Japan–Korea Undersea Tunnel

The **Japan–Korea Undersea Tunnel** (also **Korea–Japan Undersea Tunnel** or **JPN–KOR Tunnel**) is a proposed tunnel project to connect Japan with the Republic of Korea (South Korea) via an undersea tunnel crossing the Korea Strait using the strait islands of Iki and Tsushima, a straight-line distance of approximately 128 kilometers (80 mi) at its shortest.[1]

The proposal, under discussion since 1917, was followed with more concrete planning during the early 1940s. It was not pursued, however, until after World War II. In early 2008 the proposal came under renewed discussions by ten senior Japanese lawmakers who established a new committee to pursue it.[2][3][4] This was followed by a study group from both countries in early 2009 that agreed to form a committee for the creation of specific construction plans.[5] Committee head Huh Moon-do, a former director of South Korea's National Unification Board and also a key member of the former Chun Doo-hwan government, said the tunnel would help regional economics and would "also play a key role in pursuing bilateral free trade talks" that are currently stalled.[4][5][6]

The proposed tunnel would be more than 200 kilometres (120 mi) long and able to serve a portion of the shipments between the two countries, which rose from approximately $40 billion in combined trade for 1999 to just over $89 billion in 2008, as well as some of the 20,000 people who traveled daily between the countries in 2009.[5][6][7][8]

1 Proposal history

1.1 Early origins

A very early discussion on such a tunnel was conducted in 1917 by then-Imperial Japanese Army General Staff officer and future Prime Minister Kuniaki Koiso (□□ □□).[9] Another early proposal for the project originated in the late 1930s, and was depicted as part of the Greater East Asia Railroad (□□□□□□□□). In 1938, Japan's Ministry of Communications reportedly decided on a preliminary survey of the sea bottom between Japan and Korea, and during the Second World War the Japanese government actively pursued the project in order to connect it with the Korean Peninsula and, ultimately, with the rest of the Asian continent.[10]

In 1939, a Japanese Railway official, Yumoto Noboru, wrote in his book of a trans-Eurasian railway that could link Japan to its Axis partner Germany, and proposed the construction of an undersea tunnel to connect Japan with Korea via the island of Tsushima.[11][12] Such a combined undersea tunnel and land link would help safeguard Japanese communications and shipments to and from Europe, which would be imperiled by a Pacific War.[Note 1]

Noboru's writing was joined in the same year by a recommendation from Mr. Kuwabara, who would later assist in the creation of the undersea Seikan Tunnel, currently the world's longest and the deepest rail tunnel. In 1939 Kuwabara made the same recommendation of tunneling across the straight and connecting to a 'Cross Asian Railway'.[15] Studies were soon conducted by the Japanese government on a possible Kampu (Shimonoseki-Pusan) tunnel between the Japanese home islands and Korea.[16] The plan came under serious consideration starting in 1941.[12]

In September 1940 the Japanese Cabinet issued its overview "Outline of National Spatial Planning" study which outlined its long-term goals for the development of its occupied conquests and spheres of influence in Asia, which it termed the "Greater East Asia Co-Prosperity Sphere". It further refined its plans with the outbreak of hostilities with the United States, bent on increasing its geopolitical and ethnic ties with mainland Asia through a vastly expanded rail and marine network, with special emphasis on the Korean peninsula land bridge to connect it with its colonies.[12] To achieve its objectives, Japan's plans called for "a giant leap forward" in its transportation and communications infrastructures, including shinkansen trains, so that it could integrate all of its colonial economies and ensure the transport of war materials and other necessary supplies to and from the home islands.[12] This coincided with the planning and development of the *dangan ressha* ("bullet train") rail system by a Japanese chief rail engineer, Shima Yasujiro, who concurred on the links between Tokyo, Korea, and China.[17][18]

In 1941 geological surveys were conducted on Tsushima Island and test bores were sunk to 600 metres (2,000 ft) close to Kyūshū.[19] By August 1942, Japan's South Manchurian Railway Company (□□□□□) had created plans for an 8,000 km rail network stretching from Manchukuo to Singapore.[12] Against this backdrop, Japan took its first concrete step for a fixed link to and through Korea to connect it with its planned vast rail network in Asia, with the construction of several bridges as well as the completion of its 3.6 km Kanmon undersea railway tunnel joining the Japanese islands of Kyushu and

Honshu.

Although preliminary work on rail lines, bridges, and tunnels within southern Japan was started, work on the project stopped within a few years as the nation's economy and infrastructure deteriorated due to the Second World War. After 1943, with increasing shortages of materials, manpower, and even transportation, Japan canceled its *Raumordnung* (spatial plan) for its vast new Asian rail infrastructure, as it turned its full-time attention to defending its home islands from invasion.[12] Its Land Planning organization was discontinued in 1943 and its staff was transferred to the Japanese Home Ministry.[12][16]

1.2 Activities since World War II

The proposal for a fixed link between the two countries has been raised in public discussions numerous times since the end of the Second World War. Leaders of both countries have called for the tunnel's construction on a number of occasions.[11]

Starting in the 1980s a Japanese research group has been engaged in detailed research and exploration of prospective routes for the tunnel. In 1988 the Japanese researchers contracted a Korean company to explore the sea off of Koje to document the region's geological features.[11]

In September 2000 South Korean President Kim Dae-jung (□□□) said a review should be performed of the project that could enable all of Japan to be linked to Europe, as "a dream of the future." Kim's comments came during a summit meeting with Japan's then-Prime Minister Yoshiro Mori (□ □□).[11] The following month Mori proposed moving ahead with the project at the Seoul summit of the Asia-Europe Meeting (ASEM); however, Korea and Japan stopped short of committing it as an official bilateral project.[11]

By early 2002 the South Korean Ministry of Construction and Transportation had commissioned three research institutes to study the project's feasibility. Also in 2002 Japanese experts had estimated that the tunnel would take 15 years and cost US$77 billion to complete.[11] Around that time (mid-2002), an easing of relations between North and South Korea gave impetus to the Japan–Korea-tunnel project. The North and South Korean governments had agreed on an inter-Korean rail line to run from Seoul to Pyongyang and then on to Sinuiju, a border city in the north on the Yalu River, as well as a road running parallel to the railway.[11] From Sinuiju trains could then cross the border and access the Trans-Chinese Railway (TCR), and then Russia's Trans-Siberia Railway (TSR) which would lead on to all of Europe's rail networks.[11]

In September 2002, a five-member Japanese delegation visited South Gyeongsang Governor Kim Hyuk-kyu of Korea's southeastern provincial government to discuss the proposal of an undersea tunnel. The legislative group from Japan was headed by Daizō Nozawa (□□□□), a future Japanese Cabinet Minister of Justice who was then a Liberal Democratic Party (LDP) legislator in Japan's House of Councilors. Nozawa, then a key figure involved in Japanese civil engineering projects, also toured Korea's Geoje region. This visit marked a starting point on the contemplated tunnel on the South Korean side, officials at the regional government stated.[11][20] The same month saw comments by Alexander Losyukov, Russia's vice foreign minister for Asia-Pacific affairs, raising discussion on the tunnel project and saying that it was "something for the distant future, but feasible".[11]

The tunnel proposal was again brought forward in the recent era by Japan's 91st Prime Minister Yasuo Fukuda (□□□□).[21] Later, at an August 2009 meeting of the International Highway Foundation in Japan which was addressed by Huh Moon-doh of South Korea, a video was shown of a half-kilometer long test tunnel excavated from Karatsu toward Korea. The foundation also conducted geophysical research on the sea bottom in the Tsushima and Iki Islands areas. Addressing the congregation Huh stated a serious interest in the project, made more attractive by the economic activity it would generate for both countries in the middle of 2009's deepening economic recession. But Huh also interjected that "....there are still deep and lingering anxieties among Korean citizens over closer connections with Japan," referring to centuries of warfare between the two nations dating back to Japan's invasions of the peninsula in the 16th century, almost mirroring that of Britain and France.[5] Huh also commented on the growing possibility of Chinese economic hegemony in the region which could be blunted by greater South Korean and Japanese cooperation. "The tunnel connecting the two nations would be the very symbol of such cooperation", Huh reiterated.[5]

In October 2009 Japanese Prime Minister Yukio Hatoyama (□□ □□□) visited Seoul and had discussions which led to two proposals: an undersea tunnel between Japan and South Korea being one of those. It was announced at the conclusion of his meetings that a research group from the two countries would convene in January 2010 to establish a tunnel building committee.[22] Speaking earlier at the United Nations General Assembly, Hatoyama indicated that the recent changes in Japan would help his nation be a "bridge" to the world. In order to build a unity of nations, Hatoyama wanted to establish an East Asian Community similar to the European Union. An undersea tunnel between the two countries would help establish that unity.[22]

1.3 Notable supporters

South Korean President Lee Myung-bak (□□□), inaugurated as president in February 2008, expressed a willingness to consider the project, unlike his immediate predecessor Roh Moo-hyun. Former Japanese Defence

Minister and long term Diet member Seishiro Etō was quoted after a meeting with other interested lawmakers from various parties: “This is a dream-inspiring project.” and “We'd like to promote it as a symbol of peace-building”[23] Japanese legislators also stated that the tunnel could "...one day allow passengers to travel by rail from Tokyo to London”.

Other South Korean presidents who have publicly supported the fixed-link have included Roh Tae-woo and Kim Dae-jung.[9] Japan’s former Finance Minister Masajuro Shiokawa also discussed the economic stimulus benefits of large infrastructure programs such as the Channel Tunnel, in light of the grave economic crisis his country and the region was experiencing in 2009.[5]

Former Ministers of Justice Daizo Nozawa, president of the Japan–Korea Tunnel Research Institute, and Kim Ki-Chun, also a former executive member of the Korea-Japan Parliamentarians Union, have been significant supporters of the project, saying: “any engineering challenges [to building the tunnel] can be met with present technology.” They also cautioned, however, that “Far more daunting is the historic psychological barrier between the two countries. There is no better way to bring people together than to engage them in a project requiring all their efforts.”[6]

Similarly, Professor Shin Jang-cheol of Soongshil University in Korea has also promoted the project, stating that "...the tunnel will stimulate business, ease tension and promote political stability in East Asia. It will also have a positive impact on the reunification of the Korean Peninsula.” Shin further commented on the project’s positive aspects by noting that it would encourage a joint Free Trade Zone by improving the region’s general transportation infrastructure.[6]

A noted long-time proponent of the tunnel project was South Korea’s Sun Myung Moon (□□□), the late Korean founder and leader of the worldwide Unification Church. Moon proposed a "Great Asian Highway" as early as November 1981 at the 10th International Conference of the Unity of the Sciences and helped establish several related committees over the next three years.[24] Moon also helped create the International Highway Construction Corporation (IHCC) in April 1982 to build both the tunnel project and other transportation infrastructures, motivated by the project’s potential for promoting international harmony and world peace.[24][25]

Moon was also the inspiration of the late highly respected Japanese scientist Eizaburo Nishibori, who was a major proponent for the current impetus on the tunnel project.[5] He became motivated upon hearing Reverend Sun Myung Moon’s proposal for this tunnel in 1981 at the International Conference on the Unity of the Sciences meeting in Seoul, South Korea. Nishibori subsequently helped organized the Japan–Korea Tunnel Research Institute which has performed major research and assisted in the selection of the three new proposed tunnel routes.[5]

In October 2010, a group of 26 Korean and Japanese scholars of the Joint Research Committee for a New Korea-Japan Era, led by Ha Young-sun of Seoul National University and Masao Okonogi of Keio University, released the findings of their study: “A Joint Study Project for the New Korea-Japan Era”. The research study made specific policy proposals in order to improve both countries’ bilateral relations, and among the study’s suggestions was a call to build the undersea tunnel in order to link the two countries together.[26][27]

Additionally, in August 2014 business organizations representing South Korea’s and Japan’s largest companies announced there was a “need to raise public interest for the undersea tunnel plan that could link South Korea to Japan by rail”, as well as increasing tourism between the two countries. Representatives of the Federation of Korean Industries and Nippon Keidanren stated that increased tourism between their two lands could “help overcome past differences and help fuel domestic spending in both countries”, while the proposed undersea tunnel could create ₩54 trillion won (54T□, or US$53 billion) in economic benefits. It could also provide about 45,000 jobs, according to the Busan Development Institute. While that announcement was made at a meeting held in the South Korean capital, Seoul, the Keidanren portion of the Japan Federation of Economic Organizations in Tokyo also announced their support for efforts to increase “more civilian exchanges and foster better relations” between the two cultures by increased tourism and trade.[28]

1.4 Proposed routes

An early post–World War II proposal called the “Korea-Japan Friendship Tunnel System”, had tunnels running between Korea and Japan, extending from the Korean port city of Busan (connect with Korail) to the Japanese city of Fukuoka on Kyūshū (connect with Sanyo Shinkansen), via four islands in the Strait.

Since approximately 1988 three newer routes have been proposed for the project by the Japan–Korea Tunnel Research Institute Society (founded by the Korean Unification Church), with all three routes having the most eastern point terminating at Karatsu, Saga Prefecture, on the Japanese island of Kyūshū.[11] The proposed western termination points are in the Korean port city of Busan (□□□□□) for one of the routes, and the city of Geoje (□□□) for the other two routes, with all three routes running across the Strait islands of Tsushima and Iki.[11] Combined tunnel-island traverses for the three routes range from 209 to 231 kilometers to cross the Korea Strait (both the eastern Tsushima Kaikyō and the western Busan Strait). Those distances would be far longer than the 50.5-kilometre (31.4 mi)[29] undersea Channel Tunnel which connects Britain to France.

In early 2009 the joint study group stated that the route

would almost certainly begin at Karatsu in Japan's Saga Prefecture, and likely travel to Geoje Island on the Korean shore.[4] If the tunnel travels between Karatsu and Geoje, it would span a length of 209 kilometres (130 mi), with an undersea distance of 145 kilometres (90 mi), making it the longest such tunnel in the world.[4]

One of the new proposals calls for a combination road and rail link from Karatsu on Kyushu Island and terminating at Busan, the second largest city in South Korea.[9] Of the three tunnel routes under consideration, the favoured design was a combination bridge from Karatsu to Iki Island, followed by a 60 km tunnel to the central portion of Tsushima Island, and then a 68 km tunnel roughly westward to Busan at an estimated cost of approximately 10 to 15 trillion yen ($111 billion to $157 billion).[9]

Other options would see the final tunnel portion constructed from Tsushima to Geojedo Island off the Korean coast, and then to Masan on the peninsula, with two different tunnel designs under consideration. One version would be similar to the Channel Tunnel, which employs a service and emergency tunnel situated between its two train tunnels. The other design would have a single large diameter tunnel for both road and train traffic.[5][9] Long highway tunnels have in the past been criticized for their inherent safety issues involving serious auto accidents, as have been experienced in several European tunnel disasters in the past.

2 Potential benefits, costs and possible issues

In the mid-1980s, the tunnel's approximate cost was estimated at US$70 billion,[30] with the Japan–Korea Tunnel Research Institute placing it between approximately ¥10 to ¥15 trillion (Japanese Yen).[31] The proposed tunnel project would provide a savings of about 30 percent in costs of transporting goods between the two countries[32]

The tunnel would also benefit passenger travel, with travel times around 5 hours Seoul–Osaka (1040 km) and 7 hours Seoul–Tokyo (1550 km). This would offer South Korea a chance to redefine and expand its tourism industry to include other cities and destinations besides Seoul, as the tunnel would serve as a gateway for tourists to travel with ease to and from the peninsula.[33][34] The tunnel would also assist in the creation of the proposed BESETO (Beijing–Seoul–Tokyo) Highway Plan which would connect six megacities (Shanghai, Tianjin, Beijing, Seoul, Osaka and Tokyo), each having a population of greater than 10 million people.[35]

By 2002, a preliminary Japanese study had reported that the costs of freight transported through the tunnel would be one fourth of those related to traditional maritime shipping, and that shipments from Japan to Europe, via the Eurasian Land Bridge, would arrive faster than the 20 days for seaborne transport.[11][20]

Others have debated the tunnel project. The Korean news media outlet *Chosunilbo* reported in 2007 that construction would cost between ₩60 to ₩100 trillion (Korean Won) and take 15 to 20 years to construct. This is more than five times the cost and three times the construction time of the tunnel between Britain and France.[36] Opponents to the project say that Korea would gain little from such a tunnel, which would principally help Japan expand its economic and political influence into the Asian continent.[36]

According to professor Park Jin-hee of the Korea Maritime University, in the period prior to 2007 it cost $665 to ship a 6 metres (20 ft) container from Osaka to Busan.[37] With an undersea tunnel, the estimated price would drop to $472, a saving of almost 30%.[36] Further economic benefits would be gained if North Korea would permit trains to cross through it into China, from where trains could then access the Trans-Chinese Railway to gain the Trans-Siberian Railway to Europe.[11][20][38] An additional proposal raised in 2009 suggested the construction of a second tunnel from Pyeongtaek at the north end of South Korea, tunneling westward to Weihai in China's Shandong Province, completely bypassing North Korea, whose government has been seen in the past as both volatile and temperamental.[35] Such a Yellow Sea tunnel would cover a distance of 370 kilometres (230 mi).[39]

However negative views of the tunnel's profitability also emerged the same year.[30] Japanese Studies Professor Shin Jang-churl, of Seoul's Soongsil University, stated that both countries' political proposals were "....nothing but [empty] diplomatic rhetoric."[30] Key issues for the tunnel would be its enormous construction cost combined with possible low profitability, similar to the Eurotunnel's financial situation since it opened in 1994.[30]

In early 2009, the new joint study group identified that the construction costs alone would be ¥10 trillion by a Japanese estimate, and almost ₩200 trillion by a Korean estimate.[4] A Japanese report also showed the tunnel would not be economically feasible, which was similar to another study conducted by the Koreans.[4]

However the group also pointed out that the tunnel is economically feasible if decision makers also included the effects of job creation and the project's ability to revive the construction industry.[4] Korea would see a ₩13 trillion addition to its construction industry, and Japan's increase would be ₩18 trillion. With industrial effects, the group forecast that Korea would see economic benefits worth ₩54 trillion and ₩88 trillion for Japan.[4]

In 2011, a new study released by South Korea's Land, Transport and Maritime Affairs Ministry, referring to studies by the government's Korea Transport Institute (KOTI), reported that the proposed tunnel project, as well as another proposed tunnel project from the northwest of South Korea to neighbouring China (which would bypass

North Korea) were both economically non-feasible. The KOTI studies cited the estimated combined construction costs for both projects at about ₩100 trillion (approx. US$90 billion), which would produce an extremely low benefit-to-cost result.[40]

In 2014, the South Korean Busan Development Institute estimated the undersea tunnel could create ₩54 trillion won (₹54T, or US$53 billion) in economic benefits and also provide about 45,000 jobs.[28]

3 Comparison to the Anglo-French Channel Tunnel

In an April 2009 editorial, former Justice Ministers Daizō Nozawa of Japan, and Kim Ki Chun of South Korea, remarked on some of the similarities of the proposed Japan–Korea tunnel to the world's present longest undersea tunnel. The Eurotunnel (officially named the "Channel Tunnel") was created after the Treaty of Canterbury was signed by the United Kingdom and France in 1986, and marked its 15th in-service anniversary in May 2009, after connecting Great Britain to mainland Europe.[38] The Japan–Korea tunnel faces not only technical issues, but similarly the mistrust of two former adversaries created by centuries of conflict. However, the UK and France were able to bridge their political divide and link themselves together, setting the stage for a sea-change in their relationship.[38][41]

The addition of the fixed link to Europe, once believed to be "impossible to build and financially impractical", resulted in numerous positive changes to both the U.K. and mainland Europe. Among the most significant was the loss of a key psychological barrier (akin to an "island mentality"), that previously held back many Britons and other Europeans from travelling to each other's nations, according to Kim and Nowzawa.[38]

A veritable new industry subsequently sprang up to serve Britons wanting to buy properties in several European countries. Fifteen years after opening the Channel Tunnel, it was estimated that 300,000 French citizens were living in London, helped in part by reasonably priced Eurostar fares and service that is almost completely immune to bad weather and heavy seas.[38] The Channel Tunnel is seen as an important asset to the entire European Union's infrastructure, placing Brussels less than two hours from central London, with central Paris taking only 25 minutes longer to reach.[42] It has "greatly facilitated integration of the region."[38] The Japan-Korea Cooperation Committee, composed of business organizations and academics, similarly concluded in August 2009 that "the undersea tunnel may contribute to the integration process of Northeast Asia."

That fixed link allows hundreds of thousands of citizens to move and work more freely in each other's countries, and has also allowed for greater economic growth.[38][41] In contrast however, Northeast Asia, also one of the world's fastest growing economies, experiences a lower degree of internal political cohesion partly due to its poorer intraregional transportation links.[43] This observation was similarly noted after a two-day meeting in late 2008 by the Japan–Korea Cooperation Committee of business leaders and academics that reported "the undersea tunnel may contribute to the integration process of Northeast Asia",[5] helping to establish an Asian economic sphere of several hundred million-plus people.[44]

Politically and economically, both tunnels could be viewed as symbols of regional integration, with former French President François Mitterrand once stating: "The Channel Tunnel... is nothing less than a revolution...."[43]

Nozawa and Kim further claimed that the Channel Tunnel was instrumental in redirecting how the peoples of different cultures and nationalities view each other, something they hope that the Japan–Korea fixed link will also accomplish in order to reverse centuries of conflict and mistrust between their two countries.[38] As with the Channel Tunnel, the Japan–Korea tunnel would be regarded as a prime political symbol, and proof of intraregional cooperation.[22][43]

For the Japan–Korea fixed link project to proceed, it must also, after decades of informal talks and private research, similarly move into formal bilateral discussions and agreements.[38]

4 Associated difficulties

4.1 Societal

Both the Japanese and the South Korean publics have reservations toward closer links with each other. Some South Koreans still have strong memories of the Japanese occupation of Korea from 1910–1945.[30] Urban Planning Professor Hur Jae-wan of Seoul's Chung-Ang University argued that for the tunnel to become politically viable it would be essential for the project to gain significant support from both country's citizenry, stating:

> :*The Japanese hold a xenophobic nationalism that they are different from other Asian countries. The South Koreans, in contrast, believe they were victimized by the Japanese and harbor suspicion about Japan's expansionism and think the tunnel might lead the South Korean economy and culture to be absorbed into Japan's.*[30]

In the mid-2000s, disputes over history, territory and policies aimed at North Korea had brought the two countries' relations to a low point, and deepened their mistrust

in each other. Professor Shin Jang-churl of Soongsil University in Seoul advised that it was essential for consensus to be reached by both Japanese and South Korean nationals on the relevant issues that divided them.[30]

4.2 Political

Both Japan and Korean tend to favor large infrastructure projects, so this project might seem to be fairly obvious politically, but this project has been the target of far right/nationalist political groups in both countries. Many South Koreans have also advised caution in proceeding with the project due to worries of firms in the much larger Japanese economy becoming more dominant in South Korea due to the lower logistical expenses the tunnel would provide, and this increased economic power would further expand the political power of Japan in the region.[11] Similarly, many Japanese firms worry it may expand the increasing dominance of Korean firms in sectors such as consumer electronic. China's increasing dominance in the region may, eventually, minimize these concerns making the project politically viable, but this is not yet the case.

In the early 2000s Japan's relationship with South Korea soured when Japanese Prime Minister Junichiro Koizumi visited his country's Yasukuni shrine several times, an action deemed offensive to many Koreans.[45] Another contentious issue may be the territorial dispute over the Liancourt Rocks islets (Dokdo/Takeshima) located to the northeast of the strait, which have long been claimed by both parties but under South Korean control since 1952.[21] South Korea's Coast Guard personnel first occupied the islets in 1953, with more permanent facilities built by South Korea over the next several years.[Note 2]

Aside from the power politics that exist between Tokyo, Seoul, Pyongyang and Beijing, other policy issues that could restrict a tunnel between Japan and Korea include various regulatory barriers such as different rail transport regulations, border controls, and trade policies.

5 No tunnel alternatives

An alternative build concept that speeds up connections and avoids the expensive undersea tunnel, could be a merger of fast ferry and rail ferry and railway service that could allow a high speed train to run through Tsushima Island and connect with ferries on either side of the strait, thus reducing Japan-Korea transit times from 3 hrs (current JR Beetle Fast Ferry) to just over 2 hrs, while allowing Japanese trains to run in Korea and Korean trains in Japan. This takes into account the Kyushu Shinkansen HSR line to Nagasaki already under construction.

A route capitalizing on existing infrastructure plans:

- A spur HSR line running north from the future Shin-Ōmura Station through Sasebo and Hirado, also enabling Nagasaki-Sasebo HSR services.
- 5 km of new bridges from Hirado Island to nearby islands of Takushima and Azuchi-Oshima islands, providing an overland link to those islands with Kyushu for the first time.
- From the northern bay of Azuchi-Oshima island, a fast rail ferry could link to Tsushima island, at which the shortest sail route would be roughly (71 km/1hr)
- A HSR rail route on Tsushima island at high speeds (64 km, 20 minutes) bypassing Tsushima city, but allowing passenger exchange through newly built combined ports/rail stations at either ends of the island.
- The final legs: towards Busan, a (50 km/45min) rail ferry route to the closest land on Yeong Island, where a rail head could be built.
- Towards Gwangju: a (50 km/45min) rail ferry with a port and rail head at Geoje Island.

6 See also

- Greater East Asia Railroad
- Seikan Tunnel, the rail tunnel between the Japanese islands of Hokkaido and Honshu.
- Japan–Korea relations
- Korea Train Express (KTX Bullet Trains)
- Sakhalin–Hokkaido Tunnel, a proposed Russia–Japan undersea tunnel, and possible competitor to the Japan–Korea tunnel project
- Trans-Asian Railway
- Trans Global Highway/Japan–Korea Tunnel
- Transloading
- Tunnel boring machine
- Jeju Undersea Tunnel
- Channel Tunnel

7 References

Footnotes

[1] Yumoto's concerns for the dangers posed to Axis transport and communication links were valid. With increasing Allied control of the Indian and Pacific Oceans, surface shipping was severely restricted. Additionally, of 41 German U-boat transport submarines and 3 Italian cargo

submarines built or assigned by Nazi Germany to support trade and communications with Japan, only two shipments of critical Far East materials were successfully received by the Germans. The remaining submarines were either sunk, surrendered, isolated due to lack of fuel or successfully blockaded by the Allies.[13] One shipment of German goods on a surrendered U-boat bound for Japan late in the war contained plans for advanced weapons and several hundred kilograms of uranium oxide. Japan's intended use for the uranium was never discovered.[14]

[2] A Wikipedia article on the Liancourt islets previously noted: "On January 12, 1953, the Government of South Korea ordered the army to enforce their claim on the island, and in the same year on April 20, South Korean volunteer coast guards set up camp on the island. On June 27, 1953, two Japanese coast guard vessels landed on the East Islet, drove off the Korean guards and set up a territorial marker, but did not attempt permanent occupation. The Koreans soon returned and several armed skirmishes followed, leading to the sinking of a Japanese ship by Korean mortar fire on April 21, 1954."[46]

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9 External links

- Japan–Korea Tunnel Research Institute (Japanese)
- Korea-Japan Undersea Tunnel Promotion Association (□□□□□□□□□□□□□) (machine translated to English)
- Japan–Korea Tunnel Conference (machine translated to English)

- Original Trans-Global Highway Proposal
- International Highway and Japan-Korea Undersea Tunnel Project -History of the International Highway Project, International Highway Construction Corporation (IHCC) website,

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