

Korea's national train operator Korea Railroad Corporation (KORAIL) runs a successful trial of a 50-wagon freight train

A test run of a 777-meter long freight train was conducted on the Seoul – Busan route. Such extra-long train operations are expected to achieve a 52 % gain in railway carrying capacity.

KORAIL is targeting the first half of 2023 for the launch of extra-long trains into commercial operation, which would contribute to the sustainable development of rail-based logistics through increasing the share of rail transport in the aggregate volume of freight transportation.

KORAIL's President and CEO Mr. Na Hee-Seung stated that providing smart mobility by launching extra-long trains into regular operation would incentivize further innovation in management and help resolve logistics capacity shortage challenges.

The public train operator Korea Railroad Corporation (KORAIL) has laid the foundation for the sustainable development of Korea's railway logistics as it conducted a successful trial operation of the Republic of Korea's first 777-meter long freight train on the Seoul – Busan line. By its length, the freight train is more than twice a 388-meter long high-speed passenger train consisting of 20 coaches.



KORAIL reports that a successful test run of an extra-long 50-wagon freight train was completed as the train had covered the 402.2-km route from Seoul to Busan on 19 July 2022.

On 19 July, KORAIL announced the successful completion of a test run of a 50-wagon extra-long train from Seoul to Busan.

The pilot run was performed as part of the implementation of a forward-looking strategy to get out of a situation where KORAIL operated at a loss in the context of the continued COVID-19 pandemic. KORAIL's move can be interpreted as a decisive step toward sweeping innovations in company management that include the introduction of a smart railway system, i.e. the implementation of extra-long freight trains that may become a new source of profits.

Currently, KORAIL runs at a loss of USD 154 million a year in railway logistics alone. In order to turn around a deficit structure into a surplus one, a system of transportation needs to be introduced that would support operation of at least 64-wagon trains. As a first step to introduce such a system, the 50-wagon extra-long freight train was put into trial operation. With this strategy, KORAIL looks to ensure its financial stability by introducing a sustainable profit-generating model that would be immune to the impact of the ongoing COVID-19 pandemic.

The Seoul – Busan route is run by a variety of passenger and other commercial trains. However, the route had never before been traveled by a 50-wagon freight train. To conduct the test run, the freight train required two electric locomotives to provide traction to the 50 wagons. The containers carried by the train were loaded with electric appliances, auto parts, and other high value-added export goods in order to emulate the conditions for the train's commercial operation.

The extra-long freight train departed Seoul at 5 a.m. to arrive at Busan at 11 a.m. after having covered the distance of 402.3 km.

Due to the small area of its territory and the disconnection of railway lines between the South and the North of Korea, the Republic of Korea has a short operational length of its railways compared to other countries where railway logistics are well-developed. These circumstances are a limiting factor for the design and operation of extra-long freight trains intended to carry large volumes of cargo over long distances.

In contrast with the People's Republic of China and Russian Federation, for example, where the operational length of railway logistics adds up to anywhere between 700 and 1500 km, the Republic of Korea has only 257 km.

According to a study performed by the China Academy of Railway Sciences (CARS), the operational length of railway logistics has to be at least 700 to 800 km to put transport by rail ahead of transport by motor road. Japan's freight railway JR Freight reports that the share of freight transport by rail surpasses that by road once the operational length of railway logistics exceeds 600 km.

In light of those findings, and as KORAIL works hard to prepare itself for the beginning of the era of transcontinental railways, the task of making extra-long freight trains fully commercialized is of paramount importance in order to achieve the necessary operational lengths of railway logistics and get incorporated into the transcontinental railway network.

It should also be taken into account that freight stations and railway lines were built in the period when Korea was occupied by the imperialist Japan, so they do not meet the requirements to operate extra-long freight trains. To rectify the situation, KORAIL has invested great effort to find suitable space, make upgrades to the railway infrastructure, and eliminate any other factors that were hindering commercial operation of extra-long trains.

In spite of all the complications described above, the firm will and determination of KORAIL President Mr. Na Hee-Seung made the successful trial operation of the extra-long train a reality.

KORAIL President Mr. Na Hee-Seung, who assumed the position in November of the last year, suggested a number of novel ways to resolve the deficit problem and improve corporate governance. Together with experts in various railway-related fields, President Na Hee-Seung had developed a phased plan to resolve the technical problems involved in the introduction of extra-long cargo trains. The successful trial run of the 50-wagon extra-long train on 19 July 2022 was part of Phase One of the phased plan. The trial run was a significant achievement considering the country's challenging conditions in which KORAIL was able to develop a method to operate extra-long freight trains.



777-meter extra-long freight train of 50 wagons crossing a railway bridge in Korea as part of its very first trial operation.

Commercial operation of extra-long freight trains is expected to bring about a radical improvement in the business environment in the logistics sector, considering the ability of such trains to carry large volumes of cargo. Commercializing such trains would also contribute to the green agenda helping to achieve carbon neutrality and improving the competitive standing of Korean logistics through smart mobility and a greater share of rail transport in the overall volume of freight transportation.

Today, KORAIL's container trains average 33 wagons. Switching to extra-long freight trains of 50 wagons would increase the carrying capacity by 52%.

In addition, operation of extra-long freight trains that on the whole are considered an environmentally clean mode of transport will help to meet the goals of the Carbon Neutrality 2050 policy of the government, as well as the goal of reducing the emissions of greenhouse gases in the transport sector by 37.8%.

KORAIL plans to review the outcomes of the trial operation of the extra-long freight train and rectify any shortcomings revealed by the analysis in order to launch commercial operation of extra-long trains by the first half of 2023. In particular, given that operation of 50-wagon extra-long freight trains necessitates the construction of passing loops of over 900 meters in length, KORAIL is currently engaged in a close dialog with the Ministry of Land, Infrastructure and Transport, as well as with other relevant government agencies.

KORAIL President Mr. Na Hee-Seung stated that KORAIL would make significant investments in infrastructure upgrades since extra-long freight trains are the solution that would radically transform the sector's deficit structure into a surplus one. He also pointed out that KORAIL would work actively to implement managerial innovations and improving the company's financials by means of developing a new profit model that would take advantage of safe smart mobility technologies in rail transport such as a wireless shunting control system and an integrated wireless control system.

KORAIL President Mr. Na Hee-Seung also stated that KORAIL planned to further strengthen its cooperation with OSJD member countries to prepare itself for transcontinental transport operations, and was at the moment considering the feasibility of joining the Agreement on Transportation of Containers by Container Trains in International Traffic.



On 19 July, KORAIL President Mr. Na Hee-Seung (right in the photo) supervising the process of trial operation on the Seoul – Busan line from the locomotive of the 777-meter long freight train of 50 wagons.



KORAIL President Mr. Na Hee-Seung (left in the photo) checking the condition of the extra-long freight train after a successful arrival in Busan.



KORAIL President Mr. Na Hee-Seung giving an interview to Korea's main state-owned TV network about the success of the trial run of the extra-long freight train.

Comparison of the length of an extra-long freight train with a high-speed KTX passenger train

