The Kuala Lumpur-Singapore High Speed Rail: Costs, Contracts, and Complications

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EXECUTIVE SUMMARY

- Plans are underway for the construction of a High-Speed Rail (HSR) connecting Singapore and Kuala Lumpur. The planned service is to bring travel time down to 90 minutes, enabling an unprecedented degree of connectivity between the two cities.

- Following buy-in from the governments of Singapore and Malaysia in 2013, progress has been consistent. The location of the terminals in both countries has been decided, and agreements on operational details should be finalized this year. Design and tendering should begin in 2017 and construction the year after, for an estimated roll-out in 2023-24.

- The costs of land acquisition, civil infrastructure, rolling stock, and systems integration mean that the project may cost upwards of SGD 20 billion. A request for information issued late last year was very well received, with Chinese, Japanese, South Korean, and European firms and consortiums participating.

- However, it is not known how the overheads are to be divided between the two countries or how the project will go to tender. That said, given the political capital invested by both countries, the project is likely to go ahead. The key questions are: where will the financing come from; how will the project be structured and contracted out; and, of course, who will land the job.

- Beyond expressions of interest from firms, government officials from China and Japan have specifically mentioned the HSR project during visits to the region. In addition, Malaysia has benefited from a number of high-profile investments from PRC government-linked firms in recent weeks.
THE KUALA LUMPUR-SINGAPORE HIGH SPEED RAIL (AND WHAT IT COSTS)

The cities of Kuala Lumpur and Singapore are linked by a variety of transport options, including rail, road, as well as budget and regular airline services. However, the population of these two centres, their high disposable income, and historic links ensure a steady demand for transport services. Indeed, in 2010, an estimated 9.2 million trips between the two cities were undertaken, of which almost 70 percent were by road.1

The proposed HSR is to directly connect Kuala Lumpur and Singapore. Running mostly above-ground in Malaysia and underground in Singapore, the 350 km line is to begin in Bandar Malaysia, some 7 km from Kuala Lumpur City Centre, and end in Jurong East in Singapore.

The train service will run at an average speed of 250 km/h, reducing travel time between the two cities to 90 minutes – as compared to 7-8 hours using current rail facilities or 4-5 hours by car. Formalities such as customs and immigration are also to be expedited through co-located facilities at the origin of each service, so that travellers only go through checks once.2

A slightly longer trip lasting two hours, stopping at smaller cities in Malaysia such as Seremban, Ayer Keroh, Muar, Batu Pahat, and Nusajaya is also envisaged.3 At this point, it is not known whether this service will proceed directly to Singapore or end in Nusajaya. The HSR is to run four times an hour, of which one will be the direct service from Kuala Lumpur to Singapore.4

A one-way ticket between the two cities is to cost an estimated SGD 60-65.5 This compares favourably with budget air travel, and is some three times the cost of a bus trip. However, the pricing is high enough to rule out daily commutes between the two end destinations and, presumably, the smaller cities in between.

The HSR is portrayed as a ‘game-changer’ by both countries. There is as yet no high speed rail in operation in Southeast Asia and the technical arguments for an HSR are compelling. First, the existing links between the two countries are extensively used. In particular, the Causeway is being utilized at 33 percent above its capacity. The distance between the two cities is also ideal for an HSR, as it is far enough for maximum speed to be reached to significantly reduce travel time compared to current road and rail services.6

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In addition, the two countries will benefit through greater economic integration, particularly in terms of labour mobility and cross-border services. At present, the demand for Kuala Lumpur-Singapore trips is healthy and projected to grow 3-5 percent p.a. over the long term. Surveys also indicate that quicker and more direct services can increase traffic between Kuala Lumpur and Singapore by as much as three to six times.  

The construction of the HSR offers significant benefits – particularly for Malaysia. According to the Malaysian Prime Minister’s Department, the HSR should contribute some SGD 35 billion to that country’s economy, through the construction itself and knock-on effects. Beyond the infrastructure and laying of the rail in between, the terminals at either end also offer interesting possibilities. For Singapore, the station in Jurong East is expected to catalyse the development of a new regional centre. For Malaysia, the proposed Bandar Malaysia station will be an enormous transport facility bringing together the HSR, two MRT lines, and commuter train services. And, the train stations in the connecting cities on the Malaysian side also offer untapped potential for transit-oriented development projects – large-scale mixed-use commercial and residential developments.

The available cost estimates vary widely. When the HSR was first put forward in 2006, the cost was estimated at SGD 2.7 billion. A subsequent estimate in 2010 put the price tag at SGD 5.5 billion. Recent estimates are in the SGD 20-25 billion range, and the actual cost could well be higher.

Going by the industry standard of USD 10 million per kilometre, the laying of the tracks, electrification, and systems integration works out to SGD 5 billion. Civil infrastructure such as tunnels and bridges will cost SGD 15 billion, with a further SGD 1.7 billion for 60 four-car train sets.

Furthermore, land acquisition constitutes an important additional cost, as the proposed route for the HSR does not follow the current rail network. Rather than going through the middle of Johor, the HSR will run roughly parallel to the North-South Highway along the West Coast. This move into a greenfield area implies a significant amount of work, time, and expense.

HOW IT DEVELOPED

The concept of the HSR was first put forward by YTL, a large Malaysian construction conglomerate, in 2006. However, the project was not taken further due to its perceived high cost.11

After 2009, cooperation between Singapore and Malaysia deepened, notably with: the conclusion of one of two water agreements and hand-over of infrastructure from Malaysia to Singapore; the closure of a Malaysia-owned railway station inside Singapore; and joint strategic investments by sovereign wealth funds from both countries.12

In 2010, the Economic Transformation Programme launched by the Malaysian Prime Minister’s Performance and Management Delivery Unit cited the High Speed Rail as a key project for revitalizing Greater Kuala Lumpur.13

Building on this momentum, Singapore and Malaysia formally announced plans for the HSR at the Leaders’ Retreat in February 2013, as well as the establishment of a Joint Ministerial Committee to look into the project’s technical aspects. At the Leaders’ Meeting in 2014, Malaysia announced that the terminus would be located in Bandar Malaysia, and both countries set the target date of 2020 for the project. In 2015, Singapore declared that its station will be located in Jurong East, and the two governments stated that they would work on co-locating customs and immigration facilities to further reduce travel time. In addition, the two Prime Ministers also indicated that the completion date may be delayed slightly.14

Negotiations between the two countries are currently underway and encompass issues such as operations, project bidding mechanisms, and financing. According to the Head of MyHSR, the Malaysian entity overseeing the project, the goal is to have a deal ready for signing at the Leaders’ Meeting later this year.15 A more recent estimate is that the signing may take place already in the third quarter.16

In October 2015, Singapore’s Land Transport Authority and Malaysia’s equivalent – Suruhanjaya Pengangkutan Awam Darat (SPAD) – launched a request for information from interested firms. 98 firms and consortia from China, Japan, Korea, as well as a number of leading European transport firms registered their interest.17 Of these, 14 were shortlisted and invited to provide further information through interviews conducted jointly by SPAD and LTA.18

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That requests for information could be submitted to either SPAD or LTA, as opposed to one centralized entity, suggests that operational details are still being sorted out. In addition, the capacity for mobilizing funding – along with traditional considerations such as design and operational capabilities – was mentioned as one criterion for awarding the project. Thus, more than a technical exercise, the request for information can be seen as a means of gauging private sector interest in the HSR.  

Most estimates are that the project will take some five years to complete. Should the agreement between the two governments be finalized this year, the project will need to be designed before going to tender. Thus, a reasonable time-frame would be for the HSR to be operational by 2023-24.

POTENTIAL STUMBLING BLOCKS

There are a number of logistical, financial, and operational issues that need to be settled. The first is how costs are to be apportioned between the two countries. Will Singapore and Malaysia contribute equal proportions of the necessary capital? Given that only 4 percent of the total track will be on Singaporean territory, this seems unlikely. One way out of this impasse is for a Build-Operate-Transfer arrangement, where the cost is incurred by an external provider in return for an extended concession. That said, given the sheer magnitude of the project, it is likely that both governments will need to make a financial contribution of some magnitude. One option is to have public financing for the civil infrastructure and a public-private partnership arrangement for the train services.

Another issue is how the project will be let to tender. Will both countries operate one bidding process and jointly choose a service provider? Or will Singapore and Malaysia carry out their own bidding processes and separately supervise construction on their own soil? Should this be the case, the infrastructure would then need to be joined and integrated, constituting an additional complication. Lastly, irrespective of whether the project is handled jointly or separately, will the tender(s) go to consortia comprised of specialist companies with different expertise, or will the project be broken down into smaller packages that are managed separately?

Furthermore, the relationship between the direct KL-Singapore express and the commuter service has yet to be finalized. While the direct route is important for Malaysia, the second service will: link up secondary cities that are as yet not served by any rail service; and enable daily commutes to KL from Seremban and Ayer Keroh. Indeed, according to Malaysian planning documents, the KL-Singapore line is part of a planned railway network that will go all the way to Thailand. In addition, the commuter service will also allow Prime Minister Najib to frame the project as one that primarily benefits Malaysia.

20 New Straits Times, “KL-S’pore high speed rail will generate RM 100b”, 23 October 2015.
Singapore, for its part, is focused on the direct service. In January, the CEO of MyHSR stated that the two countries have agreed that there would be two services.\textsuperscript{23} However, a spokesperson from Singapore’s Ministry of Transport has since then indicated that this issue was still being discussed.\textsuperscript{24}

Lastly, while the Najib Administration is solidly behind the HSR, the parliamentary opposition is not. They have said that they would prefer to invest the money in connecting Sabah and Sarawak by rail, arguing that these two states are in need of greater investment and are not currently served by any significant transport facilities.\textsuperscript{25} However, this statement should be read in the context of moves by the opposition to attract votes in East Malaysia, whose parliamentary seats are pivotal for the ruling coalition’s political viability. That said, seeing as land management is a state government responsibility, the opposition-controlled government of Selangor can delay land acquisition in and around Kuala Lumpur if it wishes to do so.

\textbf{THE PLAYERS}

On the regulatory side, Singapore’s Land Transport Authority and Malaysia’s SPAD are key actors. SPAD is a relatively new organization in Malaysia, created in 2010 to provide coherence to the country’s land transport system. While it needs to negotiate with the Ministry of Public Works and Ministry of Transport, SPAD has succeeded in generating a coherent vision for how various types of transport can come together. Rail-based transport has been central to this vision, both in terms of connectivity as well as urban planning, with railway stations seen as central public amenities in towns and cities. In recent policy documents such as the National Physical Plan 2, railway terminals are to be developed as integrated multi-mode transportation terminals and centres for commercial and residential facilities.\textsuperscript{26}

In terms of asset management and rail operation, MyHSR Corp is owned by the Ministry of Finance of Malaysia, which has been given the mandate to develop the HSR and oversee project implementation. Its CEO, Mohd Nur Ismail Mohd Kamal, used to head SPAD.\textsuperscript{27} MyHSR is one of three rail-related subsidiaries connected to the Ministry of Finance. The others are: Prasarana, which owns RapidKL, the operator of the KL Monorail and LRT lines; and MRT Corp, which is setting up the KL Mass Rapid Transit System.\textsuperscript{28} It is worth noting that the Malaysian Prime Minister, Najib Razak, is also the Minister of Finance.

\textsuperscript{23} The Malaysian Insider, “2 high-speed train services to Singapore, says operator”, 4 January 2016.
\textsuperscript{25} The Malaysian Insider, “Pakatan says no to KL-Singapore high-speed rail”, 22 October 2015.
\textsuperscript{27} New Sunday Times, “KL to Singapore in just 90 minutes”, 4 October 2015.
Turning to potential bidders for the HSR project, there are a number of significant international as well as local service providers.

Of note is a consortium of Japanese firms, which includes Sumitomo, Hitachi, Mitsubishi Heavy Industries, and JR-East, which operates the Shinkansen. While the Japanese bid may be among the more expensive, its rail technology enjoys a very good safety record, longer life spans for equipment and rolling stock, and lower maintenance costs.  

A consortium of seven Chinese firms has also expressed interest in the HSR. This includes: China Railway International; China Investment Corporation; the Export-Import Bank of China; China Railway Construction Corp (CRCC); China Communications Construction Company; China Railway Rolling Stock Corp; and China Railway Signal and Communication Corp. The CRCC is the PRC’s prime railway constructor, having designed more than 70 percent and built more than 60 percent of China’s high speed rail network. Relative to the Japanese, the Chinese consortium offers a lower cost and quicker turnaround time.

South Korea, a more recent entrant to the HSR sector, is also active. A consortium of public and private firms has also expressed interest, including: Korea Rail Network Authority; Korail; Korea Railroad Research Institute; Korean Land and Housing Corporation; Hyundai Rotem (part of Hyundai Motor); the construction companies Hyundai, Daewoo, and Lotte; as well as two major banks. While South Korea only began building its own trains in 2010, the country’s HSR has an excellent safety record. Another area where the Korean consortium has deep capabilities is in the design and construction of mixed-use commercial and residential facilities around railway stations.

Firms from Europe and Canada have also expressed interest. The rumoured short-listed firms include Germany’s Siemens AG, which has developed the Velaro train, capable of reaching 350 km/h. This firm has an established presence in Malaysia, having supplied rolling stock to the KL MRT line 1, and rolling stock and systems integration to the Express Rail Link, which runs between KL Sentral Station and the International Airport. France’s Alstom SA has 600 high-speed trains operating in more than ten countries, including the TGV and Eurostar. It is also a known quantity in Singapore, having supplied rolling stock for the Circle and North-East lines. Spain’s Talgo SA and CAF are also scouting the

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33 The Edge Malaysia, “Siemens Malaysia expects record revenue”, 7 December 2015.
market, as is Canada’s Bombardier. This last firm set up an office in Malaysia in 2014 on the back of projects to upgrade electrical systems on the Kelana Jaya LRT line.

Beyond the financial and technical aspects of the project, there is also a strategic dimension. Given their slowing economies, overcapacity in their domestic infrastructure sectors, good growth prospects for Asia, and desire to increase their presence, Japan and China have been competing vigorously for projects in the region. Indeed, their bids often come with easy financing terms and technology transfer packages. Late last year, China clinched the USD 5.5 billion Jakarta-Bandung HSR project on the basis of lower costs and quicker construction turnaround. For its part, Japan won a USD 15 billion project to build an HSR linking the Indian cities of Mumbai and Ahmedabad.35

Stung by their failure to clinch the Jakarta-Bandung line in Indonesia, the Japanese government has been lobbying Malaysia hard. Japan’s Land, Infrastructure, Transport, and Tourism Minister Keiichi Issi promoted the Shinkansen on his trip to Kuala Lumpur in November last year.36 At the recent ASEAN meeting in Kuala Lumpur, Japanese Prime Minister Shinzo Abe expressed his hopes to the leaders of Singapore and Malaysia that the Shinkansen’s technology would be used for the HSR.37

However, it appears that China has been the more active of the two. Also in November last year, Li Keqiang met with Najib on his first visit to Malaysia in his capacity as Chinese Premier.38 During that visit, the Chinese government’s decisions to purchase Malaysian government bonds and invest in infrastructure were mentioned, as was its desire to collaborate on the HSR. Furthermore, during the meeting, it was announced that China General Nuclear, an unlisted state-owned enterprise had made its largest overseas purchase to date by acquiring Edra Global Energy Berhad for SGD 3.3 billion and assuming its debt of SGD 2.3 billion. Edra Global Energy owns 13 power plants in five countries and was part of a stable of firms owned by 1MDB, the troubled state-owned investment fund linked to Prime Minister Najib.39

Chinese state-owned enterprises have been busy elsewhere in Malaysia. At present, Chinese firms have a dominant market share in the rail sector, supplying some 80 percent of the rolling stock in use. Late last year, China Railway Engineering Company won a large dual tracking and electrification project in Johor for SGD 3 billion.40 In addition, the China

Railway Construction Corp was part of a consortium that purchased a sixty percent stake in Bandar Malaysia, the proposed site of the Malaysian HSR terminus, from 1MDB. At almost SGD 2.5 billion, the property transaction was one of the largest in recent history. While the plot of land is almost 2 square kilometres and the price per square foot is low, the purchasers are also assuming debt in the form of Islamic bonds and the expense of relocating the police and military facilities that are currently there.\(^41\) As with the deal with Edra Global, this purchase has been helpful for Prime Minister Najib, as it has enabled 1MDB to substantially reduce its debt.

In addition, CRRC ZELC, a subsidiary of China Railway Rolling Stock Corp, set up a USD 131 million manufacturing facility in Perak last year. Aimed at catering to the ASEAN market, the plant has a planned capacity of 100 electric trains and 20 light rail vehicles per year. In the last couple of years, it has won projects to supply engines for a new track between Kuala Lumpur and Ipoh, as well as between Johor Bahru and Padang Besar, near Thailand.\(^42\)

Not to be outdone, a number of local players have been positioning themselves through stakes in firms with technological capabilities or bolstering their track record in related areas, such as public transport and large infrastructure projects.

YTL, the initial promoter of the HSR, has a 60 percent stake in the Express Rail Link, the only privately run rail service in Malaysia.\(^43\) The other large shareholder in Express Link is Tabung Haji, the state-managed investment fund for pilgrimages to Mecca. The combination of technical and financial capabilities will thus make Express Rail Link an interesting local partner. In recent weeks, the Sultan of Johor acquired a ten percent stake in ERL through SIPP Sdn Bhd, which is majority-owned by two of his close associates.\(^44\)

Lim Kang Hoo, another Johor-based businessman is also well-placed. Lim owns Iskandar Waterfront Holdings, which was a joint bidder, along with CRRC, for a majority stake in Bandar Malaysia. Lim is one of the largest real estate developers in Johor and owns the land-bank that will house one of the HSR stops in Johor.\(^45\) Another key stakeholder in IWH is KPRJ, the Johor state government investment arm. It is worth noting that much of the HSR will run through Johor, and the state government will need to facilitate the acquisition and rezoning of land for the project.

Other significant domestic firms include: Malaysian Resources Corp Berhad, which has very deep transit-oriented development capabilities, having developed the 28.8 hectare KL Sentral Business District; MMC Corporation Berhad, a utilities and infrastructure group

\(^41\) The Edge, “12 submit proposals to bid for Bandar Malaysia Project”, 2 September 2015; Kuwait Newsagency, “Now 1MDB says RM 7.41 billion inclusive of relocation costs, liabilities”, 7 January 2016.
\(^43\) Dow Jones Newswires, “Yield and High-Speed Rail Hopes Make Malaysia’s YTL Shine”, 14 August 2015.
\(^44\) The Edge Malaysia, “SIPP takes 10% stake in ERL ahead of HSR project”, 28 December 2015.
owned by Syed Mukhtar Al-Bukary, Malaysia’s wealthiest bumiputera; and UEM Group, which is partially owned by Khazanah, Malaysia’s sovereign wealth fund.46

OUTLOOK

2016 will be a crucial year for the HSR, as leaders from Malaysia and Singapore sit down to iron out the technical details of the project.

The recent decline in oil prices has hit Malaysian government revenue hard, and the 2016 budget has had to be revised. Rather than delaying the project, however, it may tilt the balance towards a different financing scenario. One option could be a Build-Operate-Transfer arrangement, when an external party provides the up-front funding in return for a lengthy concession. Should this be the case, it would thin the ranks of potential bidders to the select few with deep pockets.

Assuming that 2016 is spent finalizing the details, the design and tendering processes will occur in 2017. This period will see the greatest amount of movement, as international and local consortia seek to pre-position themselves and subsequently adapt to the structure and conditions of the bidding process. It is likely that the Japanese and Chinese governments will continue to promote their respective consortia and technology.

If the eventual winners of the bid do not need to raise capital, construction can begin in 2018. The early years of the project will be spent on land acquisition and surveying. Land issues may take longer to settle and be more costly than anticipated. Much of the track will run through prime plantation ground in the south of Johor before hitting residential areas closer to Kuala Lumpur. The HSR will pass through Johor, Melaka, Negeri Sembilan, and Selangor, which means that four additional stakeholders must be brought on board and managed.

Allowing five years for construction and no delays, services can be expected to begin in 2023-24.

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