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SUMMARY

How to Use Transportation as a Catalyst for Economic Growth

The Republic of Korea mapped out a national road network plan that would make highways accessible within 30 minutes from any point in the country. Photo credit: KOTI.

The development of transportation infrastructure served as a linchpin of rapid economic growth in the Republic of Korea.

Overview

The Republic of Korea is one of the countries that developed rapidly and dynamically in modern history. Though the Korean War in the 1950s destroyed most of its infrastructure and disrupted economic activities, the country rose to become one of the world's biggest economies with support from the international community.

Many factors contributed to the country's rapid economic growth. A decisive factor was the construction and systematic operation of transportation logistics facilities. The construction of roads and railways was the driving force behind economic development through the efficient movement of people and resources. The expansion of transportation facilities was also a major contributor to balanced regional development in the country.

Recently, the Republic of Korea adopted intelligent transportation systems, which significantly improved highway traffic management through electronic toll collection. Automatic illegal parking detectors and security camera systems helped alleviate traffic congestion in large cities. In addition, the introduction of transit smart cards and real-time public transport information greatly improved mass transport services.

The country is also developing and promoting the use of environmentally friendly vehicles, such as electric cars, to reduce greenhouse gas emissions to mitigate climate change, a global environmental issue. In addition, it is developing an autonomous or self-driving car to offer greater mobility and safety for the elderly.

The Republic of Korea's success story is an example of best practice in the international community (e.g., case studies by the Knowledge Sharing Program and G-20). The role of transportation in its rapid economic development can provide lessons for emerging cities in Asia and Africa.

This article was adapted from 50 Praxes for Better Transport in Korea, a special report of the Korea Transport Institute (KOTI).

Systematically invest in expressways for interregional mobility

The construction of highways facilitated economic development while enabling people to travel to anywhere in the country within 24 hours.

Before the construction of the Gyeongbu Expressway, it took more than 8 hours to travel between Seoul and Busan. The highway more than halved the time. It facilitated the supply of products from industrial complexes to consumers in major cities across the nation. It increased mobility between major and provincial cities. This promoted the growth of regional economic activities, contributing to the economies of underdeveloped areas.

After the Gyeongbu Expressway was built in 1970, the Republic of Korea mapped out a national road network plan that would make highways accessible within 30 minutes from any point in the country. By 2020, it is expected that this will be achieved for most cities and counties.

Reduce road congestion and travel time through high speed rail

With the development of the national economy in the 1980s, the Gyeongbu Expressway, which is the most used road in the country, became severely congested. Increases in personal income led to an upsurge in car ownership and road trips. Cars crowded the Gyeongbu Expressway not only on weekends but also on weekdays, causing traffic jams. There were delays in the delivery of products from factories to consumers.

To ease road congestion, construction of the Seoul-Busan (Gyeongbu) High Speed Railway was started

in 1992. The high speed rail service, Korea Train eXpress or KTX, began in 2004. Today, people can move quickly and safely between the two cities within 3 hours. The bullet trains transport an average of upwards of 150,000 passengers a day.

The Gyeongbu High Speed Railway eased traffic jams not only on the Gyeongbu Expressway but also on other major roads. Economic, social, and cultural exchanges between Seoul and major cities near the line increased.

Under the Third National Rail Network Plan, 350 kilometers of high-speed railways are being built. The number of high-speed rail passengers are projected to grow to 600,000 by 2020.

Build a high-performance, world-class airport

The construction of Incheon International Airport played a leading role in the globalization of the Korean economy.

After the basic design was put in place from November 1990 to 24 December 1991, the airport began to be built on a full scale in November 1992 and was opened in March 2001. It took 100 months and cost 5.6 trillion won (US $5.6 billion).

The government built a large passenger terminal with a total floor area of 496,000 square meters, a cargo terminal capable of handling annual cargo volume of 2,280,000 tons, and two 3,750-meter runways that can handle large aircraft. Incheon’s cargo terminal is intended to become the logistics center of Northeast Asia.

Given the size of the domestic economy at that time, the government made a bold and farsighted decision to build an airport of this magnitude. It was designed to play an important role in promoting the country’s economic development.

As of 2013, Incheon International Airport ranked ninth in the world in terms of transport volumes with 41 million passengers per year . As many as 88 airlines operate flights out of Incheon to 182 cities in 58 countries. Incheon topped other airports in service evaluation for 9 years (2005–2013).

Move cargo seamlessly through multimodal transport

The Republic of Korea expanded its logistics infrastructure to make cargo processing more efficient. It developed a sustainable logistics complex and an inland logistics base, including a multimodal terminal and an inland container depot.

An inland logistics base is a facility that can carry out intermodal transportation, which uses more than one mode of transport (e.g., truck, rail, ship) to move cargo. Inland logistics bases are divided into multimodal logistics terminals and inland container bases.

The country developed a logistics base close to major Seoul–Busan inland container depot highways in

the Seoul metropolitan area. It also built a multimodal logistics terminal in each of its five districts.

Gunpo Multimodal Logistics Terminal serves as the center of logistics for Seoul. It covers an area of 380,000 square meters and includes a cargo handling center, a distribution center, and a rail cargo handling center. The terminal helps lower logistics costs and reduce travel time by transporting bulk cargo via the Gyeongbu Line, the Homan Line connecting Daejeon to Mokpo, and other major railways.

Yangsan Multimodal Logistics Terminal is in operation in the southeastern region. Jangseong Multimodal Logistics Terminal serves Jeolla province. A terminal was built as a logistics hub for North Gyeongsang and Chungcheong provinces. In addition to the five districts, new terminals are being built in the north (Paju) and the south (Pyeongtaek, Gyeonggi province) of Seoul. These will complete the national inland logistics base system.

The country will further promote multimodal transportation through connections between multimodal logistics terminals and international logistics hub infrastructure, such as the Incheon International Airport and Busan, Gwangyang, Incheon, and Pyeongtaek ports. This will contribute to slashing logistics costs and increase the competitiveness of the logistics industry.

Improve transport policy and management

The Republic of Korea made improvements in transport management on four fronts: public transportation, logistics, air safety, and transport technology.

1. The government shifted to a public transportation-oriented policy and invested in public transportation

The excessive use of passenger cars exacerbated traffic congestion in major cities. Passenger cars accounted for more than 60% of the total traffic to downtown Seoul from suburbs. Single-occupant cars accounted for more than 80% of the total.

Commuters were dissatisfied with the public transportation system because there were different operators, transfers were not easy, and no discounts were given for transferring passengers.

Improving public transportation service and transportation demand management curbed the use of passenger cars, preventing further deterioration of traffic conditions in Seoul.

The government introduced the transportation card system, which integrated fare systems and gave discounts to transferring passengers. It put in place a Median Bus Lane System to enhance the competitiveness of buses by significantly improving their punctuality.

A transformation of the bus operating system into a semi-public bus system paralleled a transformation of the traffic system from being passenger car-oriented to one that values public transportation, such as buses, and pedestrians, and cyclists.

In addition, the Republic of Korea introduced the Transportation Impact Assessment System to evaluate

facilities that generate significant traffic volume. A penalty was imposed on facilities that cause traffic congestion, and urban congestion charges were imposed on cars entering downtown areas.

2. The policy and regulatory environment for the logistics industry was improved

Under its Comprehensive Logistics Business Certification System, the government certifies and rewards outstanding logistics companies with incentives. The certification system leads these companies to make strategic changes through increased investments in human resources, software and hardware, mergers and acquisitions, and strategic partnerships.

The Korea Transport Institute established the Comprehensive Logistics Business Certification Center in January 2006 based on the Logistics Policy Framework Act. The center runs the certification system on behalf of the Ministry of Land, Infrastructure and Transport, the Ministry of Trade, Industry and Energy, and the Ministry of Oceans and Fisheries.

3. In the aviation sector, the safety management system was enhanced

The United States Federal Aviation Administration had downgraded the Republic of Korea’s air safety rating. Accidents such as Asiana’s crash landing in San Francisco and a helicopter crashing against a building in 2013 prompted the Korean government to launch the Air Safety Committee to reestablish its aviation safety system.

The country drew up an aviation safety technology development plan and a basic aviation safety and security plan, and also developed an aviation safety program. Most importantly, it established an air safety management organization. The Ministry of Land, Infrastructure and Transport also set up an aviation accident investigation committee. Moreover, the government overhauled aviation laws and regulations with the goal of no fatalities for 10 consecutive years.

The Aviation Safety Program was launched in accordance with Article 49 of the Aviation Act. The government also set implementation standards through the Safety Management System and executed it in the airport, airline, and air traffic control sectors.

4. Use transportation technologies to improve traffic safety and the environment

Unfortunately, not long ago, the Republic of Korea had significant traffic fatalities. In order to improve this situation, the country built intelligent transportation systems. These greatly contributed to making vehicular traffic flow smoother and to reducing accidents by cracking down on speeding and providing traffic information. Research is underway to ensure safe vehicle operation by the elderly and the disabled through the development of autonomous vehicles.

The emergence of greenhouse gas emission reduction as a common task for the world sparked the development of eco-friendly cars, such as electric cars. Meanwhile, air pollutants from diesel city buses raised the poor quality of air in Seoul to a serious level. The city replaced the diesel buses with those fueled by compressed natural gas, which helped improve air quality in Seoul. In addition, the development and dissemination of electric vehicles are expected to considerably decrease dependence

on fossil fuels.

Resources

Korea Transport Institute

S Hwang and G Kim, ed. 2014. *50 Praxes for Better Transport in Korea*. Sejong City: Korea Transport Institute.

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