

# The Role of Mining in Development of Railways in Turkey

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**Abstract:** Increase of mass production, which is an important indication of Industrial Revolution, requires a change in transportation method. Particularly, railways made it possible to transfer iron and coal ores produced in the central part of Turkey to the ports and plants on the coastal towns and cities. This made railways a strong rival to the waterways (rivers and sea ways) and roads. This fast and reliable new transportation also affected the Ottoman Government. The railway transportation, which had been started with the help of western companies due to the economic difficulties, has gained acceleration with the start of Republican period. At this context, together with nationalization of current railways, new railways were also constructed to improve transportation inside the country with military, political and economic aims. Reaching to the mine reserves inside the country and transporting them to the plants were among the aims of constructing railways. The new routes of railways which were sloganised as *reaching coal*, *reaching iron*, *reaching copper* were played an important role in development of Turkish railways. In this study, the role of mining in development of railways in Turkey was investigated with a geographical perspective.

**Keywords:** Turkey, transportation, railways, mining

## Introduction

Industrial Revolution was not only a processes that lead a new means of production but also brought about a considerable change in social, economic, and communal life. One of the areas in which these changes were felt strongest was the transportation sector. The new means of production required a large amount of raw materials to be transported to the production facilities on one hand; and the products to market places on the other. The main means of transportation were waterways and inland roads. For the first time a new means of transportation was felt with the mass production of Industrial Revolution and it did not take a long to time for a new competitor to come about. The new competitor was the railroad.

The railways are of special importance when it comes to long-distance transportation of goods and products. When the industrial and trade issues are considered, no other means of transportation can carry that mass amount of goods in a considerable short time with a reasonable price except for the waterways (Barda, 1964: 137). Therefore together with new urban areas, the railway was the external symbol of Industrial Revolution (Hobsbawm, 1995: 229). The first railways were made of wooden bars, and the cars were made of wood as well. These were used in Bath mines and coal extraction places in Cornwall in the 17th century (Braudel, 2004: 508). The first regular railway line was built between Stockton and Darlington in 1825 and used to transport the coal. The first railroad line in France, the one from St. Etienne to Roan was built in 1832 and used to carry coal and iron ore (Tümertekin, Özgüç, 1999: 594). This easy transportation of heavy material through railways lead the construction of railways first in England and the new innovation spread through a number of other parts of the world notably in Western Europe, the United States and Russia.

The diffusion of this new technology was spread to the Ottoman Empire and the Ottoman bureaucrats considered the rail roads as the solution to transportation within the large territory of the Empire. The railroads were considered important for not just transportation of commercial material but also for military and political reasons (Yıldırım, 2001: 5). However, due to financial difficulties, the construction of railroads was relegated to Western companies in return for operating rights for a certain period of time. In fact, the underlining motivation for the Ottomans and for the Western companies was not the same. The railroads were means of reinforcement of exploitation of the Ottoman economy resource base. That way, especially the agricultural products of fertile Aegean plains and Cukurova to the east, and other raw materials would be carried to the European market. With that motivation in mind, the first railroad line in the Ottoman Empire was built between Izmir and Aydin in 1856.

Although the colonialist intensions of Western countries were mentioned about the first railroads in Ottoman Empire, these railroads, no doubt that, helped to make a radical change in the traditional production

methods and helped the economical development in a considerable manner (Gürbüz, 1999: 180-181). It was only after the establishment of these new railroads that the large geographical regions in Anatolia besides the Aegean and Marmara Regions that have the advantage of using marine transportation got the opportunity of cheap transportation of goods and this had changed the means of transportation in a fundamental way (Zarakolu, 1950: 573).

These first initiatives by investment of the British, German, and French companies provided a railroad web of 4 100 kms for the young Republic. This was an important infrastructure and experience for the Republic. The Republic of Turkey, lead by Atatürk, had a number of projects with a purpose much different than the previous period: The priority would be given to railroads that would encourage the extraction of mines in different part of the country.

## Railways in the Republican Period

With the aim of developing the country, the Republican government decided in the Izmir Economic Congress that as the most reliable and secure transportation method, the construction of railroads would be given priority (Ünsal, 1983:187). Different from the previous period, all railways construction was undertaken by the government as opposed to foreign companies. This is the most notable difference between the republican railways and the Ottoman railways (Barda, 1964: 188).

The railway construction policy of the Republic developed in two different ways. The first one was to construct new railways that would support the development of other sectors in the newly established country; the second one was to buy the railroads built and managed by the foreign companies (Yıldırım, 2001: 40).

The first Republican governments put a special emphasis on developing the coal and mine industry and this was emphasized in the first and second Industrial plans that covered a five year period each starting from 1933. The government officials thought that developing these kinds of industry was dependent upon a well established railway network because it was the most reliable and cheap means of carrying goods and products to and from markets. The officials developed slogans like *reaching to coal (Zonguldak-Irmak)*, *reaching to copper (Adana-Fevzipaşa-Ergani)*, *reaching to iron (Sivas-Malatya)*, *reaching to chrome (Kütahya-Balıkesir)*. These slogans helped to construct new railway networks in different parts of the country. These railways were not planned as a network covering the whole country but planned as connecting lines of important mining areas. This is in fact an indication of the importance of mining activities in developing the railway network in Turkey.

In this research we will look at the development of Republican railways in two different periods: pre-1950 period and after 1950 period. The reason for distinction is that the government decided to employ a policy that favoured to motorways over railroads under the Marshall Plan.

In the Republican Period a network of 5 515 kms of railways was built. Almost 70 % (3877 kms) of them was built between the 1925-1950 periods, 29 % (1638 kms) was built between 1950- 2000 period. The length of the railways built in the first period more than doubled the railways built in the second period (see figure 1 and 2). The main reason in explaining that difference is the fact that the transportation policy changed radically to prioritize roads over railroads. Only a limited amount of railroads were built in the second period even for mining activities. This number was over 1 000 kms in the first period and it declined ever below 50 kms in the second period.

Period	Railroad built (km)	Mining lines built (km)	Percent
1925-1950	3 877	1 093	28.2
1951-2000	1 638	42	2.5
<b>TOTAL</b>	<b>5 515</b>	<b>1 135</b>	<b>20.5</b>

**Table 1:** Railroad construction in the republican period (1925-2000). Source. Republic of Turkey, State Railroads Company Statistics.

When we continue analysing the railroads built with the purpose of mining, we notice that almost all lines with a mining purpose were either built or were in construction phase in 1932-1933. When we look at the Figure 1, we notice that a good proportion of coal line (Irmak-Filyos), copper line (Fevzipaşa-Malatya-Ergani) and chrome line (Kütahya-Balıkesir) were constructed. Despite this early undertaking, the iron line between Malatya and Sivas was not built yet at that time.

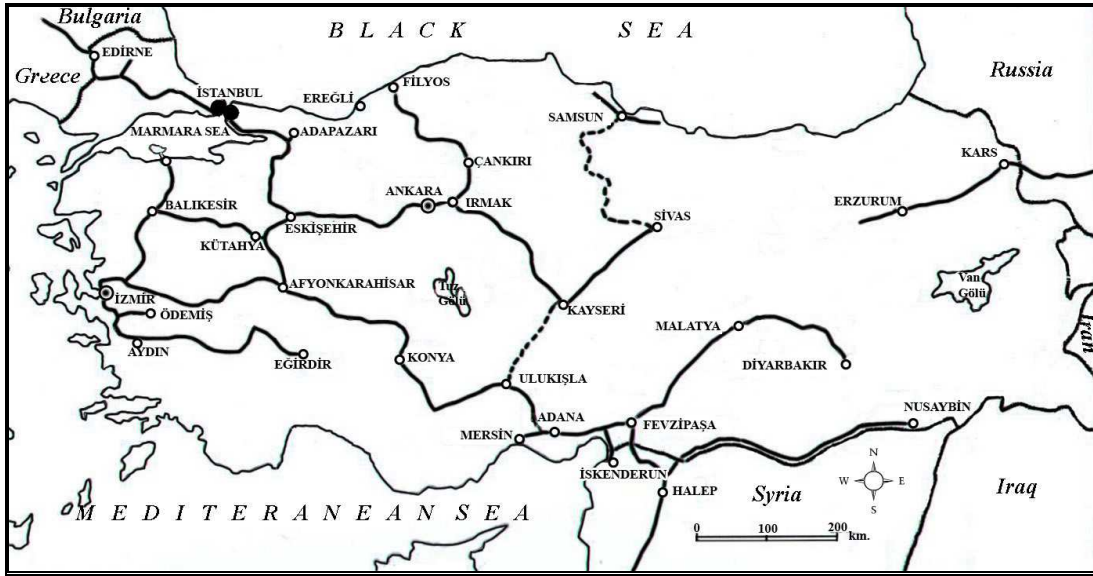


Figure 1: Railroad network in Turkey, 1931. (Source: İsveç-Danimarka Grubu, 1931).



Figure 2: Railroad network in Turkey, 2008. (Source: TCDD).

From the establishment of the Republic up until 1932, with the purpose of extracting mines 493 kms of railroad was built. This was the 28 % of the whole railroads which was 1751 kms built in the same period (Table 2). This means that 850 meters of every 3 000 meters of railroads was built for mine extracting.

One of the lines built in that period was Irmak-Filyos Railroads. Called the coal line, this railroad would connect by following the Filyos valley the Zonguldak-Ereğli coal basin to Karabük Iron-Steel Factory and to Ankara. The traffic got busy in this line when the line was connected to the iron line. The iron line following the city centers of Malatya, Sivas, and Kayseri, connected the iron ore located in Malatya and Sivas provinces in the central and east Anatolia to the Irmak-Filyos coal line. With these connections it was possible to transport and process the coal of Zonguldak and iron of Malatya and Sivas to the iron-steel factories in Karabük.

The Irmak-Filyos line was built by a Sweden-Denmark joint group and the group was working on another project at the same time. This new line was Fevziye-Malatya-Ergani. Ergani has one of the oldest copper processing factories in Turkey. With the construction of this line it was possible to connect the copper valley the Mediterranean ports of Mersin and Iskenderun. Another line built at that time was Kütahya-Balıkesir Line. With the construction of this Chrome line, the chrome extraction of Turkey, which has a considerable proportion of the chrome reserves, reached an important level.

Mine	Name of the Line	Opening date	Length (kms)
Chrome	Kütahya-Emirler	1929	64
Copper	Fevzipaşa-Gölbaşı	1929	138
Chrome	Emirler-Balıköy	1930	36
Coal	Irmak-Çankırı	1931	102
Chrome	Balıköy-Balıkesir	1932	153
Copper	Fırat-Yolçatı-Elazığ	1934	86
Copper	Yolçatı- Maden	1935	76
Coal	Atkaracalar - Ortaköy	1935	56
Copper	Maden - Diyarbakır	1935	83
Coal	Bolkuş-Hisarönü	1936	86
Coal	Hisarönü-Çatalağzı	1936	15
Iron	Yazihan-Hekimhan	1936	37
Iron	Çetinkaya-Divriği	1937	65
Iron	Hekimhan-Çetinkaya	1937	70
Coal	Çatalağzı-Zonguldak	1937	10
Lignite	Tavşanlı-Tunçbilek	1944	13
Coal	Zonguldak - Kozlu	1945	4
Coal (closed)	Kozlu-Ereğli-Armutçuk	1953	15
Lignite	Kütahya-Seyitömer	1962	26
<b>Total</b>			<b>1 135</b>

**Table 2:** The Mining railroads built during the republican period. (Source. Republic of Turkey, State Railroads Company Statistics, 2008).

Ereğli Iron and Steel Factory was established with the aim of producing the steel need for industry domestically in 1965. The steel was imported before that time. However, because the railway line reaching Kozlu could not be connected to Ereğli because of geographical obstacles, the iron ore could not be able to be carried with through same line. Since the 26 kms long Kozlu-Armutçuk line could not be constructed, a new project called train *ferry* was developed. With this new project, the iron ore used in Ereğli Iron and Steel Factory was carried with ferries through the sea from Zonguldak to Ereğli.

We need to note here that although mining related activities did not play an important role in the establishment of some early railway lines, some of these lines demonstrated an increased traffic in the following years. Examples for these lines are: iron ore in Sivas-Kayseri-Irmak line; boron in Balıkesir-Bandırma line; chrome in Erzurum-Erzincan-Kayseri line; manganese and chrome in Irmak-Filyos line; lignite in Sivas-Samsun line. The point I want to emphasize here is that there were enough goods to manage these lines economically and without the mine transportation that would not have been possible at all.

According to State Railroads Company's Statistics, only some 5 percent of all goods were carried by railroads in Turkey in 2005. This percentage was 3 in Bosnia & Herzegovina, 11 in England, 12 in Italy, 18 in France, and 20 in Germany. Some other countries carry most of their goods through railroads and Slovakia with a percentage of 61, Switzerland with a percentage of 98 lead these countries (Table 3). It is important to note here that mines constitute 46 percent of all goods carried by railroads in Turkey (www.tcdd.org.tr/2005). This percent does not include metallurgic products. This point demonstrates clearly how important is the mining sector for the management of the railroad network.

Country	Percent carried by railroad	Country	Percent carried by railroad
Switzerland	97.9	Belgium	22.7
Slovakia	61.4	Germany	19.9
Bulgaria	48.1	France	17.8
Czech Rep.	47.0	Italy	12.3
Austria	46.7	England	11.1
Romania	40.0	Turkey	5.5
Hungary	36.1	Bosnia & Herzegovina	3.7

**Table 3:** Transportation of goods by railroads in some European countries, 2005. (Source: UIC Statistics and European Union Transportation and Energy Statistics, 2005).

## Conclusion

Although the first railroads were constructed by foreign company investments in the Ottoman Empire, the railroads had special meaning for young Republic. Railroads were considered to be a milestone in the economical and social development of the country that just came out of heavy warfare and faced the heavy burden brought by the wars. This vision was realized soon and as pointed out in some republican marches, the country were started to be woven with iron network by the tenth year celebrations of the young Republic. The newly established railroads, on one hand, helped to develop industry and commerce, and connected the interior of the Anatolia to the costal cities and towns. However, the new transportation policy put in effect in 1950 adversely affected the railroad construction. The new policy favoured inland motor roads, ignoring the need to modernize and maintain the old railroad lines. Thus the railroad lines that have been built since the Ottoman times left clumsy and without maintenance. In this period, no new lines were planned and the transportation of mines done increasingly by motor roads. In fact the transportation of mines with roads should have been integrated with railroads. In this case, the 90 percent share of motor roads today would have been kept in a certain level and a more environment friendly and more economic alternative, railroads, would have maintain its importance.

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