

A Third Runway is the Right Choice

Recently Airport Authority Hong Kong launched Master Plan 2030 on Hong Kong International Airport’s (HKIA) future development. The plan evaluated two options, i.e. maintaining the current two-runway system and expanding into a three-runway system, and now is open for public consultation.

The three-runway system requires building a third runway which incurs significantly higher cost of HK\$86.2 billion (in 2010 dollars) as compared to the expansion cost of HK\$23.4 billion (in 2010 dollars) for the two-runway system. Yet, the three-runway system offers a significant higher annual handling capacity by year 2030 to a maximum of about 97 million passengers, 8.9 million tonnes of cargo and 602,000 air flight movements as compared to 74 million passengers, 6 million tonnes of cargo and 420,000 air flight movements respectively under the two-runway system.

● **Should HKIA build the third runway?**

When debating about the two proposed options, the key question we shall consider is that whether Hong Kong really needs those extra capacities offered by the third runway. Furthermore, can extra capacities be achieved through other channels such as more efficient use of HKIA’s existing facilities? To answer this question, let’s first take a look at the actual and projected demand for HKIA aviation services for next 20 years.

| | Year 2010 (actual) | Year 2015 (projected) | Year 2020 (projected) | Year 2025 (projected) | Year 2030 (projected) | Compound Annual Growth Rate (CAGR) |
|--|-----------------------|--------------------------|--------------------------|--------------------------|--------------------------|---|
| Passenger Demand (in millions) | 50.9 | 57 | 68 | 82 | 97 | 3.2% |
| Cargo Demand (in million tonnes) | 4.1 | 4.4 | 5.7 | 7.2 | 8.9 | 4.2% |
| Total Air Traffic Movements (in thousands) | 306.5 | 347 | 421 | 509 | 602 | 3.2% |

Table1: Hong Kong International Airport Traffic Demand and Forecasts (Upto Year 2030)¹

The demand projections in above table suggest that under the growth rate listed, the expanded capacity under the two-runway system will be fully utilized around year 2020. If the actual growth rate is higher than the rate projected above, the capacity bottle neck will then appear even sooner. Note that under the current political and economic environment of HK, it takes at least 10 years to build a new runway. So even if the two-runway expansion system is adopted, Hong Kong still needs to start building the third runway to meet the rising demand after year 2020.

Meanwhile, the handling capacity may also be expanded through efficient management. Over the last 10 years, HKIA has won many worlds’ best airport awards. Such achievement demonstrates that its operation is quite efficient worldwide and the room for additional capacity enhancement is thus limited. According

¹ All numbers are from HKIA’s webpage http://www.hkairport2030.com/en/masterplan/demand_hkia.html

to HKSAR 2007 report, HKIA's two existing runways have an ultimate capacity of over 60 aircraft movement/hour, which will be filled around 2015.² In addition, economic theory suggests that beyond some critical capacity point, it could be prohibitively expensive, if not impossible, to further expand the capacity. So even if there still were room for capacity expansion, it may not be economically efficient to do so.

Thus from capacity perspective, the efficient management coupled with the two-runway expansion plan can only serve as a temporary solution as it cannot fully meet and serve the rapid growing aviation demand beyond 2020. Building a third runway is the only viable long-term solution.

Secondly, the third runway is also needed to maintain HKIA's competitive edge. Under continuing globalization and recent rapid growth of mainland china's economy, HKIA 's comparative advantage is facing increasing threats by other major international hubs as well as major mainland cites and nearby cities in the Pearl River Delta region. The next table gives a brief summary of number of existing and planned runways at those major airports.

| | City / Number of airports | Number of Existing Runways | Number of Planned Runways |
|--------------------------------------|---------------------------|----------------------------|-----------------------------------|
| Major International Airports | New York/3 | 9 | ? ? |
| | London/5 | 7 | 1 |
| | Paris/1 | 4 | ? ? |
| | Tokyo/1 | 6 | ? ? |
| Major Asian Airports | Beijing / 1 | 3 | 1 and a new international airport |
| | Shanghai/2 | 4 | 2 |
| | Bangkok/1 | 2 | 3 |
| | Seoul/1 | 3 | 2 |
| | Singapore /1 | 2 | 1 |
| Airports in Pearl River Delta Region | Shenzhen/1 | 1 | 2 |
| | Guangzhou/1 | 2 | 3 |
| | Zhu Hai /1 | 1 | ? ? |
| | Macau/1 | 1 | ? ? |

Table 2: Number of Existing and Planned Runways for Major Airports in the World and within the Region³

It is very obvious in above table that the number of runways at HKIA is less than most of the major airports worldwide and within the Asia area. It becomes increasing easier to transport to Hong Kong via Shenzhen, and the future bridge that connects HK-Macau-Zhuhai will have similar negative impact on traffic through HKIA. So under the rapid rise of Shenzhen, Zhuhai, and Guangzhou airports alone, who also equip themselves with more and more new runways, HKIA should really plan early with a third runway to maintain its competitiveness.

HKIA greatly supports the development of four pillar economic industries in HK – i.e. financial services, trading and logistics, tourism and producer and professional services, as it continuously brings

² It is increased to 68 aircraft movement/hour later.

³ Numbers listed are partly from http://www.hkairport2030.com/en/masterplan/hkhkia_fastGrowing.html ; also from “扩建机场香港受贿何须犹豫”信报，张惠民 and from Wikipedia information for some airports listed above.

clients/customers, commodities and business/employment opportunities into HK.⁴ In 2008, aviation industry contributes 4.6% of Hong Kong's GDP directly and indirectly and creates 65,000 jobs on the airport land alone. Once HKIA fails to maintain the image as a highly efficient and effective international aviation hub, the development in other economic areas of HK will also be greatly jeopardized.

From above analysis, I think it is out of question that a third runway is vital for sustainable development of HKIA as well as for Hong Kong's economy. The question in debate then should be refined to be whether Hong Kong should start building the runway now or several years down the road.

● **Should HKIA build the third runway now or later?**

In terms of the optimal timing to undertake the project, we need to consider the following aspects:

- Financial Consideration

An estimated cost of HK\$86.2 billion (in 2010 dollars) is non-trivial. Can Hong Kong afford the project right away? What is the probability for technological breakthrough as well as improvement in productivity to be achieved in the near future, which may significantly lower the construction expenses?

Personally, I think with the over HKD90 billion surplus that Hong Kong government accumulated in recent two years, the project is affordable right now though efforts to raise additional money are still needed. In addition, three-runway option will create a total of 340, 000 new jobs by 2030, among which are mostly manual and low skilled jobs. Then it is far more socially efficient for the government to spend the surplus on planned project rather than handing the HKD6000 cash directly to the Hong Kong residents. It just as the old Chinese proverb says: Give a man a fish and he will eat for a day; Teach a man to fish and he will eat for the rest of his life.

I am not a technical expert. It seems to me that the technology for building the third-runway is relatively mature and waiting another several years will only cost Hong Kong more tax money rather than saving money. Such perception is drawn from recent example of the Express Rail Link. The initial estimated cost for the Express Rail Link railway part was only HKD\$35.4 billion, while in 2009 the cost increased to HK\$53.7billion and to HK\$55 billion in early 2010. So during four-year time, for Express Rail Link the saving from advanced technology did not outweigh the increased cost due to factors such as inflation.

- Environmental Consideration:

Possible damage to the environment is one important factor to be considered. According to the 2007 report on HKIA's third runway prepared by the Aviation Policy and Research Center at the Chinese University of Hong Kong, the estimated economic contribution of the third runway and its pollution cost are HK\$28.5 billion and HK\$0.16 billion, respectively. The environmental cost by the third runway is relatively small, about a hundredth, to the economic benefit it generates.

Again, if the third runway is scheduled to be built several years later, will there be less damage to the

⁴ In 2010, HKIA ranks 9th busiest airport in the world and the third busiest in Asia by passenger traffic, and the busiest cargo airports in the world. http://en.wikipedia.org/wiki/World%27s_busiest_airports_by_passenger_traffic
http://en.wikipedia.org/wiki/World%27s_busiest_airports_by_cargo_traffic

environment? I think the answer is positive as over the years we know the environment better, new technology may get developed and more thorough environmental impact assessment and planning can be carried out.

The tradeoff, however, remains to be the same whether the environmental gain outweighs the change in economic cost? Recall it takes 10-12 to build a new runway. If we delay the project by several years, then there will be gap between estimated demand and saturated capacity can be supplied by the two existing runways after year 2020. Such a situation will greatly hurt Hong Kong's competitiveness. Once the damage is done, it is hard to regain it back and the cost to the Hong Kong's economy is far more significantly than the benefit from smaller damage to the environment as suggested by estimated benefit and cost numbers listed above.

- Social Consideration:

It is always a valid question to ask that whether the HK\$86.2 billion can be better used elsewhere. To answer such question, we need to look the social welfare aspect of the project. As I mentioned above that (1) the project will generate a lot of new jobs to help alleviate the unemployment pressure; and (2) it greatly supports the continuous development in HK's four pillar economic industries as one of the key logistic foundations. Based on my knowledge regarding the blueprint laid out by the SAR government, there is no other project can compete with the third-runway system in terms of its ability to giving back to the society over a longer time horizon.

Conclusion:

As compared to the two-runway option, the three –runway option can satisfy the rising demand for aviation service after year 2020, thus it is a long-term choice for the sustainable development of Hong Kong as an international financial and logistics center. It is also vital for maintaining Hong Kong's competitiveness.

Although the project involves seabed reclamation and will create more noises, its economic benefit greatly outweighs the estimated environment cost to the society. Thus I believe the government shall still proceed with the project and at the same time work due diligently to minimize the negative environment impact. Furthermore, delaying building the third runway is not optimal as (1) it posts greater risks to Hong Kong's development and (2) it may not be cost efficient as suggested by the past experience.

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