Effort and Expected Effects on Connecting Railway in Korea Peninsula
1. North Korean railway`s current status
2. Trend of continental railway surrounding the Peninsula
3. KORAIL`s efforts to connect two Korea`s railways
4. Strategy and Expected Effect of the Inter-Korean Railway
1st
North Korean railway's current status
Feature of North Korean Railway

- Railway accounts for 75% of passenger and 90% of freight transport, which is railway is main a means of national transport.

North Korea’s ruling system makes railway the best transport with easy control, punctuality, safety and large quantity.

- Built H-shaped network to cross east and west and converged to industrial and densely populated area along east and west ocean.

West line is Pyeongbu linking Gaeseong-pyeongyang and Pyeongui linking Pyeongyang-Shinuiju and Dongbu line has 781.km of Pyeongra.

Pyeongra and Cheongnyeonicheon line is main east-west line linking to connect west and east.
Rate of electrification up to 80%
- High rate of electrification,
  But chronic lack of power is an obstacle

Low rate of double-track and obsolete facilities
- Standard gauge is 87%.
- Narrow(1,067mm) and wide gauge(1,520mm) is 13%

Shape of network

Service distance

Electrification

Double track

Based on KORAIL's business statistics (in 2018) and North Korea statistics (National Statistical office 2017)
Comparison of North and South Railway: Rolling stock and share of transport

### Rolling stock (car)

- **North**
  - High speed car: 0
  - Locomotive: 2,213
  - Passenger car: 24,113
  - Freight car:

- **South**
  - High speed car: 1,530
  - Locomotive: 920
  - Passenger car: 10,865
  - Freight car:

### Share of transport

- **North**
  - Passenger:
    - Railway: 74.8%
    - Road: 24.9%
  - Freight:
    - Railway: 90.7%
    - Road: 6.1%
  - Ship, air plane: 0.3%

- **South**
  - Passenger:
    - Railway: 5.0%
    - Road: 79.6%
  - Freight:
    - Railway: 25.7%
    - Road: 74.1%
  - Ship, air plane: 0.2%

- Based on Future infra laboratory 2016
Current missing link of North–South Korea Railway

Korea Peninsula Railway Map

Kyeongui Line 17.6Km completed (Dorasan ~ Kaesong)

North Donghae line 25.5km Completed (Jejin ~ Geumgangsan)

Kyeongwon Line 25.3km (Under Construction) (Baengmagojji ~ Pyeonggang)

Geumgangsan Line 116.6km (Cheorwon ~ Naegeumgang)
Current situation of North Korean railway (1)

Pyeongui Line (December 2007)
Current situation of North Korean railway (2)

Rajin-Duman river Line (July 2014)

Korea Peninsula Railway Map

Inspection Site
(Rajin-Duman river, 54km)
Current situation of North Korean railway (3)

Gyeongui Line (July 2018) – Panmun~Gaesung, 10.3km

Korea Peninsula Railway Map

Inspection Site (Gyeongui Line)
(Panmun~Gaesung, 10.3km)
Current situation of North Korean railway (4)

Donghae Line (July 2018) – Gamho~Mt. Kumgang, 14.3km

Korea Peninsula Railway Map

North Korea

South Korea

Inspection Site (Donghae Line) (Gamho~Mt. Kumgang, 14.3km)
2nd
Trend of continental railway surrounding the Peninsula
China, rising to the leader of world railway market

4 vertical 4 horizontal ways project to link east-middle area

Chinese core strategy to establish ultra high speed rail network going through Middle-Asia located between Asia and Europe

Longest high speed railway network in the world 25,000km / Total railway distance 127,000km (at the end of 2017)

Started construction of high speed railway (Dunhua-Erdaobaihe) linking to Mt. Baekdu on April, 2018 (5 years to be estimated)

Leading to establish AIIB (Asia Infra Investment Bank)

To support fund to Asia region for infra construction

* 67 members (June 2017), 100 billion USD

One belt, One road, Chinese plan for Asia

Long term strategy including politics/secure not just for growth

Enhancing economic growth, network and exchange, development for Asia

One belt: Land silk road, One road: Ocean silk road

① Building transport/energy infra ② Expanding free trade zone ③ Increasing Chinese currency zone and swaps
Putin’s administration pushed forward the new east asia policy by establishing the far east development division (May, 2012)

Announced development strategy program of governmental level with materialization of the existing development policy the far east region

Set up「Development strategy of the far east and Baikal region 2025」of 346 billion Ruble from 2013 federal government budget

Railway-related contents of「Development strategy of the far east and Baikal region 2025」
Modernizing TSR and section of Baikal-Amur (BAM)
Upgrading Sakhalin railway and increasing speed of train in section of Vladivostok-Ussuriysk/Khabarovsk (140-160km/h)

A 7-days project to traverse TSR

To go across Siberia by railway within 7 days (2011~2015)

Increasing the competitiveness of TSR from a point of stock distribution by cutting down weak fare compared with volume by ship

Providing a 7-day TSR of high speed freight service from May 2013 after achieving 1,400km/day

The ‘Transsib in 7 Days’ transport product

1,400 km per day by 2015

Length of route across Russia : 9,288km
3rd
KORAIL`s efforts to connect two Korea`s railways
Trial operation in connected Section of two Korea’s railway (May 17, 2007)

The first train operation since two Korea’s division
Agreed on connecting railway at minister-level meeting April, 2006

Accomplished two Koreas’ trial operation at the same time on restored section (Gyeong and Donghae Line)

South Korea ran on Gyeongui Line (Munsan-Gaeseong, 27.3km)
North Korea ran on Donghae Line (Mt. Geumgang-Jejin, 25.5km)
Regular operation of freight train (DEC 2007 ~ NOV 2008)

Regular operation of freight trains between Dorasan-Panmun

Suspended by 12.1 action in 2008 even though it started with North-South Joint Statement Oct 4, 2007

Supply of Gaeseong industrial complex is by road. No much volume by railway.
- Railway is for long-distance with large quantity. Gaeseong needs short-distance with many kinds of goods

Record of railway transport (Dec. 07. ~ Nov. 08)

<table>
<thead>
<tr>
<th>Num. of operation</th>
<th>Total volume of transport</th>
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<tbody>
<tr>
<td>222 times</td>
<td>78TEU (311 ton)</td>
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Gathering of goods, train make up

Gathering of goods, train make up

Custom-quarantine

Custom-quarantine

Gaeseong industrial complex
Effort to be member of OSJD

Joined OSJD as affiliated member (March 21, 2014)

Attended Summit meeting in Pyongyang (April 24, 2014)
- 2015 President-level Freight depart
- 2019 Regular President-level meeting

Held President-level meeting in Seoul (May 27, 2015)
- Adopted “Seoul Protocol” to support connecting of TCR and TKR with 300 participants from 25

Participated in regular president-level meeting in Vietnam (May 19, 2018)

“If Korea is to be a part of EURASIA TCR, it is conducive to realize silk load of continental railway. Korea is the final piece of puzzle for EURAISA railway.”

- Secured support from member countries and justification for Korea’s regular member through CEO Keynote address
- Joined OSJD as regular member (June 7, 2018) / Equivalent effect to make agreement with 28 countries at the same time
Effort of North–South Korea to connect railway in 2018

**Mutual effort to connect railway!!**

First Summit meeting of two Koreas (May 27, 2018)

Formed mutual consensus on connecting two Korea’s railways with Mr. Kim’s mentioning South Korean railway

Railway cooperation between two Koreas meeting (July 20, 2018)

Confirmed mutual stands on connecting rails and agreed on joint investigation for peace and prosperity of two Koreas

Joint investigation on connecting section of Donghae line (September 19, 2018)

Investigated jointly section of MDL~Mt. Gaumgang Station (18.4km)

Third Summit meeting of two Koreas (December 26, 2018)

Agreed on ground breaking ceremony to secure the driving power within 2018

Joint investigation of North Korea Railway (2018.11.30~12.17)

Groundbreaking ceremony for Restoration of Inter-Korea Railway

South and North agreed to implement joint investigation on North Korean railway as soon as possible before modernization of Donghae and Gyeongui line.

Gamho and Samilpo station of Donghae line has good-conditioned rail-bed and track

Pyongyang~Joint Declaration (2~1)

Two Koreas agreed to have groundbreaking ceremony to link rail and road of Donghae and Seohae line within 2018.

I am afraid that obsolete transportation system of North Korea gives you inconvenience. I heard from North Korean delegate to Pyeongchang winter games that high speed train of South Korea was great. It could be embarrassing in North Korean condition.
4th
Strategy and Expected Effect of the Inter-Korean Railway
Direction to accomplish Continental Railway Project

- Upgrade and modernization of North Korea railway
- Cooperation activities with railway agencies
- Active participation in governmental policies
- Connection of TKR
- Connection of Continental Railway
Logistical Effect of TKR Connection

$1 Trillion of trade volume, Most of marine logistics, Only if TKR is restored & linked to Eurasian rail routes, logistics will be activated

1. Pilot Transportation Project between TCR~TKR
   - Route: Jilin Sheng (China) - Sinuju (N. Korea) - Pyeongyang (N. Korea) - Seoul (S. Korea)
   - Distance: 2,409km = 1,139km (52.7% ↓)
   - Time: 14 Days = 7 Days (50% ↓)

2. Pilot Transportation Project between TCR~TSR
   - Route: Seoul (Korea) - Pyeongyang (N. Korea) - Duman River (Korea) - Moscow (Russia)
   - Distance: 11,448km = 10,589km (7.5% ↓)
   - Time: 25 Days = 19.5 Days (22% ↓)
Railway, driving force of unification from that of economic development

We must carry on “sustainable” project, not just for show.

Plan scale and line of railway to be used in the next 100 years
- Securing line and land as much as possible
- Constructing railway as soon as fund is obtained
  → far-sighted national policy

Railway played a critical role in the national industrialization in 1960’s (a 5-year economic development plan)

TKR’s entering TCR will play a key role for unification and impetus of Korean 2nd development.