

# Issue About the Construction and the Opportunity of Electrification of Yan-Shi Alternate Railway Lines

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Yan-Shi railway (Rizhao port--Yanzhou), connects with Tuxi railway in the Soviet Union after passing through Xi'an and Lanzhou, directly arrives in the European ports such as Rotterdam, Antwerp, etc. establishes a new Asian-European continental bridge traversing Asia and Europe and connecting the Pacific with the Atlantic, undertakes the mission of transportation of western coal to eastern, material exchange between east and west, importing and exporting foreign trade and international trade which needs to transit across the border. Chinese Government has determined both Rizhao and Lianyungang to be the eastern bridgehead of the new Asian-European continental bridge and brought the exploitation and construction of economic areas along the line of Rizhao—Xi'an into China 21-century agenda preferential item project.》

This railway total length is 318 kilometers, built in 1986, it is the first class single-track railway now, drawn by the diesel locomotive, the annual capacity of exportation is 22 million tons. With the development of economic area along the line and the enlargement of the international trade, the transporting capacity increases so rapidly that it is seriously saturated, according to the statistical forms, the transporting capacity has run to 32,860,000 tons in 1997.

The port will get great development during the period of “the Ninth Five-year Plan” and “the Tenth Five-Year Plan”. And the insufficiency of the railway capacity will severely restrict the development of both the port and the economic areas along the line. So it is of great significance that the railway should be expanded to be the transport passage with greater capacity.

According to the Near Future Project of development and construction of the port and the economic development in the areas along the line, the author prognosticates the demand of the freight quantitatively in the means of mathematical statistics and predicted method, and thinks, the alternate railway lines should have been built up in 2001 and the traction should have been considered to change to electrification in the long-dated programming in 2005.

1. The bridgehead ---Rizhao port, which appeared in 1986 and developed rapidly, in 1997, it finished 16,500,000 tons of handling capacity, with the annual average increase of 18.2%, especially the capacity of exportation of foreign trade increases progressively 38% annually, has already been developed into a multi-functional, comprehensive port. The annual capacity of exportation occupies the tenth place of all the national coastal ports. It is one of the main pivot ports among the coastal ports in China, There are 18 productive berths now and the annual capacity of exportation has already reached 24,930,000 tons.

2. The railway takes the main place during the overland transportation and the total proportion increases year by year, the average proportion 90.03% of the freight depends on it in the last 7 years and 92.5% in the recent 2 years.

According to relevant principle, it is obvious that the relation between the railway transportation and the handling capacities of the Rizhao port is 0.925 positive correlation, thus the following formula can be concluded:

The anticipated annual capacity goal of the Rizhao port  $\times 0.925$  + the demand along the areas beyond the port = the anticipated freight transportation demand of Yan-Shi railway.

3. In “the Ninth Five~Year Plan” and “the Tenth Five-Year Plan”, the projects which can promotes the increases of the freight have:

The Wood Chip Terminal and Wood Pulp Factory; The Third-Stage Project in the East Harbor Area; Producted Oil Terminal in the Central Harbor Area; the Second-Stage Project of Coal Terminal, the Ore Terminal; the first-Stage Project of the Coal Terminal, etc. According to the Near Future

Project, the number of the productive berths can reach 32, and the annual capacity of exportation can reach 46,680,000 tons by the year of 2005.

The level of annual capacity of exportation is predicted as follows in recent years at the port:

**1**

Years	1998	1999	2000	2005
The annual handling capacity	1680	2000	2700	4000

4. Using the coefficient correlation law, we can achieve the demand expectancy of freight that the port depends on the railway

**2**

Years	1998	1999	2000	2005
The annual handling capacity	1680	2000	2700	4000
The railway transportation capacity	1554	1850	2498	3700

5. For caution's sake, we can analyze the flow and the flow direction of different types of freights in the coming years, prognosticate further, compare the two results, the difference is between -100,000 ~ +980,000 tons, the maximum difference is 980,000 tons, only 3.6% of the railway transporting capacity on the prospective year, the credibility is 96.4%, so, with the relevant law, we can prognosticate the demand of the freight transporting capacity that the port need from the railway.

6. Besides the goods in or out of the port, the demand of the freight that the Rizhao area, Linyi area, Jining area and Lanshan port need have increased rapidly in recent years, especially during "the Ninth Five-Year Plan" and "the Tenth Five-Year Plan", a series of national main projects will be built in the two ports and the areas along the line, according to the research and prognostic to the railway transporting capacity in the two ports and three areas and cities, the freight transporting capacity of Yan-Shi railway will reach 55,740,000 tons in 2000, while in 2005, will reach 81,190,000 tons.

7. The conclusion: according to common ability, for single-track railways the annual transporting capacity is about 20 million tons, for the alternate railway lines annual transporting capacity is about 40 million tons, and for the alternate railway lines with the electrifications, the annual transporting capacity is about 70 million tons. For the cause of the uneven transporting capacity and the addition of the passenger trains, the railway capacity will become even more tense, After joining the WTO, the enlargement of the international trade and the development of the economy along the line will promote the material exchange continues to increase. The alternate railway lines should have been finished by 2001 and forms ability progressively, in the long run, the alternate railway lines electrification should have been considered in 2005, otherwise, it will severely restrict the economic development and the international trade, and will become the entry bottleneck of the Asian-European continental bridge.

## REFERENCE

1."A Study on Strategic Significance of THE NEW EURO-ASIAN CONTINENTAL BRIDGE"

2."China Program of Priority Projects on Agenda 21"

### Deuxième .LE Office des Affaires du Port de Rizhao Wang Xibin

D'après des données statistiques des années, la capacité de charge et de décharge du port est directement proportionnel à la capacité de transport du chemin de fer de 0.925. En base du développement économique des zones autour du port et le long du chemin de fer, on estime que la capacité du transport du chemin de fer YANSHI parviendra à 811.9 millions de tonnes en 2005. La construction du chemin de fer YANSHI à deux voies finira en 2001 et le changera en chemin électrique en 2005.