Transforming the economy through high speed rail

Last month’s IHRA Forum addressed the opportunities offered by high speed rail to support socio-economic development, but the stability needed for investors to fund major projects is evaporating. Murray Hughes reports from Kyoto.

In a video message to the International High Speed Rail Association Forum staged in Kyoto on November 17, Japanese Prime Minister Shinzo Abe urged delegates to let their minds ‘freely explore the future’. His exhortation followed a statement that construction of Japan’s superconducting magnetic levitation Shinkansen would ‘revolutionise high speed rail in the 21st century’.

Selected guests were invited to glimpse this future on November 19, during a visit to the 42.8 km maglev test guideway in Yamanashi prefecture. This will eventually be integrated into the 285.6 km first section of JR Central’s Chuo Shinkansen between Tokyo Shinagawa and Nagoya.

JR Central officials described the superconducting maglev technology as ‘ready for revenue service’, with a commercial launch expected in 2027. For the moment, engineers at the test site are concentrating on ‘endurance running’ of the Series L0 vehicles.

The visit was somewhat marred by heavy rain, but guests were able to sample ultra-high speed travel in a five-car L0 formation that touched 505 km/h. The ride was smooth and quiet, with one passenger describing it as ‘much smoother than the London – Bristol main line’ in the UK. No seat belts were needed and passengers were free to walk around during the trip, which included taking an 8000 m radius curve at 505 km/h with 10% tilt on the guideway; there was no noticeable radial force.

Abe described the route as ‘a corridor of regional revitalisation’— intermediate stations are planned at Sagamihara, Kofu, Iida and Nakatsugawa, although for the moment the sites are officially known as Kanagawa Prefecture, Yamanashi Prefecture, Nagano Prefecture and Gifu Prefecture. At least 80% of the alignment will run in tunnel, mainly through Japan’s southern Alps.

JR Central is funding the first phase between Shinagawa and Nagoya using ‘disposable income generated by Tokaido Shinkansen operations’, according to Chairman Emeritus Yoshiyuki Kasai. The construction budget amounts to ¥4,015.8bn, rising to ¥5,523.5bn if rolling stock is included.

Writing in the Yomiuri Shimbun, Kasai said the cost of the civil engineering structures was identical to that for a conventional [steel wheel on steel rail] Shinkansen, although ‘the maglev operating system and vehicles are projected to cost about ¥2tr versus about ¥1tr for a Shinkansen service’. Construction costs will peak at about ¥700bn a year. Kasai expects ‘further technological improvements’ will reduce the cost of operations and maintenance ‘to about the same level as that for a Shinkansen service’.

JR Central had originally planned to start work on the Nagoya – Osaka section of the maglev route eight years after the launch of commercial services between Tokyo and Nagoya. However, legislation approved on November 11 authorises the government to raise ¥3tr from the capital market using a facility redeemable over a long period at low fixed interest rates and to make the proceeds available to JR Central for construction between Nagoya and Osaka. This means that the original completion date of 2045 could be brought forward by up to eight years (RG 9.16 p35).

The project is widely seen as an opportunity to display Japan’s technical prowess to the world — JR Central is promoting it heavily for the Northeast Maglev scheme linking New York and Washington DC, with an initial phase between Baltimore and Washington.

Construction of the Chu Shinkansen has been in hand since a formal start on December 17 2014 (RG 2.15 p8). Work is in progress at Shinagawa and Nagoya, but boring of the major tunnels has not advanced significantly since a start of work ceremony in December 2015 for a 25 km tunnel between Yamanashi and Shizuoka prefectures.

Speaking at the opening of the IHRA Forum, whose theme was ‘a new way to be a centre of the world’ — Transports and Tourism Keiichi Ishii said the Chu Shinkansen would connect three major cities within an hour thanks to an operational speed of
over 500 km/h, creating ‘a super mega-region and connecting 70 million people’. The project would change the national economic and social landscape, he forecast, reaching to all corners of the country and bringing economic development. High speed rail, he continued, should be tied to the national strategy and leveraged to support socio-economic development.

Ishii reminded the 286 delegates from more than 20 countries that ‘on the environmental front there are a lot of expectations for rail’, whose role could only expand as more emphasis was placed on the environment following the Paris Agreement coming into effect in November.

Further expansion of the conventional Shinkansen network is in prospect too. IHRA Chairman Masafumi Shukuri suggested to Railway Gazette International that the government may decide by the end of the year whether to proceed with extension of the Hokuriku Shinkansen from Tsuruga to Osaka — the 125 km Kanazawa – Tsuruga section is already under construction for completion in 2023. A report setting out the costs and benefits of three route options for the final segment was issued on November 11. If the government agrees to go ahead, this would be a third high-speed artery between the capital and Osaka.

Commitment needed

While Japan may have a clear-cut strategy for expansion of its extensive high-speed network, other countries in the Asia Pacific region have yet to make a commitment — something that former ASEAN Secretary-General Surin Pitsuwan believed would be more difficult given the uncertainty generated after the election of Donald Trump as the next US president. Moves to create a stronger trading community across the ASEAN region meant there was a greater need to co-operate and co-ordinate to develop transport links, he said. Similarly, technical expertise, political support and more funding to help pay for transport infrastructure were required.

Mike Mrdak, Secretary of Australia’s Department of Infrastructure & Regional Development, said that his country was enjoying the 26th year of economic growth and the population was increasing at an unprecedented rate. Transport investment had in the past focused on private motor vehicles, but a change in policy meant that rail was now seen much more as a way of underpinning growth; it would help to increase the efficiency and productivity of the country’s cities. Metro systems were being built and connectivity with major rail spines was being restored.

The population of Sydney was expected to reach 8 million by the 2040s, and while Australia’s cities had among the lowest density of population in the world, this would have to change in the future, even though it was very contentious, Mrdak said.

The Australian government had been looking at high-speed rail for some time, he continued, but major cities were 800 to 1 000 km apart, a distance that posed a serious challenge for high-speed rail to compete against air. While it would play a larger role over time, in the short term higher-speed rail was likely to be the focus as efforts were made to cut commuting times into cities.

Indian Shinkansen

Co-operation is clearly evident where both parties have something to gain. A three-day visit by Indian Prime Minister Narendra Modi to Japan during November included a ride with his Japanese counterpart on the Tokaido Shinkansen from Tokyo to Kobe and a visit to the Kawasaki Heavy Industries plant there to see Series E5 cars under construction for JR East. During his visit Modi said that ‘we remain focused on making strong progress on the Mumbai – Ahmedabad project’ (RG 1.16 p8). Abe and Modi are understood to have agreed that Shinkansen technology be adopted for the project, with work starting in 2018 for completion in 2023.

The corridor has a population of over 34 million, and high-speed services running at 30 min intervals are expected to cover the 508 km in about 2 h compared with the current best timing of 6 h 20 min. Arunendra Kumar, former Chairman of the Indian Railway Board, said six more high-speed corridors were being planned, but he warned that the construction cost of a high-speed line was 15 times that of a conventional railway. He also wanted to ensure that India had access to high-speed technology rather than having to ‘go to Tokyo’.

N K Singh, Chairman of India’s Fiscal Responsibility & Budget Management Review Committee, noted that 81% of the cost would be funded under a 50-year loan at 0·1% interest with a 15-year grace period. He confirmed that land acquisition was in progress and technical details were being discussed. It is not clear whether the line would be built to India’s 1 676 mm gauge or to 1 435 mm, although the choice of standard gauge would allow a Shinkansen package to be assembled without major changes.

The line had the potential to transform the lives of Indians, bringing about cultural change with ‘a powerful catalytic effect’. However, Jyotiraditya Scindia, Chief Whip of India’s Congress Party, saw a ‘tremendous opportunity’ for ‘semi-high-speed’ rail, suggesting that 7 000 to 8 000 km could be ‘quickly upgraded’ for trains to run at 160 to 200 km/h.

Singapore – Kuala Lumpur

Chairman of Singapore’s Land Transport Commission Syed Hamid Albar said public transport had been identified in 2010 as a key national agenda item. He believed that it was vital for countries to work together, suggesting that the Kuala Lumpur – Singapore high-speed line project was now a reality ‘with growth areas all along the route’. The scheme would help improve the life and lifestyles of the local population, he considered. A bilateral inter-governmental treaty covering the Kuala Lumpur – Singapore high-speed line project is expected in the near future.
FORUM Sidetrack | Platform

CHARITY

Seeking solidarity through sport

Building on an earlier co-operation agreement, the International Union of Railways and the International Railway Sports Association have agreed to hold a number of charitable sports events during 2017.

During the UIC General Assembly in St Petersburg, Director General Jean-Pierre Loubinoux and USIC Chairman Dominique Paget announced on December 1 that the two organisations would be jointly arranging a series of charitable activities 'in order to better reflect the values of solidarity that the railway community wishes to develop through sporting events'. The events will also be open to other participants.

USIC and USIC are initially seeking sponsorship for a bowls tournament in Bulgaria and a badminton competition in Switzerland, in order to attract 'donations in aid of a humanitarian cause'. Loubinoux has also proposed that UIC should host a World Chess Challenge at its Paris headquarters in December.

As the umbrella body for a number of national railway sports associations, USIC is a 'transnational, politically independent, non-denominational, non-profit charitable organisation'. It was established to encourage amateur sport among railway employees 'in a spirit of comradeship, in accordance with the Olympic ideal, and to develop among them a spirit of loyalty, tolerance and democracy'.

According to Loubinoux, 'the UIC values of Unity, Universality and Solidarity combine well with the values of USIC through open sporting events. Railway men and women will convey this spirit in a world in which railway links between countries and cultures can represent a strong symbolic link of international development of peace.'

LETTERS

Promoting the benefits of crash avoidance

Sir – Thank you for publishing the report about our recent IRHA Forum (RG 12.16 p24). We very much appreciated that Murray Hughes was able to join us in Kyoto, where we discussed the use of Shinkansen as a total system based on Crash Avoidance principles.

Unfortunately, there were a few minor errors in your report which we would like to correct. In particular, Tan Sri Syed Hamid Albar is Chairman of Malaysia’s Land Public Transport Commission (SPAD), and not of Singapore’s as you reported. With respect to the planned Mumbai – Ahmedabad high speed line, the agreement concluded between India and Japan for the use of Shinkansen technology provides for the adoption of 1 435 mm gauge.

The SCMaglev Series L0 trainset used for the demonstration trip at Yamanashi on November 19 was a seven-car formation, rather than a five-car set. And I am pleased to confirm that progress on the major tunnels for the Chuo Shinkansen maglev project is proceeding according to schedule.

There appears to be some confusion in your report between IRHA and JR Central, which I would like to clarify on behalf of the association’s Chairman Masafumi Shukuri and Vice-Chairman Torkel Patterson. The International High-Speed Rail Association is a non-profit organisation whose founding members — JR East, JR Central, JR West, JR Kyushu and Taiwan High Speed Rail Corp — operate high speed railways and lead its activities. All of them use Shinkansen technology based on the principles of Crash Avoidance.

Tomoko Oshi
Head of IRHA Secretariat
Tokyo, Japan

ADVERTISERS

Eurasia Rail 6
Harsoo Rail 53
KLN 13
Max Bögl 44
NRE 31
Pandrol 45
Platter & Theurer 47
Rail Business Awards 40
RailTech Europe 2017 39
SIFER 2017 15
UITP Global Public Transport Summit 24
Wayside Train Monitoring Systems 49

As part of the redevelopment of Paris Nord station, SNCF has opened a new catering complex known as L’Étoile du Nord after the former Paris – Brussels international express. Situated between the main and suburban stations, the facility has three distinct areas: La Brasserie with 120 seats, Le Zinc with 60, and Le Fournil selling bread and sandwiches. Inaugurated on November 15 by SNCF President Guillaume Pepy and the head of Gates et Connexions Patrick Nopert, L’Étoile du Nord offers a menu of organic products developed by French celebrity chef Thierry Marx.

DIETER

Opening of the world’s longest railway tunnel on December 11 (p9) was marked in typically Swiss style. After EuroCity 11 formed the first timetabled train through the Gotthard Base Tunnel, the second train left Basel for Lugano at 04.55, carrying a selection of traditional Basler Läckerli biscuits as symbolic gifts for people in southern Switzerland. It returned north from Ticino carrying panettone for the residents of Basel.