Mainland cities in the area have a strong manufacturing base. Therefore, the proportion of the tertiary industry in the Greater Bay Area is only 62.2%, far lower than the world’s other bay areas.

**Table 5: Production and trade structure in the world's four bay areas in 2016**

Bay area	Proportion of tertiary industry (2015)	Representative industry	Start-up industry	Direction of development
New York Bay Area	89.4%	Port trade	Port trade	World financial core
San Francisco Bay Area	82.8%	Trade, technological innovation	Trade technological innovation	Global high-technology research and development centre
Tokyo Bay Area	82.3%	Equipment manufacturing, steel, chemicals and logistics	Manufacturing innovation	Japan's core port industry
Guangdong-Hong Kong-Macao Greater Bay Area	62.2%	Finance, shipping, electronics and Internet	Foreign trade	Innovation and Technology

*Source: Goldman Sachs (2019)*

### **5.5 Innovation ability**

The cities of the Greater Bay Area show strong competitiveness in innovation in Asia and the world. There are more QS<sup>3</sup> World Top 100 universities in the Greater Bay Area than other bay areas. The Greater Bay Area has the second largest number of PCT<sup>4</sup> international patents among the four bay areas, indicating that the Greater Bay Area has great innovation ability.

<sup>3</sup> QS is the annual university rankings published by Quacquarelli Symonds, a private company in the UK.

<sup>4</sup> PCT (Patent Cooperation Treaty) means an important way to submit international patent applications.

**Table 6: Important indicators of innovation ability in the world's four bay areas in 2016**

Bay Area	Number of Forbes 500 companies	QS World Top 100 universities	Number of PCT international patents
Tokyo Bay Area	60	2	Tokyo-Yokohama: 94,097 (ranking: 1)
New York Bay Area	28	2	New York: 12,215 (ranking: 11)
San Francisco Bay Area	22	3	San Jose-San Francisco: 34,324 (rank: 3)
Guangdong-Hong Kong-Macao Greater Bay Area	16	4	Shenzhen-Hong Kong: 41,218 (ranking: 2)

*Source: World Intellectual Property Organization (2017)*

## 6. Conclusion

Currently, more than half of the world's economic aggregate comes from the bay areas. The New York Bay Area, San Francisco Bay Area and Tokyo Bay Area are recognised as world-class bay areas, presenting some distinct features and advantages, including open economy, strong production base, optimised industrial structure, great innovation ability and entrepreneurial vitality, convenient and complete infrastructure, effective regional synergy development and efficient resource allocation capabilities.

Compared with the world's bay areas, the Greater Bay Area is far ahead of the world's bay areas in terms of economic aggregate. In terms of population and land area, the Greater Bay Area also ranks first in the four major bay areas. However, due to the different development stages of the bay areas, the economic development of the Greater Bay Area has yet to catch up with the other bay areas. In terms of production structure and innovation capability, the Greater Bay Area has huge potential and ability to co-ordinate global core development resources and elements. The Greater Bay Area still needs to make greater efforts in optimising the production structure and improving the technological competitiveness of enterprises. The Greater Bay Area is still in the initial stage of development. We can learn from the successful experience of other bay areas in the world, and make use of our own advantages and achieve leap-forward development.

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## References

- China Development Institute. (2019). *China Development Institute*. Retrieved from <http://www.cdi.com.cn/>
- Cushman & Wakefield. (2018). *Research Report Series III of Guangdong-Hong Kong-Macao Greater Bay Area - "The Fourth Pole of the World Bay Area Ready to Go: The outlook of Guangdong-Hong Kong-Macao Greater Bay Area and economic research of Bay Area over the world"*. Retrieved from <https://mobilesite.cushmanwakefield.com.cn/cmsv2/web/upload/20180709123931609-0QnzC1wkst4w7qDE3afRmWA8gbMW.pdf>
- Goldman Sachs. (2019). *Goldman Sachs Research*. Retrieved from <https://www.goldmansachs.com/insights/series/goldman-sachs-research/index.html>
- Metropolitan Transportation Commission of San Francisco Bay Area. (2017). *Plan Bay Area 2040*. Retrieved from <https://mtc.ca.gov/our-work/plans-projects/plan-bay-area-2040>
- One Country Two Systems Research Institute. (2019). *One Country Two Systems Research Institute*. Retrieved from <http://www.octs.org.hk/>
- San Francisco Bay Area Region (2020). Google My Maps. Retrieved from <https://www.google.com/maps/d/u/0/viewer?ie=UTF8&hl=en&msa=0&ll=37.48412906793662%2C122.56701148161315&spn=2.103434%2C1.823727&source=embed&mid=1dDhz1fdnCq6rFz-UObE655zt9sE&z=9>
- Statistics Japan (Statistics Bureau Ministry of Internal Affairs and Communications). (2019). *Statistics Japan (Statistics Bureau, Ministry of Internal Affairs and Communications)*. Retrieved from <https://www.stat.go.jp/english/index.html>
- The Hong Kong Trade Development Council (HKTDC). (2018). *The Tokyo Bay Area Development: Lessons to be Learned*. Retrieved from <http://economists-pick-research.hktdc.com/business-news/article/Research-Articles/The-Tokyo-Bay-Area-Development-Lessons-to-be-Learned/rp/en/1/1X000000/1X0AFHXO.htm>
- World Intellectual Property Organization. (2017). *Global Innovation Index 2017*. Retrieved from [https://www.wipo.int/portal/en/news/2017/article\\_0003.html](https://www.wipo.int/portal/en/news/2017/article_0003.html)