

A Comparative Study on the Dry Canal Future Project in Iraq and the Grand Canal Project in China

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Abstract

Each country has its own political goal and strategic objective in manner of economic development and each is free to do what it wants in order to grow its economy to improve the living conditions of its people. In that way, a key consideration for Iraq is access to the sea and world trade. This desire is guiding to a major part of this larger vision that it calls 'Dry Canal Project' which will allow for transport of goods between the north and the south of the world quickly, cheaply and safely. It is expected that this project will enhance the transportation industry of goods in general, not only in Iraq, but on the world's level as well, and also will support the Iraqi national economy. Accordingly, this paper aims to determine via comparison the differences and similarities states between the future expected shape of the Dry Canal project in Iraq, and the great historical and ancient Grand Canal project in China, which is became an important hinge among the Northern and Southern regions and communicates the transportation from Hangzhou in the South to Beijing the capital in the North. So that, all the main differences and similarities states between the future Dry canal project and the Grand Canal has been analyzed in vertical and horizontal in this exertion, and hopes it will be helpful for furthered the frame of the Dry canal's impending Design, in accordance with general features of this massive project, which it was and still an a vision proposed by successive governments in Iraq.

Keywords: One Belt One Road, Dry Canal, Grand Canal, Routes, Transportation, Goods

1. Introduction

Movements of people, goods and information have always been fundamental components of human societies. Contemporary economic processes have been accompanied by a significant increase in mobility and higher levels of accessibility [21]. Although this trend can be traced back to the industrial revolution, it significantly accelerated in the second half of the 20th century as trade was liberalized, economic blocs emerged and the comparative advantages of global labor and resources were used more efficiently. However, these conditions are interdependent with the capacity to manage, support and expand movements of passengers and freight as well as their underlying information flows. Societies have become increasingly dependent on their transport systems to support a wide variety of activities ranging among others, from commuting, supplying energy needs, to distributing parts between manufacturing facilities and distribution centers. Developing transport systems has been a continuous challenge to satisfy mobility needs, to support economic development and to participate in the global economy [21].

Accordingly, Iraq seeks to build an integrated transport system, linking with regional countries through a huge scheme named; The Dry Canal project, that connects the Persian Gulf and East Asia with Mediterranean and Europe, and then, the Iraqi territory could be a dry route alternative to the Suez Canal. Building a bridge with the past by the succor of comparison with similar project could be useful for various designers to shape the future Dry Canal project's general form, and its necessary requirements. Actually, the fundamentals setting up of the Dry Canal typical design are numerous, thereby, Iraq needs to expand and modernize its rail network, roads, airports and seaports in order to become a commercial hub on a par with more developed countries in the world.

By using its advantage geopolitical position near one of the major world's maritime path, Iraq aims to be a new global hinge in shipment's trade world route [13] [14] (Figure 1). Therefore, it was imperative to adopting the press and the media sources, to find out the future advantages of the Dry canal project, through statements by Iraqi officials and the specialists analyses published in media and press, to be espoused by this paper as sources to build a suitable image for this present study. As known, the comparison's techniques are a safeguard useful tools for recognized various capabilities to build a tactical plans and for new projects forms, it is possible to benefit from a forecast for any future project, or guesstimate for any upcoming project in order to create new strategies and develop a clear line for the this project's designers. Consequently, it was necessary to determine the suitable project to be chosen for this study and after reviewing some similar projects, two major projects were selected;

1.1 The China's proposal project "One Belt One Road".

The "One Belt One Road" project's general features could be defined as following; since the introduction of One Belt, One Road as a national development strategy [25]. In 2013, China has been mobilizing its political, economic, and diplomatic resources to foster the positive reception of the strategy by the region. "One Belt, One Road" encompasses two development plans: the *New Silk Road Economic Belt*, which will link China with Europe through Central and Western Asia, and the *21st Century Maritime Silk Road*, which will connect China with Southeast Asia, the Middle East, and Europe. Through the strategy, China aims to further integrate itself into the world economy through trade, investment, infrastructure, connectivity, and other development projects. Recently, a campaign has emerged in China calling for the inclusion of Africa in the strategy. While the inclusion could surely bring more momentum to China's economic cooperation with Africa, it does not resolve and actually could amplify the existing problems in current Sino-African relations [25].

On June 5, 2014, Foreign Minister of China Wang Yi attended the sixth ministerial meeting of China-Arab States Cooperation Forum (CASCF), saying that President Xi Jinping's proposal to jointly build the "One Belt One Road" is a historic opportunity leading the development of the China-Arab relations. Wang Yi said that the Arab countries are located in the western intersection of the "One Belt One Road" and China has always considered the Arab countries as natural and important partners to build the "One Belt One Road" (Figure 2).

The longstanding friendship and mutual trust between China and the Arab countries is the solid foundation for the joint construction of the "One Belt One Road". The economies of China and the Arab countries are highly complementary and have obvious comparative advantages respectively, and this serves as the strong impetus for the joint construction of the "One Belt One Road". Both China and Arab countries disagree with the theories of superiority of civilizations and clash of civilizations and advocate that development of cultural diversity, cultural exchanges and mutual learning are the cultural support of the joint construction of the "One Belt One Road" [24]. The celebrated revival of the Silk Road would seem to herald the return of China's charm offensive, winning over neighbors and other countries in the region through increased trade incentives and transport connectivity.

If developing a sound soft power strategy is the mark of a rising world power, does this mean China is on its way? Certainly, in the wake of recent episodes of differences and disputes, the initiative should be seen as a welcome development. Nonetheless, some countries along the envisioned route remain wary and skeptical of the real intentions behind this offering, as well as the possible unfavorable conditions that may be attached to it. In addition, while Beijing tends to highlight its economic credentials, the Silk Road Economic Belt and 21st Century Maritime Silk Road (hereinafter, SREB/MSR) has strategic, political and security implications that participating countries would also be advised to consider. China lives in a tough neighborhood, sharing a long contiguous land border with Russia and India (with which it has unresolved land boundary disputes) and a common sea boundary with Japan (with which it has unresolved territorial and maritime disputes). As such, SREB/MSR could possibly be seen as a strategy to circumvent any encirclement or containment that a hostile power in concert with other states may undertake to harm China's interests [24] [25] [26] (Figure 2).

This project with its land and maritime path components promises to better, connect China with the Middle East, Africa and Europe through its landlocked neighbors in Central Asia and the littoral states of Southeast and South Asia. It spreads the risk by multiplying access routes, thus reducing China's vulnerabilities. The system of ports, railways and roads, which have variously been completed, or are under construction or being proposed, will enable China to diversify the routes by which it can secure the transport of oil and gas and other essential goods needed to sustain China's economy. It enhances the country's energy and economic security and mitigates the risks attendant to transporting fuel and goods through unstable, unsecured or unfriendly channels. For instance, the establishment or proposed establishment of transport corridors via Pakistan (through the Chinese-operated Gwadar Port, and then by proposed railway to link the Sino-Pakistani-built Karakoram Highway and ultimately western China), Myanmar (through the Kyaukphyu Port then through the railway and pipeline to Yunnan, which are under construction) and Thailand (through the proposed Chinese-funded Kra Isthmus project) will enable China to reduce its dependency on the Strait of Malacca chokepoint.

Developing pipelines to get oil and gas directly from Russia and Central Asia to power western China also reduces its reliance on the volatile Middle East [26]. Meanwhile, by linking the economies of Central Asia with western China, Beijing brings further development and stability to restive and relatively underdeveloped Xinjiang and Tibet and cuts off any potential support that Uygur dissident groups may seek from fellow Muslims in Central Asia. Hence, SREB/MSR goes far beyond simply sharing economic prosper it; it has obvious political and security underpinnings. And viewed from this vantage point, its China-centrism is very evident [25] [26].

1.2 The Ancient Grand Canal project in China

As a result, it was indispensable to create a comparison between; the Dry Canal expected and planned project with other established and existing project. Hence, for the reason that the "One Belt One Road" project is still a Chinese proposed project and a future vision too, then, an established project such like the Grand Canal in China, or Da Yun He (大运河) in Chinese language, was normally preferred for this comparison, in fact, the Grand canal had an important role in terms of improving communications between the north and south of China, promoting economic and cultural exchanges, and strengthening the unification of this great country [1] [4]. Thus, and in order to reach the required objective, it was necessary to build a typical and a comprehensive body structure for this comparative case study, which should including all the potential features between these two huge projects.

In this manner, with the purpose of probing deeply through all the significant common details could be these two giants' schemes sharing with, this paper's contents will embrace the suitable comparisons framework structure with the main sections and necessary points for controversy. Hence, each huge project is related to its own general geographical position, and so, the correlation to geographical location for each of the Dry Canal in Iraq and the Great Canal in China, illustrates many of the characteristics of work and operation of both of them. The general geographical description of China and of Iraq are comparatively different, therefore, we'll try to define the general features of each two countries to find out the nature of the presence of the both projects, a comparative physical geography of both countries is an important step to better understand of the both project's general locations as well.

2. General Geographical Position

Transportation has a strong influence on the spatial structure at the local, regional and global levels. An historical perspective on the evolution of transport systems underlines the impacts of technological innovations and how improvements in transportation were interdependent with economic, social and spatial changes. The current transport systems are thus the outcome of a long evolution marked by periods of rapid changes where new transport technologies were adopted. Following the industrial revolution in the 19th century, transportation systems were mechanized with the development of steam engine technology, which permitted the setting of networks servicing regions [21]. This process was further expanded in the 20th century with the setting of global air transport, container shipping and telecommunication networks. The impacts of transport on the spatial structure became multi-scalar. Transportation systems are composed of a complex set of relationships between the demand, the locations they service and the networks that support movements. Such conditions are closely related to the development of transportation networks, both in capacity and in spatial extent. Future transportation systems will likely be shaped by the same forces than in the past but it remains to be seen which technologies will prevail and what will be their impacts on the structure.

2.1 Geographical Position of China

The Grand Canal of China, as the main transportation linking the nation's capital city in the fertile northern region to its most affluent territory in the southern region, promoting economic and cultural exchanges and strengthening the unification of the country, played a significant role in the history of China, more recently, the 1,790 kilometers coastline of the Grand canal have been used extensively for export-oriented trade, making a power shift, with the coastline provinces becoming the leading economic center [3] [5] [6].

China not only has the world's largest population (over 1.3 billion), but it also is an extremely large country (more than 9.5 million square kilometers) with immense physical and cultural diversity. In fact, China should be viewed as an assemblage of pieces much like Europe. The People's Republic of China is the 3rd largest country in total area behind Russia and Canada, and very similar to the United States. China stretches some 5,026 kilometers across the East Asian landmass; it is bordered by seas in waters eastward, with the East China Sea, Korea Bay, Yellow Sea, Taiwan Strait, and South China Sea, and bordered by landmasses on its 3 other sides, from North Korea to Vietnam. China has been officially and conveniently divided into 5 homogeneous physical macro-regions: Eastern China (subdivided into the northeast plain, north plain, and southern hills), Xinjiang-Mongolia, and the Tibetan-highlands. China's physical features are multiples, the eastern and southern half of the country, its seacoast fringed with offshore islands, is a region of fertile lowlands and foothills with most of the agricultural output and human population [10] (Figure 3). The western and

northern half of China is a region of sunken basins, rolling plateaus, and towering massifs, including a portion of the highest tableland on earth (Tibetan Plateau) with lower agricultural possibilities, and thus, far less populated.

Traditionally, the Chinese population centered on the Chinese central plain and oriented itself toward its own enormous inland market, developing as an imperial power whose center lay in the middle and lower reaches of the Yellow River on the northern plains. The south is wet and tropical, with some rainforest coverage. North-west China is covered in desert. In the very far north-east, close to Russia, the temperature can drop to -50°C in the winter. In the west of China there are the Himalayas, with some of the highest mountains in the world. The melting snows from the mountains in the west create the headwaters for two of China's most important rivers, the Yellow River and the Yangzi River. The Yellow River gets its name because of the yellow windborne clay dust called loess that is blown across the north of China from the steppes of Central Asia; the loess is blown into the river and gives it a yellow appearance. The Yangzi River is the longest in China and third longest in the world; it irrigates the rice growing regions in the south of China [10].

2.2 Geographical Position of Iraq

Iraq is located in the Middle East, Asia; it is the site between the Tigris and Euphrates great rivers, commonly referred to as the Fertile Crescent or Mesopotamia in the ancient ages, with total area of 438,446 km² of which 924 km² of inland water. Iraq has borders with Iran in the East, Kuwait, Saudi Arabia and the Gulf in the South, Jordan, and Syria in the West and Turkey in the North. In addition, its borders on the Gulf, considered as a main access to the strategic Shatt al Arab waterway, a route excellent for trade and transportation [13] (Figure 4). Iraq is shaped like a basin containing the great Mesopotamian plain of the Tigris and Euphrates rivers. The climate is mainly of a continental, subtropical semi-arid type with the north and northeastern mountainous regions having a Mediterranean climate. The temperature during summer is usually over 430°C during July and August and drops down to 20°C and 160°C during the day and night respectively in winter time [11].

Most geographers discuss the country's geography in terms of four main zones or regions: the desert in the west and southwest; the rolling upland between the upper Tigris and Euphrates rivers (Dijla and Furat in Arabic language) respectively; the highlands in the north and northeast; and the alluvial plain through which the Tigris and Euphrates flow [12] [13]. The desert zone, an area lying west and southwest of the Euphrates River, is a part of the Syrian Desert, which covers sections of Syria, Jordan, and Saudi Arabia. The region, sparsely inhabited by pastoral nomads, consists of a wide, stony plain interspersed with rare sandy stretches. A widely ramified pattern of wadis--watercourses that are dry most of the year--runs from the border to the Euphrates. The north eastern highlands begin just south of a line drawn from Mosul to Kirkuk and extend to the borders with Turkey and Iran. High ground, separated by broad, undulating steppes, gives way to mountains ranging from 1,000 to nearly 4,000 meters near the Iranian and Turkish borders. Except for a few valleys, the mountain area proper is suitable only for grazing in the foothills and steppes; adequate soil and rainfall, however, make cultivation possible. Here, too, are the great oil fields near Mosul and Kirkuk [13].

3. General Definitions

Transportation has a strong influence on the spatial structure at the local, regional and global levels. An historical perspective on the evolution of transport systems underlines the impacts of technological innovations and how improvements in transportation were interdependent with economic, social and spatial changes. The current transport systems are thus the outcome of a long evolution marked by periods of rapid changes where new transport technologies were adopted. Following the industrial revolution in the 19th century, transportation systems were mechanized with the development of steam engine technology, which permitted the setting of networks servicing regions. This process was further expanded in the 20th century with the setting of global air transport, container shipping and telecommunication networks. The impacts of transport on the spatial structure became multiscalar. Transportation systems are composed of a complex set of relationships between the demand, the locations they service and the networks that support movements. Such conditions are closely related to the development of transportation networks, both in capacity and in spatial extent. Future transportation systems will likely be shaped by the same forces than in the past but it remains to be seen which technologies will prevail and what will be their impacts on the structure [21]. Consequently, the followings General Definitions of each project "The Grand Canal-China & Dry Canal-Iraq" possibly will be helpful to create a clearly large vision for the principal aim of this study

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3.1 The Grand Canal-China

The Ancient Grand Canal of China is the longest and earliest water conservancy project in the world. Its total length is more than 1,790 kilometers, 10 times longer than the Suez Canal, 20 times longer than the Panama Canal, and it is the world's longest man-made canal [1][2][3]. It goes through 2500 years since Chinese Spring and Autumn period as an inland river, which had played an important role in the field of canal navigation, military affairs, political affair and culture in the past 2500 years. It even accelerated the integration and

formation of the Chinese nation and is a historical testimony in the national rejuvenation [2]. Now, it is still a Chinese political, economic and cultural center, connecting the Bohai Sea economic circle and the Yangtze River Delta economic circle together, playing an important role in Chinese regional economic development strategy [1]. In the past thousands of years, the Grand Canal not only promoted political, economic and cultural development in China, but also formed the pattern of cities which lie along the canal called "Canal Cities" [2]. The Grand Canal, which has been flowing since thousands of years, was a great creation by Chinese working people of ancient times. It was always a north-south artery of communication in Chinese history, and had been playing an important role in economic, political, and military affairs [1] [4] (Figure 5).

The Grand Canal runs through nearly 6 provinces, 2 municipalities and 33 cities in eastern China, of which 18 are famous historical and cultural cities and connecting 5 rivers, Hai River, Yellow River, Huai River, Yangtze River, Qiantang River [6]. It is not improved only the economic and social development in the south region of Yangtze River watershed, changed Chinese population and spatial distribution, but also promoted the cultural exchanges between the Yellow River watershed and the Yangtze River watershed as well as Chinese eastern region's economic development [1] [2]. The construction of the Canal was a continuous project for three centuries, starting from the early fifteenth century and ending with the late seventeenth [4].

The technological achievement was astounding, creating a flat, navigable waterway, in places over 100m wide, across mountain and plain. Twenty-four 'flash' locks, consisting of a single gate made of wooden boards which could be removed, enabled vessels to shoot down the incline on the flash flood of water released. For barges travelling upstream the gate would be removed and the barge towed or winched through. The vast expenditure on the Grand Canal (and rebuilding the Great Wall and many palaces) didn't endear the Sui to its people and the dynasty collapsed in 619. This was splendid news for the succeeding Tang dynasty that couldn't be blamed for the cost but benefited from the revenues of the new canal [10].

The China Grand Canal is divided into seven parts, namely, Tonghui, North Canal, South Canal, Huitong River, Middle Canal (including Jia River, Zhonghe), Huaiyang Canal, and Jiangnan Canal. Until now, the Jining to Hangzhou part of the canal (900 km in length) isn't only the main artery for "north to south coal transportation project", "south to north commissariat transportation project" and "south to north water transfer project", but also the only traffic and transportation network which interlaces rivers, lakes and channels together in China [4] [5] [7] (Figure 6). And although the Yuan dynasty's Tonghui Canal, which linked Tongzhou to Beijing, was not rebuilt in the Yongle reign, after construction of canals on a large scale in northern China, the inland transportation in the Ming Empire was greatly improved. By the Yongle reign, a boat leaving the Yangzi could sail all the way to Tongzhou [7].

This was unimaginable before the Ming. Because of this transport advancement, the transport cost between Hangzhou and Beijing was reduced [8], for example, the Tonghui Canal one of a major part of the Grand Canal; it reduced the transport cost from Tongzhou to Beijing by half. By the seventeenth century, it was obvious to Ming officials that a feasible measure to alleviate the flooding and facilitate the grain transport was the building of a canal that was completely independent of the Yellow River [3][5]. However, the Ming imperial treasury had been exhausted from the building of the New Nanyang Canal and other building efforts, and it could only complete this stretch of the canal segment by segment. The Grand Canal was ultimately completed in the early years of the Qing dynasty in the late seventeenth century [8]

3.2 The Dry canal-Iraq

The general description of the Dry Canal project as an primary overall vision according to the announced by the Iraqi officials, indicates; that the cargo coming up from Asia through the Gulf will be loaded onto trucks and trains at Iraq's ports at Um-Qasr and on the Al-Al-Faw Grand port in the south, then the Commodities and goods shipped through the country to Turkey in the North to reach Europe, or down to Jordan and Syria reaching the Mediterranean, and vice versa, this will give shippers an alternative to the traditional but longer route around the Arabian Peninsula and up through Egypt's Suez Canal [15] [16] [17] (Figure 7). Iraq needs to expand and modernize its rail network, roads, airports and seaports in order to become a commercial hub on a par with more developed Gulf neighbors. According to Transport Minister, there is billions of dollars' worth of opportunities. In the next three years alone more than \$5 billion is expected to be spent on roads, expressways and bridges. Airports and seaports will be renovated 2,000 kilometers of rail track will be established [17]. Notable, first Iraq's single largest transport improvement project regarding to the Dry Canal project, involves development of a new deep water port on the Al-Faw peninsula in the south, on the Gulf's Coast. In fact, Both Iraq and the broader northern Gulf region need a fully-equipped deep water sea port with sufficient capacity to handle rapidly growing volumes of international trade. The Iraqi governments have identified the existing port of the Al-Faw Peninsula, where the Shatt Al-Arab meets the Gulf, to be developed to meet this need. Therefore, it easy to observe that the Dry Canal consists of two main parts, namely:

3.2.1 Al-Faw Grand Port

The studies prepared for the Dry canal project shows that the establishment of the port of Al-Faw will provide

opportunities for an excellent work of the hands of the local workforce and foreign, because all the joints need to be efficient in different disciplines, and thus represents the construction of this port economic leap forward that contains most of the problems facing the effects of the country (Figure 8). Confirmed the General Company for Iraqi ports economic importance of the dry canal project to achieve financial returns estimated at tens of millions of dollars, describing the project, if implemented, that will change the global economic map and reduce the role of the Suez Canal and Gulf ports, marine and achieve huge financial returns[13].

The Al-Faw Grand port, to be built on the Gulf south of the city of Basra, would enable the world's biggest ships to dock in Iraq with capacity of 99 million t/y, as it will have a depth of 17 meters (55 feet). Goods, once unloaded at the new port, would then be loaded onto the new railway system, Highways and reach Europe overland more quickly than ships might reach Egypt's Suez Canal, which connects the Mediterranean to the Red Sea. The construction of the new port, and the expansion of the country's existing 2,000 km (1,200 miles) of railway, is part of a drive to modernize public infrastructure and kick-start Iraq's economy now that major new oil contracts have been signed. "This port will be considered the 10th most important in the world because it will connect the Gulf with northern Europe", Transport Minister Amer Abdul-Jabbar told Reuters on Sunday [19]. In April 2012, Iraq laid the foundation stone for the Al-Faw Port project in the Al-Faw peninsula in southern Basra on the Gulf, 535 kilometers (335 miles) south of Baghdad [15][24]. The project has an estimated cost of 4.6 billion euros (\$6.1 billion), and the port's annual handling capacity is predicted to be around 99 million tons. This would make it one of the largest ports in the Arabian Gulf region. Yet construction on the project has stalled and little progress has been made.

The Greek Construction Company (Archirodon) was awarded the contract to build the port's eastern breakwater [17] [20]. It will include 7,000 meters (23,000 feet) of dock ready to receive container ships. The dock for general cargo would be 3,500 meters (11,500 feet) [19]. The construction of the Al-Faw Grand Port is expected to include building more than 10,500 meters of berths and a one million square meter container yard, as well as a 600,000 square meters multipurpose yard, in addition, a 2.4 kilometers, 400 meter wide channel will be dredged to connect the port with the open sea [14][17] (Figure 8).

The depth of the quays (-17.5 m) will allow the operation of the new generation of container ships. The special quays will be 7,000m long (about 20 berths). The specialist quays for moving dry bulk will be 3,500m long (about 12 berths). A dredged channel 400m wide and 24km long will connect the new port to the deep water; dredged volumes will be approximately 60,000,000m³ for the navigation channel and 82,000,000m³ for the port basins, protected by rubble mound breakwaters approximately 15km long. The project includes 2,000,000m² of yard for terminal container stacking, 600,000m² for dry bulk yards and 1,000,000m² of land yard for buildings and warehouses 200,000m³ of silos for wheat [15][17]. As part of the port development a rubble mound breakwater approximately 15km long is being constructed [12].

3.2.2 The Dry canal-Routes

Entirely, the Dry Canal project suggested routes can be divided into Railways routes and Highways routes:

3.2.2.1 Railways-Routes

Iraq is planning to invest heavily in improving its transport and logistics infrastructure, with rail at the heart of its plans. It is planning \$60bn-worth of railway projects that will connect the Gulf to Europe through Syria and Turkey, in addition to \$10bn of port projects linking the country's shipping and rail systems. Iraq believes it has the potential to become a formidable trade and trans-shipment hub. Iraq is also seeking investors to build 8,000 km (4,970 miles) of new rail lines, including a \$3 billion railway network around Baghdad city [18].

In the next years, more than \$5 billion is expected to be spent on roads, expressways and bridges, airports and seaports will be renovated and others must be build, 2,000 kilometers of rail track will be established, other experts in the domain of transportation and trade says; it is very hard to replace maritime transportation with air or rail. For bulk goods such as general cargo, it is always better to use ships. But for smaller items, maybe diamonds and precious stones then yes, rail and trucks are very good [19][20].

While rail may be faster, sea transport is cheaper on a per tons-mile basis, and the region's seaports are likely to be built long before the railways are completed. Once the rail network is complete, Iraq will play a leading role in the ship-rail trade route from the Far East to Europe, but it will be many years before it can replace the Suez Canal for bulk trade. So, Railways and ports schemes planned in Iraq could change the shape of regional trade.

In 2020, the pre-eminent status of the Suez Canal, the region's busiest trade route, could be challenged by a series of regional railways linking the Gulf to Europe through ancient trade routes through Iraq and the Levant. The Railway future Projects in Iraq is full, it can be shown clearly in the Iraqi Republic Railways Company (IRR) future plans schedule [19] [20] (Figure 9) (Table 1). The Baghdad - Mosul line is almost ready for passenger services to resume. Transport Minister Abdul Jabbar Ismail said that he hoped to extend the existing network of 2,000 kilometers (1,200 mi) to between 4,000 kilometers (2,500 mi) and 5,000 kilometers (3,100 mi) but that there were obstacles such as budget restraints and contract approvals. CSR Sifang Co Ltd. has supplied 10 new 160 km/h trains in 2014 [18] [19] [20], and also as following:

• From its part, also the Syrian Railways had been extending a rail route from Deir El-Zor city in Syria Junction towards the modern Husaibah city branch terminus on the Iraqi side of the border, which was built as a through station. The route follows the Euphrates river valley, and this route will be completed to within 30 kilometers (19 mi) of the border with Iraq, but requiring a major bridge across the river, this route would be more direct than the existing one via the border station at Tall Kushik region in Iraq [19]

• Iraq-Jordan Direct Railway Link; In August 2011, Jordanian government approved the construction of the railway from Aqaba city on the red sea to the Iraqi border. The Iraqis in the meantime started the construction of the line from the border to their current railhead at Ramadi city [20] (Table 1).

• High-speed Baghdad-Basra line; A 650 km, 250 km/h line between Baghdad and Basra is at the planning stage, with the Iraqi Railways and Alstom in discussions, with a decision expected in 2012. Although not true high-speed rail, new train sets for use on the Baghdad-Basra route were unveiled in China in February 2014 before being shipped to Iraq [20] (Table 1).

Location of a trans-shipment hub in the north Gulf seems less competitive as compared to the south Gulf. It is also unlikely that the rail link between Europe and Iraq would be able to attract traffic volumes to the scale required to make a trans-shipment project viable. (Figure 8) (Table 1).

3.2.2.2 Highways –Routes

Iraq Big programmed projects for putting the Dry Canal in use, will enhance transport industry in general and underpin the Iraqi economy amid tumbledown transport system in Iraq and bad-maintained international routes that link Iraq with neighboring countries. On paper, Iraq has an extensive network of roads, consisting of 1,200 kilometers of motorways, 11,000 kilometers of arterial roads, 10,000 kilometers of rural roads, 11,000 kilometers of border roads and 15,200 kilometers of secondary roads.

However, many of the roads and bridges were constructed in the late 1970s and early 1980s with an estimated 20 year life span. Many of them are now in disrepair and new ones have to be built with major routes having to be upgraded or started a new. For example, the Baghdad to Turkey Expressway Two is now going ahead with Danish consultant COWI preparing initial designs. Discussions have reportedly been held with China's Poly Technologies to build the highway, estimated to cost \$4 billion. When it is built it will link with one going south to Basra, offering a seamless express land route between the Gulf and Turkish border for the first time [17] (Figure 10).

Iraqi infrastructure needs revamping and maintenance after years of war, and others must be established. Thus, Iraq has two major phases of extending and developing his main highways, Actually, Iraq has completed the \$3 billion first phase of the dry canal project to transport commodities from Al-Faw Grand port in Basra city to other countries, as following;

The two-phase project is estimated to cost a total of USD 7 billion. The canal will link between the Basra city to the Gulf via a highway running through Khan Al Khalil in Turkey.

• The Iraqi government is now considering adding a third phase at a cost of USD 1 billion to link Mosul in northern Iraq and Syria.

• The USD 3 billion first phase, which extends from Basra to Baghdad, uses three transfer highways and a total distance of 550 km.

• The USD 4 billion second phase is expected to kick off after nine months following the finalization of the design.

• The second phase is forecasted to be complete by 2016 [15].

The project will enhance transport industry in general and underpin the Iraqi economy amid tumbledown transport system in Iraq and bad-maintained international routes that link Iraq with neighboring countries. By following the map (Figures 9,10) the cities that the Dry canal Highways routes should be going through are depended on the location regarding to the capital location (Baghdad City) which is located in the middle of the country, and it is considered as an central station arrived essential link between the dry canal paths, and as the following:

• Southern path; Starting from the Al-Faw Grand port in Basra city on the Gulf in the South - Nasiriya city- Diwaniyah city- then Baghdad city.

• Western path; Starting from Baghdad city - Al Ramadi city- Rutbah city, then, and in this main point , the route is divided in two segments :

A. Toward the borders with Syria.

B. Toward the borders with Jordan.

• Northern path; Starting from Baghdad city - Samarra city- Tikrit city- Mosul city-Dahuk city-

4. Comparison Sections

Urbanization has been one of the dominant contemporary processes as a growing share of the global population lives in cities. Considering this trend, urban transportation issues are of foremost importance to support the passengers and freight mobility requirements of large urban agglomerations. Transportation in urban areas is

highly complex because of the modes involved, the multitude of origins and destinations, and the amount and variety of traffic. Traditionally, the focus of urban transportation has been on passengers as cities were viewed as locations of utmost human interactions with intricate traffic patterns linked to commuting, commercial transactions and leisure/cultural activities. However, cities are also locations of production, consumption and distribution, activities linked to movements of freight. Conceptually, the urban transport system is intricately linked with urban form and spatial structure. Urban transit is an important dimension of mobility, notably in high density areas.

Transportation is an infrastructure intensive activity, implying that engineering has been the dominant methodological paradigm for transportation studies [21]. In order to carry out the comparison in a uniform way, we have defined a comparison framework based on following domains:

4.1 Economical Contribution

Since transportation is such an important component of contemporary society, capable of producing significant benefits, yet giving rise to many negative externalities, appropriate policies need to be devised to maximize the benefits and minimize the inconveniences. At the same time the allocation, design and construction of transport infrastructure and services must be subject to careful planning, both by public and private agencies. A distinction must be drawn between policies and planning, since the former usually relates the strategies and goals while the latter refers to concrete actions. Because they both have to reflect the fundamental changes in society and contemporary issues and problems, policies and planning are constantly changing. For instance, the changing orientation of public policy led to deregulation in many transport sectors. Among the core policy issues, transport safety and security have come at the forefront. Natural and man-made disasters are also serious challenges for transport planning [21].

From a perspective of ecological civilization construction, regional economic development and macroeconomic coordination, it suggested that; the Grand Canal project is a successful example in developing wetlands and lakes in the great plains of eastern China. It is still a main route for transportation between the north and the south [3] [4]. The Grand Canal runs through nearly 6 provinces, 2 municipalities and 33 cities in eastern China, of which 18 are famous historical and cultural cities [4][6].

It is the main water line for transportation in ancient time, a landmark project in the era of national farming civilization, a political, economic and cultural artery that guaranteed North-South reunification since Sui and Tang dynasties, a main artery of China's historical development and a symbol of great ecological civilization in China. It is stretching from Hangzhou in the south to Beijing in the North, and connects five major water systems, including the Yangtze and the Yellow River [4] [7] (Figure 12).

As a whole, The Canal was built, section by section, in different areas and under different dynasties, started form 5th century B.C. and complete by the year 1327, and it was the main transportation route, linking the nation's capital city in the fertile northern region to its most affluent territory in the southern region, promoting economic and cultural exchanges and strengthening the unification of the country, played a significant role in the history of China [3]. After 2,500 years of hard work, the Grad Canal has become a great water transportation system in China, at present; about 900 km are still at service [7]. The construction of the Grand Canal reduced substantially the transport cost between central and northern China. However, we must not exaggerate its effect on transport improvement [5].

- Scholars, Wu Chengming (Chinese Author) for instance, have stressed the importance of the construction of the Grand Canal to the development of long-distance trade between northern and central China in late imperial China [9].

- Although G. William Skinner (Anthropologist) suggests the prevalence of macro-regional economic independence in the nineteenth century, he agrees that the "great sideways T", which was composed of the Yangzi River and the Grand Canal, succeeded in reducing the transport cost between the North and the South of China [9].

In 1934 ship locks were added to allow larger steamers to use the canal and, after the foundation of the People's Republic of China, a full-scale restoration project was begun to turn the canal into a major modern transport link. Today, with the ecological and economic costs of road and rail transport increasing, the Grand Canal is coming back into its own. Its ancient course continues to be dredged and straightened, while a scheme to improve water quality has made its historic banks the home to some of the most expensive apartments in the country [10]. More than 300 million tons of cargos are handled every year [4], inclusive, more than (735,165,000) tons of grain was shipped every year along the waterway. Since then the fortunes of the Canal have swung violently, but, in the 12th century large areas around it were deliberately flooded to hold back invaders, rendering the waterway useless, and in 1195 the meandering Yellow River changed its course disconnecting the canal from one of its major arteries. But the Grand Canal was not yet dead in the water [9].

Comparatively, The Dry Canal is waited to be accomplished in Iraq "A country endowed with enormous resources and the second-largest oil reserves in the world and two of largest rivers", is anticipated to

regain economic vitality [12]. The geopolitical position as a bridge between East and West made the dry canal project beginning to reshape the world economy, not local or regional level only, but universal. Adding that the project reduced thousands of miles sea plus land, and about 20-25 day interrupted by ships and vessels in the Arab and the Red Sea to cross the Suez Canal to Europe for unloading and cargo, as well as the expenses are estimated at tens of millions of dollars provided by States and shipping companies and global trade will contribute to enhancing the national economy [12] [13].

Cargo coming up through the Gulf will be loaded onto trains at Iraq's ports at Al-Faw Grand port on the Al-Faw peninsula, and will then travel through the country to Turkey and onto Europe. This will give shippers an alternative to the traditional but longer route around the Arabian Peninsula and up through Egypt's Suez Canal, a journey that currently takes about 10 days. For their part, Iraqi officials said; the project is one of the important projects and ambitious to develop trade and transport in Iraq and will be beneficial for Iraq's and international trade, he pointed out that the vessels coming from Australia and East Asia and Europe will share loading and unloading of goods transported by railway or a fleet of the trucks and trains from Iraq to Turkey, Syria and Jordan, and vice versa [13].

Subsequently, the established of the Dry Canal in Iraq represent; a new market-oriented business environment is emerging with promising investment opportunities, as private enterprise is expected to lead the economic recovery. Most business leaders in Iraq have a positive outlook on the future and welcome opening Iraq to the international business community. It was pointed out that the dry channel is an Iraqi advantage of limiting the distance travelled by both ports of Iraq to the Turkish, Syrian, Jordanian or roads connecting to the Eastern and Northern Europe and Central Asia, apart from all the neighboring countries which were far from the points of convergence with the West several times this distance, calling on them to take advantage of this project and contribute to the benefit of it [12] [13].

4.2 Functional View

Transportation modes are an essential component of transport function systems since they are the means by which mobility is supported. Experts consider a wide range of modes that may be grouped into three broad categories based on the medium they exploit: land, water and air. Each mode has its own requirements and features, and is adapted to serve the specific demands of freight and passenger traffic. This gives rise to marked differences in the ways the modes are deployed and utilized in different parts of the world. More recently, there is a trend towards integrating the modes through intermodality and linking the modes ever more closely into production and distribution activities. At the same time, however, passenger and freight activity is becoming increasingly separated across most modes [21].

The origins of the Grand Canal lie deep in antiquity and stem from the country's very particular geography. China's great rivers flow from west to east, but resources need to flow from south to north as the southern grain belt feeds the north [9]. The Grand Canal, as a main transportation route from Beijing to Hangzhou, linking the nation's capital city in the fertile northern region to its most affluent territory in the southern region, promoting economic and cultural exchanges and strengthening the unification of the country played a significant role in the history of China [5][7]. The reason for building the costly Grand Canal was administrative, because of the dry weather, the Plain was unable to produce sufficient grain to support the bureaucracy that was centered at Beijing and an army that was not only stationed at the capital but also spread out over the northern border regions in Ancient China.

This endemic shortage of grain was occasionally aggravated by famine caused by flood and drought. One of the major causes of these natural disasters was the silty nature of loess, found widely distributed over the North Plain [9]. As a supplement to the local grain supply in the capital, a continuous transport of tax grain from the provinces, especially the agriculturally productive lower Yangzi, was necessary in the Yuan period [8] (Figure 14). Now by 735, 165,000 tons of grain was shipped every year along the waterway. Since then the fortunes of the Canal have swung violently. In the 12th century large areas around it were deliberately flooded to hold back invaders, rendering the waterway useless, and in 1195 the meandering Yellow River changed its course disconnecting the canal from one of its major arteries. But the Grand Canal was not yet dead in the water [7]. In 1934 ship locks were added to allow larger steamers to use the canal and, after the foundation of the People's Republic of China, a full-scale restoration project was begun to turn the canal into a major modern transport link, today, with the ecological and economic costs of road and rail transport increasing, the Grand Canal is coming back into its own. Its ancient course continues to be dredged and straightened, while a scheme to improve water quality has made its historic banks the home to some of the most expensive apartments in the country [9].

Alternatively, some other specialists and experts averred that; "The dry canal project will shorten commodity transport from Al-Faw Grand port, through Suez Canal, to Europe to 10 days from the current 30 days", the project will enhance transport industry in general and underpin the Iraqi economy amid tumbledown transport system in Iraq and bad-maintained international routes that link Iraq with neighboring countries [13].

Linking the economies of the world and pointed out that the port of Al-Faw is of economic benefit too large for all countries in the region for its services model to do and the reality of work in all ports, especially after the rise in world crude prices and its impact on the prices of international transport, which will make the World Trade heading towards the nearest and least costly way this is to not be only through the port of Al-Faw and across the territory of Iraq towards Turkey and the Syrian ports, adding that South East Asia, China and the countries of Eastern Asia regions are blocks of significant economic world and has become many countries of the world on the opposite side will depend on what is made in these countries, thus, the world is experiencing rapid commercial movement is willing to pass through Iraq [22].

Furthermore, commercials increased; that the country needs to create a dry canal, by linking the ports of Iraq to neighboring countries, which requires quick access to advanced, where the need for railway new and fast implementation and a world-class able to transfer large quantities of global goods between the poles of the world, in addition to extending highways international contains all the services, carried out by international companies, stressing that these methods will create cities and many stations on both sides of the roads that are centers of significant commercial offer excellent services to the expatriates of the country and who intend to Iraqi ports[11]. Finally, It is important to pointed out that the Dry canal is an Iraqi advantage of limiting the distance travelled by both ports of Iraq to the Turkish, Syrian, Jordanian or roads connecting to the Eastern and Northern Europe and Central Asia, apart from all the neighboring countries which were far from the points of convergence with the West several times this distance, calling on them to take advantage of this project and contribute to the benefit of it.

4.3 Historical Vision

Historically, transport systems are closely related to socio-economic changes. The mobility of people and freight and levels of territorial accessibility are at the core of this relationship. Economic opportunities are likely to arise where transportation infrastructures are able to answer mobility needs and insure access to markets and resources. From the industrial revolution in the 19th century to globalization and economic integration processes of the late 20th and early 21st centuries, regions of the world have been affected differently by economic development. International, regional and local transportation systems alike have become fundamental components of economic activities.

A growing share of the wealth is thus linked to trade and distribution. However, even if transportation has positive impacts on socio-economic systems, there are also negative consequences such as congestion, accidents and mobility gaps. Transportation is also a commercial activity derived from operational attributes such as transportation costs, capacity, efficiency, reliability and speed. Transportation systems are evolving within a complex set of relationships between transport supply, mainly the operational capacity of the network, and transport demand, the mobility requirements of an economy [21].

As a major transportation hinge in past dynasties, the Grand Canal interconnected the Yangtze, Yellow, Huaihe, Haihe, and Qiantang Rivers and flowed through Beijing, Tianjin, Hebei, Shandong, Jiangsu and Zhejiang with Hangzhou at its southernmost end. The Grand Canal, which joined the river systems from different directions, offered much facility to transport foods and goods from south to north in past times. Just as importantly, it greatly improved the administration and defense of China as a whole and strengthened economic and cultural intercourse between north and south [7].

This great ancient engineering project which is still in use today, it's not that poster child of Chinese engineering, the Great Wall, but it's far less well known, yet arguably more important cousin, the Grand Canal. With a profound unique history, culture and folk customers associated with the canal's evolution, formed. Along the canal, there are countless magnificent cultural relics, and the canal has been hailed as "a long corridor of ancient culture", and "a show room of folk customs" [3]. No other culture heritage in the world can compare with them in the length, size, history, function and influence, thus, in the year of 2006, State Administration of Cultural Heritage added the Grand Canal of China on the list of heritages to apply for World Cultural Heritage to UNESCO [3] [5](Figure 13).

Several research projects are carried out to strengthen the preservation of the canal. It is an astonishingly huge project in the history of Chinese civilization, and it has been hailed as "a long corridor of ancient culture" and "a show room of folk customs" [2] [4]. Using perhaps six million conscripted labourers, a thousand kilometers of new canal and canalized river was constructed. The technological achievement was astounding, creating a flat, navigable waterway, in places over 100m wide, across mountain and plain. Twenty-four 'flash' locks, consisting of a single gate made of wooden boards which could be removed, enabled vessels to shoot down the incline on the flash flood of water released. For barges travelling upstream the gate would be removed and the barge towed or winched through [7].

The vast expenditure on the Grand Canal (and rebuilding the Great Wall and many palaces) didn't endear the Sui to its people and the dynasty collapsed in 619. This was splendid news for the succeeding Tang dynasty that couldn't be blamed for the cost but benefited from the revenues of the new canal [8]. In the

eighteenth century, canal transportation was still risky and awkward. Qingkou, where the Huai, the Canal and the Yellow River met, was extremely hazardous. In this light, what made the Grand Canal the major long-distance trade route in the eighteenth century was not convenience (relative, for instance, to coastal shipping). Perhaps we should draw our attention to other factors that encouraged merchants to transport their goods by the Canal [7] [9]. The Grand Canal contributed greatly to ensure that the Chinese primary economy thrived in past dynasties, and the new mission assigned by the current epoch is diversion of the South to the North. Until now, and after thousands of years old, some parts of the canal are still in use, especially in the south section of the Canal. Cultural resources along the North-South Grand Canal were abundant, but most of them were ruined. Substantial efforts need to be made to preserve them [2] [4] (Figure 13, 14).

Whereas, this Iraqi idea is not a new one; 2,000 years ago Alexander the Great established the Silk Road, a network of trade routes that connected Asia with the Middle East, Mediterranean and Europe. Historically, this area is considered by many scholars to be the cradle of humanity. Ancient Mesopotamian civilizations, such as the Sumerians and Babylonians, contributed cultural elements that are still important to us thousands of years later. Over time, the area was conquered time and time again, producing diverse cultural patterns [20]. In 1930 near the towns of Kirkuk city, 200 miles (322 km) north of the site of Babylon in Hila city southern of the capital Baghdad city, a clay tablet considered as "the earliest known map" in the country was unearthed [11]. The tablet, measuring 6.8 in × 7.6 in (173 mm × 193 mm), is usually dated from the dynasty of Sargon of Akkad between 2500-2300 BC; an even earlier date for the tablet was promulgated by the archaeologist "Leo Bagrow : Historian of Cartography and Founder of Imago Mundi, 1881-1957" placing it in the Agade Period (3800 BC) [13]. Since Sumerian times (7500 years ago) the land between the Tigris and Euphrates has been irrigated by the water from these rivers, in fact, trade and commerce developed in Mesopotamia because the farmers learned how to irrigate their land, they could grow more food than they could eat, and they used the surplus to trade for goods and services [11]. For all intents and purposes, Iraq holds a special distinction in the history of geography and viewing in different periods that the ancient Mesopotamia was a region which did not have many natural resources, therefore, the people who lived there needed to trade with neighboring countries in order to acquire the resources they needed to live.

Currently, Iraq is planning to revive part of the old traditional routes to provide an overland trade corridor between Europe and Asia. The Dry Canal equally; its wide-ranging primary forms should be extended through its most important archaeological regions in Iraq.

5. Discussions & Conclusions

Findings

We began by analyzing three different major domains that described the both two projects;

1) Economical, 2) Functional; and 3) Historical general features. In comparing the both projects, we asked the following question; how does the Dry Canal future project compare to the existing Grand Canal each in its major shape?

2)

Discussions

Transportation systems are linked with a wide range of environmental considerations at all geographical scales, from the global to the local. The nature of these environmental impacts is related to the transport modes themselves, their energy supply systems, their emissions and the infrastructures over which they operate. While consuming large quantities of energy, especially oil, vehicles also emits numerous pollutants such as carbon dioxide, nitrogen oxide and noise and transport infrastructures have damaged many ecological systems. Several of the environmental impacts of transport systems have been externalized, implying that the benefits of mobility are realized by a few while the costs are assumed by the whole society. The spatial structure of economics activities, notably their land use, is also increasingly linked with environmental impacts. The sustainability of transport systems has become one core issue in the provision of mobility [21].

Thus, this study was set out to compare the Dry Canal future project in Iraq with the existing Grand Canal in China; in terms of Economical, Functional, and Historical sides. The results presented reveal some specific and underlying significant similarities and differences, as reflected in the top-tier. The results of the comparison have shown that:

- The historical backgrounds are divergent, this difference is totally attributed to the actual time needed for each project in the two countries, for the reason that, the Grand Canal goes through more than 2400 years, since Chinese spring and autumn period. Conversely, the Dry Canal it was such an old idea, and still in the stage of planning and establishment. Anyway these historical legacies shaped both the politics and economics of the two countries.

- The Dry Canal-Iraq is a main internal and international transporting route. In contrast, the Grand Canal is playing an equally active role in contributing to promote the main internal transporting. In Otherwise, The Dry Canal is an additional force to several kinds of transportation, such like Expressways, Railways,

Airways and Rivers (Tigris and Euphrates) in Iraq, nevertheless compared to its counterpart, the Grand Canal gives the impression to be open to a broader range of a great internal waterway.

- While both projects seem to be shared in issues concerning transporting and trading, Dry Canal seem to be more interested in shipment and transporting time's schedule of goods issues than the Grand Canal, the period of freight's movement have a greater influence on the economic feasibility of each project.

- In other hand, The build's reason of these two projects is similar, this is reflected in the focus on economical and administrative areas, the both projects appears to be more concerned with micro and focal issues, such as development the transporting process.

- By the nature of each project, we can see that both of them shared the characteristic of creation in serial and in segments, this finding is aligned with results from this paper's previous precedent analyses.

- Both projects are shared the same purpose (Transportation), which is regarded as the major function according to traditional history of the Grand Canal, as well as in the Dry canal modern case.

- The mode of shipping and transporting is various, this difference could be due to the nature of each Canal, while the Dry canal have diverse modes for shipment, not like the Grand Canal, which goods and commodities could be shipped only by vessels. These two projects are naturally tending towards reducing the transport cost and time, despite the variation in the speed of transport and delivery of goods.

- The results indicate also that the two projects are promoted and spread the frequently enhancing of the opportunities of trading and transporting. Although the variant modes of transporting, both of the projects have possibility of freight different qualitative merchandises.

- We need to bear in mind that the both canals are not so far from each other in emerging of a long-distance transporting and trading. While the transporting by Grand Canal meets some hindrances, such like dams and locks, Other than that, the Dry Canal Is an open way from the point of entry of goods to arrive.

- All the researches and sources indicate that these projects make active contribution in promoting and strengthen the national economy.

- The pattern described above, showing that the each project's route snakes over only one single country (the motherland). And also, both of them are routing through variants terrains and topographies.

- Both canals are works together for construct the concept of increasing a link between several regions and cities they going through in each country. They developing the urban centers and regions they are stretching through.

- The both projects are passing in numerous archeological areas. Contribute to levitation of the tourism's level mode. So that they raising the cultural exchange.

- These two huge projects need large wide requirements of control, administration and maintenance. In the final, it is necessary to confirm that the Dry canal- Iraq and the Grand canal-China are contributing to further the national unit as well.

Conclusions

Globalization, trade and freight transportation are interrelated and concern a mobility scale that spans nations and often continents. This transnational mobility is subject to many geopolitical considerations such a control trade routes and what forms of competition and cooperation has emerged with expanded trade relations. Processes related to economic integration, the fragmentation of production systems due to outsourcing and offshoring are interdependent and have favored to setting of global commodity chains, from the extraction of raw materials, manufacturing, to final consumption. This requires an understanding of logistics and the growing level of integration between production, distribution and consumption [21].

In conclusion "The future of transportation in Iraq will grow significantly across the dry canal that will be the major means of transportation in the Middle East;" noting that "Iraq will be one of the most important countries in the region advanced in the transport being used by investment and future planning for these projects." The dry canal connects the highways and railway between Europe and East Asia; expectation to be the biggest transfer channel in the world.

Thus, this study represents an initial effort in the direction of wide-ranging searching and comparing between the Dry Canal project-Iraq and the Grand Canal project-China and through a review of the foregoing general descriptions, diverse similarities and differences can be identified, and as a result of the above, it can be clearly realized that both projects are sharing the following main subsequent points;

General Differences:

- 1) Historical backgrounds obviously are not similar.
- 2) The institution of each project, have a divergent objective.
- 3) The nature of the general configuration of the projects; is dissimilar.
- 4) Goods and commodities shipment modes are not equivalents.
- 5) The freight's speeds taken to deliver the commodities are different.

General Similarities:

- 1) The build's reason of the two projects is economic-administrative.
- 2) The creation of each project is serially and in segments.
- 3) Transportation is the same major function.
- 4) Reducing the transport cost and time.
- 5) Emerging of a long-distance trade.
- 6) Increasing the opportunities of trading.
- 7) Possibility of freight a variant merchandises.
- 8) The nature of the constraints and barriers to the movement of goods.
- 9) Snakes over one single country (The motherland).
- 10) Promoting the national economy.
- 11) Linking several regions and cities.
- 12) Raising the cultural exchange.
- 13) Developing the urban centers they stretching through.
- 14) Passing in numerous archeological areas.
- 15) Routing through variants terrains and topographies.
- 16) Levitation of the tourism's level mode.
- 17) Large requirements of control, administration and maintenance.
- 18) Furthered the national unit.

Transportation is not a science, but a field of inquiry and application. As such, it tends to rely on a set of specific methodologies since transportation is a performance driven activity and this performance can be measured and compared. Transportation planning and analysis are interdisciplinary by nature, involving among others, civil engineers, economists, urban planners and geographers. Each discipline has developed methodologies dealing with their respective array of problems. Still, transportation is an infrastructure intensive activity, implying that engineering has been the dominant methodological paradigm for transportation studies [21].

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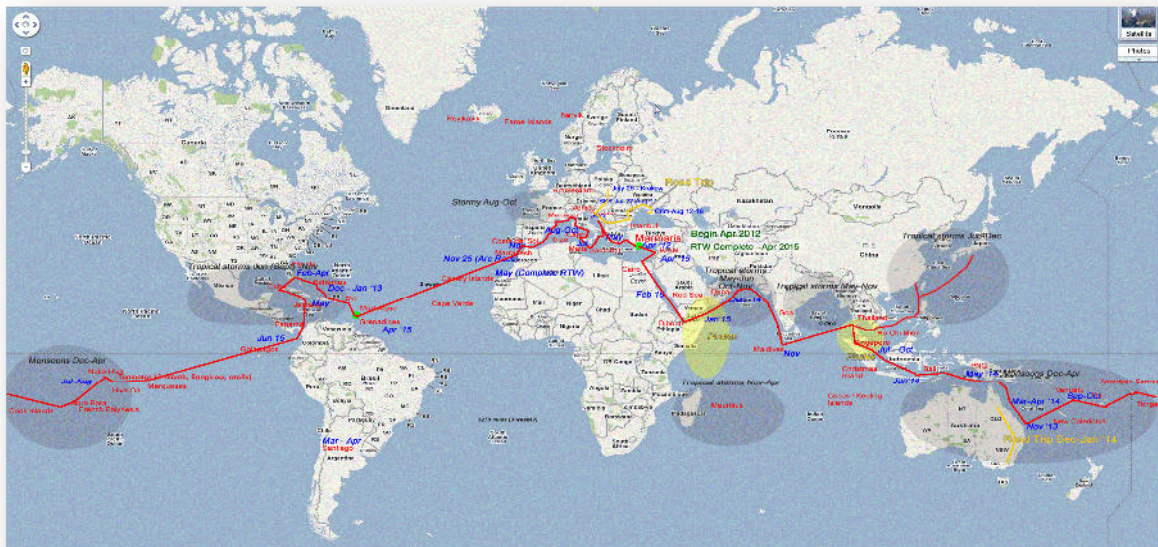
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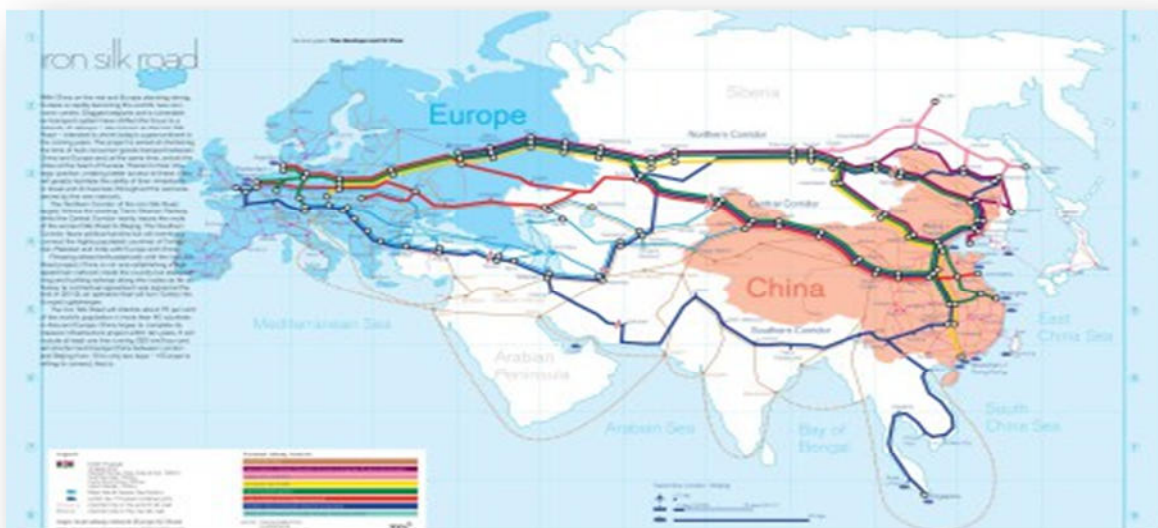
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Figures & Tables



(Figure 1) Major Trade Sea Route Map



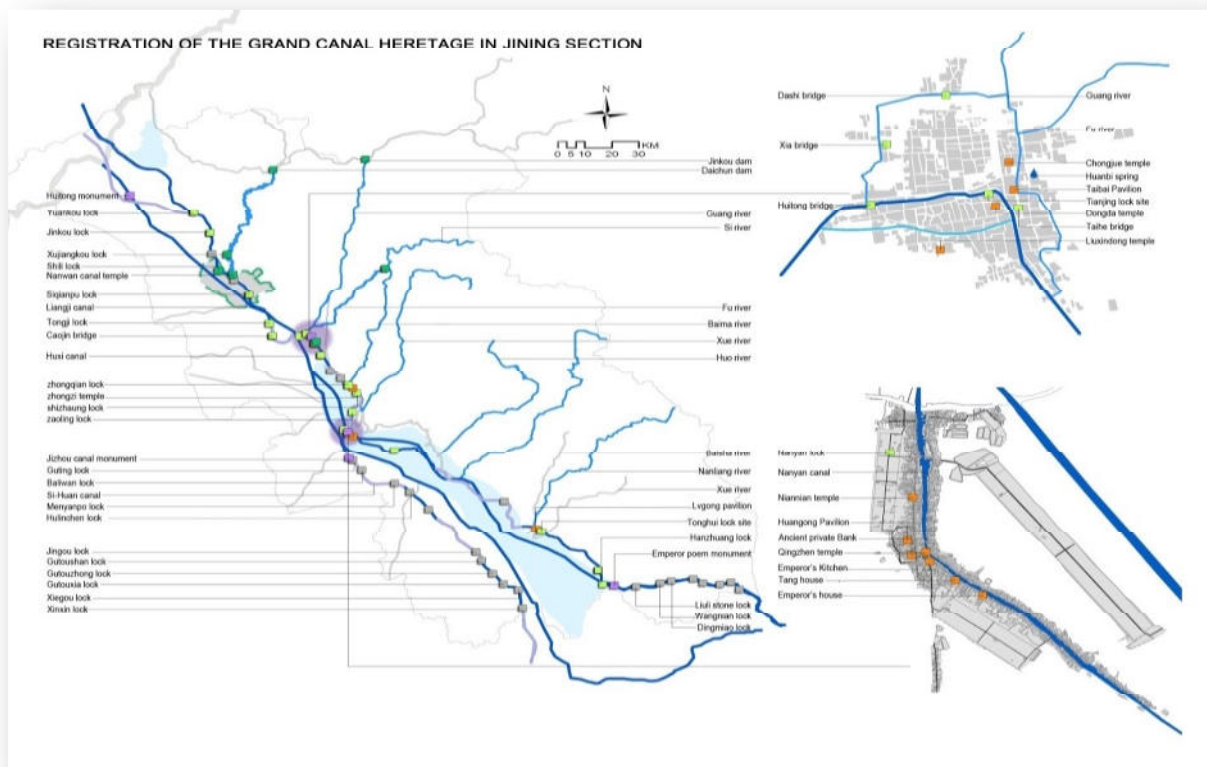
(Figure 2) The "One Belt One Road" project



(Figure 3) China's Geographical Position



(Figure 4) Iraq's Geographical Position



(Figure 5) The Jining to Hangzhou part of the canal Grand Canal routes – China



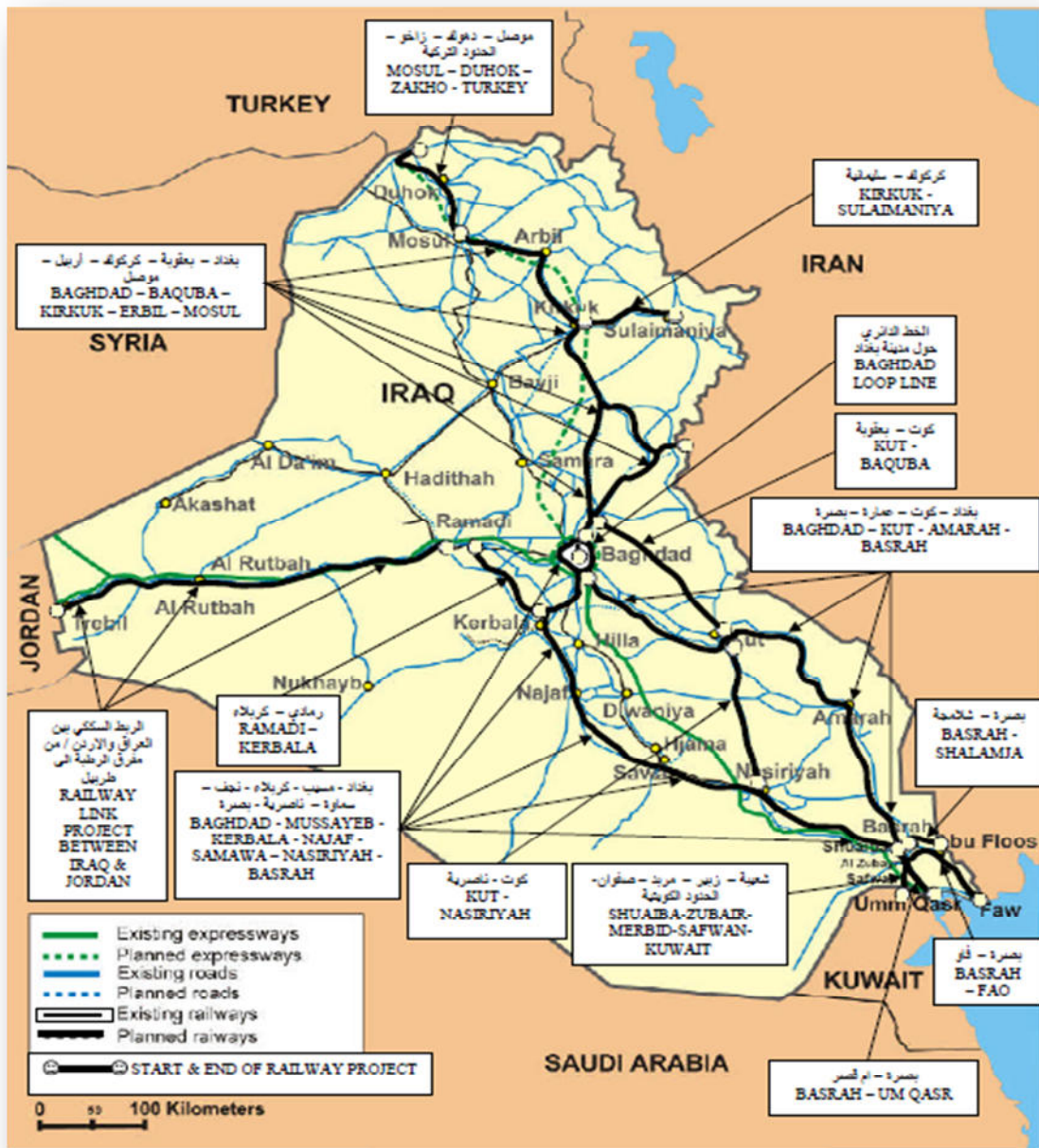
(Figure 6) Grand Canal Route map



(Figure 7) The Canaf of Suez



(Figure 8) Al-Faw Grand Iraqi Port



(Figure 9) Highways & Railway Projects in IRAQ

Items	Project Name	Project Stage	Length (km)	Nr. Tracks	Signal-ling	Max speed (km/h)		Annual Volume (million)		Project Cost in (US\$ million)			Implementati-on time (Nr. Years)
						Passenger	Freight	Passenger	Freight (tonne)	Acquisition	Implement-ation	Sum	
1	Baghdad - Mussayeb - Karbala - Najaf - Samawa - Naserya - Basrah	Detailed design prepared in 2008/9 by Italferr, for part of alignment.	600	2	ERTMS/ Level2	250	140	10	30	1000	9000	10000	9
2	Baghdad Loop Line	Detailed design prepared in 1982/3 by So-tachni	140	2	ERTMS/ Level2	200	140	23	46	429	2000	2429	5
3	Baghdad - Baquba - Kirkuk - Erbil - Mosul	Detailed design prepared in 1982/3 by Sofrerail and now being updated by CZ Corp.	555	2	ERTMS/ Level2	250	140	6	20	1674	7000	8674	7
4	Baghdad - Kut - Amara - Basrah	Detailed design prepared in 1982/3 by Henderson Hughes & Busby	504	2	ERTMS/ Level2	250	140	9	20	1512	6100	7612	7
5	Kut - Naserya	Detailed design prepared in 1982/3 by Henderson Hughes & Busby	173	2	ERTMS/ Level2	250	140	3	10	520	2090	2610	3
6	Mosul - Duhok - Zakho (Turkey)	Detailed design prepared in 1982/3 by Henderson Hughes & Busby and now being updated by IKP & CZ Corp.	167	2	ERTMS/ Level2	200	140	1	55	450	2157	2607	3
7	Basrah - Faw	Preliminary design prepared in 2003 by Henderson Hughes & Busby and updated in 2011 by Dorsch Consult	101	2	ERTMS/ Level1/2	140	100	1	70	299	1410	1709	3
8	Kirkuk - Sulaimaniyah	Detailed design prepared in 2011 by Muszer Automatika	118	1 ¹⁾	ERTMS/ Level2	200	140	1.25	6	350	2928	3278	5.5
9	Ramadi - Karbala	Updated detailed design by Dorsch Consult in 2011	133	2	ERTMS/ Level2	250	140	3	36	390	1500	1890	3
10	Kut - Baquba	Detailed design. Documents are required	250	2	ERTMS/ Level2	250	140	6	20	750	3000	3750	4
11	Ramadi - Trabil (Jordan)	Preliminary design prepared in 2010 by Dorsch Consult	400	1 ¹⁾	ERTMS/ Level1&2	250	120	2.5	12	50	3000	3050	5
12	Basrah - Shalamja (Iran)	Preliminary design prepared in 2004/5 by the State Company for Iraq Railway	35	2	ERTMS/ Level1	120	80	2	10	135	500	635	3
13	Shuaba - Zubair - Merbid - Safwan (Kuwait)	Detailed design prepared in 2006 by Italferr.	52	2	ERTMS/ Level2	250	140	2	20	150	500	650	3

1¹⁾: Single capable to be double in future -- Max. load per axel = 25 tones -- Track Gauge = 1435 mm

(Table 1) Future Railway Projects in Iraq / Iraqi Republic Railways Company (IRR)



(Figure 10) Dry Canal planned highways routes – Iraq



(Figure 11) Recently Modular Transportation in Grand Canal-China



(Figure 12) Transportation in Grand Canal



(Figure 13) Grand Canal-China Panoramic View



(Figure 14) Grand Canal-China in Ancient Ages



(Figure 15) Main Silk Route in Ancient Ages